SAF-RC-189
100N Field Remediation –
Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 11/26/12
INITIAL/DATE

COMMENTS:

SDG J01616 SAF-RC-189

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location: UPR-100-N-31 Shallow Zone Verification

Analytical Data Package Prepared For

Washington Closure Hanford

Radiochemical Analysis By

TestAmerica

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

Assigned Laboratory Code: TARL

Data Package Contains 76 *Pages*

Report No.: 53759

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.
J01616	RC-189	J1R541	J2K070416-1	MW82F2AH	9MW82F20	2312067
		J1R541	J2K070416-1	MW82F1AD	9MW82F10	2312068
		J1R541	J2K070416-1	MW82F1AG	9MW82F10	2312069
		J1R541	J2K070416-1	MW82F1AE	9MW82F10	2312070
		J1R541	J2K070416-1	MW82F1AC	9MW82F10	2312071
		J1R541	J2K070416-1	MW82F1AF	9MW82F10	2312072
		J1R541	J2K070416-1	MW82F1AA	9MW82F10	2312073

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

TestAmerica Laboratories, Inc.

November 19, 2012

Attention: Joan Kessner

SAF Number	:	RC-189
Date SDG Closed	:	November 7, 2012
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	J01616
Data Deliverable	:	15– Day / Summary

CASE NARRATIVE

I. Introduction

On November 7, 2012, one soil sample was received at TestAmerica for radiochemical and chemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1R541	MW82F	SOIL	11/07/12

II. Sample Receipt

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

III. Analytical Results/Methodology

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

The requested analyses were:

Alpha Spectroscopy
Plutonium-238, -239/240 by method RL-ALP-002
Uranium 234, 235 and 238 by method RL-ALP-015
Gas Proportional Counting
Strontium-90 by method RL-GPC-003
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, sample and sample duplicate (J1R541) results are within contractual requirements.

Uranium 234, 235 and 238 by method RL-ALP-015:
The LCS, batch blank, sample and sample duplicate (J1R541) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-003:
The LCS, batch blank, sample and sample duplicate (J1R541) results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The sample and sample duplicate agreement is outside the acceptance limits; the sample duplicate was re-counted for an acceptable result. The CRDL was not met for some of the analytes. Except as noted; the LCS, batch blank, sample and sample duplicate (J1R541) results are within contractual requirements.

Liquid Scintillation Counting
Tritium by method RL-LSC-005:
The LCS, batch blank, sample and sample duplicate (J1R541) results are within contractual requirements.

Carbon-14 by method RL-LSC-008:
On November 7, 2012 the sample was shipped to the St Louis laboratory for analysis per the client's request. See Appendix – A for the C14 results.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, sample and sample duplicate (J1R541) results are within contractual requirements.

Washington Closure Hanford
November 19, 2012

Chemical Analysis

Hexavalent Chromium by EPA method 7196A

The LCS, batch blank, sample, sample duplicate (J1R541) and sample matrix spike (J1R541) 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: 19-Nov-12

TestAmerica TARL

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

Report No. : 53759

SDG No: J01616

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
2312072 PUISO_PLATE_AEA									
J1R541									
	MW82F1AF	PU-238	1.21E-02 +- 3.6E-02	U	pCi/g	75%	9.48E-02	1.00E+00	
		PU239/40	7.81E-02 +- 8.1E-02	U	pCi/g	75%	1.12E-01	1.00E+00	
J1R541 DUP									
	MW82F1AP	PU-238	-6.44E-04 +- 3.2E-02	U	pCi/g	100%	5.86E-02	1.00E+00	222.6
		PU239/40	6.18E-02 +- 6.5E-02	U	pCi/g	100%	7.35E-02	1.00E+00	23.3
2312071 UISO_IE_PLATE_AEA									
J1R541									
	MW82F1AC	U-234	1.62E-01 +- 8.9E-02		pCi/g	98%	5.48E-02	1.00E+00	
		U-235	1.10E-02 +- 2.2E-02	U	pCi/g	98%	4.00E-02	1.00E+00	
		U-238	1.50E-01 +- 8.6E-02		pCi/g	98%	6.04E-02	1.00E+00	
J1R541 DUP									
	MW82F1AN	U-234	1.78E-01 +- 1.1E-01		pCi/g	77%	6.86E-02	1.00E+00	9.3
		U-235	-1.80E-03 +- 3.0E-02	U	pCi/g	77%	6.49E-02	1.00E+00	278.6
		U-238	1.63E-01 +- 1.0E-01		pCi/g	77%	6.86E-02	1.00E+00	8.3
2312067 GAMMA_GS									
J1R541									
	MW82F2AH	AMERICIUM 241	3.67E-03 +- 2.3E-02	U	pCi/g		3.87E-02		
		CO-60	9.58E-02 +- 3.0E-02		pCi/g		2.13E-02	5.00E-02	
		CS-137	1.27E-01 +- 3.0E-02		pCi/g		2.78E-02	1.00E-01	
		EU-152	1.91E-02 +- 3.7E-02	U	pCi/g		6.18E-02	1.00E-01	
		EU-154	1.77E-03 +- 4.5E-02	U	pCi/g		8.03E-02	1.00E-01	
		EU-155	2.74E-02 +- 3.3E-02	U	pCi/g		5.80E-02	1.00E-01	
		RA-226	4.77E-01 +- 9.2E-02		pCi/g		4.01E-02		
J1R541 DUP									
	MW82F2AJ	AMERICIUM 241	-2.25E-02 +- 3.9E-02	U	pCi/g		6.50E-02		-277.8
		CO-60	5.32E-02 +- 2.7E-02	U	pCi/g		5.20E-02	5.00E-02	57.2
		CS-137	1.52E-01 +- 4.0E-02		pCi/g		3.64E-02	1.00E-01	17.9
		EU-152	-4.46E-02 +- 6.1E-02	U	pCi/g		8.90E-02	1.00E-01	-501.3
		EU-154	2.43E-03 +- 6.4E-02	U	pCi/g		1.13E-01	1.00E-01	31.5
		EU-155	5.60E-02 +- 5.6E-02	U	pCi/g		9.56E-02	1.00E-01	68.6
		RA-226	3.47E-01 +- 9.9E-02		pCi/g		6.98E-02		31.5
2312068 SRTOT_SEP_PRECIP_GPC									
J1R541									
	MW82F1AD	STRONTIUM	2.10E-01 +- 1.1E-01		pCi/g	55%	1.71E-01		
J1R541 DUP									
	MW82F1AK	STRONTIUM	1.44E-01 +- 9.7E-02	U	pCi/g	56%	1.71E-01		37.6
2312069 906.0_H3_LSC									

TestAmerica

rptSTLRchSaSummary2 V5.2.22 A2002

RPD - Relative Percent Difference.

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

Sample Results Summary

Date: 19-Nov-12

TestAmerica TARL

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

Report No. : 53759

SDG No: J01616

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
2312069 906.0_H3_LSC									
J1R541									
	MW82F1AG	H-3	4.39E-02 +- 2.3E-02	U	pCi/g	100%	4.49E-02	4.00E+02	
J1R541 DUP									
	MW82F1AL	H-3	3.24E-02 +- 2.4E-02	U	pCi/g	100%	4.81E-02	4.00E+02	30.2
2312070 NI63_LSC									
J1R541									
	MW82F1AE	NI-63	-3.61E+00 +- 7.5E+00	U	pCi/g	85%	1.54E+01	3.00E+01	
J1R541 DUP									
	MW82F1AM	NI-63	2.38E+00 +- 7.8E+00	U	pCi/g	83%	1.51E+01	3.00E+01	-973.0
2312073 7196_CR6									
J1R541									
	MW82F1AA	HEXCHROME	2.10E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	MW82F1AR	HEXCHROME	1.70E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	3.50E-01	21.1

No. of Results: 32

TestAmerica

rptSTLRchSaSummary2 V5.2.22 A2002

RPD - Relative Percent Difference.

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

QC Results Summary

Date: 19-Nov-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 53759

SDG No.: J01616

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
PUISO_PLATE_AEA								
2312072 BLANK QC,								
MW85J1AA	PU-238	-2.90E-03 +- 3.6E-02	U	pCi/g	76%			8.26E-02
	PU239/40	-5.80E-03 +- 3.6E-02	U	pCi/g	76%			9.66E-02
2312072 LCS,								
MW85J1AC	PU239/40	4.95E+00 +- 1.1E+00		pCi/g	84%	73%	-0.3	7.18E-02
UISO_IE_PLATE_AEA								
2312071 BLANK QC,								
MW85H1AA	U-234	-1.09E-02 +- 3.7E-02	U	pCi/g	63%			1.14E-01
	U-235	1.30E-02 +- 3.6E-02	U	pCi/g	63%			9.36E-02
	U-238	-1.81E-02 +- 3.7E-02	U	pCi/g	63%			1.33E-01
2312071 LCS,								
MW85H1AC	U-234	3.25E+00 +- 7.7E-01		pCi/g	70%	100%	0.0	1.06E-01
	U-238	3.43E+00 +- 8.0E-01		pCi/g	70%	101%	0.0	1.15E-01
GAMMA_GS								
2312067 BLANK QC,								
MW8401AA	AMERICIUM 241	-6.15E-03 +- 9.2E-03	U	pCi/g				1.56E-02
	CO-60	3.97E-03 +- 7.9E-03	U	pCi/g				1.63E-02
	CS-137	-3.53E-03 +- 8.5E-03	U	pCi/g				1.44E-02
	EU-152	1.20E-02 +- 2.0E-02	U	pCi/g				3.57E-02
	EU-154	2.87E-02 +- 2.7E-02	U	pCi/g				5.69E-02
	EU-155	-4.63E-03 +- 1.5E-02	U	pCi/g				2.60E-02
	RA-226	7.14E-02 +- 3.2E-02	U	pCi/g				5.20E-02
2312067 LCS,								
MW8401AC	CS-137	1.00E+00 +- 1.2E-01		pCi/g		96%	0.0	2.44E-02
	RA-226	9.02E-01 +- 1.3E-01		pCi/g		79%	-0.2	3.90E-02
SRTOT_SEP_PRECIP_GPC								
2312068 BLANK QC,								
MW8451AA	STRONTIUM	7.48E-03 +- 5.4E-02	U	pCi/g	79%			1.24E-01
2312068 LCS,								
MW8451AC	STRONTIUM	9.77E-01 +- 2.9E-01		pCi/g	75%	87%	-0.1	1.50E-01
906.0_H3_LSC								
2312069 BLANK QC,								
MW85F1AA	H-3	3.18E-02 +- 1.9E-02	U	pCi/g	100%			3.79E-02
2312069 LCS,								
MW85F1AC	H-3	3.17E-01 +- 2.9E-02		pCi/g	100%	109%	0.1	3.78E-02
NI63_LSC								
2312070 BLANK QC,								
MW85G1AA	NI-63	5.71E+00 +- 1.0E+01	U	pCi/g	69%			1.91E+01
2312070 LCS,								
MW85G1AC	NI-63	5.11E+02 +- 5.5E+01		pCi/g	80%	84%	-0.2	1.64E+01
7196_CR6								

TestAmerica

rptSTLRchQcSummary V5.2.22 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: 19-Nov-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 53759

SDG No.: J01616

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
2312073 MATRIX SPIKE, J1R541								
MW82F1AQ	HEXCHROME	2.43E+01 +- 0.0E+00		mg/kg	N/A	82%	-0.2	1.55E-01
2312073 LCS,								
MW85V1AC	HEXCHROME	1.78E+01 +- 0.0E+00		mg/kg	N/A	94%	-0.1	1.55E-01
2312073 BLANK QC,								
MW85V1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 26

TestAmerica
rptSTLRchQcSummary V5.2.22
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: 19-Nov-12

Lab Name: TestAmerica | **SDG:** J01616 | **Collection Date:** 11/5/2012 12:52:00 PM

Lot-Sample No.: J2K070416-1 | **Report No. :** 53759 | **Received Date:** 11/7/2012 10:10:00 AM

