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 8/27/13
INITIAL/DATE

COMMENTS:

SDG J01903 SAF-RC-238

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

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

Analytical Data Package Prepared For

Washington Closure Hanford

Radiochemical Analysis By

TestAmerica Inc

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

Assigned Laboratory Code: TARL

Data Package Contains 61 *Pages*

Report No.: 56653

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.
J01903	RC-238	J1RR51	J3H090406-1	M1K941AG	9M1K9410	3221038
		J1RR51	J3H090406-1	M1K941AC	9M1K9410	3221039
		J1RR51	J3H090406-1	M1K941AH	9M1K9410	3221040
		J1RR51	J3H090406-1	M1K941AF	9M1K9410	3221041
		J1RR51	J3H090406-1	M1K941AD	9M1K9410	3221042
		J1RR51	J3H090406-1	M1K941AE	9M1K9410	3221043
		J1RR51	J3H090406-1	M1K941AA	9M1K9410	3225033
		J1RR52	J3H090406-2	M1K961AG	9M1K9610	3221038
		J1RR52	J3H090406-2	M1K961AC	9M1K9610	3221039
		J1RR52	J3H090406-2	M1K961AH	9M1K9610	3221040
		J1RR52	J3H090406-2	M1K961AF	9M1K9610	3221041
		J1RR52	J3H090406-2	M1K961AD	9M1K9610	3221042
		J1RR52	J3H090406-2	M1K961AE	9M1K9610	3221043
		J1RR52	J3H090406-2	M1K961AA	9M1K9610	3225033

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

August 23, 2013

Attention: Joan Kessner

SAF Number	:	RC-238
Date SDG Closed	:	August 8, 2013
Number of Samples	:	Two (2)
Sample Type	:	Soil
SDG Number	:	J01903
Data Deliverable	:	15– Day / Summary

CASE NARRATIVE

I. Introduction

On August 8, 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
J1RR51	M1K94	SOIL	08/08/13
J1RR52	M1K96	SOIL	08/08/13

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 (J1RR52) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-010:
The LCS, batch blank, samples and sample duplicate (J1RR52) results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The CRDL was not met for some of the analytes. Except as noted, the LCS, batch blank, samples and sample duplicate (J1RR51) results are within contractual requirements.

Liquid Scintillation Counting
Tritium by method RL-LSC-005:
The LCS, batch blank, samples and sample duplicate (J1RR51) results are within contractual requirements.

Carbon-14 by method RL-LSC-008:
The LCS, batch blank, samples and sample duplicate (J1RR51) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, samples and sample duplicate (J1RR52) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, samples, sample duplicate (J1RR51) and sample matrix spike (J1RR51) 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: 23-Aug-13

TestAmerica Inc TARL

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

Report No. : 56653

SDG No: J01903

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3221040 C14_LSC									
J1RR51									
	M1K941AH	C-14	-4.48E-02 +- 2.6E-01	U	pCi/g	100%	5.66E-01	5.00E+01	
J1RR51 DUP									
	M1K941AK	C-14	9.94E-02 +- 2.6E-01	U	pCi/g	100%	5.63E-01	5.00E+01	528.7
J1RR52									
	M1K961AH	C-14	7.33E-02 +- 2.6E-01	U	pCi/g	100%	5.65E-01	5.00E+01	
3221043 PUISO_PLATE_AEA									
J1RR51									
	M1K941AE	Pu-238	-2.31E-03 +- 2.9E-02	U	pCi/g	91%	6.59E-02	1.00E+00	
		PU239/40	-1.73E-03 +- 2.9E-02	U	pCi/g	91%	6.23E-02	1.00E+00	
J1RR52									
	M1K961AE	Pu-238	1.28E-02 +- 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	
J1RR52 DUP									
	M1K961AL	Pu-238	-1.94E-03 +- 3.2E-02	U	pCi/g	96%	6.99E-02	1.00E+00	271.7
		PU239/40	1.49E-02 +- 3.3E-02	U	pCi/g	96%	6.51E-02	1.00E+00	256.1
3221038 GAMMA_GS									
J1RR51									
	M1K941AG	CO-60	9.73E-03 +- 2.5E-02	U	pCi/g		4.58E-02	5.00E-02	
		CS-137	-2.12E-02 +- 2.6E-02	U	pCi/g		4.20E-02	1.00E-01	
		EU-152	3.80E-02 +- 6.7E-02	U	pCi/g		1.16E-01	1.00E-01	
		EU-154	-3.65E-02 +- 8.8E-02	U	pCi/g		1.48E-01	1.00E-01	
		EU-155	8.09E-02 +- 6.6E-02	U	pCi/g		1.15E-01	1.00E-01	
		K-40	2.06E+01 +- 2.7E+00		pCi/g		3.76E-01		
J1RR51 DUP									
	M1K941AJ	CO-60	-1.66E-02 +- 2.7E-02	U	pCi/g		4.48E-02	5.00E-02	-768.7
		CS-137	-2.34E-02 +- 2.4E-02	U	pCi/g		3.79E-02	1.00E-01	-9.9
		EU-152	-2.59E-02 +- 5.2E-02	U	pCi/g		8.61E-02	1.00E-01	1051.0
		EU-154	2.72E-02 +- 9.1E-02	U	pCi/g		1.61E-01	1.00E-01	-1361.7
		EU-155	1.22E-01 +- 6.8E-02		pCi/g		7.25E-02	1.00E-01	40.5
		K-40	2.64E+01 +- 3.1E+00		pCi/g		4.61E-01		24.7
J1RR52									
	M1K961AG	CO-60	-7.26E-03 +- 1.7E-02	U	pCi/g		2.92E-02	5.00E-02	
		CS-137	4.07E-02 +- 2.7E-02		pCi/g		2.58E-02	1.00E-01	
		EU-152	2.08E-02 +- 3.2E-02	U	pCi/g		5.66E-02	1.00E-01	
		EU-154	-2.59E-03 +- 5.3E-02	U	pCi/g		9.28E-02	1.00E-01	
		EU-155	4.30E-02 +- 2.8E-02	U	pCi/g		4.66E-02	1.00E-01	
		K-40	1.87E+01 +- 2.2E+00		pCi/g		2.42E-01		

TestAmerica Inc

rptSTLRchSaSummary2 V5.2.23 A2002

RPD - Relative Percent Difference.

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

Sample Results Summary

TestAmerica Inc TARL

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

Date: 23-Aug-13

Report No. : 56653

SDG No: J01903

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
3221039 SRTOT_SEP_PRECIP_GPC									
J1RR51									
	M1K941AC	STRONTIUM	5.31E-02 +- 9.8E-02	U	pCi/g	89%	2.17E-01		
J1RR52									
	M1K961AC	STRONTIUM	1.08E-01 +- 1.1E-01	U	pCi/g	88%	2.15E-01		
J1RR52 DUP									
	M1K961AJ	STRONTIUM	3.41E-02 +- 9.8E-02	U	pCi/g	94%	2.23E-01		104.3
3221041 906.0_H3_LSC									
J1RR51									
	M1K941AF	H-3	-2.65E-03 +- 2.7E-02	U	pCi/g	100%	6.01E-02	4.00E+02	
J1RR51 DUP									
	M1K941AL	H-3	-1.15E-02 +- 2.6E-02	U	pCi/g	100%	5.84E-02	4.00E+02	-125.0
J1RR52									
	M1K961AF	H-3	-1.33E-02 +- 2.9E-02	U	pCi/g	100%	6.54E-02	4.00E+02	
3221042 NI63_LSC									
J1RR51									
	M1K941AD	Ni-63	9.07E-01 +- 3.1E+00	U	pCi/g	92%	6.39E+00	3.00E+01	
J1RR52									
	M1K961AD	Ni-63	3.09E+00 +- 3.3E+00	U	pCi/g	89%	6.59E+00	3.00E+01	
J1RR52 DUP									
	M1K961AK	Ni-63	2.69E+00 +- 3.3E+00	U	pCi/g	88%	7.01E+00	3.00E+01	14.1
3225033 7196_CR6									
J1RR51									
	M1K941AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	M1K941AP	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	0.0
J1RR52									
	M1K961AA	HEXCHROME	2.28E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 39

TestAmerica Inc

rptSTLRchSaSummary2 V5.2.23 A2002

RPD - Relative Percent Difference.

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

QC Results Summary

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Date: 23-Aug-13

Report No. : 56653

SDG No.: J01903

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_LSC								
3221040 BLANK QC,								
M1LA61AA	C-14	2.24E-02 +- 2.6E-01	U	pCi/g	100%			5.64E-01
3221040 LCS,								
M1LA61AC	C-14	8.91E+00 +- 7.4E-01		pCi/g	100%	98%	0.0	5.58E-01
PUISO_PLATE_AEA								
3221043 BLANK QC,								
M1LCC1AA	Pu-238	-3.87E-03 +- 3.2E-02	U	pCi/g	83%			8.04E-02
	PU239/40	3.21E-03 +- 3.3E-02	U	pCi/g	83%			1.11E-01
3221043 LCS,								
M1LCC1AC	PU239/40	6.58E+00 +- 1.3E+00		pCi/g	100%	100%	0.0	7.28E-02
GAMMA_GS								
3221038 BLANK QC,								
M1LAT1AA	CO-60	8.99E-04 +- 7.1E-03	U	pCi/g				1.40E-02
	CS-137	3.16E-03 +- 8.1E-03	U	pCi/g				1.51E-02
	EU-152	-2.75E-02 +- 1.9E-02	U	pCi/g				2.99E-02
	EU-154	-5.18E-03 +- 2.2E-02	U	pCi/g				4.11E-02
	EU-155	2.79E-03 +- 1.6E-02	U	pCi/g				2.73E-02
	K-40	-6.55E-01 +- 2.3E-01	U	pCi/g				4.48E-01
3221038 LCS,								
M1LAT1AC	CS-137	1.02E+00 +- 1.3E-01		pCi/g		99%	0.0	3.01E-02
	RA-226	9.74E-01 +- 1.4E-01		pCi/g		86%	-0.1	5.55E-02
	RA-228	5.05E-01 +- 1.1E-01		pCi/g		72%	-0.3	9.26E-02
	U-238	1.04E+00 +- 1.6E-01		pCi/g		86%	-0.1	6.61E-02
SRTOT_SEP_PRECIP_GPC								
3221039 BLANK QC,								
M1LA21AA	STRONTIUM	1.39E-02 +- 1.1E-01	U	pCi/g	77%			2.58E-01
3221039 LCS,								
M1LA21AC	STRONTIUM	2.85E+00 +- 7.2E-01		pCi/g	68%	126%	0.3	2.76E-01
906.0_H3_LSC								
3221041 BLANK QC,								
M1LA71AA	H-3	-2.02E-02 +- 3.5E-02	U	pCi/g	100%			8.04E-02
3221041 LCS,								
M1LA71AC	H-3	3.03E-01 +- 4.6E-02		pCi/g	100%	85%	-0.2	7.05E-02
NI63_LSC								
3221042 BLANK QC,								
M1LA91AA	Ni-63	1.04E+01 +- 4.2E+00		pCi/g	67%			8.61E+00
3221042 LCS,								
M1LA91AC	Ni-63	2.77E+02 +- 2.3E+01		pCi/g	81%	93%	-0.1	7.05E+00
7196_CR6								
3225033 MATRIX SPIKE, J1RR51								
M1K941AM	HEXCHROME	2.70E+01 +- 0.0E+00		mg/kg	N/A	94%	-0.1	1.55E-01
3225033 LCS,								

