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 9/10/13
INITIAL/DATE

COMMENTS:

SDG J01928 SAF-RC-238

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location: 100-K-64 – Statistical Samples (64-1 thru 64-12)

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 61 *Pages*

Report No.: 56825

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.
J01928	RC-238	J1RP07	J3H210432-1	M1PA61AG	9M1PA610	3234034
		J1RP07	J3H210432-1	M1PA61AC	9M1PA610	3234035
		J1RP07	J3H210432-1	M1PA61AH	9M1PA610	3234038
		J1RP07	J3H210432-1	M1PA61AF	9M1PA610	3234039
		J1RP07	J3H210432-1	M1PA61AD	9M1PA610	3234040
		J1RP07	J3H210432-1	M1PA61AE	9M1PA610	3234041
		J1RP07	J3H210432-1	M1PA61AA	9M1PA610	3234047
		J1RP08	J3H210432-2	M1PA91AG	9M1PA910	3234034
		J1RP08	J3H210432-2	M1PA91AC	9M1PA910	3234035
		J1RP08	J3H210432-2	M1PA91AH	9M1PA910	3234038
		J1RP08	J3H210432-2	M1PA91AF	9M1PA910	3234039
		J1RP08	J3H210432-2	M1PA91AD	9M1PA910	3234040
		J1RP08	J3H210432-2	M1PA91AE	9M1PA910	3234041
		J1RP08	J3H210432-2	M1PA91AA	9M1PA910	3234047

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

September 6, 2013

Attention: Joan Kessner

SAF Number	:	RC-238
Date SDG Closed	:	August 21, 2013
Number of Samples	:	Two (2)
Sample Type	:	Soil
SDG Number	:	J01928
Data Deliverable	:	15– Day / Summary

CASE NARRATIVE

I. Introduction

On August 21, 2013, two 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
J1RP07	M1PA6	SOIL	08/21/13
J1RP08	M1PA9	SOIL	08/21/13

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 (J1RP07) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-010:
The LCS, batch blank, samples and sample duplicate (J1RP08) results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
There was insufficient sample volume for a duplicate. Sample J1RP08 was re-counted on a different detector for the duplicate (J1RP08 DUP). Samples J1RP07, J1RP08 and J1RP08 DUP do not meet the CRDL for Eu-154. Except as noted, the LCS, batch blank, samples and sample duplicate (J1RP08) results are within contractual requirements.

Liquid Scintillation Counting
Tritium by method RL-LSC-005:
The LCS, batch blank, samples and sample duplicate (J1RP07) results are within contractual requirements.

Carbon-14 by method RL-LSC-008:
The LCS, batch blank, samples and sample duplicate (J1RP07) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, samples and sample duplicate (J1RP08) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, samples, sample duplicate (J1RP07) and sample matrix spike (J1RP07) results are within contractual requirements.

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

Date: 06-Sep-13

TestAmerica Inc TARL

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

Report No. : 56825 **SDG No:** J01928

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3234038 C14_LSC									
J1RP07									
	M1PA61AH	C-14	7.72E-02 +- 2.1E-01	U	pCi/g	100%	4.45E-01	5.00E+01	
J1RP07 DUP									
	M1PA61AJ	C-14	1.37E-01 +- 2.1E-01	U	pCi/g	100%	4.44E-01	5.00E+01	55.8
J1RP08									
	M1PA91AH	C-14	4.87E-02 +- 2.1E-01	U	pCi/g	100%	4.41E-01	5.00E+01	
3234041 PUISO_PLATE_AEA									
J1RP07									
	M1PA61AE	Pu-238	-2.44E-03 +- 3.1E-02	U	pCi/g	100%	6.96E-02	1.00E+00	
		PU239/40	-1.83E-03 +- 3.1E-02	U	pCi/g	100%	6.58E-02	1.00E+00	
J1RP07 DUP									
	M1PA61AL	Pu-238	-6.02E-04 +- 3.0E-02	U	pCi/g	95%	5.48E-02	1.00E+00	-120.8
		PU239/40	1.38E-02 +- 3.0E-02	U	pCi/g	95%	6.06E-02	1.00E+00	260.8
J1RP08									
	M1PA91AE	Pu-238	0.00E+00 +- 2.9E-02	U	pCi/g	100%	5.30E-02	1.00E+00	
		PU239/40	-1.16E-03 +- 2.9E-02	U	pCi/g	100%	5.86E-02	1.00E+00	
3234034 GAMMA_GS									
J1RP07									
	M1PA61AG	CO-60	-8.55E-03 +- 1.8E-02	U	pCi/g		2.97E-02	5.00E-02	
		CS-137	-3.97E-04 +- 1.8E-02	U	pCi/g		3.04E-02	1.00E-01	
		EU-152	-3.93E-02 +- 4.5E-02	U	pCi/g		7.24E-02	1.00E-01	
		EU-154	-1.34E-02 +- 6.0E-02	U	pCi/g		1.03E-01	1.00E-01	
		EU-155	7.52E-02 +- 5.4E-02	U	pCi/g		9.40E-02	1.00E-01	
		K-40	1.75E+01 +- 2.2E+00		pCi/g		2.83E-01		
J1RP08									
	M1PA91AG	CO-60	2.36E-03 +- 1.9E-02	U	pCi/g		3.41E-02	5.00E-02	
		CS-137	1.26E-01 +- 3.0E-02		pCi/g		2.92E-02	1.00E-01	
		EU-152	2.64E-02 +- 3.6E-02	U	pCi/g		6.37E-02	1.00E-01	
		EU-154	4.37E-02 +- 6.3E-02	U	pCi/g		1.15E-01	1.00E-01	
		EU-155	5.68E-02 +- 3.2E-02	U	pCi/g		5.68E-02	1.00E-01	
		K-40	1.85E+01 +- 2.2E+00		pCi/g		2.37E-01		
J1RP08 DUP									
	M1PA91AJ	CO-60	-1.06E-02 +- 2.0E-02	U	pCi/g		3.36E-02	5.00E-02	-314.4
		CS-137	1.33E-01 +- 3.8E-02		pCi/g		2.98E-02	1.00E-01	5.7
		EU-152	1.56E-02 +- 4.1E-02	U	pCi/g		6.38E-02	1.00E-01	51.4
		EU-154	1.23E-02 +- 5.8E-02	U	pCi/g		1.03E-01	1.00E-01	112.4
		EU-155	4.77E-02 +- 5.1E-02	U	pCi/g		4.86E-02	1.00E-01	17.4
		K-40	1.93E+01 +- 2.3E+00		pCi/g		2.83E-01		4.0

TestAmerica Inc

rptSTLRchSaSummary2 V5.2.24 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

Date: 06-Sep-13

TestAmerica Inc TARL

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

Report No. : 56825 **SDG No:** J01928

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3234035 SRTOT_SEP_PRECIP_GPC									
J1RP07									
	M1PA61AC	STRONTIUM	-3.35E-02 +- 6.9E-02	U	pCi/g	84%	1.73E-01		
J1RP08									
	M1PA91AC	STRONTIUM	9.85E-03 +- 8.0E-02	U	pCi/g	76%	1.88E-01		
J1RP08 DUP									
	M1PA91AK	STRONTIUM	5.12E-02 +- 7.6E-02	U	pCi/g	88%	1.65E-01		135.4
3234039 906.0_H3_LSC									
J1RP07									
	M1PA61AF	H-3	-3.41E-02 +- 4.1E-02	U	pCi/g	100%	9.60E-02	4.00E+02	
J1RP07 DUP									
	M1PA61AK	H-3	-3.82E-02 +- 4.9E-02	U	pCi/g	100%	1.21E-01	4.00E+02	-11.5
J1RP08									
	M1PA91AF	H-3	-1.57E-02 +- 5.8E-02	U	pCi/g	100%	1.31E-01	4.00E+02	
3234040 NI63_LSC									
J1RP07									
	M1PA61AD	Ni-63	3.17E+00 +- 3.4E+00	U	pCi/g	85%	7.01E+00	3.00E+01	
J1RP08									
	M1PA91AD	Ni-63	8.12E+00 +- 3.7E+00		pCi/g	87%	6.71E+00	3.00E+01	
J1RP08 DUP									
	M1PA91AL	Ni-63	7.88E+00 +- 3.8E+00		pCi/g	80%	7.40E+00	3.00E+01	3.0
3234047 7196_CR6									
J1RP07									
	M1PA61AA	HEXCHROME	3.54E-01 +- 3.1E-01		mg/kg	N/A	1.55E-01	1.55E-01	
	M1PA61AQ	HEXCHROME	2.95E-01 +- 3.1E-01		mg/kg	N/A	1.55E-01	~~3.50E-01~~ *	18.2
J1RP08									
	M1PA91AA	HEXCHROME	1.55E-01 +- 3.1E-01	U	mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 39

*1.55E-01
SKS 9/6/13

TestAmerica Inc
rptSTLRchSaSummary2 V5.2.24 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: 06-Sep-13