Client Sample ID: J1R541 | **COC No. :** RC-189-143 | **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: 2312067	GAMMA_GS			**Work Order:**	MW82F2AH		**Report DB ID:**	9MW82F20				
AMERICIUM 241	3.67E-03	U	2.3E-02	2.3E-02	3.87E-02	pCi/g		*0.09*	11/13/12 09:05 a		383.1	GER15$1
								0.32			g	
CO-60	9.58E-02		3.0E-02	3.0E-02	2.13E-02	pCi/g		*(4.5)*	11/13/12 09:05 a		383.1	GER15$1
							5.00E-02	*(6.4)*			g	
CS-137	1.27E-01		3.0E-02	3.0E-02	2.78E-02	pCi/g		*(4.6)*	11/13/12 09:05 a		383.1	GER15$1
							1.00E-01	*(8.4)*			g	
EU-152	1.91E-02	U	3.7E-02	3.7E-02	6.18E-02	pCi/g		*0.31*	11/13/12 09:05 a		383.1	GER15$1
							1.00E-01	*(1.)*			g	
EU-154	1.77E-03	U	4.5E-02	4.5E-02	8.03E-02	pCi/g		*0.02*	11/13/12 09:05 a		383.1	GER15$1
							1.00E-01	*0.08*			g	
EU-155	2.74E-02	U	3.3E-02	3.3E-02	5.80E-02	pCi/g		*0.47*	11/13/12 09:05 a		383.1	GER15$1
							1.00E-01	*(1.6)*			g	
RA-226	4.77E-01		9.2E-02	9.2E-02	4.01E-02	pCi/g		*(11.9)*	11/13/12 09:05 a		383.1	GER15$1
								(10.4)			g	
Batch: 2312068	SRTOT_SEP_PRECIP_GPC			**Work Order:**	MW82F1AD		**Report DB ID:**	9MW82F10				
STRONTIUM	2.10E-01		9.6E-02	1.1E-01	1.71E-01	pCi/g	55%	*(1.2)*	11/15/12 11:25 a		6.02	GPC32A
						7.91E-02		*(3.8)*			g	
Batch: 2312069	906.0_H3_LSC			**Work Order:**	MW82F1AG		**Report DB ID:**	9MW82F10				
H-3	4.39E-02	U	2.0E-02	2.3E-02	4.49E-02	pCi/g	100%	*0.98*	11/8/12 09:05 p		97.0	LSC3
						2.14E-02	4.00E+02	*(3.9)*			g	
Batch: 2312070	NI63_LSC			**Work Order:**	MW82F1AE		**Report DB ID:**	9MW82F10				

TestAmerica
rptSTLRchSample
V5.2.22 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: 19-Nov-12

Lab Name: TestAmerica | **SDG:** J01616 | **Collection Date:** 11/5/2012 12:52:00 PM

Lot-Sample No.: J2K070416-1 | **Report No. :** 53759 | **Received Date:** 11/7/2012 10:10:00 AM

Client Sample ID: J1R541 | **COC No. :** RC-189-143 | **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
NI-63	-3.61E+00	U	5.9E+00	7.5E+00	1.54E+01	pCi/g	85%	-0.23	11/15/12 05:16 p		0.25	LSC3
						7.21E+00	3.00E+01	-0.97			g	
Batch: 2312071	UISO_IE_PLATE_AEA			**Work Order:**	MW82F1AC		**Report DB ID:** 9MW82F10					
U-234	1.62E-01		8.5E-02	8.9E-02	5.48E-02	pCi/g	98%	(3.)	11/13/12 07:35 p		1.03	ALP1
						1.25E-02	1.00E+00	(3.6)			g	
U-235	1.10E-02	U	2.2E-02	2.2E-02	4.00E-02	pCi/g	98%	0.27	11/13/12 07:35 p		1.03	ALP1
						5.11E-03	1.00E+00	1.			g	
U-238	1.50E-01		8.2E-02	8.6E-02	6.04E-02	pCi/g	98%	(2.5)	11/13/12 07:35 p		1.03	ALP1
						1.53E-02	1.00E+00	(3.5)			g	
							Ratio U-234/238 = 1.1					
Batch: 2312072	PUISO_PLATE_AEA			**Work Order:**	MW82F1AF		**Report DB ID:** 9MW82F10					
PU-238	1.21E-02	U	3.6E-02	3.6E-02	9.48E-02	pCi/g	75%	0.13	11/14/12 02:36 p		1.03	ALP41
						2.34E-02	1.00E+00	0.67			g	
PU239/40	7.81E-02	U	8.0E-02	8.1E-02	1.12E-01	pCi/g	75%	0.7	11/14/12 02:36 p		1.03	ALP41
						3.20E-02	1.00E+00	(1.9)			g	
Batch: 2312073	7196_CR6			**Work Order:**	MW82F1AA		**Report DB ID:** 9MW82F10					
HEXCHROME	2.10E-01			0.0E+00	1.55E-01	mg/kg	N/A	(1.4)	11/14/12 02:00 p		2.5077	
							1.55E-01	N/A			g	

No. of Results: 16 **Comments:**

TestAmerica
rptSTLRchSample
V5.2.22 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: 19-Nov-12

DUPLICATE RESULTS

Lab Name:	**TestAmerica**	**SDG:**	J01616	**Collection Date:**	11/5/2012 12:52:00 PM
Lot-Sample No.:	**J2K070416-1**	**Report No. :**	53759	**Received Date:**	11/7/2012 10:10:00 AM
Client Sample ID:	**J1R541**	**COC No. :**	RC-189-143	**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: 2312073	7196_CR6			**Work Order:** MW82F1AR		**Report DB ID:** MW82F1ER			**Orig Sa DB ID:** 9MW82F10			
HEXCHROME	1.70E-01			0.0E+00	1.55E-01	mg/kg	N/A	(1.1)	11/14/12 02:00 p		2.5126	
	2.10E-01		**RPD**	**21.1**		3.50E-01		N/A			g	

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

TestAmerica RPD - Relative Percent Difference.

rptSTLRchDupV5.2.22 A2002 MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

FORM II

Date: 19-Nov-12

DUPLICATE RESULTS

Lab Name:	**TestAmerica**	**SDG:**	J01616	**Collection Date:**	11/5/2012 12:52:00 PM
Lot-Sample No.:	**J2K070416-1**	**Report No. :**	53759	**Received Date:**	11/7/2012 10:10:00 AM
Client Sample ID:	**J1R541 DUP**	**COC No. :**	RC-189-143	**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: 2312067	GAMMA_GS			**Work Order:**	MW82F2AJ	**Report DB ID:**	MW82F2JR		**Orig Sa DB ID:** 9MW82F20			
AMERICIUM 241	-2.25E-02	U	3.9E-02	3.9E-02	6.50E-02	pCi/g		-0.35	11/13/12 12:29 p		383.1	GER14$1
	3.67E-03	U	**RPD**	**-277.8**				-(1.1)			g	
CO-60	5.32E-02	U	2.7E-02	2.7E-02	5.20E-02	pCi/g		(1.)	11/13/12 12:29 p		383.1	GER14$1
	9.58E-02		**RPD**	**57.2**		5.00E-02		(4.)			g	
CS-137	1.52E-01		4.0E-02	4.0E-02	3.64E-02	pCi/g		(4.2)	11/13/12 12:29 p		383.1	GER14$1
	1.27E-01		**RPD**	**17.9**		1.00E-01		(7.6)			g	
EU-152	-4.46E-02	U	6.1E-02	6.1E-02	8.90E-02	pCi/g		-0.5	11/13/12 12:29 p		383.1	GER14$1
	1.91E-02	U	**RPD**	**-501.3**		1.00E-01		-(1.5)			g	
EU-154	2.43E-03	U	6.4E-02	6.4E-02	1.13E-01	pCi/g		0.02	11/13/12 12:29 p		383.1	GER14$1
	1.77E-03	U	**RPD**	**31.5**		1.00E-01		0.08			g	
EU-155	5.60E-02	U	5.6E-02	5.6E-02	9.56E-02	pCi/g		0.59	11/13/12 12:29 p		383.1	GER14$1
	2.74E-02	U	**RPD**	**68.6**		1.00E-01		(2.)			g	
RA-226	3.47E-01		9.9E-02	9.9E-02	6.98E-02	pCi/g		(5.)	11/13/12 12:29 p		383.1	GER14$1
	4.77E-01		**RPD**	**31.5**				(7.)			g	
Batch: 2312068	SRTOT_SEP_PRECIP_GPC			**Work Order:**	MW82F1AK	**Report DB ID:**	MW82F1KR		**Orig Sa DB ID:** 9MW82F10			
STRONTIUM	1.44E-01	U	9.0E-02	9.7E-02	1.71E-01	pCi/g	56%	0.84	11/15/12 11:25 a		6.04	GPC32B
	2.10E-01		**RPD**	**37.6**				(3.)			g	
Batch: 2312069	906.0_H3_LSC			**Work Order:**	MW82F1AL	**Report DB ID:**	MW82F1LR		**Orig Sa DB ID:** 9MW82F10			
H-3	3.24E-02	U	2.1E-02	2.4E-02	4.81E-02	pCi/g	100%	0.67	11/8/12 10:29 p		98.7	LSC3
	4.39E-02	U	**RPD**	**30.2**		4.00E+02		(2.7)			g	

TestAmerica
rptSTLRchDupV5.2.22 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.
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FORM II

Date: 19-Nov-12

DUPLICATE RESULTS

Lab Name:	**TestAmerica**	**SDG:**	J01616	**Collection Date:**	11/5/2012 12:52:00 PM
Lot-Sample No.:	**J2K070416-1**	**Report No. :**	53759	**Received Date:**	11/7/2012 10:10:00 AM
Client Sample ID:	**J1R541 DUP**	**COC No. :**	RC-189-143	**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: 2312070	NI63_LSC			**Work Order:** MW82F1AM		**Report DB ID:** MW82F1MR			**Orig Sa DB ID:** 9MW82F10			
NI-63	2.38E+00	U	6.2E+00	7.8E+00	1.51E+01	pCi/g	83%	0.16	11/15/12 05:39 p		0.26	LSC3
	-3.61E+00	U	**RPD**	**-973.0**		3.00E+01		0.61			g	
Batch: 2312071	UISO_IE_PLATE_AEA			**Work Order:** MW82F1AN		**Report DB ID:** MW82F1NR			**Orig Sa DB ID:** 9MW82F10			
U-234	1.78E-01		1.0E-01	1.1E-01	6.86E-02	pCi/g	77%	(2.6)	11/13/12 07:35 p		1.01	ALP2
	1.62E-01		**RPD**	**9.3**		1.00E+00		(3.3)			g	
U-235	-1.80E-03	U	3.0E-02	3.0E-02	6.49E-02	pCi/g	77%	-0.03	11/13/12 07:35 p		1.01	ALP2
	1.10E-02	U	**RPD**	**278.6**		1.00E+00		-0.12			g	
U-238	1.63E-01		1.0E-01	1.0E-01	6.86E-02	pCi/g	77%	(2.4)	11/13/12 07:35 p		1.01	ALP2
	1.50E-01		**RPD**	**8.3**		1.00E+00		(3.1)			g	
						Ratio U-234/238 = 1.1			***Alpha Spec Result Sum = 3.4E-01***			
Batch: 2312072	PUISO_PLATE_AEA			**Work Order:** MW82F1AP		**Report DB ID:** MW82F1PR			**Orig Sa DB ID:** 9MW82F10			
PU-238	-6.44E-04	U	3.2E-02	3.2E-02	5.86E-02	pCi/g	100%	-0.01	11/14/12 02:36 p		1.03	ALP42
	1.21E-02	U	**RPD**	**222.6**		1.00E+00		-0.04			g	
PU239/40	6.18E-02	U	6.4E-02	6.5E-02	7.35E-02	pCi/g	100%	0.84	11/14/12 02:36 p		1.03	ALP42
	7.81E-02	U	**RPD**	**23.3**		1.00E+00		(1.9)			g	
									Alpha Spec Result Sum = 4.0E-01			