TestAmerica Inc

rptSTLRchQcSummary V5.2.23
A2002

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

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

QC Results Summary

Date: 23-Aug-13

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 56653

SDG No.: J01903

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
M1LXW1AC	HEXCHROME	1.83E+01 +- 0.0E+00		mg/kg	N/A	96%	0.0	1.55E-01
3225033 BLANK QC,								
M1LXW1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 24

TestAmerica Inc

rptSTLRchQcSummary V5.2.23
A2002

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

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

FORM I

SAMPLE RESULTS

Date: 23-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01903	**Collection Date:**	8/6/2013 12:58:00 PM
Lot-Sample No.:	J3H090406-1	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	J1RR51	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3221038	GAMMA_GS			**Work Order:** M1K941AG			**Report DB ID:** 9M1K9410					
CO-60	9.73E-03	U	2.5E-02	2.5E-02	4.58E-02	pCi/g		*0.21*	8/17/13 01:01 p		318.1	GER7$1
							5.00E-02	*0.78*			g	
CS-137	-2.12E-02	U	2.6E-02	2.6E-02	4.20E-02	pCi/g		*-0.5*	8/17/13 01:01 p		318.1	GER7$1
							1.00E-01	*-(1.6)*			g	
EU-152	3.80E-02	U	6.7E-02	6.7E-02	1.16E-01	pCi/g		*0.33*	8/17/13 01:01 p		318.1	GER7$1
							1.00E-01	*(1.1)*			g	
EU-154	-3.65E-02	U	8.8E-02	8.8E-02	1.48E-01	pCi/g		*-0.25*	8/17/13 01:01 p		318.1	GER7$1
							1.00E-01	*-0.83*			g	
EU-155	8.09E-02	U	6.6E-02	6.6E-02	1.15E-01	pCi/g		*0.7*	8/17/13 01:01 p		318.1	GER7$1
							1.00E-01	*(2.5)*			g	
K-40	2.06E+01		2.7E+00	2.7E+00	3.76E-01	pCi/g		*(54.9)*	8/17/13 01:01 p		318.1	GER7$1
								(15.2)			g	
Batch: 3221039	SRTOT_SEP_PRECIP_GPC			**Work Order:** M1K941AC			**Report DB ID:** 9M1K9410					
STRONTIUM	5.31E-02	U	9.7E-02	9.8E-02	2.17E-01	pCi/g	89%	*0.24*	8/21/13 07:41 a		3.02	GPC32B
						1.00E-01		*(1.1)*			g	
Batch: 3221040	C14_LSC			**Work Order:** M1K941AH			**Report DB ID:** 9M1K9410					
C-14	-4.48E-02	U	2.3E-01	2.6E-01	5.66E-01	pCi/g	100%	*-0.08*	8/20/13 04:51 p		4.015	LSC9
						2.66E-01	5.00E+01	*-0.35*			g	
Batch: 3221041	906.0_H3_LSC			**Work Order:** M1K941AF			**Report DB ID:** 9M1K9410					
H-3	-2.65E-03	U	2.4E-02	2.7E-02	6.01E-02	pCi/g	100%	*-0.04*	8/23/13 08:57 a		53.8	LSC3
						2.82E-02	4.00E+02	*-0.2*			g	

TestAmerica Inc
rptSTLRchSample
V5.2.23 A2002

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

FORM I

SAMPLE RESULTS

Date: 23-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01903	**Collection Date:**	8/6/2013 12:58:00 PM
Lot-Sample No.:	J3H090406-1	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	J1RR51	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3221042	NI63_LSC			**Work Order:** M1K941AD		**Report DB ID:** 9M1K9410						
Ni-63	**9.07E-01**	U	2.5E+00	3.1E+00	6.39E+00	pCi/g	92%	*0.14*	8/22/13 04:02 a		0.5	LSC8
						2.98E+00	3.00E+01	*0.59*			g	
Batch: 3221043	PUISO_PLATE_AEA			**Work Order:** M1K941AE		**Report DB ID:** 9M1K9410						
Pu-238	**-2.31E-03**	U	2.9E-02	2.9E-02	6.59E-02	pCi/g	91%	*-0.04*	8/19/13 09:06 p		1.02	ALP37
						1.34E-02	1.00E+00	*-0.16*			g	
PU239/40	**-1.73E-03**	U	2.9E-02	2.9E-02	6.23E-02	pCi/g	91%	*-0.03*	8/19/13 09:06 p		1.02	ALP37
						1.16E-02	1.00E+00	*-0.12*			g	
Batch: 3225033	7196_CR6			**Work Order:** M1K941AA		**Report DB ID:** 9M1K9410						
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	8/21/13 07:54 a		2.5104	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.23 A2002

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

FORM I

SAMPLE RESULTS

Date: 23-Aug-13

Lab Name:	TestAmerica Inc	**SDG:**	J01903	**Collection Date:**	8/6/2013 1:04:00 PM
Lot-Sample No.:	J3H090406-2	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	J1RR52	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3221038	GAMMA_GS			**Work Order:** M1K961AG			**Report DB ID:** 9M1K9610					
CO-60	-7.26E-03	U	1.7E-02	1.7E-02	2.92E-02	pCi/g		-0.25	8/17/13 01:03 p		328.6	GER18$1
							5.00E-02	-0.84			g	
CS-137	4.07E-02		2.7E-02	2.7E-02	2.58E-02	pCi/g		(1.6)	8/17/13 01:03 p		328.6	GER18$1
							1.00E-01	(3.)			g	
EU-152	2.08E-02	U	3.2E-02	3.2E-02	5.66E-02	pCi/g		0.37	8/17/13 01:03 p		328.6	GER18$1
							1.00E-01	(1.3)			g	
EU-154	-2.59E-03	U	5.3E-02	5.3E-02	9.28E-02	pCi/g		-0.03	8/17/13 01:03 p		328.6	GER18$1
							1.00E-01	-0.1			g	
EU-155	4.30E-02	U	2.8E-02	2.8E-02	4.66E-02	pCi/g		0.92	8/17/13 01:03 p		328.6	GER18$1
							1.00E-01	(3.)			g	
K-40	1.87E+01		2.2E+00	2.2E+00	2.42E-01	pCi/g		(77.2)	8/17/13 01:03 p		328.6	GER18$1
								(17.1)			g	
Batch: 3221039	SRTOT_SEP_PRECIP_GPC			**Work Order:** M1K961AC			**Report DB ID:** 9M1K9610					
STRONTIUM	1.08E-01	U	1.0E-01	1.1E-01	2.15E-01	pCi/g	88%	0.5	8/21/13 07:41 a		3.02	GPC32C
						9.95E-02		(2.)			g	
Batch: 3221040	C14_LSC			**Work Order:** M1K961AH			**Report DB ID:** 9M1K9610					
C-14	7.33E-02	U	2.3E-01	2.6E-01	5.65E-01	pCi/g	100%	0.13	8/20/13 05:35 p		4.021	LSC9
						2.65E-01	5.00E+01	0.56			g	
Batch: 3221041	906.0_H3_LSC			**Work Order:** M1K961AF			**Report DB ID:** 9M1K9610					
H-3	-1.33E-02	U	2.5E-02	2.9E-02	6.54E-02	pCi/g	100%	-0.2	8/23/13 10:24 a		49.5	LSC3
						3.07E-02	4.00E+02	-0.93			g	

TestAmerica Inc
rptSTLRchSample
V5.2.23 A2002

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

FORM I

SAMPLE RESULTS

Date: 23-Aug-13

Lab Name:	**TestAmerica Inc**	**SDG:**	J01903	**Collection Date:**	8/6/2013 1:04:00 PM
Lot-Sample No.:	**J3H090406-2**	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	**J1RR52**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3221042	NI63_LSC			**Work Order:** M1K961AD		**Report DB ID:** 9M1K9610						
Ni-63	**3.09E+00**	U	2.7E+00	3.3E+00	6.59E+00	pCi/g	89%	*0.47*	8/22/13 04:24 a		0.5	LSC8
						3.07E+00	3.00E+01	*(1.9)*			g	
Batch: 3221043	PUISO_PLATE_AEA			**Work Order:** M1K961AE		**Report DB ID:** 9M1K9610						
Pu-238	**1.28E-02**	U	3.1E-02	3.1E-02	6.96E-02	pCi/g	100%	*0.18*	8/19/13 09:06 p		1.02	ALP39
						1.42E-02	1.00E+00	*0.83*			g	
PU239/40	**-1.83E-03**	U	3.1E-02	3.1E-02	6.58E-02	pCi/g	100%	*-0.03*	8/19/13 09:06 p		1.02	ALP39
						1.23E-02	1.00E+00	*-0.12*			g	
Batch: 3225033	7196_CR6			**Work Order:** M1K961AA		**Report DB ID:** 9M1K9610						
HEXCHROME	**2.28E-01**			0.0E+00	1.55E-01	mg/kg	N/A	*(1.5)*	8/21/13 07:54 a		2.496	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.23 A2002