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 56825 **SDG No.:** J01928

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_LSC								
3234038 BLANK QC,								
M1PJ21AA	C-14	2.40E-01 +- 2.2E-01	U	pCi/g	100%			4.43E-01
3234038 LCS,								
M1PJ21AC	C-14	6.87E+00 +- 5.8E-01		pCi/g	100%	95%	0.0	4.44E-01
PUISO_PLATE_AEA								
3234041 BLANK QC,								
M1PJ51AA	Pu-238	-2.32E-03 +- 2.9E-02	U	pCi/g	98%			6.62E-02
	PU239/40	-1.74E-03 +- 2.9E-02	U	pCi/g	98%			6.26E-02
3234041 LCS,								
M1PJ51AC	PU239/40	7.06E+00 +- 1.4E+00		pCi/g	100%	107%	0.1	5.31E-02
GAMMA_GS								
3234034 BLANK QC,								
M1PJP1AA	CO-60	-6.03E-03 +- 9.6E-03	U	pCi/g				1.60E-02
	CS-137	4.16E-03 +- 8.0E-03	U	pCi/g				1.51E-02
	EU-152	-2.53E-03 +- 1.8E-02	U	pCi/g				3.14E-02
	EU-154	-7.81E-03 +- 1.9E-02	U	pCi/g				3.34E-02
	EU-155	1.06E-02 +- 1.2E-02	U	pCi/g				2.23E-02
	K-40	-3.74E-01 +- 2.2E-01	U	pCi/g				4.38E-01
3234034 LCS,								
M1PJP1AC	CS-137	1.06E+00 +- 1.4E-01		pCi/g		103%	0.0	2.44E-02
	RA-226	9.46E-01 +- 1.3E-01		pCi/g		83%	-0.2	4.12E-02
	RA-228	6.77E-01 +- 1.5E-01		pCi/g		96%	0.0	8.25E-02
	U-238	1.01E+00 +- 1.3E-01		pCi/g		84%	-0.2	4.11E-02
SRTOT_SEP_PRECIP_GPC								
3234035 BLANK QC,								
M1PJR1AA	STRONTIUM	8.03E-03 +- 8.6E-02	U	pCi/g	72%			2.03E-01
3234035 LCS,								
M1PJR1AC	STRONTIUM	2.02E+00 +- 5.0E-01		pCi/g	100%	91%	-0.1	1.37E-01
906.0_H3_LSC								
3234039 BLANK QC,								
M1PJ31AA	H-3	-2.04E-03 +- 3.5E-02	U	pCi/g	100%			7.83E-02
3234039 LCS,								
M1PJ31AC	H-3	5.52E-01 +- 7.3E-02		pCi/g	100%	96%	0.0	1.01E-01
NI63_LSC								
3234040 BLANK QC,								
M1PJ41AA	Ni-63	6.21E+00 +- 3.8E+00	U	pCi/g	79%			7.60E+00
3234040 LCS,								
M1PJ41AC	Ni-63	2.89E+02 +- 2.4E+01		pCi/g	85%	94%	-0.1	7.35E+00
7196_CR6								
3234047 BLANK QC,								
M1PKC1AA	HEXCHROME	1.55E-01 +- 3.1E-01	U	mg/kg	N/A			1.55E-01
3234047 MATRIX SPIKE, J1RP07								

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

rptSTLRchQcSummary V5.2.24 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

Date: 06-Sep-13

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 56825

SDG No.: J01928

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
M1PA61AM	HEXCHROME	2.67E+01 +- 3.1E-01		mg/kg	N/A	91%	-0.1	1.55E-01
3234047 LCS, M1PKC1AC	HEXCHROME	1.79E+01 +- 3.1E-01		mg/kg	N/A	94%	-0.1	1.55E-01

No. of Results: 24

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

rptSTLRchQcSum mary V5.2.24 A2002

FORM I
SAMPLE RESULTS

Date: 06-Sep-13

Lab Name: TestAmerica Inc
Lot-Sample No.: J3H210432-1
Client Sample ID: J1RP07

SDG: J01928
Report No. : 56825
COC No. : RC-238-001

Collection Date: 8/20/2013 11:15:00 AM
Received Date: 8/21/2013 12:05:00 PM
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: 3234034	GAMMA_GS			**Work Order:**	M1PA61AG		**Report DB ID:**	9M1PA610				
CO-60	-8.55E-03	U	1.8E-02	1.8E-02	2.97E-02	pCi/g		-0.29	8/28/13 11:49 p		327.8	GER11$1
							5.00E-02	-0.97			g	
CS-137	-3.97E-04	U	1.8E-02	1.8E-02	3.04E-02	pCi/g		-0.01	8/28/13 11:49 p		327.8	GER11$1
							1.00E-01	-0.04			g	
EU-152	-3.93E-02	U	4.5E-02	4.5E-02	7.24E-02	pCi/g		-0.54	8/28/13 11:49 p		327.8	GER11$1
							1.00E-01	-(1.7)			g	
EU-154	-1.34E-02	U	6.0E-02	6.0E-02	1.03E-01	pCi/g		-0.13	8/28/13 11:49 p		327.8	GER11$1
							1.00E-01	-0.45			g	
EU-155	7.52E-02	U	5.4E-02	5.4E-02	9.40E-02	pCi/g		0.8	8/28/13 11:49 p		327.8	GER11$1
							1.00E-01	(2.8)			g	
K-40	1.75E+01		2.2E+00	2.2E+00	2.83E-01	pCi/g		(61.7)	8/28/13 11:49 p		327.8	GER11$1
								(16.)			g	
Batch: 3234035	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1PA61AC		**Report DB ID:**	9M1PA610				
STRONTIUM	-3.35E-02	U	6.8E-02	6.9E-02	1.73E-01	pCi/g	84%	-0.19	9/4/13 05:37 p		3.03	GPC31A
						8.05E-02		-0.97			g	
Batch: 3234038	C14_LSC			**Work Order:**	M1PA61AH		**Report DB ID:**	9M1PA610				
C-14	7.72E-02	U	1.8E-01	2.1E-01	4.45E-01	pCi/g	100%	0.17	9/4/13 08:14 p		5.004	LSC8
						2.09E-01	5.00E+01	0.74			g	
Batch: 3234039	906.0_H3_LSC			**Work Order:**	M1PA61AF		**Report DB ID:**	9M1PA610				
H-3	-3.41E-02	U	3.6E-02	4.1E-02	9.60E-02	pCi/g	100%	-0.35	9/5/13 01:10 a		44.8	LSC4
						4.49E-02	4.00E+02	-(1.6)			g	

TestAmerica Inc
rptSTLRchSample
V5.2.24 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: 06-Sep-13

Lab Name: TestAmerica Inc
Lot-Sample No.: J3H210432-1
Client Sample ID: J1RP07

SDG: J01928
Report No. : 56825
COC No. : RC-238-001

Collection Date: 8/20/2013 11:15:00 AM
Received Date: 8/21/2013 12:05:00 PM
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: 3234040	NI63_LSC			**Work Order:**	M1PA61AD		**Report DB ID:**	9M1PA610				
Ni-63	3.17E+00	U	2.8E+00	3.4E+00	7.01E+00	pCi/g	85%	*0.45*	8/31/13 02:12 p		0.53	LSC4
						3.27E+00	3.00E+01	*(1.9)*			g	
Batch: 3234041	PUISO_PLATE_AEA			**Work Order:**	M1PA61AE		**Report DB ID:**	9M1PA610				
Pu-238	-2.44E-03	U	3.1E-02	3.1E-02	6.96E-02	pCi/g	100%	*-0.04*	8/28/13 11:44 a		1.02	ALP401
						1.42E-02	1.00E+00	*-0.16*			g	
PU239/40	-1.83E-03	U	3.1E-02	3.1E-02	6.58E-02	pCi/g	100%	*-0.03*	8/28/13 11:44 a		1.02	ALP401
						1.23E-02	1.00E+00	*-0.12*			g	
Batch: 3234047	7196_CR6			**Work Order:**	M1PA61AA		**Report DB ID:**	9M1PA610				
HEXCHROME	3.54E-01			3.1E-01	1.55E-01	mg/kg	N/A	*(2.3)*	9/3/13 10:00 a		2.5	
							1.55E-01	*(2.3)*			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: 06-Sep-13

Lab Name:	TestAmerica Inc	**SDG:**	J01928	**Collection Date:**	8/20/2013 11:30:00 AM
Lot-Sample No.:	J3H210432-2	**Report No. :**	56825	**Received Date:**	8/21/2013 12:05:00 PM
Client Sample ID:	J1RP08	**COC No. :**	RC-238-001	**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: 3234034	GAMMA_GS			**Work Order:**	M1PA91AG		**Report DB ID:**	9M1PA910				
CO-60	2.36E-03	U	1.9E-02	1.9E-02	3.41E-02	pCi/g		*0.07*	8/28/13 05:28 p		308.1	GER18$1
							5.00E-02	*0.24*			g	
CS-137	1.26E-01		3.0E-02	3.0E-02	2.92E-02	pCi/g		*(4.3)*	8/28/13 05:28 p		308.1	GER18$1
							1.00E-01	*(8.3)*			g	
EU-152	2.64E-02	U	3.6E-02	3.6E-02	6.37E-02	pCi/g		*0.41*	8/28/13 05:28 p		308.1	GER18$1
							1.00E-01	*(1.5)*			g	
EU-154	4.37E-02	U	6.3E-02	6.3E-02	1.15E-01	pCi/g		*0.38*	8/28/13 05:28 p		308.1	GER18$1
							1.00E-01	*(1.4)*			g	
EU-155	5.68E-02	U	3.2E-02	3.2E-02	5.68E-02	pCi/g		*(1.)*	8/28/13 05:28 p		308.1	GER18$1
							1.00E-01	*(3.5)*			g	
K-40	1.85E+01		2.2E+00	2.2E+00	2.37E-01	pCi/g		*(78.2)*	8/28/13 05:28 p		308.1	GER18$1
								(17.)			g	
Batch: 3234035	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1PA91AC		**Report DB ID:**	9M1PA910				
STRONTIUM	9.85E-03	U	8.0E-02	8.0E-02	1.88E-01	pCi/g	76%	*0.05*	9/4/13 05:37 p		3.01	GPC31D
						8.73E-02		*0.25*			g	
Batch: 3234038	C14_LSC			**Work Order:**	M1PA91AH		**Report DB ID:**	9M1PA910				
C-14	4.87E-02	U	1.8E-01	2.1E-01	4.41E-01	pCi/g	100%	*0.11*	9/4/13 08:58 p		5.052	LSC8
						2.07E-01	5.00E+01	*0.47*			g	
Batch: 3234039	906.0_H3_LSC			**Work Order:**	M1PA91AF		**Report DB ID:**	9M1PA910				
H-3	-1.57E-02	U	5.1E-02	5.8E-02	1.31E-01	pCi/g	100%	*-0.12*	9/5/13 02:36 a		41.3	LSC4
						6.13E-02	4.00E+02	*-0.54*			g	

