SAF-RC-155
618-10 & 618-11 Field Remediation – Other
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required KW 5/23/16
INITIAL/DATE

COMMENTS:

SDG JP1044 **SAF-RC-155**

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location: 618-10 drum/grout batches, GR-333C

Analytical Data Package Prepared For

Washington Closure Hanford

Radiochemical Analysis By

TestAmerica Inc

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

Assigned Laboratory Code: TARL

Data Package Contains **69** *Pages*

Report No.: 68627

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.
JP1044	RC-155	J1V8X4	J6D280414-1	M8KCJ1AF	9M8KCJ10	6119039
		J1V8X4	J6D280414-1	M8KCJ1AE	9M8KCJ10	6119042
		J1V8X4	J6D280414-1	M8KCJ1AA	9M8KCJ10	6119043
		J1V8X4	J6D280414-1	M8KCJ1AD	9M8KCJ10	6119044
		J1V8X4	J6D280414-1	M8KCJ1AJ	9M8KCJ10	6119045
		J1V8X4	J6D280414-1	M8KCJ2AU	9M8KCJ20	6133018
		J1V8X4	J6D280414-1	M8KCJ3AH	9M8KCJ30	6137014
		J1V8X4	J6D280414-1	M8KCJ2AG	9M8KCJ20	6137016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

May 20, 2016

Attention: Joan Kessner

SAF Number	:	RC-155
Date SDG Closed	:	April 28, 2016
Number of Samples	:	One (1)
Sample Type	:	Other Solid
SDG Number	:	JP1044
Data Deliverable	:	7– Day / Summary

CASE NARRATIVE

I. Introduction

On April 28, 2016, one other solid sample was received at TestAmerica for radiochemical 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
J1V8X4	M8KCJ	OTHER	4/28/16

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-001
Uranium 234, 235 and 238 by method RL-ALP-015
Americium-241/Curium-244 by method RL-ALP-003

Gas Proportional Counting
Strontium-90 by method RL-GPC-010
Gamma Spectroscopy
Gamma Spec by method RL-GAM-001
Liquid Scintillation Counting
Technetium-99 by method RL-LSC-014
Carbon-14 by method RL-LSC-008
Nickel-63 by method RL-LCS-017

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-001:
The batch was reanalyzed due to the high sample activity tailing into the tracer region. The reanalysis batch was recounted due to suspected counting error. In the reanalysis, the achieved MDA exceeds the CRDL due to the reduced sample aliquots. The tracer yield for J1V8X4 is elevated; all other batch QC is within the acceptance limits. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V8X4) results are within contractual requirements.

Uranium 234, 235 and 238 by method RL-ALP-015:
The LCS, batch blank, sample and sample duplicate (J1V8X4) results are within contractual requirements.

Americium 241/Curium-244 by method RL-ALP-003:
The batch was reanalyzed due to the high sample activity tailing into the tracer region. In the reanalysis, the achieved MDA exceeds the CRDL due to the reduced sample aliquots. The tracer yield for J1V8X4 is slightly elevated; all other batch QC is within the acceptance limits. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V8X4) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-010:
In the original batch the sample and sample duplicate (J1V8X4) agreement was outside the acceptance limits and the sample had high alpha activity. The batch was reanalyzed with reduced aliquots; the achieved MDA for the sample and sample duplicate exceeds the CRDL due to the aliquot reductions and the duplicate agreement is outside the acceptance limits. This may be attributed to the inhomogeneity of the sample matrix. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V8X4) results are within contractual requirements.

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The CRDL was not met for some of the analytes. Except as noted, the LCS, batch blank, sample and sample duplicate (J1V8X4) results are within contractual requirements.

Liquid Scintillation Counting

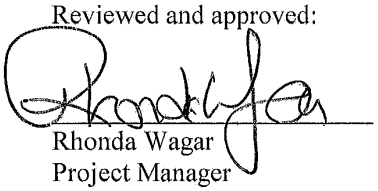
Technetium-99 by method RL-LSC-014:
The LCS, batch blank, sample, sample duplicate (J1V8X4) and sample matrix spike (J1V8X4) results are within contractual requirements.