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

FORM II

Date: 23-Aug-13

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	J01903	**Collection Date:**	8/6/2013 12:58:00 PM
Lot-Sample No.:	**J3H090406-1**	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	**J1RR51**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3225033	7196_CR6			**Work Order:** M1K941AP		**Report DB ID:** M1K941ER			**Orig Sa DB ID:** 9M1K9410			
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	8/21/13 07:54 a		2.5086	
	1.55E-01	U	**RPD**	**0.0**		1.55E-01		N/A			g	

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

TestAmerica Inc
rptSTLRchDupV5.2.23 A2002

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

FORM II

Date: 23-Aug-13

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	J01903	**Collection Date:**	8/6/2013 12:58:00 PM
Lot-Sample No.:	**J3H090406-1**	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	**J1RR51 DUP**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3221038	GAMMA_GS			**Work Order:** M1K941AJ		**Report DB ID:** M1K941JR			**Orig Sa DB ID:** 9M1K9410			
CO-60	-1.66E-02	U	2.7E-02	2.7E-02	4.48E-02	pCi/g		-0.37	8/17/13 01:01 p		232.0	GER16$1
	9.73E-03	U	**RPD**	**-768.7**		5.00E-02		-(1.2)			g	
CS-137	-2.34E-02	U	2.4E-02	2.4E-02	3.79E-02	pCi/g		-0.62	8/17/13 01:01 p		232.0	GER16$1
	-2.12E-02	U	**RPD**	**-9.9**		1.00E-01		-(2.)			g	
EU-152	-2.59E-02	U	5.2E-02	5.2E-02	8.61E-02	pCi/g		-0.3	8/17/13 01:01 p		232.0	GER16$1
	3.80E-02	U	**RPD**	**1051.0**		1.00E-01		-1.			g	
EU-154	2.72E-02	U	9.1E-02	9.1E-02	1.61E-01	pCi/g		0.17	8/17/13 01:01 p		232.0	GER16$1
	-3.65E-02	U	**RPD**	**-1361.7**		1.00E-01		0.6			g	
EU-155	1.22E-01		6.8E-02	6.8E-02	7.25E-02	pCi/g		(1.7)	8/17/13 01:01 p		232.0	GER16$1
	8.09E-02	U	**RPD**	**40.5**		1.00E-01		(3.6)			g	
K-40	2.64E+01		3.1E+00	3.1E+00	4.61E-01	pCi/g		(57.3)	8/17/13 01:01 p		232.0	GER16$1
	2.06E+01		**RPD**	**24.7**				(16.9)			g	
Batch: 3221040	C14_LSC			**Work Order:** M1K941AK		**Report DB ID:** M1K941KR			**Orig Sa DB ID:** 9M1K9410			
C-14	9.94E-02	U	2.3E-01	2.6E-01	5.63E-01	pCi/g	100%	0.18	8/20/13 05:13 p		4.034	LSC9
	-4.48E-02	U	**RPD**	**528.7**		5.00E+01		0.75			g	
Batch: 3221041	906.0_H3_LSC			**Work Order:** M1K941AL		**Report DB ID:** M1K941LR			**Orig Sa DB ID:** 9M1K9410			
H-3	-1.15E-02	U	2.3E-02	2.6E-02	5.84E-02	pCi/g	100%	-0.2	8/23/13 09:41 a		54.0	LSC3
	-2.65E-03	U	**RPD**	**-125.0**		4.00E+02		-0.89			g	

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

TestAmerica Inc
rptSTLRchDupV5.2.23 A2002

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

FORM II

Date: 23-Aug-13

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	J01903	**Collection Date:**	8/6/2013 1:04:00 PM
Lot-Sample No.:	**J3H090406-2**	**Report No. :**	56653	**Received Date:**	8/8/2013 1:54:00 PM
Client Sample ID:	**J1RR52 DUP**	**COC No. :**	RC-238-005	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3221039	SRTOT_SEP_PRECIP_GPC			**Work Order:** M1K961AJ		**Report DB ID:** M1K961JR			**Orig Sa DB ID:** 9M1K9610			
STRONTIUM	3.41E-02	U	9.8E-02	9.8E-02	2.23E-01	pCi/g	94%	0.15	8/21/13 07:41 a		3.02	GPC32D
	1.08E-01	U	**RPD**	**104.3**				0.7			g	
Batch: 3221042	NI63_LSC			**Work Order:** M1K961AK		**Report DB ID:** M1K961KR			**Orig Sa DB ID:** 9M1K9610			
Ni-63	2.69E+00	U	2.7E+00	3.3E+00	7.01E+00	pCi/g	88%	0.38	8/22/13 04:45 a		0.5	LSC8
	3.09E+00	U	**RPD**	**14.1**		3.00E+01		(1.6)			g	
Batch: 3221043	PUISO_PLATE_AEA			**Work Order:** M1K961AL		**Report DB ID:** M1K961LR			**Orig Sa DB ID:** 9M1K9610			
Pu-238	-1.94E-03	U	3.2E-02	3.2E-02	6.99E-02	pCi/g	96%	-0.03	8/19/13 09:07 p		1.03	ALP40
	1.28E-02	U	**RPD**	**271.7**		1.00E+00		-0.12			g	
PU239/40	1.49E-02	U	3.2E-02	3.3E-02	6.51E-02	pCi/g	96%	0.23	8/19/13 09:07 p		1.03	ALP40
	-1.83E-03	U	**RPD**	**256.1**		1.00E+00		0.92			g	

Alpha Spec Result Sum = 1.3E-02

No. of Results: 4 **Comments:**

TestAmerica Inc
rptSTLRchDupV5.2.23 A2002

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

FORM II

BLANK RESULTS

Date: 23-Aug-13

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: J01903

Report No. : 56653

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: 3225033	7196_CR6			**Work Order:**	M1LXW1AA		**Report DB ID:**	M1LXW1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	8/21/13 07:54 a		2.5	
						1.55E-01		N/A			g	
Batch: 3221040	C14_LSC			**Work Order:**	M1LA61AA		**Report DB ID:**	M1LA61AB				
C-14	2.24E-02	U	2.3E-01	2.6E-01	5.64E-01	pCi/g	100%	0.04	8/20/13 05:56 p		4.024	LSC9
					2.64E-01	5.00E+01		0.17			g	
Batch: 3221043	PUISO_PLATE_AEA			**Work Order:**	M1LCC1AA		**Report DB ID:**	M1LCC1AB				
Pu-238	-3.87E-03	U	3.2E-02	3.2E-02	8.04E-02	pCi/g	83%	-0.05	8/19/13 09:07 p		1.03	ALP41
					1.84E-02	1.00E+00		-0.24			g	
PU239/40	3.21E-03	U	3.3E-02	3.3E-02	1.11E-01	pCi/g	83%	0.03	8/19/13 09:07 p		1.03	ALP41
					3.36E-02	1.00E+00		0.2			g	
Batch: 3221042	NI63_LSC			**Work Order:**	M1LA91AA		**Report DB ID:**	M1LA91AB				
Ni-63	1.04E+01		3.5E+00	4.2E+00	8.61E+00	pCi/g	67%	(1.2)	8/22/13 05:07 a		0.51	LSC8
					4.01E+00	3.00E+01		(5.)			g	
Batch: 3221041	906.0_H3_LSC			**Work Order:**	M1LA71AA		**Report DB ID:**	M1LA71AB				
H-3	-2.02E-02	U	3.1E-02	3.5E-02	8.04E-02	pCi/g	100%	-0.25	8/23/13 11:07 a		66.7	LSC3
					3.78E-02	4.00E+02		-(1.1)			g	
Batch: 3221038	GAMMA_GS			**Work Order:**	M1LAT1AA		**Report DB ID:**	M1LAT1AB				
CO-60	8.99E-04	U	7.1E-03	7.1E-03	1.40E-02	pCi/g		0.06	8/17/13 01:04 p		348.0	GER19$1
						5.00E-02		0.25			g	
CS-137	3.16E-03	U	8.1E-03	8.1E-03	1.51E-02	pCi/g		0.21	8/17/13 01:04 p		348.0	GER19$1
						1.00E-01		0.78			g	

TestAmerica Inc
rptSTLRchBlank
V5.2.23 A2002

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

FORM II

BLANK RESULTS

Date: 23-Aug-13

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: J01903

Report No. : 56653

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	-2.75E-02	U	1.9E-02	1.9E-02	2.99E-02	pCi/g		-0.92	8/17/13 01:04 p		348.0	GER19$1
						1.00E-01		-(2.9)			g	
EU-154	-5.18E-03	U	2.2E-02	2.2E-02	4.11E-02	pCi/g		-0.13	8/17/13 01:04 p		348.0	GER19$1
						1.00E-01		-0.46			g	
EU-155	2.79E-03	U	1.6E-02	1.6E-02	2.73E-02	pCi/g		0.1	8/17/13 01:04 p		348.0	GER19$1
						1.00E-01		0.36			g	
K-40	-6.55E-01	U	2.3E-01	2.3E-01	4.48E-01	pCi/g		-(1.5)	8/17/13 01:04 p		348.0	GER19$1
								-(5.6)			g	
Batch: 3221039	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M1LA21AA		**Report DB ID:**	M1LA21AB				
STRONTIUM	1.39E-02	U	1.1E-01	1.1E-01	2.58E-01	pCi/g	77%	0.05	8/21/13 08:37 a		3.04	GPC31A
					1.20E-01			0.25			g	