TestAmerica Inc
rptSTLRchSample
V5.2.24 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: 06-Sep-13

Lab Name: TestAmerica Inc
Lot-Sample No.: J3H210432-2
Client Sample ID: J1RP08

SDG: J01928
Report No. : 56825
COC No. : RC-238-001

Collection Date: 8/20/2013 11:30:00 AM
Received Date: 8/21/2013 12:05:00 PM
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: 3234040	NI63_LSC			**Work Order:** M1PA91AD		**Report DB ID:** 9M1PA910						
Ni-63	8.12E+00		3.0E+00	3.7E+00	6.71E+00	pCi/g	87%	*(1.2)*	8/31/13 02:35 p		0.54	LSC4
						3.13E+00	3.00E+01	*(4.4)*			g	
Batch: 3234041	PUISO_PLATE_AEA			**Work Order:** M1PA91AE		**Report DB ID:** 9M1PA910						
Pu-238	0.00E+00	U	0.0E+00	2.9E-02	5.30E-02	pCi/g	100%	*0.*	8/28/13 11:46 a		1.03	ALP404
						6.77E-03	1.00E+00	*0.*			g	
PU239/40	-1.16E-03	U	2.9E-02	2.9E-02	5.86E-02	pCi/g	100%	*-0.02*	8/28/13 11:46 a		1.03	ALP404
						9.58E-03	1.00E+00	*-0.08*			g	
Batch: 3234047	7196_CR6			**Work Order:** M1PA91AA		**Report DB ID:** 9M1PA910						
HEXCHROME	1.55E-01	U		3.1E-01	1.55E-01	mg/kg	N/A	*(1.)*	9/3/13 10:00 a		2.5	
							1.55E-01	*1.*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.24 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: 06-Sep-13

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	J01928	**Collection Date:**	8/20/2013 11:15:00 AM
Lot-Sample No.:	J3H210432-1	**Report No. :**	56825	**Received Date:**	8/21/2013 12:05:00 PM
Client Sample ID:	J1RP07	**COC No. :**	RC-238-001	**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: 3234047	7196_CR6			Work Order: M1PA61AQ		Report DB ID: M1PA61AQ			Orig Sa DB ID: 9M1PA610			
HEXCHROME	2.95E-01	U		3.1E-01	1.55E-01	mg/kg	N/A	(1.9)	9/3/13 10:00 a		2.5	
	3.54E-01		RPD 18.2			~~3.50E-01~~ *		(1.9)			g	

No. of Results: 1 Comments: *1.55E-01 SKS 9/6/13

TestAmerica Inc
rptSTLRchDupV5.
2.24 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: 06-Sep-13

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	J01928	**Collection Date:**	8/20/2013 11:15:00 AM
Lot-Sample No.:	J3H210432-1	**Report No. :**	56825	**Received Date:**	8/21/2013 12:05:00 PM
Client Sample ID:	J1RP07 DUP	**COC No. :**	RC-238-001	**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: 3234038	C14_LSC			**Work Order:** M1PA61AJ		**Report DB ID:** M1PA61JR			**Orig Sa DB ID:** 9M1PA610			
C-14	1.37E-01	U	1.9E-01	2.1E-01	4.44E-01	pCi/g	100%	0.31	9/4/13 08:36 p		5.018	LSC8
	7.72E-02	U	**RPD**	**55.8**		5.00E+01		(1.3)			g	
Batch: 3234039	906.0_H3_LSC			**Work Order:** M1PA61AK		**Report DB ID:** M1PA61KR			**Orig Sa DB ID:** 9M1PA610			
H-3	-3.82E-02	U	4.3E-02	4.9E-02	1.21E-01	pCi/g	100%	-0.31	9/5/13 01:53 a		49.4	LSC4
	-3.41E-02	U	**RPD**	**-11.5**		4.00E+02		-(1.6)			g	
Batch: 3234041	PUISO_PLATE_AEA			**Work Order:** M1PA61AL		**Report DB ID:** M1PA61LR			**Orig Sa DB ID:** 9M1PA610			
Pu-238	-6.02E-04	U	3.0E-02	3.0E-02	5.48E-02	pCi/g	95%	-0.01	8/28/13 11:45 a		1.02	ALP403
	-2.44E-03	U	**RPD**	**-120.8**		1.00E+00		-0.04			g	
PU239/40	1.38E-02	U	3.0E-02	3.0E-02	6.06E-02	pCi/g	95%	0.23	8/28/13 11:45 a		1.02	ALP403
	-1.83E-03	U	**RPD**	**260.8**		1.00E+00		0.92			g	

Alpha Spec Result Sum = 1.3E-02

No. of Results: 4 **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: 06-Sep-13

DUPLICATE RESULTS

Lab Name:	TestAmerica Inc	**SDG:**	J01928	**Collection Date:**	8/20/2013 11:30:00 AM
Lot-Sample No.:	J3H210432-2	**Report No. :**	56825	**Received Date:**	8/21/2013 12:05:00 PM
Client Sample ID:	J1RP08 DUP	**COC No. :**	RC-238-001	**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: 3234034	GAMMA_GS			**Work Order:** M1PA91AJ		**Report DB ID:** M1PA91JR			**Orig Sa DB ID:** 9M1PA910			
CO-60	-1.06E-02	U	2.0E-02	2.0E-02	3.36E-02	pCi/g		-0.32	8/28/13 11:46 p		308.1	GER17$1
	2.36E-03	U	**RPD**	**-314.4**		5.00E-02		-(1.1)			g	
CS-137	1.33E-01		3.8E-02	3.8E-02	2.98E-02	pCi/g		(4.5)	8/28/13 11:46 p		308.1	GER17$1
	1.26E-01		**RPD**	**5.7**		1.00E-01		(7.)			g	
EU-152	1.56E-02	U	4.1E-02	4.1E-02	6.38E-02	pCi/g		0.24	8/28/13 11:46 p		308.1	GER17$1
	2.64E-02	U	**RPD**	**51.4**		1.00E-01		0.77			g	
EU-154	1.23E-02	U	5.8E-02	5.8E-02	1.03E-01	pCi/g		0.12	8/28/13 11:46 p		308.1	GER17$1
	4.37E-02	U	**RPD**	**112.4**		1.00E-01		0.43			g	
EU-155	4.77E-02	U	5.1E-02	5.1E-02	4.86E-02	pCi/g		0.98	8/28/13 11:46 p		308.1	GER17$1
	5.68E-02	U	**RPD**	**17.4**		1.00E-01		(1.9)			g	
K-40	1.93E+01		2.3E+00	2.3E+00	2.83E-01	pCi/g		(68.1)	8/28/13 11:46 p		308.1	GER17$1
	1.85E+01		**RPD**	**4.0**				(17.1)			g	
Batch: 3234035	SRTOT_SEP_PRECIP_GPC			**Work Order:** M1PA91AK		**Report DB ID:** M1PA91KR			**Orig Sa DB ID:** 9M1PA910			
STRONTIUM	5.12E-02	U	7.5E-02	7.6E-02	1.65E-01	pCi/g	88%	0.31	9/4/13 05:37 p		3.02	GPC32A
	9.85E-03	U	**RPD**	**135.4**				(1.3)			g	
Batch: 3234040	NI63_LSC			**Work Order:** M1PA91AL		**Report DB ID:** M1PA91LR			**Orig Sa DB ID:** 9M1PA910			
Ni-63	7.88E+00		3.1E+00	3.8E+00	7.40E+00	pCi/g	80%	(1.1)	8/31/13 02:58 p		0.53	LSC4
	8.12E+00		**RPD**	**3.0**		3.00E+01		(4.1)			g	

No. of Results: 8 **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
BLANK RESULTS

Date: 06-Sep-13

Lab Name: TestAmerica Inc
Matrix: SOIL

SDG: J01928
Report No. : 56825

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: 3234047	7196_CR6			**Work Order:**	M1PKC1AA		**Report DB ID:**	M1PKC1AB				
HEXCHROME	1.55E-01	U		3.1E-01	1.55E-01	mg/kg	N/A	(1.)	9/3/13 10:00 a		2.5	
						1.55E-01		1.			g	
Batch: 3234038	C14_LSC			**Work Order:**	M1PJ21AA		**Report DB ID:**	M1PJ21AB				
C-14	2.40E-01	U	1.9E-01	2.2E-01	4.43E-01	pCi/g	100%	0.54	9/4/13 09:19 p		5.03	LSC8
					2.08E-01	5.00E+01		(2.2)			g	
Batch: 3234041	PUISO_PLATE_AEA			**Work Order:**	M1PJ51AA		**Report DB ID:**	M1PJ51AB				
Pu-238	-2.32E-03	U	2.9E-02	2.9E-02	6.62E-02	pCi/g	98%	-0.04	8/28/13 11:46 a		1.04	ALP405
					1.35E-02	1.00E+00		-0.16			g	
PU239/40	-1.74E-03	U	2.9E-02	2.9E-02	6.26E-02	pCi/g	98%	-0.03	8/28/13 11:46 a		1.04	ALP405
					1.17E-02	1.00E+00		-0.12			g	
Batch: 3234040	NI63_LSC			**Work Order:**	M1PJ41AA		**Report DB ID:**	M1PJ41AB				
Ni-63	6.21E+00	U	3.1E+00	3.8E+00	7.60E+00	pCi/g	79%	0.82	8/31/13 03:21 p		0.52	LSC4
					3.55E+00	3.00E+01		(3.3)			g	
Batch: 3234039	906.0_H3_LSC			**Work Order:**	M1PJ31AA		**Report DB ID:**	M1PJ31AB				
H-3	-2.04E-03	U	3.1E-02	3.5E-02	7.83E-02	pCi/g	100%	-0.03	9/5/13 03:19 a		62.2	LSC4
					3.66E-02	4.00E+02		-0.12			g	
Batch: 3234034	GAMMA_GS			**Work Order:**	M1PJP1AA		**Report DB ID:**	M1PJP1AB				
CO-60	-6.03E-03	U	9.6E-03	9.6E-03	1.60E-02	pCi/g		-0.38	8/29/13 07:56 a		348.0	GER18$1
						5.00E-02		-(1.3)			g	
CS-137	4.16E-03	U	8.0E-03	8.0E-03	1.51E-02	pCi/g		0.28	8/29/13 07:56 a		348.0	GER18$1
						1.00E-01		(1.)			g	