No. of Results: 15 **Comments:**

TestAmerica
rptSTLRchDupV5.2.22 A2002

RPD - Relative Percent Difference.
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FORM II

BLANK RESULTS

Date: 19-Nov-12

Lab Name: TestAmerica

Matrix: SOIL

SDG: J01616

Report No. : 53759

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: 2312073	7196_CR6			**Work Order:**	MW85V1AA		**Report DB ID:**	MW85V1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	11/14/12 02:00 p		2.5	
						1.55E-01		N/A			g	
Batch: 2312072	PUISO_PLATE_AEA			**Work Order:**	MW85J1AA		**Report DB ID:**	MW85J1AB				
PU-238	-2.90E-03	U	3.6E-02	3.6E-02	8.26E-02	pCi/g	76%	-0.04	11/14/12 02:36 p		1.04	ALP43
					1.68E-02	1.00E+00		-0.16			g	
PU239/40	-5.80E-03	U	3.6E-02	3.6E-02	9.66E-02	pCi/g	76%	-0.06	11/14/12 02:36 p		1.04	ALP43
					2.38E-02	1.00E+00		-0.32			g	
Batch: 2312071	UISO_IE_PLATE_AEA			**Work Order:**	MW85H1AA		**Report DB ID:**	MW85H1AB				
U-234	-1.09E-02	U	3.7E-02	3.7E-02	1.14E-01	pCi/g	63%	-0.1	11/13/12 07:36 p		1.03	ALP3
					3.26E-02	1.00E+00		-0.59			g	
U-235	1.30E-02	U	3.6E-02	3.6E-02	9.36E-02	pCi/g	63%	0.14	11/13/12 07:36 p		1.03	ALP3
					2.23E-02	1.00E+00		0.71			g	
U-238	-1.81E-02	U	3.7E-02	3.7E-02	1.33E-01	pCi/g	63%	-0.14	11/13/12 07:36 p		1.03	ALP3
					4.21E-02	1.00E+00		-0.98			g	
								Ratio U-234/238 = 0.6				
Batch: 2312070	NI63_LSC			**Work Order:**	MW85G1AA		**Report DB ID:**	MW85G1AB				
NI-63	5.71E+00	U	8.0E+00	1.0E+01	1.91E+01	pCi/g	69%	0.3	11/15/12 06:03 p		0.25	LSC3
					8.94E+00	3.00E+01		(1.1)			g	
Batch: 2312069	906.0_H3_LSC			**Work Order:**	MW85F1AA		**Report DB ID:**	MW85F1AB				
H-3	3.18E-02	U	1.7E-02	1.9E-02	3.79E-02	pCi/g	100%	0.84	11/8/12 11:52 p		97.7	LSC3
					1.81E-02	4.00E+02		(3.4)			g	
Batch: 2312067	GAMMA_GS			**Work Order:**	MW8401AA		**Report DB ID:**	MW8401AB				

TestAmerica
rptSTLRchBlank
V5.2.22 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
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FORM II

BLANK RESULTS

Date: 19-Nov-12

Lab Name: TestAmerica

Matrix: SOIL

SDG: J01616

Report No. : 53759

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
AMERICIUM 241	-6.15E-03	U	9.2E-03	9.2E-03	1.56E-02	pCi/g		-0.4	11/8/12 08:36 p		348.0	GER19$1
								-(1.3)			g	
CO-60	3.97E-03	U	7.9E-03	7.9E-03	1.63E-02	pCi/g		0.24	11/8/12 08:36 p		348.0	GER19$1
						5.00E-02		(1.)			g	
CS-137	-3.53E-03	U	8.5E-03	8.5E-03	1.44E-02	pCi/g		-0.24	11/8/12 08:36 p		348.0	GER19$1
						1.00E-01		-0.83			g	
EU-152	1.20E-02	U	2.0E-02	2.0E-02	3.57E-02	pCi/g		0.34	11/8/12 08:36 p		348.0	GER19$1
						1.00E-01		(1.2)			g	
EU-154	2.87E-02	U	2.7E-02	2.7E-02	5.69E-02	pCi/g		0.5	11/8/12 08:36 p		348.0	GER19$1
						1.00E-01		(2.1)			g	
EU-155	-4.63E-03	U	1.5E-02	1.5E-02	2.60E-02	pCi/g		-0.18	11/8/12 08:36 p		348.0	GER19$1
						1.00E-01		-0.6			g	
RA-226	7.14E-02	U	3.2E-02	3.2E-02	5.20E-02	pCi/g		(1.4)	11/8/12 08:36 p		348.0	GER19$1
								(4.5)			g	
Batch: 2312068	SRTOT_SEP_PRECIP_GPC			**Work Order:**	MW8451AA		**Report DB ID:**	MW8451AB				
STRONTIUM	7.48E-03	U	5.4E-02	5.4E-02	1.24E-01	pCi/g	79%	0.06	11/15/12 11:25 a		6.0	GPC32C
					5.73E-02			0.28			g	

No. of Results: 16 **Comments:**

TestAmerica
rptSTLRchBlank
V5.2.22 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: 19-Nov-12

Lab Name: TestAmerica

Matrix: SOIL

SDG: J01616

Report No. : 53759

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: 2312073	7196_CR6			**Work Order:**	MW85V1AC		**Report DB ID:**	MW85V1AS					
HEXCHROME	1.78E+01			0.0E+00	1.55E-01	mg/kg	N/A	1.90E+01		94%	11/14/12 02:00 p	2.5	
							Rec Limits:	80	120	-0.1		g	
Batch: 2312072	PUISO_PLATE_AEA			**Work Order:**	MW85J1AC		**Report DB ID:**	MW85J1CS					
PU239/40	4.95E+00		6.2E-01	1.1E+00	7.18E-02	pCi/g	84%	6.75E+00	2.0E-01	73%	11/14/12 02:36 p	1.02	ALP44
							Rec Limits:	70	130	-0.3		g	
Batch: 2312071	UISO_IE_PLATE_AEA			**Work Order:**	MW85H1AC		**Report DB ID:**	MW85H1CS					
U-234	3.25E+00		4.8E-01	7.7E-01	1.06E-01	pCi/g	70%	3.25E+00	1.7E-02	100%	11/13/12 07:36 p	1.0	ALP4
							Rec Limits:	70	130	0.0		g	
U-238	3.43E+00		4.9E-01	8.0E-01	1.15E-01	pCi/g	70%	3.41E+00	1.8E-02	101%	11/13/12 07:36 p	1.0	ALP4
							Rec Limits:	70	130	0.0		g	
Batch: 2312070	NI63_LSC			**Work Order:**	MW85G1AC		**Report DB ID:**	MW85G1CS					
NI-63	5.11E+02		2.1E+01	5.5E+01	1.64E+01	pCi/g	80%	6.10E+02	1.0E+01	84%	11/15/12 06:26 p	0.25	LSC3
							Rec Limits:	70	130	-0.2		g	
Batch: 2312069	906.0_H3_LSC			**Work Order:**	MW85F1AC		**Report DB ID:**	MW85F1CS					
H-3	3.17E-01		2.6E-02	2.9E-02	3.78E-02	pCi/g	100%	2.90E-01	8.7E-03	109%	11/9/12 01:16 a	92.5	LSC3
							Rec Limits:	70	130	0.1		g	
Batch: 2312067	GAMMA_GS			**Work Order:**	MW8401AC		**Report DB ID:**	MW8401CS					
CS-137	1.00E+00		1.2E-01	1.2E-01	2.44E-02	pCi/g		1.05E+00	1.1E-02	96%	11/8/12 08:37 p	350.1	GER18$1
							Rec Limits:	70	130	0.0		g	
RA-226	9.02E-01		1.3E-01	1.3E-01	3.90E-02	pCi/g		1.14E+00	1.2E-02	79%	11/8/12 08:37 p	350.1	GER18$1
							Rec Limits:	70	130	-0.2		g	
Batch: 2312068	SRTOT_SEP_PRECIP_GPC			**Work Order:**	MW8451AC		**Report DB ID:**	MW8451CS					

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

rptSTLRchLcs
V5.2.22 A2002

FORM II

LCS RESULTS

Date: 19-Nov-12

Lab Name: TestAmerica

Matrix: SOIL

SDG: J01616

Report No. : 53759

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
STRONTIUM	9.77E-01		1.3E-01	2.9E-01	1.50E-01	pCi/g	75%	1.12E+00	1.3E-02	87%	11/15/12 11:25 a	6.02	GPC32D
							Rec Limits:	70	130	-0.1		g	

No. of Results: 9 **Comments:**

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

rptSTLRchLcs
V5.2.22 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 19-Nov-12

Lab Name: TestAmerica **SDG:** J01616

Lot-Sample No.: J2K070416-1, J1R541 **Report No. :** 53759 **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: 2312073	**Work Order:** MW82F1AQ			**Report DB ID:** MW82F1CW			**Orig Sa DB ID:** 9MW82F10					
HEXCHROME	2.43E+01			0.0E+00	1.55E-01	mg/kg	N/A	81.74%	2.98E+01	11/14/12 02:00 p	2.5034	7196_CR6
	2.10E-01										g	

Number of Results: 1

Comments:

TestAmerica
rptSTLRchMs
V5.2.22 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

11/15/2012 11:13:08 AM

Lot No., Due Date: J2K070416; 11/22/2012
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 2312072; RPUISO Pulso by ALP
SDG, Matrix: J01616; 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 [signature] **Date** 11-15-12

TestAmerica Richland
QAS_RADCALCv4.8.44

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 2312072

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 = 1.0pCi/g

Second Level Review: [signature] Date: 11/15/12

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/15/2012 10:17:35 AM

Lot No., Due Date: J2K070416; 11/22/2012
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 2312071; RUISO Uiso by ALP
SDG, Matrix: J01616; SOIL

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

6.0 Comments on any No response:

First Level Lisa Anderson Date 11/15/12

TestAmerica Richland
QAS_RADCALCv4.8.44

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 2312071

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?	✓		✗ RW 11/15/12
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: 11/15/12

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/16/2012 12:42:54 PM

Lot No., Due Date: J2K070416; 11/22/2012
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 2312068; RSRTOT SrTot by GPC
SDG, Matrix: J01616; 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 John Norris **Date** 11-16-12

TestAmerica Richland
QAS_RADCALCv4.8.44

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 231208

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: Rhonda Jeor Date: 11/19/12

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THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/15/2012 1:06:43 PM

Lot No., Due Date: J2K070416; 11/22/2012
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 2312067; RGAMMA Gamma by GER
SDG, Matrix: J01616; 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:
Please see NCM #10-22269

First Level John Vostu **Date** 11-15-12

TestAmerica Richland
QAS_RADCALCv4.8.44

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 23122067

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 #: 10-22269

Second Level Review: [signature] Date: 11/15/12

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-22269**
NCM Initiated By: John Norton
Date Opened: 11/15/2012
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Counting
Tests: Gamma by GER
Lot #'s (Sample #'s): J2K070000 (67), J2K070416 (1),
QC Batches: 2312067,

Nonconformance: Dups not within acceptance limits
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
John Norton	11/15/2012	the sample volume was not sufficient for the creation of a duplicate so the sample was recounted in order to proivde a duplicate. The sample and duplicate did not show appropriate agreement.

Corrective Action

Name	Date	Corrective Action
John Norton	11/15/2012	The sample was recounted and again for the duplicate, the difference between the two is less than five times the CRDL and less than one CRDL difference.