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

TestAmerica Inc
rptSTLRchBlank
V5.2.23 A2002

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

FORM II

LCS RESULTS

Date: 23-Aug-13

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: J01903

Report No. : 56653

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: 3225033	7196_CR6			**Work Order:**	M1LXW1AC		**Report DB ID:**	M1LXW1AS					
HEXCHROME	1.83E+01			0.0E+00	1.55E-01	mg/kg	N/A	1.90E+01		96%	8/21/13 07:54 a	2.5	
							Rec Limits:	80	120	0.0		g	
Batch: 3221040	C14_LSC			**Work Order:**	M1LA61AC		**Report DB ID:**	M1LA61CS					
C-14	8.91E+00		5.3E-01	7.4E-01	5.58E-01	pCi/g	100%	9.06E+00	1.8E-01	98%	8/20/13 06:18 p	4.07	LSC9
							Rec Limits:			0.0		g	
Batch: 3221043	PUISO_PLATE_AEA			**Work Order:**	M1LCC1AC		**Report DB ID:**	M1LCC1CS					
PU239/40	6.58E+00		6.5E-01	1.3E+00	7.28E-02	pCi/g	100%	6.60E+00	2.0E-01	100%	8/19/13 09:07 p	1.04	ALP42
							Rec Limits:	70	130	0.0		g	
Batch: 3221042	NI63_LSC			**Work Order:**	M1LA91AC		**Report DB ID:**	M1LA91CS					
Ni-63	2.77E+02		1.0E+01	2.3E+01	7.05E+00	pCi/g	81%	2.98E+02	5.0E+00	93%	8/22/13 05:29 a	0.51	LSC8
							Rec Limits:	70	130	-0.1		g	
Batch: 3221041	906.0_H3_LSC			**Work Order:**	M1LA71AC		**Report DB ID:**	M1LA71CS					
H-3	3.03E-01		4.2E-02	4.6E-02	7.05E-02	pCi/g	100%	3.58E-01	1.1E-02	85%	8/23/13 11:51 a	75.7	LSC3
							Rec Limits:	70	130	-0.2		g	
Batch: 3221038	GAMMA_GS			**Work Order:**	M1LAT1AC		**Report DB ID:**	M1LAT1CS					
CS-137	1.02E+00		1.3E-01	1.3E-01	3.01E-02	pCi/g		1.03E+00	1.1E-02	99%	8/17/13 01:29 p	350.1	GER10$1
							Rec Limits:	70	130	0.0		g	
RA-226	9.74E-01		1.4E-01	1.4E-01	5.55E-02	pCi/g		1.14E+00	1.2E-02	86%	8/17/13 01:29 p	350.1	GER10$1
							Rec Limits:	70	130	-0.1		g	
RA-228	5.05E-01		1.1E-01	1.1E-01	9.26E-02	pCi/g		7.06E-01	7.3E-03	72%	8/17/13 01:29 p	350.1	GER10$1
							Rec Limits:	70	130	-0.3		g	

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

rptSTLRchLcs
V5.2.23 A2002

FORM II

LCS RESULTS

Date: 23-Aug-13

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: J01903

Report No. : 56653

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	1.04E+00		1.6E-01	1.6E-01	6.61E-02	pCi/g		1.20E+00	1.2E-02	86%	8/17/13 01:29 p	350.1	GER10$1
							Rec Limits:	70	130	-0.1		g	
Batch: 3221039	SRTOT_SEP_PRECIP_GPC			**Work Order:** M1LA21AC			**Report DB ID:** M1LA21CS						
STRONTIUM	2.85E+00		3.1E-01	7.2E-01	2.76E-01	pCi/g	68%	2.26E+00	4.7E-02	126%	8/21/13 08:37 a	3.01	GPC31B
							Rec Limits:	70	130	0.3		g	

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

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

rptSTLRchLcs
V5.2.23 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 23-Aug-13

Lab Name: TestAmerica Inc **SDG:** J01903

Lot-Sample No.: J3H090406-1, J1RR51 **Report No. :** 56653 **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: 3225033	**Work Order:** M1K941AM			**Report DB ID:** M1K941CW			**Orig Sa DB ID:** 9M1K9410					
HEXCHROME	2.70E+01			0.0E+00	1.55E-01	mg/kg	N/A	93.51%	2.89E+01	8/21/13 07:54 a	2.5092	7196_CR6
	1.55E-01										g	

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.2.23 A2002

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/22/2013 8:32:43 AM

Lot No., Due Date: J3H090406; 08/23/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3221043; RPUISO Pulso by ALP
SDG, Matrix: J01903; SOIL

1.0 COC

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

2.0 QC Batch

	Yes	No	N/A
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

	Yes	No	N/A
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

	Yes	No	N/A
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

	Yes	No	N/A
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 Lori Anderson **Date** 8/20/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3221043

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

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

Second Level Review: Brandon Jan Date: 8/22/13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/21/2013 12:31:14 PM

Lot No., Due Date: J3H090406; 08/23/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3221039; RSRTOT SrTot by GPC
SDG, Matrix: J01903; 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. Mc[illegible]

First Level _____ **Date** 8/21/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 322 1939

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

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

Second Level Review: [signature] Date: 8/21/13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/21/2013 1:30:59 PM

Lot No., Due Date: J3H090406; 08/23/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3221038; RGAMMA Gamma by GER
SDG, Matrix: J01903; SOIL

1.0 COC

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

2.0 QC Batch

	Yes	No	N/A
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

	Yes	No	N/A
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

	Yes	No	N/A
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

	Yes	No	N/A
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:
NCM 10-24364

First Level [signature] **Date** 8/21/13

TestAmerica Richland
QAS_RADCALCv4.8.44

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 322 1038

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

Comments on any "No" response: CRDL = 0.1 pCi/g
See NCM #10-24364

Second Level Review: [signature] Date: 8/21/13

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-24364**
NCM Initiated By: Lisa Antonson
Date Opened: 08/21/2013
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Counting
Tests: Gamma by GER
Lot #'s (Sample #'s): J3H090000 (38), J3H090406 (1,2),
QC Batches: 3221038,

Nonconformance: MDA not met
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	08/21/2013	The following have MDA's that exceed CRDL: M1K941AG Eu-152, Eu-154 and Eu-155. M1K941AJ Eu-154 M1LAT- (LCS) Eu-155

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	08/21/2013	None

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 8/21/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/23/2013 1:55:39 PM

Lot No., Due Date: J3H090406; 08/23/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3221041; RTRITIUM H-3 by LSC
SDG, Matrix: J01903; 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 Thomas D McGee Date 8/23/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3221041

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

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

Second Level Review: [signature] Date: 8/23/13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/22/2013 1:47:39 PM

Lot No., Due Date: J3H090406; 08/23/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3221040; RC14LSCC C-14 Digestion
SDG, Matrix: J01903; SOIL

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

6.0 Comments on any No response:

First Level Thomas D McGee **Date** 8/22/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3221040

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

Comments on any "No" response: SRDL = 50 pCi/g

Second Level Review: [signature] Date: 8/20/13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

8/22/2013 12:06:22 PM

Lot No., Due Date: J3H090406; 08/23/2013
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 3221042; RNI63 Ni-63 by LSC
SDG, Matrix: J01903; SOIL

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

Thomas D McE

First Level _____ **Date** 8/22/13

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 3221042

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

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

Second Level Review: Rhonda [illegible] Date: 8/22/13

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	3225033	Lab Sample Numbers or SDG:	J01903
Method/Test/Parameter: Cr+6 ☐ RL-WC-003(Aqueous) ☒ RL-WC-004(Solid)			

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

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

Analyst H. Rahari Date 8/22/13 2nd Review [signature] Date 8/22/13

CG-231 Rev 1, 5/12

TestAmerica Laboratories, Inc.

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-238-005 — 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-111 - 100-K-111 East Sample area (statistical only)		SAF No.: RC-238
Ice Chest No.: NA	Field Logbook No.: EL-1668	COA: 0ESKSH6520	Method of Shipment: Local Delivery
Shipped To: TestAmerica - Richland	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

J3H090406
J01903

Special Handling and/or Storage

~~J3H090406~~ JB 8-9-13

~~J01902~~
Due 8-23-13

SAMPLE ANALYSIS J3H090406

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						
	omium Hex - 7196 lexavalent hromium}	** 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										
J1RR51	SOIL	8-6-13	1258	X	X	X	X	E-9A	2	35949	mK94 ~~mK85~~	JB 8-9-13	
J1RR52	SOIL	8-6-13	1304	X	X	X	X	E-9A	4	35950	~~mK86~~ mK96		
	SOIL												
	SOIL												
	SOIL												

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: E. White E. White 8-6-13 1350	Received By/Stored In: Doug Bowers Doug Bowers 8-6-13/1350
Relinquished By/Removed From: Doug Bowers Doug Bowers 8-6-13/1620	Received By/Stored In: 1060 Battelle Blvd Ref 2A 8-6-13 1620
Relinquished By/Removed From: 1060 Battelle Blvd Ref 2A 8-7-13 0747	Received By/Stored In: A. Freier A. Freier 8-7-13 0747
Relinquished By/Removed From: ~~JB 8-8-13 WCH 1351~~ ~~A. Freier A. Freier 8-8-13~~	Received By/Stored In: ~~J. Bock JB 8-8-13 TALK 8-8-13 1351~~
Relinquished By/Removed From: A. Freier A. Freier 8-7-13 0805	Received By/Stored In: 1060 Battelle #2A 8-7-13 0805 AJ 8-8-13
Relinquished By/Removed From: 1060 Battelle Ref 2A 8-8-13 1208	Received By/Stored In: A. Freier A. Freier 8-8-13 1208
Relinquished By/Removed From: A. Freier A. Freier 8-8-13 1351 WCH	Received By/Stored In: J. Bock Bock TALK 8-8-13 1351
FINAL SAMPLE DISPOSITION — Disposal Method	Disposed By — Date/Time

SPECIAL INSTRUCTIONS

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

** Samples from RCF pg. 2 of this COC.

AJ 8-8-13

Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab

REVIEWED BY Joshua DATE 8/8/13

WCH-EE-011

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

TestAmerica Laboratories, Inc.