TestAmerica Inc
rptSTLRchBlank
V5.2.24 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: 06-Sep-13

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: J01928

Report No. : 56825

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	-2.53E-03	U	1.8E-02	1.8E-02	3.14E-02	pCi/g		-0.08	8/29/13 07:56 a		348.0	GER18$1
						1.00E-01		-0.28			g	
EU-154	-7.81E-03	U	1.9E-02	1.9E-02	3.34E-02	pCi/g		-0.23	8/29/13 07:56 a		348.0	GER18$1
						1.00E-01		-0.83			g	
EU-155	1.06E-02	U	1.2E-02	1.2E-02	2.23E-02	pCi/g		0.47	8/29/13 07:56 a		348.0	GER18$1
						1.00E-01		(1.8)			g	
K-40	-3.74E-01	U	2.2E-01	2.2E-01	4.38E-01	pCi/g		-0.85	8/29/13 07:56 a		348.0	GER18$1
								-(3.5)			g	
Batch: 3234035	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1PJR1AA		**Report DB ID:**	M1PJR1AB				
STRONTIUM	8.03E-03	U	8.6E-02	8.6E-02	2.03E-01	pCi/g	72%	0.04	9/4/13 05:37 p		3.01	GPC32B
					9.44E-02			0.19			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: 06-Sep-13

Lab Name: TestAmerica Inc

SDG: J01928

Matrix: SOIL

Report No. : 56825

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: 3234047	7196_CR6			**Work Order:**	M1PKC1AC		**Report DB ID:**	M1PKC1AS					
HEXCHROME	1.79E+01			3.1E-01	1.55E-01	mg/kg	N/A	1.90E+01		94%	9/3/13 10:00 a	2.5	
							Rec Limits:	80	120	-0.1		g	
Batch: 3234038	C14_LSC			**Work Order:**	M1PJ21AC		**Report DB ID:**	M1PJ21CS					
C-14	6.87E+00		4.2E-01	5.8E-01	4.44E-01	pCi/g	100%	7.20E+00	1.4E-01	95%	9/4/13 09:41 p	5.024	LSC8
							Rec Limits:			0.0		g	
Batch: 3234041	PUISO_PLATE_AEA			**Work Order:**	M1PJ51AC		**Report DB ID:**	M1PJ51CS					
PU239/40	7.06E+00		6.4E-01	1.4E+00	5.31E-02	pCi/g	100%	6.62E+00	2.0E-01	107%	8/28/13 11:47 a	1.04	ALP407
							Rec Limits:	70	130	0.1		g	
Batch: 3234040	NI63_LSC			**Work Order:**	M1PJ41AC		**Report DB ID:**	M1PJ41CS					
Ni-63	2.89E+02		1.1E+01	2.4E+01	7.35E+00	pCi/g	85%	3.07E+02	5.1E+00	94%	8/31/13 03:43 p	0.5	LSC4
							Rec Limits:	70	130	-0.1		g	
Batch: 3234039	906.0_H3_LSC			**Work Order:**	M1PJ31AC		**Report DB ID:**	M1PJ31CS					
H-3	5.52E-01		6.6E-02	7.3E-02	1.01E-01	pCi/g	100%	5.73E-01	1.7E-02	96%	9/5/13 04:02 a	49.0	LSC4
							Rec Limits:	70	130	0.0		g	
Batch: 3234034	GAMMA_GS			**Work Order:**	M1PJP1AC		**Report DB ID:**	M1PJP1CS					
CS-137	1.06E+00		1.4E-01	1.4E-01	2.44E-02	pCi/g		1.03E+00	1.1E-02	103%	8/28/13 05:29 p	350.1	GER16$1
							Rec Limits:	70	130	0.0		g	
RA-226	9.46E-01		1.3E-01	1.3E-01	4.12E-02	pCi/g		1.14E+00	1.2E-02	83%	8/28/13 05:29 p	350.1	GER16$1
							Rec Limits:	70	130	-0.2		g	
RA-228	6.77E-01		1.5E-01	1.5E-01	8.25E-02	pCi/g		7.03E-01	7.3E-03	96%	8/28/13 05:29 p	350.1	GER16$1
							Rec Limits:	70	130	0.0		g	

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

rptSTLRchLcs
V5.2.24 A2002

FORM II
LCS RESULTS

Date: 06-Sep-13

Lab Name: TestAmerica Inc
Matrix: SOIL

SDG: J01928
Report No. : 56825

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	1.01E+00		1.3E-01	1.3E-01	4.11E-02	pCi/g		1.20E+00	1.2E-02	84%	8/28/13 05:29 p	350.1	GER16$1
							Rec Limits:	70	130	-0.2		g	
Batch: 3234035	SRTOT_SEP_PRECIP_GPC			Work Order:	M1PJR1AC		Report DB ID:	M1PJR1CS					
STRONTIUM	2.02E+00		1.9E-01	5.0E-01	1.37E-01	pCi/g	100%	2.21E+00	8.5E-02	91%	9/4/13 05:37 p	3.03	GPC32C
							Rec Limits:	70	130	-0.1		g	

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

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

rptSTLRchLcs
V5.2.24 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 06-Sep-13

Lab Name: TestAmerica Inc **SDG:** J01928

Lot-Sample No.: J3H210432-1, J1RP07 **Report No. :** 56825 **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: 3234047	Work Order: M1PA61AM			Report DB ID: M1PA61AM			Orig Sa DB ID: 9M1PA610					
HEXCHROME	2.67E+01			3.1E-01	1.55E-01	mg/kg	N/A	90.67%	2.94E+01	9/3/13 10:00 a	2.5	7196_CR6
	3.54E-01										g	

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.2.24 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

9/5/2013 11:11:33 AM

Lot No., Due Date: J3H210432; 09/05/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3234041; RPUISO Pulso by ALP
SDG, Matrix: J01928; SOIL

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

6.0 Comments on any No response:

First Level Lisa Quinton **Date** 9/5/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3234041

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: _____

Second Level Review: Sandra Segers Date: 9-5-13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/5/2013 11:16:41 AM

Lot No., Due Date: J3H210432; 09/05/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3234035; RSRTOT SrTot by GPC
SDG, Matrix: J01928; 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 DMEIR

First Level _____ **Date** 9/5/13

TestAmerica Richland
QAS_RADCALCv4.8.44

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3234035

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: _____

Second Level Review: Sandra Seger Date: 9-5-13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

9/5/2013 11:46:03 AM

Lot No., Due Date: J3H210432; 09/05/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3234034; RGAMMA Gamma by GER
SDG, Matrix: J01928; 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 10-24542

First Level Lisa Autonsen **Date** 9/5/13

TestAmerica Richland
QAS_RADCALCv4.8.44

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3234034

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: Insufficient Volume for Dup, sample was counted on a different Detector for the Dup. See NCM 10-24542

Second Level Review: Sandra Segar Date: 9-5-13

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-24542**
NCM Initiated By: Lisa Antonson
Date Opened: 09/05/2013
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Counting
Tests: Gamma by GER
Lot #'s (Sample #'s): J3H210432 (1,2), J3H220000 (34),
QC Batches: 3234034,

Nonconformance: MDA not met
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	09/05/2013	Samples M1PA6, M1PA9 and it's dup do not meet CRDL for Eu-154

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	09/05/2013	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: 9/5/2013

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

9/5/2013 11:19:56 AM

Lot No., Due Date: J3H210432; 09/05/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3234039; RTRITIUM H-3 by LSC
SDG, Matrix: J01928; 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 DM [illegible]

First Level _____ **Date** 9/5/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3234039

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: _____

Second Level Review: Sandra Segu Date: 9-5-13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/5/2013 11:18:28 AM

Lot No., Due Date: J3H210432; 09/05/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3234038; RC14LSCC C-14 Digestion
SDG, Matrix: J01928; 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 McEl

First Level _____ **Date** 9/5/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 323 4038

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: _____

Second Level Review: Sandra Logan Date: 9-5-13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

9/3/2013 4:21:43 PM

Lot No., Due Date: J3H210432; 09/05/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3234040; RNI63 Ni-63 by LSC
SDG, Matrix: J01928; 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** 9/3/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 3234040

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: _____

Second Level Review: Sandra Legu Date: 9-4-13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	3234047	Lab Sample Numbers or SDG:	J01928

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. Rahani Date 9/4/13 2nd Review [signature] Date 9/4/13