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: 11/15/2012

Page 1 of 1

TestAmerica

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/9/2012 2:43:44 PM

Lot No., Due Date: J2K070416; 11/22/2012
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 2312069; RTRITIUM H-3 by LSC
SDG, Matrix: J01616; SOIL

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

6.0 Comments on any No response:

First Level Lisa Anderson Date 11/9/12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 2312069

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 = 10.0pCi/g

Second Level Review: [signature] Date: 11/12/12

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

11/16/2012 1:58:40 PM

Lot No., Due Date: J2K070416; 11/22/2012
Client, Site: 127642; S00X235B00 HANFORD
QC Batch No., Method Test: 2312070; RNI63 Ni-63 by LSC
SDG, Matrix: J01616; 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 John Norton **Date** 11-16-12

TestAmerica Richland
QAS_RADCALCv4.8.44

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 23 12070

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 = 30.0pci/g

Second Level Review: [signature] Date: 11/19/12

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	2312073	Lab Sample Numbers or SDG:	J01616

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?	✓			X
2. Correlation coefficient greater than 0.97?	✓			X
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			X
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			X
B. Continuing Calibration 1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			X
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			X
C. Sample Analysis 1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	X
2. Were all sample holding times met?	✓			X
D. QC Samples 1. All results for the preparation blank below limits?	✓			X
2. LCS percent recovery within 85-115%	✓			X
3. $PbCrO_4$ percent recovery within 75-125%?	✓			X
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?	✓			X
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			X
6. On MS failure, PDMS within 85-115%?			✓	X
E. Other 1. Are all nonconformances included and noted?			✓	X
2. Is the correct date and time of analysis shown?	✓			X
3. Did the analyst sign and date the front page of the analytical run?	✓			X
4. Correct methodology used?	✓			X
5. Transcriptions checked?	✓			X
6. Calculations checked at minimum frequency?	✓			X
7. Units checked?	✓			X

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

Analyst H. Rahari Date 11/15/12 2nd Review [signature] Date 11/15/12

CG-231 Rev 1, 5/12

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-189-143	Page 1 of 1

Collector Q. Stowe	**Company Contact** Joan Kessner **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** ~~8L~~ 8K 11/5/12 **Data Turnaround** ~~21~~ Days 15 11/5/12
Project Designation 100N Field Remediation - Soil Full Protocol	**Sampling Location** UPR-100-N-31 Shallow Zone Verification	**SAF No.** RC-189	
Ice Chest No. NA	**Field Logbook No.** EI-1652-07 **COA** R10N312000	**Method of Shipment** ~~Fed Ex~~ Hand Deliver 11/5/12	
Shipped To TestAmerica Incorporated, Richland	**Offsite Property No.** NA	**Bill of Lading/Air Bill No.** ~~See OSPC~~ LL-7-12 CMB NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Rad LDOT Limits AJ 11-6-12

Special Handling and/or Storage

Cool 4C

J2K070416

J2K070416

J014916

Due 11-22-12

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH - 9045	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Carbon-14 Low Level	Nickel-63	Strontium-89,90 -- Total Sr	Tritium - H3 Low Level Soil
Preservation				Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	None	None
Type of Container				G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G
No. of Container(s)				1	1	1	1	0	0	0	0	0	1
Volume				120mL	60mL	60mL	500mL	500mL	500mL	500mL	500mL	500mL	60mL
J1R541 MW82F	SOIL	11-5-12	1252		X		X	X	X	X	X	X	X

RCF 34906

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	11/5/12 1430	Dennis Newman	11/5/12 1430
Dennis Newman	11/5/12 1605	A. Freier	11-5-12 1605 #3
A. Freier (WCH)	11-7-12 1010	J. Beck (TALK)	11-7-12 1010

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226}

REVIEWED BY CMB DATE 11-7-12

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Analysis Report for RCF34906

J1R521 SAF:RC-189 100NFR/UPR-100-N-31 Shallow Zone Verification

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF34906
Sample Description	: J1R521 SAF:RC-189 100NFR/UPR-100-N-31 Shallow Zone Verification
Sample Type	: 50g pillbox
Sample Size	: 5.800E+01 grams
Facility	: Default
Sample Taken On	: 11/5/2012 1:20:00PM
Acquisition Started	: 11/6/2012 12:53:20PM
Procedure	: 50 Gram Pill Box
Operator	: RCT
Detector Name	: REGIE2
Geometry	: 50 ml Pill Box
Live Time	: 1800.0 seconds
Real Time	: 1800.5 seconds
Dead Time	: 0.03 %
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	: 7/9/2012
Efficiency Calibration Used Done On	: 3/7/2012
Efficiency Calibration Description	: REGIE2 50ml PB EC030212 SN85268-238
Sample Number	: 29008

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.994	1.13E+01	3.57E+00	
CO-60	0.989	9.47E-01	2.03E-01	
CS-137	0.997	3.67E+01	2.29E+00	

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Sample Check-in List

Date/Time Received: 11-7-12 / 1010 Container GM Screen Result: (Airlock) .04 Initials [ ]
Sample GM Screen Result (Sample Receiving) .04 Initials [ ]

Client: WLH SDG #: J0N616 NA [ ] SAF #: RC-189 NA [ ]

Lot Number: J2K0N04116

Chain of Custody # RC-189-143

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

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

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [ ]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [ ]
3. Cooler temperature: 1.4 °C on ice NA [ ]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 2 x 60 mL AG; 1 x 500 mL P
8. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
9. Samples have:
   ___ tape
   ___ custody seals
   ___ hazard labels
   ___ appropriate sample labels
10. Matrix:
    ___ A (FLT, Wipe, Solid, Soil)
    ___ S (Air, Niosh 7400)
    ___ I (Water)
    ___ T (Biological, Ni-63)
11. Samples:
    ___ are in good condition
    ___ are broken
    ___ are leaking
    ___ 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, then document sample ID, initial pH, amount of HNO_3 added and pH after addition on table overleaf)

    RPL ID # of preservative used :
13. Were any anomalies identified in sample receipt? Yes [ ] No [ ]
14. Description of anomalies (include sample numbers): NA [ ]

LS-023, Rev. 15, 07/11 See over for additional information.

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15. Sample Location, Sample Collector Listed on COC? * Yes [✓] No [ ]
*For documentation only. No corrective action needed.

16. Additional Information: _____

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

Sample Custodian: [signature] Date: 11-7-12

Client Informed on _____ by _____ Person contacted _____

[✓] No action necessary; process as is

Project Manager [signature] Date 11/7/12

SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH

[signature] 11-7-12 [signature] 11-7-12

J2K070416 [signature] 11-7-12

LS-023, Rev. 15, 07/11

See over for additional information.

11/8/2012 11:41:31 AM

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

PRIORITY

Pipet #: _____

AnalyDueDate: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312072 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 MW82F-1-AF			1.03g,in	1.03g	PUTC13205								
J2K070416-1-SAMP					08/28/12,pd 01/01/10,r				100 min				
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3					Scr:	Alpha:		Beta:
2 MW82F-1-AP-X			1.03g,in	1.03g	PUTC13206								
J2K070416-1-DUP					08/28/12,pd 01/01/10,r								
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3					Scr:	Alpha:		Beta:
3 MW85J-1-AA-B			1.04g,in	1.04g	PUTC13207								
J2K070000-72-BLK					08/28/12,pd 01/01/10,r								
11/07/2012 14:13 pd			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:
4 MW85J-1-AC-C			1.02g,in	1.02g	PUSK0962								
J2K070000-72-LCS					08/28/12,pd 01/01/10,r								
11/07/2012 14:13 pd			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:

Comments: MW82F-SAMP "CommentsRecount DUP On a Different Detector"

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

MW82F1AF-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
MW85J1AA-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
MW85J1AC-LCS:
```

11/8/2012 11:41:32 AM

Sample Preparation/Analysis

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

Balance Id:1120373922

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,SannohS

AnalyDueDate: 11/22/2012

Batch: 2312072 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:

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

MW82F1AF-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW85J1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW85J1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

11/15/2012 11:12:18 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/16/2011, 11/20/2012, Batch: '2312072', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2312072						
AC		**Rev1C**	**SannohS**	11/8/2012 11:35:41		
SC			davilan	IsBatched	11/7/2012 2:15:01 PM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	11/8/2012 11:35:41 AM	RL-PRP-003 REVISION 3
SC			SannohS	Prep1C	11/9/2012 8:07:36 AM	RL-PRP-003 REVISION 2
SC			HayesA	Sep1C	11/13/2012 3:00:45 PM	RL-ALP-001 REVISION 3
SC			HayesA	Sep2C	11/14/2012 1:23:41 PM	RL-ALP-016 REVISION 2
SC			ClarkR	InCnt1	11/14/2012 1:28:20 PM	RL-CI-008 REV. 2
SC			ClarkR	CalcC	11/14/2012 5:01:51 PM	RL-CI-008 REV. 2
SC			NortonJ	Rev1C	11/15/2012 11:11:25 AM	RL-DR-001 Rev 2
AC			**SannohS**	11/9/2012 8:07:36		
AC			**HayesA**	11/13/2012 3:00:45		
AC			**HayesA**	11/14/2012 1:23:41		
AC			**ClarkR**	11/14/2012 1:28:20		
AC			**ClarkR**	11/14/2012 5:01:51		
AC			**NortonJ**	11/15/2012 11:11:25		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOCFractions v4.8.44

11/8/2012 11:34:42 AM

Sample Preparation/Analysis

Balance Id:1120373922

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

7S Uiso Prp PRP003/PRP005, Sep ALP009/ALP010
SR Uranium-234,235,238 by Alpha Spec
5I CLIENT: HANFORD

PRIORITY

Pipet #: _____

AnalyDueDate: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312071 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 MW82F-1-AC			1.03g,in	1.03g	UITC29299								
J2K070416-1-SAMP					07/13/12,pd 06/15/01,r				100 min				
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3					Scr:	Alpha:		Beta:
2 MW82F-1-AN-X			1.01g,in	1.01g	UITC29300								
J2K070416-1-DUP					07/13/12,pd 06/15/01,r								
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3					Scr:	Alpha:		Beta:
3 MW85H-1-AA-B			1.03g,in	1.03g	UITC29337								
J2K070000-71-BLK					07/30/12,pd 06/15/01,r								
11/07/2012 14:13 pd			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:
4 MW85H-1-AC-C			1.00g,in	1.00g	UISH1662								
J2K070000-71-LCS					08/17/12,pd 06/15/01,r								
11/07/2012 14:13 pd			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:

Comments: MW82F-SAMP "CommentsRecount DUP On a Different Detector"

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

MW82F1AC-SAMP Constituent List:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:

MW85H1AA-BLK:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:

11/8/2012 11:34:44 AM

Sample Preparation/Analysis

7S Uiso Prp PRP003/PRP005, Sep ALP009(ALP015)
SR Uranium-234,235,238 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,SannohS

AnalyDueDate: 11/22/2012

Batch: 2312071 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:

```
MW85H1AC-LCS:
 U-232      RDL:          pCi/g    LCL:20    UCL:105    RPD:35      Uranium    RDL:          pCi/g    LCL:70    UCL:130    RPD:35

MW82F1AC-SAMP Calc Info:
     Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
MW85H1AA-BLK:
     Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
MW85H1AC-LCS:
     Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

11/15/2012 10:13:23 AM

ICOC Fraction Transfer/Status Report

ByDate; 11/16/2011, 11/20/2012, Batch: '2312071', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2312071						
AC		Rev1C	SannohS	11/8/2012 11:28:53		
SC			davilan	IsBatched	11/7/2012 2:14:57 PM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	11/8/2012 11:28:53 AM	RL-PRP-003 REVISION 3
SC			SannohS	Prep1C	11/9/2012 8:08:42 AM	RL-PRP-003 REVISION 2
SC			HayesA	Sep1C	11/12/2012 2:21:21 PM	RL-ALP-004 REVISION 4
SC			HayesA	Sep2C	11/13/2012 6:20:44 PM	RL-ALP-015 REVISION 5
SC			DawkinsO	InCnt1	11/13/2012 6:51:12 PM	RL-CI-008 REV. 2
SC			DawkinsO	CalcC	11/14/2012 12:23:20 AM	RL-CI-008 REV. 2
SC			antonsonl	Rev1C	11/15/2012 10:13:16 AM	RL-DR-001 Rev 2
AC			SannohS	11/9/2012 8:08:42		
AC			HayesA	11/12/2012 2:21:21		
AC			HayesA	11/13/2012 6:20:44		
AC			DawkinsO	11/13/2012 6:51:12		
AC			DawkinsO	11/14/2012 12:23:20		
AC			antonsonl	11/15/2012 10:13:16		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOCFractions v4.8.44