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-238-005 | 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-111 - 100-K-111 East Sample area (statistical only)		SAF No.: RC-238
Ice Chest No.: NA	Field Logbook No.: EL-1668	COA: 0ESKSH6520	Method of Shipment: Local Delivery
Shipped To: Radiological Counting Facility	Offsite Property No.: NA		Bill of Lading/Air Bill No.: NA

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

J3H090406
J01903

J3H080460 8-9-13

J01902
Due 8-23-13

Preservation	None												
Type of Container	G/P												
No. of Container(s)	1												
Volume	~~60g~~ 500ml												
SAMPLE ANALYSIS	** RCF GEA Shipping Screen												
Sample No.	Matrix	Sample Date	Sample Time										
J1RR51	SOIL	8-6-13	1258	X	E-9A	L		35949	524g	~~MIXED~~	8-9-13		
J1RR52	SOIL	8-6-13	1304	X	E-9A	4		35950	469g	~~MIXED~~			
	SOIL												
	SOIL												
	SOIL												

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: E. White	Date/Time: 8-6-13 1350
Received By/Stored In: Doug Bowers	Date/Time: 8-6-13/1350
Relinquished By/Removed From: Doug Bowers	Date/Time: 8-6-13/1620
Received By/Stored In: 1060 Battelle Blvd Ref 2A	Date/Time: 8-6-13/1620 *
Relinquished By/Removed From: 1060 Battelle Blvd Ref 2A	Date/Time: 8-7-13 0747
Received By/Stored In: A. Freier	Date/Time: 8-7-13 0747 *
Relinquished By/Removed From: A. Freier (TW)	Date/Time: 8-7-13 1015
Received By/Stored In: D. Miller (RCF)	Date/Time: 8-7-13/1015
Relinquished By/Removed From: (RCF)	Date/Time: 8-8-13 0855
Received By/Stored In: A. Freier	Date/Time: 8-8-13 0855
Relinquished By/Removed From: A. Freier (WCH)	Date/Time: 8-8-13 1351
Received By/Stored In: J. Jack (TALR)	Date/Time: 8-8-13 1351
Relinquished By/Removed From:	Date/Time:
Received By/Stored In:	Date/Time:

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

SPECIAL INSTRUCTIONS

RECEIVED BY Dwo Lea DATE 8/8/13

* Custodian unavailable to remove samples from controlled storage. Shipper removed samples, taking custody for shipment to lab.

** RCF samples (500 ml) submitted to TALR for GEA on pg. 1 of this COC
AF 8-8-13

WCH-EE-011

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

Apex™

Analysis Report for RCF35949

J1RR51 SAF-RC-238 100K/100-K-111 East Sample Area

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF35949
Sample Description	: J1RR51 SAF-RC-238 100K/100-K-111 East Sample Area
Sample Type	: Non Standard Geometry
Sample Size	: 5.240E+02 grams
Facility	: Default
Sample Taken On	: 8/6/2013 12:58:00PM
Acquisition Started	: 8/7/2013 10:51:21AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: NEWBEGE
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.9 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	: 34077

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.994	5.34E+00	4.52E-01	
PB-212		0.709	2.36E-01	2.05E-02	
RA-226d	@	0.777	1.64E-01	1.80E-02	
TH-232d		0.998	2.16E-01	1.97E-02	
U-235		0.537	1.97E-02	1.38E-02	

Analysis Report for RCF35950

J1RR52 SAF-RC-238 100K/100-K-111 East Sample Area

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF35950
Sample Description	: J1RR52 SAF-RC-238 100K/100-K-111 East Sample Area
Sample Type	: Non Standard Geometry
Sample Size	: 4.690E+02 grams
Facility	: Default
Sample Taken On	: 8/6/2013 1:04:00PM
Acquisition Started	: 8/7/2013 10:51:44AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE2
Geometry	: 50 ml Pill Box
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 40 - 4096
Peak Area Range (in channels)	: 40 - 4096
Identification Energy Tolerance	: 1.000 keV
Energy Calibration Used Done On	: 7/1/2013
Efficiency Calibration Used Done On	: 3/11/2013
Efficiency Calibration Description	: REGE2 50ml PB EC031113 SN92492
Sample Number	: 34078

"Qualitative Only"

INTERFERENCE CORRECTED REPORT

Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40		0.974	5.07E+00	5.12E-01	
PB-212		0.710	2.26E-01	2.52E-02	
RA-226d	@	0.788	1.99E-01	2.35E-02	
TH-232d		0.999	2.62E-01	2.50E-02	
U-235		0.540	3.10E-02	2.58E-02	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 8-8-13 | 1354 Container GM Screen Result: (Airlock) 80 cpm Initials[ ]
Sample GM Screen Result (Sample Receiving) 40 cpm Initials[ ]

Client: WCH SDG #: J01903 SAF #: RC-238 NA [ ]

Lot Number: J3H090406

Chain of Custody # RC-238-005

Shipping Container ID or Air Bill Number : hand deliv. NA [✓]

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

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [✓]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [✓]
3. Cooler temperature: 5.3 °C on Ice NA [ ]
4. Vermiculite/packing materials is NA [✓] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [✓] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 2 x 500mL ALG; 6 x 250mL ALG
8. Sample holding times exceeded? NA [ ] Yes [ ] No [✓]
9. Samples have: ____tape ____hazard labels ✓ custody seals ✓ appropriate sample labels
10. Matrix: ✓ A (FLT, Wipe, Solid, Soil) ____I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    ✓ are in good condition ____are leaking ____are broken
    ____have air bubbles (Only for samples requiring no head space) ____Other ____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [✓]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO_3 added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
14. Description of anomalies (include sample numbers): NA [✓]
15. Sample Location, Sample Collector Listed on COC? * Yes [✓] ~~No~~ [ ] 8-8-13
    *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: Marie Bach Date: 8-8-13

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

[✓] No action necessary; process as is

Project Manager: [signature] Date 8/9/13

LS-023 Rev. 17, 05/13

8/12/2013 1:57:42 PM

Sample Preparation/Analysis

Balance Id:1120373922

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

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

Pipet #: _____

AnalyDueDate: 08/23/2013

Sep1 DT/Tm Tech:

Batch: 3221043 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

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 M1K94-1-AE J3H090406-1-SAMP 08/06/2013 12:58			1.02g,in AmtRec: 1X500MLAG;3X250MLAG	1.02g #Containers: 4	PUTC13651 08/12/13,pd 01/01/10,r				100min Scr:	37 Alpha:	2157	8/19/13	Beta:
2 M1K96-1-AE J3H090406-2-SAMP 08/06/2013 13:04			1.02g,in AmtRec: 1X500MLAG;3X250MLAG	1.02g #Containers: 4	PUTC13652 08/12/13,pd 01/01/10,r				39 Scr:	Alpha:			Beta:
3 M1K96-1-AL-X J3H090406-2-DUP 08/06/2013 13:04			1.03g,in AmtRec: 1X500MLAG;3X250MLAG	1.03g #Containers: 4	PUTC13653 08/12/13,pd 01/01/10,r				40 Scr:	Alpha:			Beta:
4 M1LCC-1-AA-B J3H090000-43-BLK 08/09/2013 11:03 pd			1.03g,in AmtRec:	1.03g #Containers: 1	PUTC13654 08/12/13,pd 01/01/10,r				41 Scr:	Alpha:			Beta:
5 M1LCC-1-AC-C J3H090000-43-LCS 08/09/2013 11:03 pd			1.04g,in AmtRec:	1.04g #Containers: 1	PUSK1019 08/12/13,pd 01/01/10,r				42 Scr:	Alpha:			Beta:

8/12/2013 1:57:43 PM

Sample Preparation/Analysis

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

Balance Id:1120373922

Pipet #: _____

AnalyDueDate: 08/23/2013

Sep1 DT/Tm Tech:

Batch: 3221043 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: M1LCC-BLK CommentsP-13-00313,P-13-00353,S-13-00041

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

M1K941AE-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						

M1LCC1AA-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						

M1LCC1AC-LCS:

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

M1K941AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1LCC1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1LCC1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/22/2013 8:31:51 AM

ICOC Fraction Transfer/Status Report

ByDate: 8/22/2012, 8/27/2013, Batch: '3221043', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting				Comments
3221043							
AC		**Rev1C**	**SannohS**	8/12/2013 1:45:33 PM			
SC			rogersa	IsBatched	8/9/2013 11:03:24 AM		ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/12/2013 1:45:33 PM		RL-PRP-003 REVISION 4
SC			SannohS	Prep1C	8/14/2013 10:20:40 AM		RL-PRP-003 REVISION 4
SC			JorgensonD	Sep1C	8/14/2013 5:34:44 PM		RL-ALP-001 REVISION 3
SC			RichardsonB	Sep2C	8/19/2013 10:31:17 AM		RL-ALP-016 REVISION 3
SC			DawkinsO	InCnt1	8/19/2013 6:54:02 PM		RL-CI-008 REVISION 3
SC			DawkinsO	CalcC	8/20/2013 1:32:17 AM		RL-CI-008 REVISION 3
SC			antonsonl	Rev1C	8/22/2013 8:31:42 AM		RL-DR-001 Rev 2
AC			**SannohS**	8/14/2013 10:20:40			
AC			**JorgensonD**	8/14/2013 5:34:44 PM			
AC			**RichardsonB**	8/19/2013 10:31:17			
AC			**DawkinsO**	8/19/2013 6:54:02 PM			
AC			**DawkinsO**	8/20/2013 1:32:17			
AC			**antonsonl**	8/22/2013 8:31:42			

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOCFractions v4.8.44

8/20/2013 9:15:27 PM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

CH Sr-Total Prp PRP003, Sep ~~GPC003~~
~~TH~~ Total Strontium by GPC GPC010
5I CLIENT: HANFORD

AnalyDueDate: 08/23/2013

Balance Id:

Pipet #:

Sep1 DT/Tm Tech: 1930 8/19/13 APA

Sep2 DT/Tm Tech:

Prep Tech: ,SannohS

Batch: 3221039 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**
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:
1 M1K94-1-AC J3H090406-1-SAMP 08/06/2013 12:58			3.02g,in	3.02g	SRTC1185 07/18/13 AmtRec: 1X500MLAG;3X250MLAG #Containers: 4		1.5"	10.8mg	50	32B	806	8/21/13 JB	Scr: Alpha: Beta:
2 M1K96-1-AC J3H090406-2-SAMP 08/06/2013 13:04			3.02g,in	3.02g	SRTC1186 07/18/13 AmtRec: 1X500MLAG;3X250MLAG #Containers: 4			10.6mg		32C			Scr: Alpha: Beta:
3 M1K96-1-AJ-X J3H090406-2-DUP 08/06/2013 13:04			3.02g,in	3.02g	SRTC1187 07/18/13 AmtRec: 1X500MLAG;3X250MLAG #Containers: 4			11.4mg		32D			Scr: Alpha: Beta:
4 M1LA2-1-AA-B J3H090000-39-BLK 08/09/2013 11:03 pd			3.04g,in	3.04g	SRTC1188 07/18/13 AmtRec: #Containers: 1			9.3mg		31A	902	8/21/13 JB	Scr: Alpha: Beta:
5 M1LA2-1-AC-C J3H090000-39-LCS 08/09/2013 11:03 pd			3.01g,in	3.01g	STSF0290 07/29/13 AmtRec: #Containers: 1			8.2mg		31B			Scr: Alpha: Beta:

8/20/2013 9:15:28 PM

Sample Preparation/Analysis

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

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,SannohS

AnalyDueDate: 08/23/2013

Batch: 3221039 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

M1K941AC-SAMP Constituent List:
Sr-90 RDL:1 pCi/g LCL:70 UCL:130 RPD:35
M1LA21AA-BLK:
Sr-90 RDL:1 pCi/g LCL: UCL: RPD:
M1LA21AC-LCS:
Sr-90 RDL:1 pCi/g LCL:70 UCL:130 RPD:35

M1K941AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA21AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA21AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/21/2013 12:30:23 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/21/2012, 8/26/2013, Batch: '3221039', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3221039						
AC		**Rev1C**	**SannohS**	8/12/2013 11:46:39		
SC			rogersa	IsBatched	8/9/2013 11:03:24 AM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/12/2013 11:46:39 AM	RL-PRP-003 REVISION 4
SC			SannohS	Prep1C	8/14/2013 10:21:01 AM	RL-PRP-003 REVISION 4
SC			DawkinsO	InCnt1	8/20/2013 9:37:47 PM	RL-CI-006 REVISION 4
SC			CarnesH	CalcC	8/21/2013 9:40:09 AM	RL-CI-006 REVISION 4
SC			mcginnist	Rev1C	8/21/2013 12:30:15 PM	RL-DR-001 Rev 2
AC			**SannohS**	8/14/2013 10:21:01		
AC			**DawkinsO**	8/20/2013 9:37:47 PM		
AC			**CarnesH**	8/21/2013 9:40:09		
AC			**mcginnist**	8/21/2013 12:30:15		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/12/2013 3:24:31 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: 08/23/2013

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Batch: 3221038 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**

SEQ Batch, Test: None All Tests: DWEA, 3221038 AXTA, 3221039 CHTH, 3221040 5STC, 3221041 ATS6, 3221042 AFS4, 3221043 6ASO,

Prep Tech: ,SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M1K94-1-AG J3H090406-1-SAMP 08/06/2013 12:58			318.10g,in	318.10g				S250	200min	G7	16:24	8-8-12-13	
			AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4					Scr:	Alpha:			Beta:
2 M1K94-1-AJ-X J3H090406-1-DUP 08/06/2013 12:58			323.00g,in	323.00g						G16			
			AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4					Scr:	Alpha:			Beta:
3 M1K96-1-AG J3H090406-2-SAMP 08/06/2013 13:04			328.60g,in	328.60g						G18			
			AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4					Scr:	Alpha:			Beta:
4 M1LAT-1-AA-B J3H090000-38-BLK 08/09/2013 11:03 pd			348.00g,in	348.00g						G19			
			AmtRec:	#Containers: 1					Scr:	Alpha:			Beta:
5 M1LAT-1-AC-C J3H090000-38-LCS 08/09/2013 11:03 pd			350.10g,in	350.10g	QC20009 08/04/09,pd 09/01/09,r					G10	16:49		
			AmtRec:	#Containers: 1					Scr:	Alpha:			Beta:

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 v4.8.61

8/12/2013 3:24:33 PM

Sample Preparation/Analysis

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

Balance Id:1120421763

Pipet #: _____

AnalyDueDate: 08/23/2013

Sep1 DT/Tm Tech:

Batch: 3221038 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:

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

M1K941AG-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:						

M1LAT1AA-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:						

M1LAT1AC-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						

M1K941AG-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1LAT1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M1LAT1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/21/2013 1:21:52 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/21/2012, 8/26/2013, Batch: '3221038', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting			Comments
3221038							
AC		**Rev1C**	**SannohS**	8/9/2013 11:34:28			
SC			rogersa	IsBatched	8/9/2013 11:03:24 AM		ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/9/2013 11:34:28 AM		RL-GAM-001 REVISION 2
SC			SannohS	Prep1C	8/12/2013 3:29:48 PM		RL-GAM-001 REVISION 2
SC			DawkinsO	InCnt1	8/12/2013 10:22:03 PM		RL-CI-007 REVISION 3
SC			NortonJ	CalcC	8/18/2013 7:54:58 AM		RL-CI-007 REVISION 3
SC			antonsonl	Rev1C	8/21/2013 1:21:40 PM		RL-DR-001 Rev 2
AC			**SannohS**	8/12/2013 3:29:48 PM			
AC			**DawkinsO**	8/12/2013 10:22:03			
AC			**NortonJ**	8/18/2013 7:54:58			
AC			**antonsonl**	8/21/2013 1:21:40 PM			

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 5

ICOCFractions v4.8.44

8/9/2013 11:03:58 AM

Sample Preparation/Analysis

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

AnalyDueDate: 08/23/2013

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

PRIORITY

Batch: 3221041 SOIL pCi/g
SEQ Batch, Test: None

PM, Quote: RW2, 27038

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 M1K94-1-AF													
J3H090406-1-SAMP													
08/06/2013 12:58			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
2 M1K94-1-AL-X													
J3H090406-1-DUP													
08/06/2013 12:58			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
3 M1K96-1-AF													
J3H090406-2-SAMP													
08/06/2013 13:04			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
4 M1LA7-1-AA-B													
J3H090000-41-BLK													
08/09/2013 11:03 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M1LA7-1-AC-C													
J3H090000-41-LCS													
08/09/2013 11:03 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
6 M1LA7-1-AD-B													
J3H090000-41-BLK													
08/09/2013 11:03 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

8/9/2013 11:03:58 AM

Sample Preparation/Analysis

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

Balance Id:

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 08/23/2013

Batch: 3221041 **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

M1K941AF-SAMP Constituent List:

M1LA71AA-BLK:

M1LA71AC-LCS:

M1LA71AD-BLK:

M1K941AF-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA71AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA71AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA71AD-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/23/2013 1:55:02 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/23/2012, 8/28/2013, Batch: '3221041', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3221041						
AC		**Rev1C**	**NortonP**	8/21/2013 5:28:56 PM		
SC			rogersa	IsBatched	8/9/2013 11:03:24 AM	ICOC_RADCALC v4.8.49
SC			NortonP	Sep1C	8/21/2013 5:28:56 PM	RL-LSC-002 REVISION 4
SC			BullJ	CalcC	8/23/2013 1:29:29 PM	RL-CI-005 REVISION 3
SC			CarnesH	CalcC	8/23/2013 1:30:47 PM	RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	8/23/2013 1:54:51 PM	RL-DR-001 Rev 2
AC			**BullJ**	8/23/2013 1:29:29 PM		
AC			**CarnesH**	8/23/2013 1:30:47 PM		
AC			**mcginnist**	8/23/2013 1:54:51 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 4

ICOCFractions v4.8.44

8/20/2013 10:03:28 AM

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 #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,WindischT

AnalyDueDate: 08/23/2013

Batch: 3221040 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**

SEQ Batch, Test: None All Tests: 3221038 AXTA, 3221039 CHTH, 3221040 5STC, 3221041 ATS6, 3221042 AFS4, 3221043 6ASO, 3225033 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 **M1K94-1-AH**			4.015g,in	4.015g									
J3H090406-1-SAMP													
08/06/2013 12:58			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
2 **M1K94-1-AK-X**			4.034g,in	4.034g									
J3H090406-1-DUP													
08/06/2013 12:58			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
3 **M1K96-1-AH**			4.021g,in	4.021g									
J3H090406-2-SAMP													
08/06/2013 13:04			AmtRec: 1X500MLAG;3X250MLAG		#Containers: 4				Scr:		Alpha:		Beta:
4 **M1LA6-1-AA-B**			4.024g,in	4.024g									
J3H090000-40-BLK													
08/09/2013 11:03 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 **M1LA6-1-AC-C**			4.07g,in	4.07g	CSB1310								
J3H090000-40-LCS					08/19/13,pd 11/08/12,r								
08/09/2013 11:03 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
6 **M1LA6-1-AD-BN**													
J3H090000-40-IBLK													
08/09/2013 11:03 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

Page 1

ISV - Insufficient Volume for Analysis

WO Cnt: **6**

ICOC v4.8.49

8/20/2013 10:03:28 AM

Sample Preparation/Analysis

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

AnalyDueDate: 08/23/2013

Batch: 3221040 **pCi/g**
SEQ Batch, Test: None

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

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

Comments:

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

M1K941AH-SAMP Constituent List:
C-14 RDL:5.00E+01 pCi/g LCL: UCL: RPD:
M1LA61AA-BLK:
C-14 RDL:5.00E+01 pCi/g LCL: UCL: RPD:
M1LA61AC-LCS:

M1LA61AD-IBLK:
C-14 RDL:5.00E+01 pCi/g LCL: UCL: RPD:

M1K941AH-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA61AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA61AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M1LA61AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

8/22/2013 1:44:09 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/22/2012, 8/27/2013, Batch: '3221040', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3221040						
AC		**Rev1C**	**WindischT**	8/20/2013 10:15:47		
SC			rogersa	IsBatched	8/9/2013 11:03:24 AM	ICOC_RADCALC v4.8.49
SC			WindischT	Sep1C	8/20/2013 10:15:47 AM	RL-LSC-008 REVISION 3
SC			BullJ	InCnt1	8/20/2013 10:20:22 AM	RL-CI-005 REVISION 3
SC			CarnesH	CalcC	8/21/2013 12:24:43 PM	RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	8/22/2013 1:44:00 PM	RL-DR-001 Rev 2
AC			**BullJ**	8/20/2013 10:20:22		
AC			**CarnesH**	8/21/2013 12:24:43		
AC			**mcginnist**	8/22/2013 1:44:00 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 4

ICOCFractions v4.8.44

8/12/2013 1:08:56 PM

Sample Preparation/Analysis

Balance Id:1120373922

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

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

Pipet #: _____

AnalyDueDate: 08/23/2013

Sep1 DT/Tm Tech:

Batch: 3221042 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 M1K94-1-AD J3H090406-1-SAMP 08/06/2013 12:58			0.50g,in AmtRec: 1X500MLAG;3X250MLAG	0.50g #Containers: 4	NITA10163 08/05/13				20 min Scr:		Alpha:		Beta:
2 M1K96-1-AD J3H090406-2-SAMP 08/06/2013 13:04			0.50g,in AmtRec: 1X500MLAG;3X250MLAG	0.50g #Containers: 4	NITA10164 08/05/13				Scr:		Alpha:		Beta:
3 M1K96-1-AK-X J3H090406-2-DUP 08/06/2013 13:04			0.50g,in AmtRec: 1X500MLAG;3X250MLAG	0.50g #Containers: 4	NITA10165 08/05/13				Scr:		Alpha:		Beta:
4 M1LA9-1-AA-B J3H090000-42-BLK 08/09/2013 11:03 pd			0.51g,in AmtRec:	0.51g #Containers: 1	NITA10166 08/05/13				Scr:		Alpha:		Beta:
5 M1LA9-1-AC-C J3H090000-42-LCS 08/09/2013 11:03 pd			0.51g,in AmtRec:	0.51g #Containers: 1	NISA1936 07/23/13				Scr:		Alpha:		Beta:
6 M1LA9-1-AD-BN J3H090000-42-IBLK 08/09/2013 11:03 pd			AmtRec:	#Containers: 1					Scr:		Alpha:		Beta:

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: 6

pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep_SamplePrep v4.8.61

8/12/2013 1:08:58 PM

Sample Preparation/Analysis

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

Balance Id:

Pipet #: _____

AnalyDueDate: 08/23/2013

Sep1 DT/Tm Tech:

Batch: 3221042 **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: M1LA9-BLK CommentsP-13-00313,P-13-00353,S-13-00041

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

M1K941AD-SAMP Constituent List:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M1LA91AA-BLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:
M1LA91AC-LCS:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M1LA91AD-IBLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:

M1K941AD-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1LA91AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1LA91AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1LA91AD-IBLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

8/22/2013 12:05:36 PM

ICOC Fraction Transfer/Status Report

ByDate: 8/22/2012, 8/27/2013, Batch: '3221042', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3221042						
AC		**Rev1C**	**SannohS**	8/12/2013 12:59:46		
SC			rogersa	IsBatched	8/9/2013 11:03:24 AM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	8/12/2013 12:59:46 PM	RL-PRP-003 REVISION 4
SC			SannohS	Prep1C	8/14/2013 10:19:58 AM	RL-PRP-003 REVISION 4
SC			JorgensonD	Sep2C	8/21/2013 9:44:30 AM	RL-LSC-017 REVISION 3
SC			BullJ	InCnt1	8/21/2013 10:09:13 AM	RL-CI-005 REVISION 3
SC			NortonJ	CalcC	8/22/2013 6:59:03 AM	RL-CI-005 REVISION 3
SC			mcginnist	Rev1C	8/22/2013 12:05:21 PM	RL-DR-001 Rev 2
AC			**SannohS**	8/14/2013 10:19:58		
AC			**JorgensonD**	8/21/2013 9:44:30		
AC			**BullJ**	8/21/2013 10:09:13		
AC			**NortonJ**	8/22/2013 6:59:03		
AC			**mcginnist**	8/22/2013 12:05:21		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 6

ICOCFractions v4.8.44

8/19/2013 9:43:44 AM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

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

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

AnalyDueDate: 08/23/2013

Batch: 3225033 SOIL mg/kg **PM, Quote: RW2, 27038**
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:
1 M1K94-1-AA J3H090406-1-SAMP 08/06/2013 12:58	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
2 M1K94-1-AM-S J3H090406-1-MS 08/06/2013 12:58	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
3 M1K94-1-AN-D J3H090406-1-MSD 08/06/2013 12:58	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
4 M1K94-1-AP-X J3H090406-1-DUP 08/06/2013 12:58	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
5 M1K96-1-AA J3H090406-2-SAMP 08/06/2013 13:04	AmtRec: 1X500MLAG;3X250MLAG	#Containers: 4	Scr:	Alpha:	Beta:								
6 M1LXW-1-AA-B J3H130000-33-BLK 08/19/2013 09:43 pd	AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:								
7 M1LXW-1-AC-C J3H130000-33-LCS 08/19/2013 09:43 pd	AmtRec:	#Containers: 1	Scr:	Alpha:	Beta:								

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

Page 1

ISV - Insufficient Volume for Analysis

WO Cnt: 7
ICOC v4.8.49

8/19/2013 9:43:44 AM

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: 08/23/2013

Batch: 3225033 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:

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

M1K941AA-SAMP Constituent List:
  HEXCHROME   RDL:.1548      mg/kg     LCL:80      UCL:120     RPD:20
M1K941AM-MS Constituent List:
  HEXCHROME   RDL:0.35       mg/kg     LCL:75      UCL:125     RPD:20
M1K941AN-MSD:
  HEXCHROME   RDL:0.35       mg/kg     LCL:75      UCL:125     RPD:20
M1LXW1AA-BLK:
  HEXCHROME   RDL:.1548      mg/kg     LCL:        UCL:        RPD:
M1LXW1AC-LCS:
  HEXCHROME   RDL:0.35       mg/kg     LCL:80      UCL:120     RPD:20

M1K941AA-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1K941AM-MS Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1K941AN-MSD:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1LXW1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M1LXW1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ANALYTICAL REPORT

Job Number: 280-45299-1

SDG Number: J01903

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
8/26/2013 8:53 AM

Kae E Yoder, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
08/26/2013

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.

Table of Contents

Cover Title Page 1
Report Narrative 3
Data Qualifiers 4
Sample Summary 5
Method Summary 6
Method / Analyst Summary 7
Sample Results 8
Sample Datasheets 9
QC Results 13
Qc Reports 14
Qc Association Summary 21
Client Chain of Custody 22
Sample Receipt Checklist 23

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-45299-1

SDG #: J01903
SAF#: RC-238

Date SDG Closed: August 9, 2013
Data Deliverable: 15 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1RR51	280-45299-1	6010/7471	6010B/7471A
J1RR52	280-45299-2	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 8/9/2013 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

TOTAL METALS - SW846 6010B/7471A
It can be noted that the sample amount was greater than four times the spike amount for Aluminum and Iron in the Matrix Spike performed on sample J1RR51; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1RR51, 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: 280-45299-1
Sdg Number: J01903

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

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-45299-1	J1RR51	Solid	08/06/2013 1258	08/09/2013 0900
280-45299-2	J1RR52	Solid	08/06/2013 1304	08/09/2013 0900

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

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: 280-45299-1
Sdg Number: J01903

Method	Analyst	Analyst ID
SW846 6010B	Harre, John K	JKH
SW846 7471A	Fredette, Nick M	NMF
ASTM D-2216	McKittrick, Ian B	IBM

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Client Sample ID: **J1RR51**

Lab Sample ID: 280-45299-1
Client Matrix: Solid
% Moisture: 1.8

Date Sampled: 08/06/2013 1258
Date Received: 08/09/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-187482	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-186954	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.03 g
Analysis Date:	08/15/2013 1554			Final Weight/Volume:	100 mL
Prep Date:	08/13/2013 0925				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6840		1.5	4.9
Antimony		0.38	U	0.38	0.59
Arsenic		3.2		0.65	0.99
Barium		51.9		0.075	0.49
Beryllium		0.19	B	0.033	0.20
Boron		1.0	B	0.97	2.0
Cadmium		0.14	B	0.041	0.20
Calcium		3090		13.9	49.4
Chromium		14.7		0.057	0.20
Cobalt		4.5		0.099	0.99
Copper		7.4		0.21	0.99
Iron		14200		3.8	4.9
Lead		3.7		0.27	0.49
Magnesium		3910		3.7	19.8
Manganese		187		0.099	0.99
Molybdenum		0.26	U	0.26	2.0
Nickel		12.4		0.12	4.0
Potassium		1060		40.5	297
Selenium		0.85	U	0.85	0.99
Silicon		223	N	5.6	9.9
Silver		0.16	U	0.16	0.20
Sodium		121		58.3	119
Vanadium		29.7		0.093	2.0
Zinc		30.3		0.39	0.99

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-187309	Instrument ID:	MT_034
Prep Method:	7471A	Prep Batch:	280-187093	Lab File ID:	130814taa.txt
Dilution:	1.0			Initial Weight/Volume:	0.60 g
Analysis Date:	08/14/2013 1605			Final Weight/Volume:	50 mL
Prep Date:	08/14/2013 1115				

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

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Client Sample ID: **J1RR52**