CG-231 Rev 1 5/12

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-238-001 | Page 1 of 2

Collector: WHITE, EC	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-64- Statistical Samples (64-1 thru 64-12)		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
~~[illegible]~~ RAD & DOT limits
8-21-13 BWB 8-21-13 CMB

Special Handling and/or Storage
All Test America Cr-VI analyses must be processed at the Richland facility

J3H210432

J0192Y
Due 9-5-13

SAMPLE ANALYSIS

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						
	Chromium Hex - 7196 (Hexavalent Chromium)	See item (2) in Special Instructions	Isotopic Plutonium; Nickel-63; Strontium-89,90 -- Total Sr	Carbon-14; Tritium - H3	RCF					

Sample No.	Matrix	Sample Date	Sample Time										
JIRP07	SOIL	8-20-13	1115	X	X	X	X	36007	64-11	L	MIP	AL	
JIRP08	SOIL	8-20-13	1130	X	X	X	X	36008	64-11	4	MIP	A9	
	SOIL												
	SOIL												
	SOIL												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
E. White	8-20-13 1145	John Harris	8-20-13 1145
John Harris	8-20-13 1445	Cindia Bingham	8-20-13 1445
Cindia Bingham	8-20-13 1450	1060 Battelle fridge 2A	8-20-13 1450
1060 Battelle fridge 2A	8-21-13 1035	Cindia Bingham	8-21-13 1035
Cindia Bingham	8-21-13 1205	John McGinnis	8/21/13 1205

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

SPECIAL INSTRUCTIONS
All Test America CR-VI analyses must be processed at the Richland Facility.
The 500 ml GEA samples will be sent to RCF for shipping screen then fowarded on to the rad lab.

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

J3H210432

REVIEWED BY DWShea DATE 8/21/13

WCH-EE-011

Generated Date/Time: 06/26/2013 16:18, PDT

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-238-001 | Page 2 of 2

Collector: WHITE, EC	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-64- Statistical Samples (64-1 thru 64-12)		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 TO: / THIR	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS
~~Metals~~ RAD < DOT limits
8.20.13 CMB 8.21.13 CMB

Special Handling and/or Storage
All Test America Cr-VI analyses must be processed at the Richland facility

J3H210432

J01928
Due 9-5-13

Preservation	None												
Type of Container	G/P												
No. of Container(s)	1 JA	8.20.13											
Volume	~~50g~~ 500 ml	ag											
SAMPLE ANALYSIS	RCF GEA Shipping Screen												

Sample No.	Matrix	Sample Date	Sample Time		RCF								
JIRP07	SOIL	8.20.13	1115	X	36007	64-11	4	300g					
JIRP08	SOIL	8.20.13	1130	X	36008	64-11	4	397g					
	SOIL												
	SOIL												
	SOIL												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
E White	8-20-13 1145	John Hanrahan	8.20.13 1145
John Hanrahan	8.20.13 1445	Cynthia Bingham	8.20-13 1445
Cynthia Bingham	8.20-13 1505	RCF	8.20.13 1505
RCF	8.21.13 0935	Cynthia Bingham	8.21.13 0935
Cynthia Bingham	8.21.13 1205	Tonette Simms / THOR	8/21/13 1205

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

SPECIAL INSTRUCTIONS

All Test America CR-VI analyses must be processed at the Richland Facility.
The 500 ml GEA samples will be sent to RCF for shipping screen then fowarded on to the rad lab.

* Samples transhipped (on pg. 1) TO THIR for Gama Spec.
8-21-13 CMB

REVIEWED BY [illegible]
DATE 8/21/13

WCH-EE-011

Generated Date/Time: 06/26/2013 16:18, PDT

Analysis Report for RCF36007

J1RP07 SAF:RC-238 100K/100-K-64 500ml aG Samples

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF36007
Sample Description	: J1RP07 SAF:RC-238 100K/100-K-64 500ml aG Samples
Sample Type	: Non Standard Geometry
Sample Size	: 3.080E+02 grams
Facility	: Default
Sample Taken On	: 8/20/2013 11:15:00AM
Acquisition Started	: 8/20/2013 3:19:52PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: NEWBEGE
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	: 6/24/2013
Efficiency Calibration Used Done On	: 2/22/2013
Efficiency Calibration Description	: NBEGE 50ml PB EC022213 SN92492
Sample Number	: 34319

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.998	6.66E+00	6.66E-01	
PB-212		0.709	3.36E-01	3.46E-02	
RA-226d	@	0.687	2.96E-01	3.01E-02	
TH-232d		0.999	2.97E-01	2.79E-02	
U-235		0.514	3.03E-02	1.81E-02	

Analysis Report for RCF36008

J1RP08 SAF:RC-238 100K/100-K-64 500ml aG Samples

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF36008
Sample Description	: J1RP08 SAF:RC-238 100K/100-K-64 500ml aG Samples
Sample Type	: Non Standard Geometry
Sample Size	: 3.970E+02 grams
Facility	: Default
Sample Taken On	: 8/20/2013 11:30:00AM
Acquisition Started	: 8/20/2013 3:19:59PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE2
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.6 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	: 34320

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.987	5.30E+00	5.67E-01	
CS-137		0.987	1.78E-02	1.48E-02	
PB-212		0.710	2.12E-01	2.59E-02	
RA-226d	@	0.819	2.12E-01	2.76E-02	
TH-232d		0.825	2.19E-01	2.70E-02	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 8-21-13 / 1205 Container GM Screen Result: (Airlock) 100 cpm Initials [JB]
Sample GM Screen Result (Sample Receiving) 40 cpm Initials [JB]

Client: WCH SDG #: JO1928 SAF #: RC-238 NA [ ]

Lot Number: J3H210432

Chain of Custody # RC-238-001

Shipping Container ID or Air Bill Number : hand delivered NA [RW]

Samples received inside shipping container/cooler/box Yes [JB] 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 [JB]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [JB]
3. Cooler temperature: 5.9 °C on Ice NA [ ]
4. Vermiculite/packing materials is NA [JB] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [JB] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 2x 500 mL AG; 6x 250 mL AG
8. Sample holding times exceeded? NA [ ] Yes [ ] No [JB]
9. Samples have: ____tape ____hazard labels [JB] custody seals [JB] appropriate sample labels
10. Matrix: [JB] A (FLT, Wipe, Solid, Soil) ____I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
[JB] 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 [JB]
(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 [JB]
14. Description of anomalies (include sample numbers): NA [JB]
15. Sample Location, Sample Collector Listed on COC? * Yes [JB] 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: 8-21-13

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

[✓] No action necessary; process as is

Project Manager [signature] Date 8/21/13

LS-023 Rev. 17, 05/13

Page 1 of 1

8/26/2013 8:51:27 AM

Sample Preparation/Analysis

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

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234041 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 M1PA6-1-AE J3H210432-1-SAMP 08/20/2013 11:15			1.02g,in AmtRec: 1X500MLAG;3X250MLAG	1.02g #Containers: 4	PUTC13705 08/12/13,pd 01/01/10,r				10 min Scr:	401 Alpha:	1234	8/28/13 JJS Beta:	
2 M1PA6-1-AL-X J3H210432-1-DUP 08/20/2013 11:15			1.02g,in AmtRec: 1X500MLAG;3X250MLAG	1.02g #Containers: 4	PUTC13706 08/12/13,pd 01/01/10,r				Scr:	403 Alpha:	1235	Beta:	
3 M1PA9-1-AE J3H210432-2-SAMP 08/20/2013 11:30			1.03g,in AmtRec: 1X500MLAG;3X250MLAG	1.03g #Containers: 4	PUTC13707 08/12/13,pd 01/01/10,r				Scr:	404 Alpha:	1236	Beta:	
4 M1PJ5-1-AA-B J3H220000-41-BLK 08/22/2013 12:36 pd			1.04g,in AmtRec:	1.04g #Containers: 1	PUTC13708 08/12/13,pd 01/01/10,r				Scr:	405 Alpha:	1236	Beta:	
5 M1PJ5-1-AC-C J3H220000-41-LCS 08/22/2013 12:36 pd			1.04g,in AmtRec:	1.04g #Containers: 1	PUSK1030 08/21/13,pd 01/01/10,r				Scr:	407 Alpha:	1237	Beta:	

8/26/2013 8:51:29 AM

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: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234041 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: M1PA6-SAMP "CommentsISV-Recount DUP On a Different Detector"
M1PJ5-BLK Comments-P-13-00425,S-13-00041,P-13-00426

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

M1PA61AE-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
M1PJ51AA-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
M1PJ51AC-LCS:
  PU-239      RDL:1          pCi/g    LCL:70     UCL:130    RPD:35     Pu-242     RDL:           pCi/g    LCL:20     UCL:105    RPD:35

M1PA61AE-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJ51AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJ51AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

9/5/2013 11:10:51 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/5/2012, 9/10/2013, Batch: '3234041', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3234041						
AC		Rev1C	**RichardsonB**	8/28/2013 10:04:14		
SC			mcginnlst	IsBatched	8/22/2013 12:52:03 PM	ICOC_RADCALC v4.8.49
SC			RichardsonB	Sep2C	8/28/2013 10:04:14 AM	RL-ALP-016 REVISION 3
SC			BullJ	InCnt1	8/28/2013 10:36:27 AM	RL-CI-008 REVISION 3
SC			BullJ	InCnt1	8/28/2013 10:36:32 AM	RL-CI-008 REVISION 3
SC			DawkinsO	CalcC	8/29/2013 1:09:37 AM	RL-CI-008 REVISION 3
SC			antonsonl	Rev1C	9/5/2013 11:10:39 AM	RL-DR-001 Rev 4
AC			**BullJ**	8/28/2013 10:36:27		
AC			**BullJ**	8/28/2013 10:36:32		
AC			**DawkinsO**	8/29/2013 1:09:37		
AC			**antonsonl**	9/5/2013 11:10:39		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 5