11/14/2012 9:13:18 PM

Sample Preparation/Analysis

Balance Id:1120373922

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

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

Pipet #: _____

Sep1 DT/Tm Tech: 2050 11/14/12 APA

AnalyDueDate: 11/22/2012

Batch: 2312068 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 2312067 AXTA, 2312068 CHTH, 2312069 ATS6, 2312070 AFS4, 2312071 7SSR, 2312072 6ASO, 2312073 DWEA,

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MW82F-1-AD J2K070416-1-SAMP 11/05/2012 12:52			6.02g,in AmtRec: 2X60MLAG;1X500MLP	6.02g #Containers: 3	SRTA23676 08/10/12		1.5"	55.1mg	50 Scr:	32A Alpha:	1151	11/15/12 CJH Beta:	
2 MW82F-1-AK-X J2K070416-1-DUP 11/05/2012 12:52			6.04g,in AmtRec: 2X60MLAG;1X500MLP	6.04g #Containers: 3	SRTA23901 10/26/12			55.9mg	Scr:	32B Alpha:		Beta:	
3 MW845-1-AA-B J2K070000-68-BLK 11/07/2012 14:13 pd			6.00g,in AmtRec:	6.00g #Containers: 1	SRTA23902 10/26/12			78.8mg	Scr:	32C Alpha:		Beta:	
4 MW845-1-AC-C J2K070000-68-LCS 11/07/2012 14:13 pd			6.02g,in AmtRec:	6.02g #Containers: 1	STSB1884 08/08/12			75.3mg	Scr:	32D Alpha:		Beta:	

Comments: ~~MW82F-SAMP "CommentsRecount DUP On a Different Detector"~~ 11/14/12 APA

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

MW82F1AD-SAMP Constituent List:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35
MW8451AA-BLK:
  Sr-90       RDL:1          pCi/g     LCL:        UCL:        RPD:
MW8451AC-LCS:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35
```

11/14/2012 9:13:19 PM

Sample Preparation/Analysis

Balance Id:1120373922

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

Pipet #: _____

AnalyDueDate: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312068 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:

```
MW82F1AD-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW8451AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW8451AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

11/16/2012 12:41:55 PM

ICOC Fraction Transfer/Status Report

ByDate: 11/17/2011, 11/21/2012, Batch: '2312068', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2312068						
AC		**Rev1C**	**SannohS**	11/8/2012 11:13:28		
SC			davilan	IsBatched	11/7/2012 2:14:37 PM	ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	11/8/2012 11:13:28 AM	RL-PRP-003 REVISION 3
SC			SannohS	Prep1C	11/9/2012 8:08:19 AM	RL-PRP-003 REVISION 2
SC			AshworthA	Sep2C	11/14/2012 9:14:03 PM	RL-GPC-003 REV. 2
SC			DawkinsO	InCnt1	11/14/2012 9:17:21 PM	RL-CI-006 REVISION 3
SC			DawkinsO	CalcC	11/15/2012 4:34:37 PM	RL-CI-006 REVISION 3
SC			NortonJ	Rev1C	11/16/2012 12:41:46 PM	RL-DR-001 Rev 2
AC			**SannohS**	11/9/2012 8:08:19		
AC			**AshworthA**	11/14/2012 9:14:03		
AC			**DawkinsO**	11/14/2012 9:17:21		
AC			**DawkinsO**	11/15/2012 4:34:37		
AC			**NortonJ**	11/16/2012 12:41:46		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 6

ICOCFractions v4.8.44

11/8/2012 10:53:04 AM

Sample Preparation/Analysis

Balance Id:1120421763

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

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

Pipet #: _____

AnalyDueDate: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312067 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 2312067 AXTA, 2312068 CHTH, 2312069 ATS6, 2312070 AFS4, 2312071 7SSR, 2312072 6ASO, 2312073 DWEA,

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MW82F-1-AH J2K070416-1-SAMP 11/05/2012 12:52			383.10g,in AmtRec: 2X60MLAG;1X500MLP	383.10g #Containers: 3					5260 200min	G16	2356	11/8/2012	Scr: Alpha: Beta:
2 MW82F-1-AJ-X J2K070416-1-DUP 11/05/2012 12:52			ISV AmtRec: 2X60MLAG;1X500MLP	#Containers: 3						G18	0319		Scr: Alpha: Beta:
3 MW840-1-AA-B J2K070000-67-BLK 11/07/2012 14:13 pd			348.00g,in AmtRec:	348.00g #Containers: 1						G19	2350		Scr: Alpha: Beta:
4 MW840-1-AC-C J2K070000-67-LCS 11/07/2012 14:13 pd			350.10g,in AmtRec:	350.10g #Containers: 1	qc20009 08/04/09,pd 09/01/09,r					G18	2357		Scr: Alpha: Beta:

Comments: MW82F-SAMP "CommentsRecount DUP On a Different Detector"

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

MW82F1AH-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:

MW8401AA-BLK:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:

11/8/2012 10:53:05 AM

Sample Preparation/Analysis

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

Balance Id:1120421763

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,SannohS

AnalyDueDate: 11/22/2012

Batch: 2312067 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:
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:		
MW8401AC-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								

MW82F1AH-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW8401AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW8401AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

*** RE-COUNT REQUEST ***

DUE DATE 11/22/12

CUSTOMER WCH

ANALYSIS Gamma

MATRIX Soil

LOT NUMBER J2K0XL1Ke

SAMPLE DELIVERY GROUP

OLD BATCH NUMBER 23120667

NEW BATCH NUMBER

LAB SAMPLE ID	CLIENT ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) MW82F	1AH	dupsout Co-60 -
2) MW82F	1AJ X	
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		
16)		
17)		
18)		
19)		
20)		

RC-126 Rev 6, 9/10

11/13/2012 8:41:48 AM

Sample Preparation/Analysis

Balance Id:1120421763

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

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

Pipet #: _____

AnalyDueDate: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312067 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 2312067 AXTA, 2312068 CHTH, 2312069 ATS6, 2312070 AFS4, 2312071 7SSR, 2312072 6ASO, 2312073
DWEA,

Prep Tech: SannohS

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MW82F-1-AH J2K070416-1-SAMP 11/05/2012 12:52			383.10g,in AmtRec: 2X60MLAG;1X500MLP	383.10g #Containers: 3							Scr:	Alpha:	Beta:
2 MW82F-1-AJ-X J2K070416-1-DUP 11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP	#Containers: 3							Scr:	Alpha:	Beta:
3 MW82F-2-AH J2K070416-1-SAMP 11/05/2012 12:52			383.10g AmtRec: 2X60MLAG;1X500MLP	383.10g #Containers: 3			S200		200 min	G15	1225	11/13/12 JH	Scr: Alpha: Beta:
4 MW82F-2-AJ-X J2K070416-1-DUP 11/05/2012 12:52			383.10g AmtRec: 2X60MLAG;1X500MLP	383.10g #Containers: 3			S200		200 min	G14	1549		Scr: Alpha: Beta:
5 MW840-1-AA-B J2K070000-67-BLK 11/07/2012 14:13 pd			348.00g,in AmtRec:	348.00g #Containers: 1							Scr:	Alpha:	Beta:
6 MW840-1-AC-C J2K070000-67-LCS 11/07/2012 14:13 pd			350.10g,in AmtRec:	350.10g #Containers: 1	qc20009 08/04/09,pd 09/01/09,r						Scr:	Alpha:	Beta:

ISV volume for dup - please recount on diff. detector. MMA 11/13/12

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

11/13/2012 8:41:49 AM

Sample Preparation/Analysis

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

Balance Id:1120421763

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,SannohS

AnalyDueDate: 11/22/2012

Batch: 2312067 **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: MW82F-SAMP "CommentsRecount DUP On a Different Detector"

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

MW82F1AH-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:

MW8401AA-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:

MW8401AC-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						

MW82F1AH-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW8401AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW8401AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

11/15/2012 1:03:18 PM

ICOC Fraction Transfer/Status Report

ByDate: 11/16/2011, 11/20/2012, Batch: '2312067', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting				Comments
2312067							
AC		**Rev1C**	**SannohS**	11/7/2012 2:38:00 PM			
SC			davilan	IsBatched	11/7/2012 2:14:33 PM		ICOC_RADCALC v4.8.49
SC			SannohS	InPrep	11/7/2012 2:38:00 PM		RL-GAM-001 Revision 2
SC			SannohS	Prep1C	11/8/2012 10:54:46 AM		RL-GAM-001 REVISION 2
SC			ClarkR	InCnt1	11/8/2012 10:59:21 AM		RL-CI-007 REV. 2
SC			HiattC	CalcC	11/9/2012 10:01:58 AM		RL-CI-007 REV. 2
SC			ClarkR	InCnt1	11/13/2012 9:03:19 AM		RL-CI-007 REV. 2
SC			DawkinsO	CalcC	11/13/2012 10:27:40 PM		RL-CI-007 REV. 2
SC			NortonJ	Rev1C	11/15/2012 1:03:05 PM		RL-DR-001 Rev 2
AC			**SannohS**	11/8/2012 10:54:46			
AC			**ClarkR**	11/8/2012 10:59:21			
AC			**HiattC**	11/9/2012 10:01:58			
AC			**ClarkR**	11/13/2012 9:03:19			
AC			**DawkinsO**	11/13/2012 10:27:40			
AC			**NortonJ**	11/15/2012 1:03:05			

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 7

ICOCFractions v4.8.44

16

11/7/2012 2:13:27 PM

Sample Preparation/Analysis

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

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

PRIORITY

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

AnalyDueDate: 11/22/2012

Batch: 2312069 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 MW82F-1-AG													
J2K070416-1-SAMP													
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3				Scr:		Alpha:		Beta:
2 MW82F-1-AL-X													
J2K070416-1-DUP													
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3				Scr:		Alpha:		Beta:
3 MW85F-1-AA-B													
J2K070000-69-BLK													
11/07/2012 14:13 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 MW85F-1-AC-C													
J2K070000-69-LCS													
11/07/2012 14:13 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 MW85F-1-AD-BN													
J2K070000-69-IBLK													
11/07/2012 14:13 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

Comments:

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

MW82F1AG-SAMP Constituent List:

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: 5 ICOC v4.8.49

11/7/2012 2:13:28 PM

Sample Preparation/Analysis

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

AnalyDueDate: 11/22/2012

Batch: 2312069 **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:

MW85F1AA-BLK:

MW85F1AC-LCS:

MW85F1AD-IBLK:

MW82F1AG-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW85F1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW85F1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MW85F1AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

11/9/2012 2:42:35 PM

ICOC Fraction Transfer/Status Report

ByDate: 11/10/2011, 11/14/2012, Batch: '2312069', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2312069						
AC		**Rev1C**	**NyeM**	11/8/2012 8:17:24		
SC			davilan	IsBatched	11/7/2012 2:14:43 PM	ICOC_RADCALC v4.8.49
SC			NyeM	InPrep	11/8/2012 8:17:24 AM	RL-LSC-002 REVISION 2
SC			NyeM	Sep1C	11/8/2012 1:24:16 PM	RL-LSC-002 REVISION 2
SC			ClarkR	InCnt1	11/8/2012 1:41:06 PM	RL-CI-005 REV. 2
SC			ClarkR	CalcC	11/9/2012 1:43:41 PM	RL-CI-005 REV. 2
SC			antonsonl	Rev1C	11/9/2012 2:42:11 PM	RL-DR-001 Rev 2
AC			**NyeM**	11/8/2012 1:24:16 PM		
AC			**ClarkR**	11/8/2012 1:41:06 PM		
AC			**ClarkR**	11/9/2012 1:43:41 PM		
AC			**antonsonl**	11/9/2012 2:42:11 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