Lab Sample ID: 280-45299-2
Client Matrix: Solid
% Moisture: 4.6

Date Sampled: 08/06/2013 1304
Date Received: 08/09/2013 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-187482	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-186954	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	1.17 g
Analysis Date:	08/15/2013 1603			Final Weight/Volume:	100 mL
Prep Date:	08/13/2013 0925				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6690		1.4	4.5
Antimony		0.34	U	0.34	0.54
Arsenic		3.0		0.59	0.90
Barium		54.3		0.068	0.45
Beryllium		0.20		0.030	0.18
Boron		1.1	B	0.88	1.8
Cadmium		0.17	B	0.037	0.18
Calcium		2970		12.6	44.8
Chromium		14.9		0.052	0.18
Cobalt		4.4		0.090	0.90
Copper		8.8		0.19	0.90
Iron		14500		3.4	4.5
Lead		4.1		0.24	0.45
Magnesium		3610		3.3	17.9
Manganese		186		0.090	0.90
Molybdenum		0.23	U	0.23	1.8
Nickel		12.5		0.11	3.6
Potassium		1280		36.7	269
Selenium		0.77	U	0.77	0.90
Silicon		337		5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		119		52.9	108
Vanadium		31.7		0.084	1.8
Zinc		30.6		0.36	0.90

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-187309	Instrument ID:	MT_034
Prep Method:	7471A	Prep Batch:	280-187093	Lab File ID:	130814taa.txt
Dilution:	1.0			Initial Weight/Volume:	0.66 g
Analysis Date:	08/14/2013 1612			Final Weight/Volume:	50 mL
Prep Date:	08/14/2013 1115				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0053	U	0.0053	0.016

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

General Chemistry

Client Sample ID: **J1RR51**

Lab Sample ID: 280-45299-1
Client Matrix: Solid

Date Sampled: 08/06/2013 1258
Date Received: 08/09/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	1.8		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-186965 Analysis Date: 08/13/2013 0951 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

General Chemistry

Client Sample ID: **J1RR52**

Lab Sample ID: 280-45299-2
Client Matrix: Solid

Date Sampled: 08/06/2013 1304
Date Received: 08/09/2013 0900

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.6		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-186965 Analysis Date: 08/13/2013 0951 DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Method Blank - Batch: 280-186954

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-186954/1-A	Analysis Batch:	280-187482	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-186954	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/15/2013 1550	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/13/2013 0925				
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	0.40	U	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Lab Control Sample - Batch: 280-186954

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-186954/2-A	Analysis Batch:	280-187482	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-186954	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	08/15/2013 1552	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/13/2013 0925				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	186.0	93	82 - 116	
Antimony	50.0	44.50	89	82 - 110	
Arsenic	100	96.27	96	85 - 110	
Barium	200	191.5	96	87 - 112	
Beryllium	5.00	4.76	95	84 - 114	
Boron	100	90.95	91	80 - 120	
Cadmium	10.0	10.05	101	87 - 110	
Calcium	5000	4760	95	82 - 114	
Chromium	20.0	19.23	96	84 - 114	
Cobalt	50.0	47.33	95	87 - 110	
Copper	25.0	24.17	97	88 - 110	
Iron	100	96.81	97	87 - 120	
Lead	50.0	47.74	95	86 - 110	
Magnesium	5000	4593	92	90 - 110	
Manganese	50.0	46.86	94	88 - 110	
Molybdenum	100	93.40	93	86 - 110	
Nickel	50.0	47.33	95	87 - 110	
Potassium	5000	4841	97	89 - 110	
Selenium	200	188.0	94	83 - 110	
Silicon	1000	132.3	13	10 - 70	
Silver	5.00	4.61	92	87 - 114	
Sodium	5000	4855	97	90 - 112	
Vanadium	50.0	48.17	96	88 - 110	
Zinc	50.0	46.12	92	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Matrix Spike - Batch: 280-186954

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45299-1	Analysis Batch:	280-187482	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-186954	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.08 g
Analysis Date:	08/15/2013 1601	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/13/2013 0925				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	6840		189	8758	1019	50 - 200	4
Antimony	0.38	U	47.2	25.40	54	20 - 200	
Arsenic	3.2		94.3	90.74	93	76 - 111	
Barium	51.9		189	245.5	103	52 - 159	
Beryllium	0.19	B	4.72	4.58	93	72 - 105	
Boron	1.0	B	94.3	81.86	86	80 - 120	
Cadmium	0.14	B	9.43	9.35	98	40 - 130	
Calcium	3090		4720	8399	113	43 - 165	
Chromium	14.7		18.9	33.93	102	70 - 200	
Cobalt	4.5		47.2	47.23	91	72 - 106	
Copper	7.4		23.6	30.23	97	37 - 187	
Iron	14200		94.3	14620	485	70 - 200	4
Lead	3.7		47.2	46.29	90	70 - 200	
Magnesium	3910		4720	8345	94	64 - 145	
Manganese	187		47.2	241.5	115	40 - 200	
Molybdenum	0.26	U	94.3	82.50	87	75 - 103	
Nickel	12.4		47.2	55.17	91	61 - 126	
Potassium	1060		4720	5836	101	56 - 172	
Selenium	0.85	U	189	168.9	90	76 - 104	
Silicon	223		943	393.3	18	20 - 200	N
Silver	0.16	U	4.72	4.15	88	75 - 141	
Sodium	121		4720	4750	98	78 - 111	
Vanadium	29.7		47.2	81.02	109	50 - 169	
Zinc	30.3		47.2	72.90	90	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Duplicate - Batch: 280-186954

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-45299-1	Analysis Batch:	280-187482	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-186954	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.06 g
Analysis Date:	08/15/2013 1558	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	08/13/2013 0925				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	6840		7032	3	40	
Antimony	0.38	U	0.37	NC	40	U
Arsenic	3.2		3.21	0.1	30	
Barium	51.9		54.80	5	30	
Beryllium	0.19	B	0.205	6	30	
Boron	1.0	B	0.94	NC	30	U
Cadmium	0.14	B	0.157	9	30	B
Calcium	3090		3116	0.8	30	
Chromium	14.7		15.25	4	40	
Cobalt	4.5		4.63	2	30	
Copper	7.4		7.65	3	30	
Iron	14200		14780	4	40	
Lead	3.7		3.98	8	40	
Magnesium	3910		3967	1	30	
Manganese	187		195.9	4	40	
Molybdenum	0.26	U	0.25	NC	30	U
Nickel	12.4		13.10	5	30	
Potassium	1060		1099	4	40	
Selenium	0.85	U	0.83	NC	30	U
Silicon	223		230.5	3	40	
Silver	0.16	U	0.15	NC	30	U
Sodium	121		125.5	4	30	
Vanadium	29.7		31.40	5	30	
Zinc	30.3		30.83	2	40	

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Method Blank - Batch: 280-187093

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-187093/1-A	Analysis Batch:	280-187309	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-187093	Lab File ID:	130814taa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	08/14/2013 1600	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/14/2013 1115				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-187093

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-187093/2-A	Analysis Batch:	280-187309	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-187093	Lab File ID:	130814taa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	08/14/2013 1603	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/14/2013 1115				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.421	101	87 - 111	

Matrix Spike - Batch: 280-187093

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-45299-1	Analysis Batch:	280-187309	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-187093	Lab File ID:	130814taa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.65 g
Analysis Date:	08/14/2013 1610	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/14/2013 1115				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0056	U	0.392	0.362	92	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Duplicate - Batch: 280-187093

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-45299-1	Analysis Batch:	280-187309	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-187093	Lab File ID:	130814taa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.61 g
Analysis Date:	08/14/2013 1607	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	08/14/2013 1115				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0056	U	0.0055	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

Duplicate - Batch: 280-186965

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-45299-1	Analysis Batch:	280-186965	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:	08/13/2013 0951	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	1.8	1.9	7	20	

Client: Washington Closure Hanford

Job Number: 280-45299-1
Sdg Number: J01903

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-186954					
LCS 280-186954/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-186954/1-A	Method Blank	T	Solid	3050B	
280-45299-1	J1RR51	T	Solid	3050B	
280-45299-1DU	Duplicate	T	Solid	3050B	
280-45299-1MS	Matrix Spike	T	Solid	3050B	
280-45299-2	J1RR52	T	Solid	3050B	
Prep Batch: 280-187093					
LCS 280-187093/2-A	Lab Control Sample	T	Solid	7471A	
MB 280-187093/1-A	Method Blank	T	Solid	7471A	
280-45299-1	J1RR51	T	Solid	7471A	
280-45299-1DU	Duplicate	T	Solid	7471A	
280-45299-1MS	Matrix Spike	T	Solid	7471A	
280-45299-2	J1RR52	T	Solid	7471A	
Analysis Batch:280-187309					
LCS 280-187093/2-A	Lab Control Sample	T	Solid	7471A	280-187093
MB 280-187093/1-A	Method Blank	T	Solid	7471A	280-187093
280-45299-1	J1RR51	T	Solid	7471A	280-187093
280-45299-1DU	Duplicate	T	Solid	7471A	280-187093
280-45299-1MS	Matrix Spike	T	Solid	7471A	280-187093
280-45299-2	J1RR52	T	Solid	7471A	280-187093
Analysis Batch:280-187482					
LCS 280-186954/2-A	Lab Control Sample	T	Solid	6010B	280-186954
MB 280-186954/1-A	Method Blank	T	Solid	6010B	280-186954
280-45299-1	J1RR51	T	Solid	6010B	280-186954
280-45299-1DU	Duplicate	T	Solid	6010B	280-186954
280-45299-1MS	Matrix Spike	T	Solid	6010B	280-186954
280-45299-2	J1RR52	T	Solid	6010B	280-186954

Report Basis
T = Total

General Chemistry

Analysis Batch:280-186965					
280-45299-1	J1RR51	T	Solid	D-2216	
280-45299-1DU	Duplicate	T	Solid	D-2216	
280-45299-2	J1RR52	T	Solid	D-2216	

Report Basis
T = Total