ICOCFractions v4.8.44

9/3/2013 2:35:49 PM

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: 09/05/2013

Sep1 DT/Tm Tech: 08/30/2013 20:05,JorgensonD

Batch: 3234035 **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 **M1PA6-1-AC** J3H210432-1-SAMP 08/20/2013 11:15			3.03g,in	3.03g	SRTC1265 08/14/13			10.2mg	50	31A	1802	9/4/13 OAD	
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4		08/30/2013 20:05,s1			Scr:	Alpha:		Beta:
2 **M1PA9-1-AC** J3H210432-2-SAMP 08/20/2013 11:30			3.01g,in	3.01g	SRTC1266 08/14/13			9.2mg		31D			
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4					Scr:	Alpha:		Beta:
3 **M1PA9-1-AK-X** J3H210432-2-DUP 08/20/2013 11:30			3.02g,in	3.02g	SRTC1267 08/14/13			10.7mg		32A			
			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4					Scr:	Alpha:		Beta:
4 **M1PJR-1-AA-B** J3H220000-35-BLK 08/22/2013 12:36 pd			3.01g,in	3.01g	SRTC1268 08/14/13			8.7mg		32B			
			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:
5 **M1PJR-1-AC-C** J3H220000-35-LCS 08/22/2013 12:36 pd			3.03g,in	3.03g	STSF0304 08/14/13			12.4mg		32C			
			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:

9/3/2013 2:35:49 PM

Sample Preparation/Analysis

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

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234035 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: M1PA6-SAMP "CommentsISV-Recount DUP On a Different Detector"
M1PJR-BLK Comments-P-13-00425,S-13-00041,P-13-00426

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

M1PA61AC-SAMP Constituent List:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35
M1PJR1AA-BLK:
  Sr-90       RDL:1          pCi/g     LCL:        UCL:        RPD:
M1PJR1AC-LCS:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35

M1PA61AC-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJR1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJR1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

9/5/2013 11:16:04 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/5/2012, 9/10/2013, Batch: '3234035', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3234035						
AC		**Rev1C**	**JorgensonD**	9/3/2013 2:55:45 PM		
SC			mcginnist	IsBatched	8/22/2013 12:51:48 PM	ICOC_RADCALC v4.8.49
SC			JorgensonD	Sep2C	9/3/2013 2:55:45 PM	RL-GPC-010 REVISION 2
SC			NortonJ	InCnt1	9/3/2013 3:31:02 PM	RL-CI-006 REVISION 3
SC			DawkinsO	InCnt1	9/4/2013 5:02:13 PM	RL-CI-006 REVISION 4
SC			DawkinsO	CalcC	9/5/2013 1:58:31 AM	RL-CI-006 REVISION 4
SC			mcginnist	Rev1C	9/5/2013 11:15:07 AM	RL-DR-001 Rev 4
AC			**NortonJ**	9/3/2013 3:31:02 PM		
AC			**DawkinsO**	9/4/2013 5:02:13 PM		
AC			**DawkinsO**	9/5/2013 1:58:31 AM		
AC			**mcginnist**	9/5/2013 11:15:07		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/23/2013 2:07:12 PM

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: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234034 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 3234034 AXTA, 3234035 CHTH, 3234038 5STC, 3234039 ATS6, 3234040 AFS4, 3234041 6ASO, 3234047 DWEA,

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 M1PA6-1-AG J3H210432-1-SAMP 08/20/2013 11:15			327.80g,in AmtRec: 1X500MLAG;3X250MLAG #Containers: 4	327.80g				S200	200min	G11	0309	8/28/13	
2 M1PA9-1-AG J3H210432-2-SAMP 08/20/2013 11:30			308.10g,in AmtRec: 1X500MLAG;3X250MLAG #Containers: 4	308.10g						G18	2048	8/28/13	
3 M1PA9-1-AJ-X J3H210432-2-DUP 08/20/2013 11:30			AmtRec: 1X500MLAG;3X250MLAG #Containers: 4					I.S.V		17	0305	b	
4 M1PJP-1-AA-B J3H220000-34-BLK 08/22/2013 12:36 pd			348.00g,in AmtRec: #Containers: 1	348.00g				S200		G18	1116	8/29/13	
5 M1PJP-1-AC-C J3H220000-34-LCS 08/22/2013 12:36 pd			350.10g,in AmtRec: #Containers: 1	350.10g	QC20009 08/04/09,pd 09/01/09,r					G16	2049	8/28/13	

TestAmerica Richland Wa. Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1 ISV - Insufficient Volume for Analysis WO Cnt: 5
pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep_SamplePrep v4.8.65

8/23/2013 2:07:13 PM

Sample Preparation/Analysis

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

Balance Id:1120421763

Pipet #: _____

AnalyDueDate: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234034 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: M1PA6-SAMP "CommentsISV-Recount DUP On a Different Detector"

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

M1PA61AG-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:						

M1PJP1AA-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:						

M1PJP1AC-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						

M1PA61AG-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1PJP1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1PJP1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/5/2013 11:43:01 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/5/2012, 9/10/2013, Batch: '3234034', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting		Comments
3234034						
AC		**Rev1C**	**SannohS**	8/23/2013 7:30:11		
SC			mcginnist	IsBatched	8/22/2013 12:51:46 PM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/23/2013 7:30:11 AM	RL-GAM-001 REV.002
SC			SannohS	Prep1C	8/23/2013 2:10:06 PM	RL-GAM-001 REVISION 2
SC			DawkinsO	InCnt1	8/23/2013 4:11:56 PM	RL-CI-007 REVISION 3
SC			DawkinsO	CalcC	8/31/2013 12:59:23 AM	RL-CI-007 REVISION 3
SC			antonsonl	Rev1C	9/5/2013 11:42:45 AM	RL-DR-001 Rev 4
AC			**SannohS**	8/23/2013 2:10:06 PM		
AC			**DawkinsO**	8/23/2013 4:11:56 PM		
AC			**DawkinsO**	8/31/2013 12:59:23		
AC			**antonsonl**	9/5/2013 11:42:45		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/22/2013 12:36:22 PM

Sample Preparation/Analysis

PRIORITY

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

AnalyDueDate: 09/05/2013

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

Batch: 3234039 **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 M1PA6-1-AF J3H210432-1-SAMP 08/20/2013 11:15	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
2 M1PA6-1-AK-X J3H210432-1-DUP 08/20/2013 11:15	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
3 M1PA9-1-AF J3H210432-2-SAMP 08/20/2013 11:30	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
4 M1PJ3-1-AA-B J3H220000-39-BLK 08/22/2013 12:36 pd	AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:								
5 M1PJ3-1-AC-C J3H220000-39-LCS 08/22/2013 12:36 pd	AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:								
6 M1PJ3-1-AD-BN J3H220000-39-IBLK 08/22/2013 12:36 pd	AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:								

8/22/2013 12:36:22 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: 09/05/2013

Batch: 3234039 **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

M1PA61AF-SAMP Constituent List:
H-3 RDL:400 pCi/g LCL:70 UCL:130 RPD:35
M1PJ31AA-BLK:

M1PJ31AC-LCS:

M1PJ31AD-IBLK:

M1PA61AF-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1PJ31AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1PJ31AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1PJ31AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/5/2013 11:19:18 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/5/2012, 9/10/2013, Batch: '3234039', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3234039						
AC		Rev1C	**NortonP**	9/4/2013 3:52:09 PM		
SC			nortonp	IsBatched	9/4/2013 2:06:14 PM	ICOC_RADCALC v4.8.49
SC			NortonP	Sep1C	9/4/2013 3:52:09 PM	RL-LSC-002 REVISION 4
SC			NortonJ	CalcC	9/5/2013 7:26:45 AM	RL-CI-005 REVISION 3
SC			mcginnlst	Rev1C	9/5/2013 11:19:11 AM	RL-DR-001 Rev 4
AC			**NortonJ**	9/5/2013 7:26:45 AM		
AC			**mcginnist**	9/5/2013 11:19:11		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 3

ICOCFractions v4.8.44

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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: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234038 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 3234034 AXTA, 3234035 CHTH, 3234038 5STC, 3234039 ATS6, 3234040 AFS4, 3234041 6ASO, 3234047 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 **M1PA6-1-AH** J3H210432-1-SAMP 08/20/2013 11:15			5.004g,in	5.004g				AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:	
2 **M1PA6-1-AJ-X** J3H210432-1-DUP 08/20/2013 11:15			5.018g,in	5.018g				AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:	
3 **M1PA9-1-AH** J3H210432-2-SAMP 08/20/2013 11:30			5.052g,in	5.052g				AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:	
4 **M1PJ2-1-AA-B** J3H220000-38-BLK 08/22/2013 12:36 pd			5.03g,in	5.03g				AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:	
5 **M1PJ2-1-AC-C** J3H220000-38-LCS 08/22/2013 12:36 pd			5.024g,in	5.024g	CSB1326 09/04/13,pd 11/08/12,r			AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:	
6 **M1PJ2-1-AD-BN** J3H220000-38-IBLK 08/22/2013 12:36 pd								AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:	

9/4/2013 1:03:15 PM

Sample Preparation/Analysis

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

Balance Id:

Pipet #:

AnalyDueDate: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234038 pCi/g

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:

Comments: M1PA6-SAMP "CommentsISV-Recount DUP On a Different Detector"