11/8/2012 11:27:52 AM

Sample Preparation/Analysis PRIORITY

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: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312070 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 MW82F-1-AE J2K070416-1-SAMP 11/05/2012 12:52			0.25g,in AmtRec: 2X60MLAG;1X500MLP	0.25g	NITA8289 10/24/12 #Containers: 3				20min Scr:		Alpha:		Beta:
2 MW82F-1-AM-X J2K070416-1-DUP 11/05/2012 12:52			0.26g,in AmtRec: 2X60MLAG;1X500MLP	0.26g	NITA8290 10/24/12 #Containers: 3				Scr:		Alpha:		Beta:
3 MW85G-1-AA-B J2K070000-70-BLK 11/07/2012 14:13 pd			0.25g,in AmtRec:	0.25g	NITA8291 10/24/12 #Containers: 1				Scr:		Alpha:		Beta:
4 MW85G-1-AC-C J2K070000-70-LCS 11/07/2012 14:13 pd			0.25g,in AmtRec:	0.25g	NISA1777 09/14/12 #Containers: 1				Scr:		Alpha:		Beta:
5 MW85G-1-AD-BN J2K070000-70-IBLK 11/07/2012 14:13 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

Comments: MW82F-SAMP "CommentsRecount DUP On a Different Detector"

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

MW82F1AE-SAMP Constituent List:

11/8/2012 11:27:53 AM

Sample Preparation/Analysis

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

AnalyDueDate: 11/22/2012

Batch: 2312070 **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:

```
  Ni-63        RDL:30          pCi/g      LCL:70       UCL:130      RPD:35
MW85G1AA-BLK:
  Ni-63        RDL:30          pCi/g      LCL:         UCL:         RPD:
MW85G1AC-LCS:
  Ni-63        RDL:30          pCi/g      LCL:70       UCL:130      RPD:35
MW85G1AD-IBLK:
  Ni-63        RDL:30          pCi/g      LCL:         UCL:         RPD:
MW82F1AE-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW85G1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW85G1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW85G1AD-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

11/16/2012 1:57:48 PM

ICOC Fraction Transfer/Status Report

ByDate: 11/17/2011, 11/21/2012, Batch: '2312070', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
2312070							
AC			**Rev1C**	**SannohS**	11/8/2012 11:22:54		
SC				davilan	IsBatched	11/7/2012 2:14:52 PM	ICOC_RADCALC v4.8.49
SC				SannohS	InPrep	11/8/2012 11:22:54 AM	RL-PRP-003 REVISION 3
SC				SannohS	Prep1C	11/9/2012 8:08:03 AM	RL-PRP-003 REVISION 2
SC				HiattC	InCnt1	11/15/2012 11:36:47 AM	RL-CI-005 REV. 2
SC				ClarkR	CalcC	11/16/2012 12:24:00 PM	RL-CI-005 REV. 2
SC				NortonJ	Rev1C	11/16/2012 1:57:43 PM	RL-DR-001 Rev 2
AC				**SannohS**	11/9/2012 8:08:03		
AC				**HiattC**	11/15/2012 11:36:47		
AC				**ClarkR**	11/16/2012 12:24:00		
AC				**NortonJ**	11/16/2012 1:57:43		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.8.44

11/7/2012 2:44:23 PM

Sample Preparation/Analysis

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

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

Balance Id:
Pipet #:

AnalyDueDate: 11/22/2012

Sep1 DT/Tm Tech:

Batch: 2312073 SOIL mg/kg PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 2312067 AXTA, 2312068 CHTH, 2312069 ATS6, 2312070 AFS4, 2312071 7SSR, 2312072 6ASO, 2312073 DWEA,

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 MW82F-1-AA													
J2K070416-1-SAMP													
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3				Scr:		Alpha:		Beta:
2 MW82F-1-AQ-S													
J2K070416-1-MS													
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3				Scr:		Alpha:		Beta:
3 MW82F-1-AR-X													
J2K070416-1-DUP													
11/05/2012 12:52			AmtRec: 2X60MLAG;1X500MLP		#Containers: 3				Scr:		Alpha:		Beta:
4 MW85V-1-AA-B													
J2K070000-73-BLK													
11/07/2012 14:44 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 MW85V-1-AC-C													
J2K070000-73-LCS													
11/07/2012 14:44 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

Comments:

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

MW82F1AA-SAMP Constituent List:

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: 5

ICOC v4.8.49

11/7/2012 2:44:23 PM

Sample Preparation/Analysis

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

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

AnalyDueDate: 11/22/2012

Batch: 2312073 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:

```
MW82F1AQ-MS Constituent List:

MW85V1AA-BLK:

MW85V1AC-LCS:

MW82F1AA-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW82F1AQ-MS Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW85V1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
MW85V1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

APPENDIX - A

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. SDG

Washington Closure Hanford

Lot #: F2K080422

Rhonda Wagar

TestAmerica Richland
2800 George Washington Way
Richland, WA 99354-1613

TESTAMERICA LABORATORIES, INC.

Jayna Awalt
Project Manager

November 14, 2012

Case Narrative
LOT NUMBER: F2K080422
SDG: J01616

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on November 8, 2012. This sample is associated with your Washington Closure Hanford project.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There are no observations or non-conformances associated with the analysis contained in this report.

METHODS SUMMARY

F2K080422

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Carbon 14 by LSC	EERF C-01-1	

References:

EERF EERF

SAMPLE SUMMARY

F2K080422

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MW9GV	001	J1R541	11/05/12	12:52

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

F2K080422

CLIENT ANALYSIS SUMMARY

TestAmerica - St. Louis

Storage Loc: RAD

Project Manager: JKA
Quote #: 90935 SDG: J01616
Project: SDG
Washington Closure Hanford
PO#:
Report to: Rhonda Wagar
Client: 300 TestAmerica Richland
#SMPS In LOT: 0

Date Received: 2012-11-08
Analytical Due Date: 2012-11-16
Report Due Date: 2012-11-19
Report Type: B Standard Report
EDD Code: 00

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	J1R641			2012-11-05/ 1262	MW9GV	SOLID

SAMPLE COMMENTS:

XX 4E EBRF C-01-1 SOLID, Carbon 14 G8 Distillation and Suspended in LSC Cocktail 01 STANDARD TEST SET PROT: A WRK LOC 06

TestAmerica - St. Louis Logged in by: DANIELSB 2012-11-08 12:13:01 printed on: Thursday, November 08, 2012 01:17 Page 1 of 1

SDG # J01616

5 of 14

CUR 376

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-189-143	Page 1 of 1
Collector: Q. Stowe	Company Contact: Joan Kessner; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: ~~8L~~ 8K 11/5/12; Data Turnaround: ~~21~~ Days 15 11/5/12
Project Designation: 100N Field Remediation - Soil Full Protocol	Sampling Location: UPR-100-N-31 Shallow Zone Verification	SAF No.: RC-189	
Ice Chest No.: NA	Field Logbook No.: EI-1652-07; COA: R10N312000	Method of Shipment: ~~Fed Ex~~ hand Deliver 11/5/12	
Shipped To: TestAmerica Incorporated, Richland	Offsite Property No.: NA	Bill of Lading/Air Bill No.: ~~See OSPC~~ 11-7-12 emails NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~Potential~~ Rad LDOT Limits RS 11-6-12

Special Handling and/or Storage

Cool 4C

J2K070416 RW 11/7/12

J014916 Due ~~11-22-12~~ 20

SAMPLE ANALYSIS

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	None	None	
Type of Container	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G/P	G	
No. of Container(s)	1	1	1	1	0	0	0	0	0	1	
Volume	120mL	60mL	40mL	500mL	500mL	500mL	500mL	500mL	500mL	60mL	
	See item (1) in Special Instructions.	Chromium Hex - 7196	IC Anions - 9056 Modified; NO2/NO3 - 353.2; pH - 9045	See item (2) in Special Instructions.	Isotopic Uranium	Isotopic Plutonium	Carbon-14 Low Level	Nickel-63	Strontium-89,90 — Total Sr	Tritium - H3 Low Level Soil	
					RCF 34906						
Sample No.	Matrix *	Sample Date	Sample Time								
J1R541 MW82F	SOIL	11-5-12	1252		X		X	X	X	X	X

RW 11/7/12

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	11/5/12 1430	Dennis Newman	11/5/12 1430
Dennis Newman	11/5/12 1605	A. Freier	11-5-12 1605
A. Freier	11-7-12 1010	J. Bock	11-7-12 1010
J. Bock	11-7-12 1230	Steven Clayton	11-8-12 0925

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-226}

(X) Please analyze for C-14. (DL=1.0pci/g) See Jayna with questions.

REVIEWED BY CMB DATE 11-7-12

SDG #: J016916

Matrix *: S=Soil; SD=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Wi=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION: Received By; Title; Date/Time

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

WCH-EE-011

TestAmerica - St. Louis

Radioactive Package Monitoring and Receipt
(For DOT Compliance)

What radioactive labels are present on or in the package? (Circle)

Exempt - Complete Section A
Radioactive Yellow II - Complete Section B
Radioactive White I - Complete Section B
Radioactive Yellow III - Complete Section B

Client/Originator TA Richland Carrier FedEx

Document/Shipping Number 7940 2428 2370

Received by/Date/Time 11-8-12 0925

Section A

Is package damaged (crushed, dented, wet, punctured, or stained)?

Yes - Complete Section B No - Complete Section C

Section B

B.1 Using the dose rate meter (uR meter), record the highest dose rate at contact with the surface of the package. Record Doserate Meter information here.

Doserate Meter Serial Number_____ Model Number_____ Calibration Date____

Date/Time of Monitoring _____

_____ μR/hr

If this measurement exceeds;
500 μR/hr for an exempt package; or
500 μR/hr for Radioactive White I; or
50,000 μR/hr for Radioactive Yellow II; or
200,000 μR/hr for Radioactive Yellow III - Contact the RSO (or Designee) immediately.

B.2 Using a single 47mm paper swipe, wipe a 100 cm x 100cm (4in x 4in) area on three sides of the package (total 300cm^2). Place the wipe, exposed side facing upward into a petri dish. Using a Model 44-9 alpha-beta-gamma (α-β-γ) probe, determine the background countrate. Then place the detector over the wipe and wait at least 2 minutes before recording the wipe countrate.

_____wipe cpm - _____background cpm = _____net $\alpha/\beta/\gamma$ cpm

Is the net α-β-γ cpm less than 200 cpm: If yes, go to Section C. Is the net α-β-γ greater than 15,000cpm: If yes, immediately STOP and contact RSO (or Designee).

B.3 Using a Model 43-5 α probe, determine the background countrate. Then place the detector over the wipe and wait at least 2 minutes before recording the wipe countrate.
_____ wipe cpm - _____ background cpm = _____ net α cpm

Form: SL-ADMIN-0022
SOP Reference: ST-RP-0050, Current Revision

1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CUR Form #: 3 7 6

Lot #(s): F2K080422

TestAmerica - St. Louis

CONDITION UPON RECEIPT FORM

Client: TA Richland

Quote No: 90935

COC/RFA No: RC-189-143

Initiated By: SC Date: 11-8-12 Time: 0925

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: Y (N)

Shipping # (s):*		Sample Temperature (s):**	
1. 7940 2428 2370	6.	1. Ambient	6.
2.	7.	2.	7.
3.	8.	3.	8.
4.	9.	4.	9.
5.	10.	5.	10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	(Y) N	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y (N) N/A	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: Jamie Hunt Date: 11-8-12

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 rev13, REVISED 05/27/11 \\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin-0004 CUR.doc

TestAmerica Richland

Client Sample ID: J1R541

Radiochemistry

Lab Sample ID: F2K080422-001
Work Order: MW9GV
Matrix: SOLID

Date Collected: 11/05/12 1252
Date Received: 11/08/12 0925

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDC	Prep Date	Analysis Date
Carbon 14 by EERF C-01-1				pCi/g		Batch # 2317045	Yld %
Carbon 14	0.33	U	0.34	1.00	0.55	11/12/12	11/12/12

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.
Bold results are greater than the MDC.