Carbon-14 by method RL-LSC-008:
The LCS, batch blank, sample and sample duplicate (J1V8X4) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, sample and sample duplicate (J1V8X4) 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.
CSU (#s) ***u_c Combined Standard Uncert.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined standard uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 20-May-16

TestAmerica Inc TARL

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

Report No. : 68627 **SDG No:** JP1044

Batch	Client Id / Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
6119045 C14_CHEM_LSC									
	J1V8X4								
	M8KCJ1AJ	C-14	-8.60E-02 +- 1.6E-01	U	pCi/g	100%	3.36E-01	5.00E+01	
	J1V8X4 DUP								
	M8KCJ1AT	C-14	-1.67E-01 +- 1.6E-01	U	pCi/g	100%	3.38E-01	5.00E+01	-64.0
6119043 UISO_IE_PLATE_AEA									
	J1V8X4								
	M8KCJ1AA	U-234	2.66E+00 +- 8.8E-01		pCi/g	64%	1.80E-01	1.00E+00	
		U-235	8.70E-02 +- 1.3E-01	U	pCi/g	64%	1.50E-01	1.00E+00	
		U-238	1.20E+00 +- 5.2E-01		pCi/g	64%	1.50E-01	1.00E+00	
	J1V8X4 DUP								
	M8KCJ1AQ	U-234	2.26E+00 +- 7.3E-01		pCi/g	73%	1.27E-01	1.00E+00	16.3
		U-235	3.61E-02 +- 7.6E-02	U	pCi/g	73%	1.27E-01	1.00E+00	82.7
		U-238	9.37E-01 +- 4.2E-01		pCi/g	73%	1.38E-01	1.00E+00	24.5
6137014 PUISO_IE_PRECIP_AEA									
	J1V8X4								
	M8KCJ3AH	PU-238	9.35E+00 +- 2.8E+00		pCi/g	127%	4.78E-01	1.00E+00	
		PU239/40	4.40E+02 +- 6.9E+01		pCi/g	127%	5.44E-01	1.00E+00	
	J1V8X4 DUP								
	M8KCJ2AV	PU-238	7.33E+00 +- 2.4E+00		pCi/g	106%	5.55E-01	1.00E+00	24.1
		PU239/40	4.07E+02 +- 6.5E+01		pCi/g	106%	5.96E-01	1.00E+00	7.9
6137016 AMCMISO_EIE_PREC_AEA									
	J1V8X4								
	M8KCJ2AG	AMERICIUM 241	1.76E+02 +- 3.4E+01		pCi/g	117%	1.19E+00	1.00E+00	
		CM-243/244	-8.28E-02 +- 5.2E-01	U	pCi/g	117%	1.02E+00	1.00E+00	
	J1V8X4 DUP								
	M8KCJ1AW	AMERICIUM 241	1.91E+02 +- 3.7E+01		pCi/g	106%	1.22E+00	1.00E+00	8.2
		CM-243/244	1.69E-01 +- 5.0E-01	U	pCi/g	106%	1.08E+00	1.00E+00	586.5
6119039 GAMMA_GS									
	J1V8X4								
	M8KCJ1AF	AMERICIUM 241	4.25E+02 +- 4.7E+01		pCi/g		1.96E+00		
		CO-60	-1.54E-03 +- 5.0E-02	U	pCi/g		9.29E-02	5.00E-02	
		CS-137	3.57E+01 +- 4.5E+00		pCi/g		1.39E-01	1.00E-01	
		EU-152	-5.89E-02 +- 2.2E-01	U	pCi/g		3.73E-01	1.00E-01	
		EU-154	5.87E-02 +- 1.5E-01	U	pCi/g		2.97E-01	1.00E-01	
		EU-155	6.45E-02 +- 2.1E-01	U	pCi/g		3.26E-01	1.00E-01	
		K-40	8.00E+00 +- 1.9E+00		pCi/g		1.22E+00		
	J1V8X4 DUP								
	M8KCJ1AK	AMERICIUM 241	4.45E+02 +- 4.8E+01		pCi/g		1.90E+00		4.6

TestAmerica Inc

rptTALRchSaSummary2 V5.5.1 A2002

RPD - Relative Percent Difference.