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

M1PA61AH-SAMP Constituent List:
C-14 RDL:5.00E+01 pCi/g LCL: UCL: RPD:
M1PJ21AA-BLK:
C-14 RDL:5.00E+01 pCi/g LCL: UCL: RPD:
M1PJ21AC-LCS:

M1PJ21AD-IBLK:
C-14 RDL:5.00E+01 pCi/g LCL: UCL: RPD:

M1PA61AH-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1PJ21AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1PJ21AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1PJ21AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/5/2013 11:17:19 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/5/2012, 9/10/2013, Batch: '3234038', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3234038						
AC		**Rev1C**	**WindischT**	9/4/2013 1:24:56 PM		
SC			WindischT	IsBatched	8/30/2013 12:37:35 PM	ICOC_RADCALC v4.8.49
SC			WindischT	Sep1C	9/4/2013 1:24:56 PM	RL-LSC-008 REVISION 3
SC			NortonJ	CalcC	9/5/2013 7:26:52 AM	RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	9/5/2013 11:17:12 AM	RL-DR-001 Rev 4
AC			**NortonJ**	9/5/2013 7:26:52 AM		
AC			**mcginnist**	9/5/2013 11:17:12		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 3

ICOCFractions v4.8.44

8/26/2013 8:39:14 AM

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: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234040 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 M1PA6-1-AD J3H210432-1-SAMP 08/20/2013 11:15			0.53g,in	0.53g	NITA10298 08/13/13 AmtRec: 1X500MLAG;3X250MLAG #Containers: 4				20min Scr:		Alpha:		Beta:
2 M1PA9-1-AD J3H210432-2-SAMP 08/20/2013 11:30			0.54g,in	0.54g	NITA10299 08/13/13 AmtRec: 1X500MLAG;3X250MLAG #Containers: 4				Scr:		Alpha:		Beta:
3 M1PA9-1-AL-X J3H210432-2-DUP 08/20/2013 11:30			0.53g,in	0.53g	NITA10300 08/13/13 AmtRec: 1X500MLAG;3X250MLAG #Containers: 4				Scr:		Alpha:		Beta:
4 M1PJ4-1-AA-B J3H220000-40-BLK 08/22/2013 12:36 pd			0.52g,in	0.52g	NITA10301 08/23/13 AmtRec: #Containers: 1				Scr:		Alpha:		Beta:
5 M1PJ4-1-AC-C J3H220000-40-LCS 08/22/2013 12:36 pd			0.50g,in	0.50g	NISA1952 08/12/13 AmtRec: #Containers: 1				Scr:		Alpha:		Beta:
6 M1PJ4-1-AD-BN J3H220000-40-IBLK 08/22/2013 12:36 pd					AmtRec: #Containers: 1				Scr:		Alpha:		Beta:

8/26/2013 8:39:16 AM

Sample Preparation/Analysis

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

Balance Id:

Pipet #: _____

AnalyDueDate: 09/05/2013

Sep1 DT/Tm Tech:

Batch: 3234040 **pCi/g**
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:

Comments: M1PA6-SAMP "CommentsISV-Recount DUP On a Different Detector"
M1PJ4-BLK CommentsP-13-00425,S-13-00041,P-13-00426

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

M1PA61AD-SAMP Constituent List:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M1PJ41AA-BLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:
M1PJ41AC-LCS:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M1PJ41AD-IBLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:

M1PA61AD-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJ41AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJ41AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PJ41AD-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

9/3/2013 4:20:16 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/3/2012, 9/8/2013, Batch: '3234040', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3234040						
AC		**Rev1C**	**JorgensonD**	8/30/2013 8:28:51 PM		
SC			mcginnist	IsBatched	8/22/2013 12:51:59 PM	ICOC_RADCALC v4.8.49
SC			JorgensonD	Sep2C	8/30/2013 8:28:51 PM	RL-LSC-017 REVISION 3
SC			DawkinsO	InCnt1	8/30/2013 9:04:26 PM	RL-CI-005 REVISION 3
SC			NortonJ	CalcC	9/3/2013 2:34:56 PM	RL-CI-005 REVISION 3
SC			antonsonl	Rev1C	9/3/2013 4:20:09 PM	RL-DR-001 Rev 4
AC			**DawkinsO**	8/30/2013 9:04:26 PM		
AC			**NortonJ**	9/3/2013 2:34:56 PM		
AC			**antonsonl**	9/3/2013 4:20:09 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 4

ICOCFractions v4.8.44

9/4/2013 12:35:21 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

AnalyDueDate: 09/05/2013

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

Batch: 3234047 SOIL mg/kg PM, Quote: RW2, 27038
SEQ Batch, Test: None All Tests: 3234034 AXTA, 3234035 CHTH, 3234038 5STC, 3234039 ATS6, 3234040 AFS4, 3234041 6ASO, 3234047 DWEA,

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 M1PA6-1-AA J3H210432-1-SAMP 08/20/2013 11:15			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
2 M1PA6-1-AM-S J3H210432-1-MS 08/20/2013 11:15			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
3 M1PA6-1-AP-S J3H210432-1-MS 08/20/2013 11:15			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
4 M1PA6-1-AQ-X J3H210432-1-DUP 08/20/2013 11:15			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
5 M1PA9-1-AA J3H210432-2-SAMP 08/20/2013 11:30			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
6 M1PKC-1-AA-B J3H220000-47-BLK 08/22/2013 12:15 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
7 M1PKC-1-AC-C J3H220000-47-LCS 08/22/2013 12:15 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

9/4/2013 12:35:22 PM

Sample Preparation/Analysis

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

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

AnalyDueDate: 09/05/2013

Batch: 3234047 mg/kg
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: M1PA6-SAMP "CommentsISV-Recount DUP On a Different Detector"

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

M1PA61AA-SAMP Constituent List:
  HEXCHROME   RDL:.1548      mg/kg     LCL:80      UCL:120     RPD:20
M1PA61AM-MS Constituent List:
  HEXCHROME   RDL:0.35       mg/kg     LCL:75      UCL:125     RPD:20
M1PA61AP-MS:
  HEXCHROME   RDL:0.35       mg/kg     LCL:75      UCL:125     RPD:20
M1PKC1AA-BLK:
  HEXCHROME   RDL:.1548      mg/kg     LCL:        UCL:        RPD:
M1PKC1AC-LCS:
  HEXCHROME   RDL:0.35       mg/kg     LCL:80      UCL:120     RPD:20
M1PA61AA-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PA61AM-MS Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PA61AP-MS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PKC1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1PKC1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ANALYTICAL REPORT

Job Number: 280-45817-1

SDG Number: J01928

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
8/29/2013 9:42 AM

Kae E Yoder, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
08/29/2013

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: 280-45817-1

SDG #: J01928
SAF#: RC-238

Date SDG Closed: August 22, 2013
Data Deliverable: 15 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1RP07	280-45817-1	6010/7471	6010B/7471A
J1RP08	280-45817-2	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 8/22/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-188521 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Zinc are present in the method blank associated with batch 280-188521. Because the concentration in the method blank is not present at a level greater than half the reporting limit, corrective action is deemed unnecessary.

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 J1RP07; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1RP07, and the associated sample result has been flagged "N". 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: 280-45817-1
Sdg Number: J01928

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
	X	Serial dilution in the analytical batch indicates that physical and chemical interferences are present.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-45817-1	J1RP07	Solid	08/20/2013 1115	08/22/2013 0900
280-45817-2	J1RP08	Solid	08/20/2013 1130	08/22/2013 0900

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

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: 280-45817-1
Sdg Number: J01928

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: 280-45817-1
Sdg Number: J01928

Client Sample ID: **J1RP07**

Lab Sample ID: 280-45817-1
Client Matrix: Solid
% Moisture: 2.6

Date Sampled: 08/20/2013 1115
Date Received: 08/22/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-188977	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-188521	Lab File ID:	25A2082613.asc
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	08/26/2013 1854			Final Weight/Volume:	100 mL
Prep Date:	08/26/2013 0730				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		9940		1.4	4.6
Antimony		0.35	U	0.35	0.55
Arsenic		3.1		0.61	0.92
Barium		90.7		0.070	0.46
Beryllium		0.35		0.031	0.18
Boron		1.6	B	0.91	1.8
Cadmium		0.21		0.038	0.18
Calcium		5060		13.0	46.2
Chromium		19.1		0.054	0.18
Cobalt		6.5	X	0.092	0.92
Copper		13.7		0.20	0.92
Iron		16900	X	3.5	4.6
Lead		6.1		0.25	0.46
Magnesium		5540		3.4	18.5
Manganese		310	X	0.092	0.92
Molybdenum		0.24	U	0.24	1.8
Nickel		17.4	X	0.11	3.7
Potassium		1760		37.9	277
Selenium		0.80	U	0.80	0.92
Silicon		718	N X	5.2	9.2
Silver		0.15	U	0.15	0.18
Sodium		485		54.6	111
Vanadium		32.9		0.087	1.8
Zinc		49.3	X	0.37	0.92

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-188829	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-188537	Lab File ID:	130823aa.txt
Dilution:	1.0			Initial Weight/Volume:	.61 g
Analysis Date:	08/23/2013 1912			Final Weight/Volume:	50 mL
Prep Date:	08/23/2013 1230				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0056	U	0.0056	0.017

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Client Sample ID: **J1RP08**