U Result is less than the sample detection limit.

TestAmerica Richland

Client Sample ID: J1R541 DUP

Radiochemistry

Lab Sample ID: F2K080422-001X
Work Order: MW9GV
Matrix: SOLID

Date Collected: 11/05/12 1252
Date Received: 11/08/12 0925

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDC	Prep Date	Analysis Date
Carbon 14 by EERF C-01-1				pCi/g		Batch # 2317045	Yld %
Carbon 14	0.38	U	0.33	1.00	0.53	11/12/12	11/12/12

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined by instrument performance only.
Bold results are greater than the MDC.

U Result is less than the sample detection limit.

METHOD BLANK REPORT

Radiochemistry

Client Lot ID: F2K080422
Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDC		Prep Date	Lab Sample ID Analysis Date
Carbon 14 by EERF C-01-1			pCi/g	Batch # 2317045		Yld %		F2K120000-045B
Carbon 14	0.16	U	0.35	1.00	0.58		11/12/12	11/12/12

NOTE(S)

Data are incomplete without the case narrative.

MDC is determined using instrument performance only
Bold results are greater than the MDC.

U Result is less than the sample detection limit.

Laboratory Control Sample Report

Radiochemistry

Client Lot ID: F2K080422
Matrix: SOLID

Parameter	Spike Amount	Result	Total Uncert. (2 σ+/-)	MDC	% Yld	% Rec	Lab Sample ID / QC Control Limits
Carbon 14 by EERF C-01-1			pCi/g	C-01-1			F2K120000-045C
Carbon 14	84.5	80.5	8.9	0.6		95	(67 - 124)
	Batch #:	2317045		Analysis Date:	11/12/12		

NOTE(S)

MDC is determined by instrument performance only
Calculations are performed before rounding to avoid round-off error in calculated results

MATRIX SPIKE REPORT

Radiochemistry

Client Lot Id: F2K080422
Matrix: SOLID

Date Sampled: 11/05/12
Date Received: 11/08/12

Parameter	Spike Amount	Spike Result	Total Uncert. (2σ +/-)	Spike Yld.	Sample Result	Total Uncert. (2 σ +/-)	QC Sample ID %YLD	QC Sample ID %REC	QC Control Limits
Carbon 14 by EERF C-01-1			pCi/g		C-01-1			F2K080422-001	
Carbon 14	83.6	55.6	6.2		0.33	0.34		66	(29-128)
	Batch #:	2317045		Analysis Date:		11/12/12			

NOTE(S)

Data are incomplete without the case narrative.

Calculations are performed before rounding to avoid round-off errors in calculated results.

DUPLICATE EVALUATION REPORT

Radiochemistry

Client Lot ID: F2K080422
Matrix: SOLID

Date Sampled: 11/05/12
Date Received: 11/08/12

Parameter	SAMPLE Result		Total Uncert. (2σ+/-)		% Yld	DUPLICATE Result		Total Uncert. (2 σ+/-)		% Yld	QC Sample ID Precision	
Carbon 14 by EERF C-01-1					pCi/g	C-01-1					F2K080422-001	
Carbon 14	0.33	U	0.34			0.38	U	0.33			14	%RPD
		Batch #:	2317045	(Sample)		2317045	(Duplicate)					

NOTE(S)

Data are incomplete without the case narrative.
Calculations are performed before rounding to avoid round-off error in calculated results

U Result is less than the sample detection limit.

ANALYTICAL REPORT

Job Number: 280-35624-1

SDG Number: J01616

Job Description: SAF# RC-189

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

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Project Manager II
11/20/2012 12:27 PM

Kae E Yoder
Project Manager II
kae.yoder@testamericainc.com
11/20/2012

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

The Lab Certification ID# is E87667.

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

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CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-35624-1

SDG #: J01616
SAF#: RC-189

Date SDG Closed: November 8, 2012
Data Deliverable: 15 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1R541	280-35624-1	6010/7471/9056M/353.2/9045	6010B/7471A/9056M/353.2/9045C

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 sample was received on 11/8/2012 9:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3º C.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-146709 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Zinc are present at a level greater than half the reporting limit in the method blank associated with batch 280-146709. As the associated sample amount is twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1R541; therefore, control limits are not applicable.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
The Fluoride Matrix Spike performed on sample J1R541 exhibited the percent recovery outside the control limits, 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.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

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.
	X	Serial dilution in the analytical batch indicates that physical and chemical interferences are present.
General Chemistry		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	N	MS, MSD: Spike recovery exceeds upper or lower control limits.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-35624-1	J1R541	Solid	11/05/2012 1252	11/08/2012 0900

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

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
Nitrogen, Nitrate-Nitrite	TAL DEN	MCAWW 353.2	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
pH	TAL DEN	SW846 9045C	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
Anions, Ion Chromatography	TAL DEN	SW846 9056M	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
ASTM D-2216	TAL DEN	ASTM D-2216	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: 280-35624-1
Sdg Number: J01616

Method	Analyst	Analyst ID
SW846 6010B	Harre, John K	JKH
SW846 7471A	Fredette, Nick	NF
MCAWW 353.2	Scott, Samantha J	SJS
SW846 9045C	Ayala, Delaina	DA
SW846 9056M	Phan, Thu L	TLP
ASTM D-2216	Benson, Alex F	AFB

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Client Sample ID: **J1R541**

Lab Sample ID: 280-35624-1
Client Matrix: Solid
% Moisture: 3.7

Date Sampled: 11/05/2012 1252
Date Received: 11/08/2012 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-148289	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-146709	Lab File ID:	25A2111612.asc
Dilution:	1.0			Initial Weight/Volume:	1.10 g
Analysis Date:	11/16/2012 1551			Final Weight/Volume:	100 mL
Prep Date:	11/15/2012 1330				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		6010	X	1.5	4.7
Antimony		0.36	U	0.36	0.57
Arsenic		2.4		0.62	0.94
Barium		49.5	X	0.072	0.47
Beryllium		0.27		0.031	0.19
Boron		0.93	U	0.93	1.9
Cadmium		0.15	B	0.039	0.19
Calcium		6590	X	13.3	47.2
Chromium		7.6	X	0.055	0.19
Cobalt		7.2	X	0.094	0.94
Copper		19.1		0.20	0.94
Iron		21500	X	3.6	4.7
Lead		3.7		0.25	0.47
Magnesium		4490	X	3.5	18.9
Manganese		277	X	0.094	0.94
Molybdenum		0.44	B	0.25	1.9
Nickel		10.6	X	0.12	3.8
Potassium		875		38.7	283
Selenium		0.81	U	0.81	0.94
Silicon		267		5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		312		55.7	113
Vanadium		52.6		0.089	1.9
Zinc		41.1	X	0.38	0.94

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-148396	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-146674	Lab File ID:	121116aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.65 g
Analysis Date:	11/16/2012 2337			Final Weight/Volume:	50 mL
Prep Date:	11/16/2012 1440				

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

General Chemistry

Client Sample ID: **J1R541**

Lab Sample ID: 280-35624-1
Client Matrix: Solid
% Moisture: 3.7
Date Sampled: 11/05/2012 1252
Date Received: 11/08/2012 0900

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.38	B	mg/Kg	0.32	0.79	1.0	353.2
Analysis Batch: 280-147160	Analysis Date: 11/12/2012 1522						DryWt Corrected: Y
Chloride-Soluble	5.8		mg/Kg	2.0	5.1	1.0	9056M
Analysis Batch: 280-147983	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y
Nitrate as N-Soluble	0.61	B	mg/Kg	0.32	2.5	1.0	9056M
Analysis Batch: 280-147981	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-147983	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-147981	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.3	U	mg/Kg	1.3	5.1	1.0	9056M
Analysis Batch: 280-147981	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y
Sulfate-Soluble	3.8	B	mg/Kg	1.8	5.1	1.0	9056M
Analysis Batch: 280-147983	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y
Fluoride-Soluble	0.84	U N	mg/Kg	0.84	5.1	1.0	9056M
Analysis Batch: 280-147983	Analysis Date: 11/14/2012 1652						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	9.28		SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-146738	Analysis Date: 11/09/2012 1717						DryWt Corrected: N
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-146440	Analysis Date: 11/08/2012 1552						DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Method Blank - Batch: 280-146709

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-146709/1-A	Analysis Batch:	280-148289	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-146709	Lab File ID:	25A2111612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	11/16/2012 1547	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	11/15/2012 1330				
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	0.626	B	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Lab Control Sample - Batch: 280-146709

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-146709/2-A	Analysis Batch:	280-148289	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-146709	Lab File ID:	25A2111612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	11/16/2012 1549	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	11/15/2012 1330				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	186.6	93	82 - 116	
Antimony	50.0	47.61	95	82 - 110	
Arsenic	100	98.70	99	85 - 110	
Barium	200	192.6	96	87 - 112	
Beryllium	5.00	4.78	96	84 - 114	
Boron	100	93.12	93	81 - 110	
Cadmium	10.0	9.85	99	87 - 110	
Calcium	5000	4727	95	82 - 114	
Chromium	20.0	19.24	96	84 - 114	
Cobalt	50.0	47.87	96	87 - 110	
Copper	25.0	24.06	96	88 - 110	
Iron	100	97.25	97	87 - 120	
Lead	50.0	46.62	93	86 - 110	
Magnesium	5000	4684	94	90 - 110	
Manganese	50.0	46.88	94	88 - 110	
Molybdenum	100	96.45	96	86 - 110	
Nickel	50.0	48.00	96	87 - 110	
Potassium	5000	4807	96	89 - 110	
Selenium	200	194.5	97	83 - 110	
Silicon	1000	203.6	20	10 - 70	
Silver	5.00	4.92	98	87 - 114	
Sodium	5000	4935	99	90 - 112	
Vanadium	50.0	49.21	98	88 - 110	
Zinc	50.0	47.55	95	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Matrix Spike - Batch: 280-146709

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-35624-1	Analysis Batch:	280-148289	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-146709	Lab File ID:	25A2111612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.01 g
Analysis Date:	11/16/2012 1559	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	11/15/2012 1330				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	6010		206	8314	1120	50 - 200	4
Antimony	0.36	U	51.4	30.49	59	20 - 200	
Arsenic	2.4		103	95.04	90	76 - 111	
Barium	49.5		206	242.1	94	52 - 159	
Beryllium	0.27		5.14	4.87	90	72 - 105	
Boron	0.93	U	103	85.84	84	75 - 107	
Cadmium	0.15	B	10.3	9.53	91	40 - 130	
Calcium	6590		5140	12450	114	43 - 165	
Chromium	7.6		20.6	27.62	97	70 - 200	
Cobalt	7.2		51.4	52.37	88	72 - 106	
Copper	19.1		25.7	41.73	88	37 - 187	
Iron	21500		103	23860	2328	70 - 200	4
Lead	3.7		51.4	46.59	83	70 - 200	
Magnesium	4490		5140	9410	96	64 - 145	
Manganese	277		51.4	348.4	139	40 - 200	4
Molybdenum	0.44	B	103	89.17	86	75 - 103	
Nickel	10.6		51.4	54.98	86	61 - 126	
Potassium	875		5140	5828	96	56 - 172	
Selenium	0.81	U	206	180.7	88	76 - 104	
Silicon	267		1030	499.5	23	20 - 200	
Silver	0.15	U	5.14	4.86	94	75 - 141	
Sodium	312		5140	5366	98	78 - 111	
Vanadium	52.6		51.4	111.7	115	50 - 169	
Zinc	41.1		51.4	87.77	91	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Duplicate - Batch: 280-146709

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-35624-1	Analysis Batch:	280-148289	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-146709	Lab File ID:	25A2111612.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.08 g
Analysis Date:	11/16/2012 1556	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	11/15/2012 1330				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	6010		6768	12	40	
Antimony	0.36	U	0.37	NC	40	U
Arsenic	2.4		3.27	29	30	
Barium	49.5		56.14	13	30	
Beryllium	0.27		0.285	5	30	
Boron	0.93	U	0.94	NC	30	U
Cadmium	0.15	B	0.139	4	30	B
Calcium	6590		6745	2	30	
Chromium	7.6		8.92	16	40	
Cobalt	7.2		7.33	2	30	
Copper	19.1		18.92	1	30	
Iron	21500		22820	6	40	
Lead	3.7		3.85	4	40	
Magnesium	4490		4870	8	30	
Manganese	277		279.2	0.8	40	
Molybdenum	0.44	B	0.25	NC	30	U
Nickel	10.6		12.31	15	30	
Potassium	875		907.7	4	40	
Selenium	0.81	U	0.83	NC	30	U
Silicon	267		293.3	9	40	
Silver	0.15	U	0.15	NC	30	U
Sodium	312		397.6	24	30	
Vanadium	52.6		55.16	5	30	
Zinc	41.1		42.42	3	40	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Method Blank - Batch: 280-146674

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-146674/1-A	Analysis Batch:	280-148396	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-146674	Lab File ID:	121116aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	11/16/2012 2328	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	11/16/2012 1440				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-146674

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-146674/2-A	Analysis Batch:	280-148396	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-146674	Lab File ID:	121116aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	.6 g
Analysis Date:	11/16/2012 2335	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	11/16/2012 1440				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.415	100	87 - 111	

Matrix Spike - Batch: 280-146674

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-148396	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-146674	Lab File ID:	121116aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.65 g
Analysis Date:	11/16/2012 2342	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	11/16/2012 1440				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0053	U	0.399	0.417	104	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Duplicate - Batch: 280-146674

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-148396	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-146674	Lab File ID:	121116aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.61 g
Analysis Date:	11/16/2012 2339	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	11/16/2012 1440				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0053	U	0.0056	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Method Blank - Batch: 280-147160

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-146682/1-A	Analysis Batch:	280-147160	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1112NXN
Dilution:	1.0	Leach Batch:	280-146682	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/12/2012 1519	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/09/2012 1418				

Analyte	Result	Qual	MDL	RL
Nitrate Nitrite as N-Soluble	0.29	U	0.29	0.74

Method Reporting Limit Check - Batch: 280-147160

Method: 353.2
Preparation: N/A

Lab Sample ID:	MRL 280-147160/18	Analysis Batch:	280-147160	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1112NXN
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	11/12/2012 1319	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.107	107	50 - 150	

Lab Control Sample - Batch: 280-147160

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-146682/2-A	Analysis Batch:	280-147160	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1112NXN
Dilution:	1.0	Leach Batch:	280-146682	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/12/2012 1520	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/09/2012 1418				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	48.1	51.05	106	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Matrix Spike - Batch: 280-147160

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-147160	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1112NXN
Dilution:	1.0	Leach Batch:	280-146682	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/12/2012 1525	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/09/2012 1418				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.38	B	41.5	44.12	105	90 - 110	

Duplicate - Batch: 280-147160

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-147160	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\1112NXN
Dilution:	1.0	Leach Batch:	280-146682	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/12/2012 1523	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/09/2012 1418				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	0.38	B	0.393	3	10	B

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-146738

Method: 9045C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-146738/4	Analysis Batch:	280-146738	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/09/2012 1715	Units:	SU	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-146738/5	Analysis Batch:	280-146738	Instrument ID:	No Equipment
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/09/2012 1716	Units:	SU	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
pH adj. to 25 deg C-Soluble	100	100	97 - 103	0	5		

Duplicate - Batch: 280-146738

Method: 9045C
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-146738	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	280-146660	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/09/2012 1718	Units:	SU	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/09/2012 1259				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH adj. to 25 deg C-Soluble	9.28	9.280	0	5	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Method Blank - Batch: 280-147981

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-147479/2-A	Analysis Batch:	280-147981	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1635	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Result	Qual	MDL	RL
Nitrate as N-Soluble	0.31	U	0.31	2.5
Nitrite as N-Soluble	0.34	U	0.34	2.5
Orthophosphate as P-Soluble	1.2	U	1.2	5.0

Method Reporting Limit Check - Batch: 280-147981

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-147981/11	Analysis Batch:	280-147981	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	110.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1512	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.200	0.206	103	50 - 150	B
Nitrite as N-Soluble	0.200	0.207	104	50 - 150	B
Orthophosphate as P-Soluble	0.200	0.195	98	50 - 150	B

Lab Control Sample - Batch: 280-147981

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-147479/1-A	Analysis Batch:	280-147981	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1619	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	50.0	48.27	97	90 - 110	
Nitrite as N-Soluble	50.0	48.94	98	90 - 110	
Orthophosphate as P-Soluble	50.0	45.49	91	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Matrix Spike - Batch: 280-147981

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-147981	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	118.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1725	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.61	B	51.4	50.38	97	80 - 120	
Nitrite as N-Soluble	0.34	U	51.4	51.02	99	80 - 120	
Orthophosphate as P-Soluble	1.3	U	51.4	49.74	97	80 - 120	

Duplicate - Batch: 280-147981

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-147981	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	117.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1708	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	0.61	B	0.621	2	15	B
Nitrite as N-Soluble	0.34	U	0.34	NC	15	U
Orthophosphate as P-Soluble	1.3	U	1.3	NC	15	U

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Method Blank - Batch: 280-147983

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-147479/2-A	Analysis Batch:	280-147983	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	115.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1635	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Result	Qual	MDL	RL
Chloride-Soluble	2.0	U	2.0	5.0
Bromide-Soluble	0.39	U	0.39	2.0
Sulfate-Soluble	1.7	U	1.7	5.0
Fluoride-Soluble	0.82	U	0.82	5.0

Method Reporting Limit Check - Batch: 280-147983

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-147983/11	Analysis Batch:	280-147983	Instrument ID:	WC_IC3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	110.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1512	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	1.00	1.23	123	50 - 150	B
Bromide-Soluble	0.200	0.187	94	50 - 150	B
Sulfate-Soluble	1.00	1.12	112	50 - 150	B
Fluoride-Soluble	0.200	0.230	115	50 - 150	B

Lab Control Sample - Batch: 280-147983

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-147479/1-A	Analysis Batch:	280-147983	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	114.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1619	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	250	236.0	94	90 - 110	
Bromide-Soluble	50.0	48.85	98	90 - 110	
Sulfate-Soluble	250	241.0	96	90 - 110	
Fluoride-Soluble	50.0	48.18	96	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Matrix Spike - Batch: 280-147983

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-147983	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	118.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1725	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	5.8		257	254.8	97	80 - 120	
Bromide-Soluble	0.39	U	51.4	51.03	99	80 - 120	
Sulfate-Soluble	3.8	B	257	252.5	97	80 - 120	
Fluoride-Soluble	0.84	U	51.4	37.07	72	80 - 120	N

Duplicate - Batch: 280-147983

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-147983	Instrument ID:	WC_IC3
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	117.TXT
Dilution:	1.0	Leach Batch:	280-147479	Initial Weight/Volume:	1.0 mL
Analysis Date:	11/14/2012 1708	Units:	mg/Kg	Final Weight/Volume:	1.0 mL
Prep Date:	N/A				
Leach Date:	11/14/2012 1434				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	5.8		5.21	11	15	
Bromide-Soluble	0.39	U	0.39	NC	15	U
Sulfate-Soluble	3.8	B	3.63	4	15	B
Fluoride-Soluble	0.84	U	0.84	NC	15	U

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

Duplicate - Batch: 280-146440

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-35624-1	Analysis Batch:	280-146440	Instrument ID:	No Equipment
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	11/08/2012 1552	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	3.7	3.7	0.2	20	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-146674					
LCS 280-146674/2-A	Lab Control Sample	T	Solid	7471A	
MB 280-146674/1-A	Method Blank	T	Solid	7471A	
280-35624-1	J1R541	T	Solid	7471A	
280-35624-1DU	Duplicate	T	Solid	7471A	
280-35624-1MS	Matrix Spike	T	Solid	7471A	
Prep Batch: 280-146709					
LCS 280-146709/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-146709/1-A	Method Blank	T	Solid	3050B	
280-35624-1	J1R541	T	Solid	3050B	
280-35624-1DU	Duplicate	T	Solid	3050B	
280-35624-1MS	Matrix Spike	T	Solid	3050B	
Analysis Batch:280-148289					
LCS 280-146709/2-A	Lab Control Sample	T	Solid	6010B	280-146709
MB 280-146709/1-A	Method Blank	T	Solid	6010B	280-146709
280-35624-1	J1R541	T	Solid	6010B	280-146709
280-35624-1DU	Duplicate	T	Solid	6010B	280-146709
280-35624-1MS	Matrix Spike	T	Solid	6010B	280-146709
Analysis Batch:280-148396					
LCS 280-146674/2-A	Lab Control Sample	T	Solid	7471A	280-146674
MB 280-146674/1-A	Method Blank	T	Solid	7471A	280-146674
280-35624-1	J1R541	T	Solid	7471A	280-146674
280-35624-1DU	Duplicate	T	Solid	7471A	280-146674
280-35624-1MS	Matrix Spike	T	Solid	7471A	280-146674

Report Basis
T = Total

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-146440					
280-35624-1	J1R541	T	Solid	D-2216	
280-35624-1DU	Duplicate	T	Solid	D-2216	
Prep Batch: 280-146660					
280-35624-1	J1R541	S	Solid	DI Leach	
280-35624-1DU	Duplicate	S	Solid	DI Leach	
Prep Batch: 280-146682					
LCS 280-146682/2-A	Lab Control Sample	S	Solid	DI Leach	
MB 280-146682/1-A	Method Blank	S	Solid	DI Leach	
280-35624-1	J1R541	S	Solid	DI Leach	
280-35624-1DU	Duplicate	S	Solid	DI Leach	
280-35624-1MS	Matrix Spike	S	Solid	DI Leach	
Analysis Batch:280-146738					
LCS 280-146738/4	Lab Control Sample	T	Water	9045C	
LCSD 280-146738/5	Lab Control Sample Duplicate	T	Water	9045C	
280-35624-1	J1R541	S	Solid	9045C	
280-35624-1DU	Duplicate	S	Solid	9045C	
Analysis Batch:280-147160					
LCS 280-146682/2-A	Lab Control Sample	S	Solid	353.2	
MB 280-146682/1-A	Method Blank	S	Solid	353.2	
280-35624-1	J1R541	S	Solid	353.2	
280-35624-1DU	Duplicate	S	Solid	353.2	
280-35624-1MS	Matrix Spike	S	Solid	353.2	
Prep Batch: 280-147479					
LCS 280-147479/1-A	Lab Control Sample	S	Solid	DI Leach	
MB 280-147479/2-A	Method Blank	S	Solid	DI Leach	
280-35624-1	J1R541	S	Solid	DI Leach	
280-35624-1DU	Duplicate	S	Solid	DI Leach	
280-35624-1MS	Matrix Spike	S	Solid	DI Leach	
Analysis Batch:280-147981					
LCS 280-147479/1-A	Lab Control Sample	S	Solid	9056M	
MB 280-147479/2-A	Method Blank	S	Solid	9056M	
280-35624-1	J1R541	S	Solid	9056M	
280-35624-1DU	Duplicate	S	Solid	9056M	
280-35624-1MS	Matrix Spike	S	Solid	9056M	

Client: Washington Closure Hanford

Job Number: 280-35624-1
Sdg Number: J01616

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-147983					
LCS 280-147479/1-A	Lab Control Sample	S	Solid	9056M	
MB 280-147479/2-A	Method Blank	S	Solid	9056M	
280-35624-1	J1R541	S	Solid	9056M	
280-35624-1DU	Duplicate	S	Solid	9056M	
280-35624-1MS	Matrix Spike	S	Solid	9056M	

Report Basis
S = Soluble
T = Total