Lab Sample ID: 280-45817-2
Client Matrix: Solid
% Moisture: 10.8

Date Sampled: 08/20/2013 1130
Date Received: 08/22/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-188977	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-188521	Lab File ID:	25A2082613.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	08/26/2013 1903			Final Weight/Volume:	100 mL
Prep Date:	08/26/2013 0730				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		8720		1.6	5.0
Antimony		0.38	U	0.38	0.60
Arsenic		3.9		0.66	1.0
Barium		78.1		0.076	0.50
Beryllium		0.30		0.033	0.20
Boron		1.6	B	0.98	2.0
Cadmium		0.29		0.041	0.20
Calcium		4860		14.1	50.0
Chromium		17.4		0.058	0.20
Cobalt		6.0	X	0.10	1.0
Copper		13.7		0.22	1.0
Iron		15500	X	3.8	5.0
Lead		9.7		0.27	0.50
Magnesium		5200		3.7	20.0
Manganese		263	X	0.10	1.0
Molybdenum		0.31	B	0.26	2.0
Nickel		16.1	X	0.12	4.0
Potassium		1770		41.0	300
Selenium		0.86	U	0.86	1.0
Silicon		578	X	5.7	10.0
Silver		0.16	U	0.16	0.20
Sodium		171		59.0	120
Vanadium		32.1		0.094	2.0
Zinc		60.1	X	0.40	1.0

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-188829	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-188537	Lab File ID:	130823aa.txt
Dilution:	1.0			Initial Weight/Volume:	.55 g
Analysis Date:	08/23/2013 1919			Final Weight/Volume:	50 mL
Prep Date:	08/23/2013 1230				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.016	B	0.0068	0.021

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

General Chemistry

Client Sample ID: **J1RP07**

Lab Sample ID: 280-45817-1
Client Matrix: Solid

Date Sampled: 08/20/2013 1115
Date Received: 08/22/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.6		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-188574 Analysis Date: 08/23/2013 1132 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

General Chemistry

Client Sample ID: **J1RP08**

Lab Sample ID: 280-45817-2
Client Matrix: Solid

Date Sampled: 08/20/2013 1130
Date Received: 08/22/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	10.8		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-188574 Analysis Date: 08/23/2013 1132 DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Method Blank - Batch: 280-188521

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-188521/1-A	Analysis Batch:	280-188977	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-188521	Lab File ID:	25A2082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/26/2013 1850	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/26/2013 0730				
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	0.22	U	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
Zinc	0.451	B	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Lab Control Sample - Batch: 280-188521

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-188521/2-A	Analysis Batch:	280-188977	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-188521	Lab File ID:	25A2082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/26/2013 1852	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/26/2013 0730				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	201.1	101	82 - 116	
Antimony	50.0	45.70	91	82 - 110	
Arsenic	100	93.31	93	85 - 110	
Barium	200	184.6	92	87 - 112	
Beryllium	5.00	4.68	94	84 - 114	
Boron	100	92.23	92	80 - 120	
Cadmium	10.0	9.87	99	87 - 110	
Calcium	5000	4657	93	82 - 114	
Chromium	20.0	18.77	94	84 - 114	
Cobalt	50.0	46.64	93	87 - 110	
Copper	25.0	23.80	95	88 - 110	
Iron	100	95.27	95	87 - 120	
Lead	50.0	46.55	93	86 - 110	
Magnesium	5000	4546	91	90 - 110	
Manganese	50.0	46.52	93	88 - 110	
Molybdenum	100	94.18	94	86 - 110	
Nickel	50.0	46.45	93	87 - 110	
Potassium	5000	4686	94	89 - 110	
Selenium	200	184.7	92	83 - 110	
Silicon	1000	156.8	16	10 - 70	
Silver	5.00	4.57	91	87 - 114	
Sodium	5000	4715	94	90 - 112	
Vanadium	50.0	47.61	95	88 - 110	
Zinc	50.0	46.38	93	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Matrix Spike - Batch: 280-188521

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45817-1	Analysis Batch:	280-188977	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-188521	Lab File ID:	25A2082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.05 g
Analysis Date:	08/26/2013 1901	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/26/2013 0730				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	9940		196	12810	1467	50 - 200	4
Antimony	0.35	U	48.9	20.05	41	20 - 200	
Arsenic	3.1		97.8	89.62	89	76 - 111	
Barium	90.7		196	274.9	94	52 - 159	
Beryllium	0.35		4.89	4.74	90	72 - 105	
Boron	1.6	B	97.8	83.14	83	80 - 120	
Cadmium	0.21		9.78	9.38	94	40 - 130	
Calcium	5060		4890	10320	107	43 - 165	
Chromium	19.1		19.6	38.54	99	70 - 200	
Cobalt	6.5		48.9	48.76	86	72 - 106	
Copper	13.7		24.4	36.57	94	37 - 187	
Iron	16900		97.8	17680	780	70 - 200	4
Lead	6.1		48.9	47.46	85	70 - 200	
Magnesium	5540		4890	10160	95	64 - 145	
Manganese	310		48.9	372.9	128	40 - 200	4
Molybdenum	0.24	U	97.8	82.97	85	75 - 103	
Nickel	17.4		48.9	59.72	86	61 - 126	
Potassium	1760		4890	6473	96	56 - 172	
Selenium	0.80	U	196	169.9	87	76 - 104	
Silicon	718		978	604.7	-12	20 - 200	N
Silver	0.15	U	4.89	4.20	86	75 - 141	
Sodium	485		4890	5056	94	78 - 111	
Vanadium	32.9		48.9	82.77	102	50 - 169	
Zinc	49.3		48.9	93.59	91	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Duplicate - Batch: 280-188521

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45817-1	Analysis Batch:	280-188977	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-188521	Lab File ID:	25A2082613.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.12 g
Analysis Date:	08/26/2013 1859	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/26/2013 0730				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	9940		10190	2	40	
Antimony	0.35	U	0.35	NC	40	U
Arsenic	3.1		3.10	0.7	30	
Barium	90.7		93.31	3	30	
Beryllium	0.35		0.350	0.1	30	
Boron	1.6	B	1.56	4	30	B
Cadmium	0.21		0.245	14	30	
Calcium	5060		5368	6	30	
Chromium	19.1		19.53	2	40	
Cobalt	6.5		6.67	2	30	
Copper	13.7		13.89	2	30	
Iron	16900		17380	3	40	
Lead	6.1		6.28	4	40	
Magnesium	5540		5677	3	30	
Manganese	310		317.2	2	40	
Molybdenum	0.24	U	0.24	NC	30	U
Nickel	17.4		18.02	3	30	
Potassium	1760		1792	2	40	
Selenium	0.80	U	0.79	NC	30	U
Silicon	718		674.4	6	40	
Silver	0.15	U	0.15	NC	30	U
Sodium	485		480.3	1	30	
Vanadium	32.9		33.55	2	30	
Zinc	49.3		49.80	1	40	

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Method Blank - Batch: 280-188537

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-188537/1-A	Analysis Batch:	280-188829	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-188537	Lab File ID:	130823aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	08/23/2013 1907	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/23/2013 1230				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-188537

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-188537/2-A	Analysis Batch:	280-188829	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-188537	Lab File ID:	130823aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	08/23/2013 1910	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/23/2013 1230				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.447	107	87 - 111	

Matrix Spike - Batch: 280-188537

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-45817-1	Analysis Batch:	280-188829	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-188537	Lab File ID:	130823aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.65 g
Analysis Date:	08/23/2013 1917	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/23/2013 1230				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0056	U	0.395	0.427	108	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Duplicate - Batch: 280-188537

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-45817-1	Analysis Batch:	280-188829	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-188537	Lab File ID:	130823aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.61 g
Analysis Date:	08/23/2013 1914	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/23/2013 1230				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0056	U	0.0056	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

Duplicate - Batch: 280-188574

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-45817-2	Analysis Batch:	280-188574	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:	08/23/2013 1132	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	10.8	10.7	0.7	20	

Client: Washington Closure Hanford

Job Number: 280-45817-1
Sdg Number: J01928

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-188521					
LCS 280-188521/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-188521/1-A	Method Blank	T	Solid	3050B	
280-45817-1	J1RP07	T	Solid	3050B	
280-45817-1DU	Duplicate	T	Solid	3050B	
280-45817-1MS	Matrix Spike	T	Solid	3050B	
280-45817-2	J1RP08	T	Solid	3050B	
Prep Batch: 280-188537					
LCS 280-188537/2-A	Lab Control Sample	T	Solid	7471A	
MB 280-188537/1-A	Method Blank	T	Solid	7471A	
280-45817-1	J1RP07	T	Solid	7471A	
280-45817-1DU	Duplicate	T	Solid	7471A	
280-45817-1MS	Matrix Spike	T	Solid	7471A	
280-45817-2	J1RP08	T	Solid	7471A	
Analysis Batch:280-188829					
LCS 280-188537/2-A	Lab Control Sample	T	Solid	7471A	280-188537
MB 280-188537/1-A	Method Blank	T	Solid	7471A	280-188537
280-45817-1	J1RP07	T	Solid	7471A	280-188537
280-45817-1DU	Duplicate	T	Solid	7471A	280-188537
280-45817-1MS	Matrix Spike	T	Solid	7471A	280-188537
280-45817-2	J1RP08	T	Solid	7471A	280-188537
Analysis Batch:280-188977					
LCS 280-188521/2-A	Lab Control Sample	T	Solid	6010B	280-188521
MB 280-188521/1-A	Method Blank	T	Solid	6010B	280-188521
280-45817-1	J1RP07	T	Solid	6010B	280-188521
280-45817-1DU	Duplicate	T	Solid	6010B	280-188521
280-45817-1MS	Matrix Spike	T	Solid	6010B	280-188521
280-45817-2	J1RP08	T	Solid	6010B	280-188521

Report Basis
T = Total

General Chemistry

Analysis Batch:280-188574					
280-45817-1	J1RP07	T	Solid	D-2216	
280-45817-2	J1RP08	T	Solid	D-2216	
280-45817-2DU	Duplicate	T	Solid	D-2216	

Report Basis
T = Total