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

Sample Results Summary

Date: 20-May-16

TestAmerica Inc TARL

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

Report No. : 68627 **SDG No:** JP1044

Batch	Client Id / Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
6119039 GAMMA_GS									
J1V8X4 DUP									
	M8KCJ1AK	CO-60	2.88E-02 +- 6.2E-02	U	pCi/g		1.20E-01	5.00E-02	222.6
		CS-137	3.54E+01 +- 4.1E+00		pCi/g		1.53E-01	1.00E-01	0.8
		EU-152	-1.26E-01 +- 3.2E-01	U	pCi/g		5.37E-01	1.00E-01	-72.8
		EU-154	7.88E-02 +- 1.9E-01	U	pCi/g		3.61E-01	1.00E-01	29.2
		EU-155	9.87E-02 +- 2.9E-01	U	pCi/g		4.84E-01	1.00E-01	41.9
		K-40	9.05E+00 +- 1.9E+00		pCi/g		1.20E+00		12.3
6133018 SRTOT_SEP_PRECIP_GPC									
J1V8X4									
	M8KCJ2AU	STRONTIUM	1.78E+03 +- 4.2E+02		pCi/g	93%	1.18E+00	1.00E+00	
	M8KCJ2AC	STRONTIUM	1.14E+02 +- 2.7E+01		pCi/g	90%	1.14E+00	1.00E+00	175.9
6119042 TC99_ETVDSK_LSC									
J1V8X4									
	M8KCJ1AE	Tc-99	8.42E+00 +- 5.2E-01		pCi/g	100%	5.98E-01	1.50E+01	
J1V8X4 DUP									
	M8KCJ1AP	Tc-99	2.32E+00 +- 3.4E-01		pCi/g	100%	5.84E-01	1.50E+01	113.7
6119044 NI63_LSC									
J1V8X4									
	M8KCJ1AD	NI-63	4.19E+00 +- 7.8E+00	U	pCi/g	93%	6.75E+00	3.00E+01	
J1V8X4 DUP									
	M8KCJ1AR	NI-63	2.27E+00 +- 6.0E+00	U	pCi/g	100%	6.93E+00	3.00E+01	59.6

No. of Results: 36

TestAmerica Inc

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RPD - Relative Percent Difference.

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

QC Results Summary

Date: 20-May-16

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 68627 **SDG No.:** JP1044

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_CHEM_LSC								
6119045 BLANK QC,								
M8KD31AA	C-14	-1.18E-01 +- 1.6E-01	U	pCi/g	100%			3.48E-01
6119045 LCS,								
M8KD31AC	C-14	7.38E+00 +- 5.8E-01		pCi/g	100%	102%	0.0	3.40E-01
UISO_IE_PLATE_AEA								
6119043 BLANK QC,								
M8KD11AA	U-234	8.71E-02 +- 1.0E-01	U	pCi/g	92%			1.09E-01
	U-235	0.00E+00 +- 6.0E-02	U	pCi/g	92%			1.01E-01
	U-238	2.98E-02 +- 6.0E-02	U	pCi/g	92%			1.01E-01
6119043 LCS,								
M8KD11AC	U-234	5.63E+00 +- 1.3E+00		pCi/g	87%	95%	0.0	1.28E-01
	U-238	5.91E+00 +- 1.4E+00		pCi/g	87%	95%	0.0	1.34E-01
PUISO_IE_PRECIP_AEA								
6137014 BLANK QC,								
M8L911AA	PU-238	1.06E-02 +- 2.8E-02	U	pCi/g	102%			6.00E-02
	PU239/40	7.78E-02 +- 7.0E-02		pCi/g	102%			6.80E-02
6137014 LCS,								
M8L911AC	PU239/40	3.85E+00 +- 8.5E-01		pCi/g	110%	87%	-0.1	5.82E-02
AMCMISO_EIE_PREC_AEA								
6137016 BLANK QC,								
M8MAF1AA	AMERICIUM 241	2.22E-02 +- 4.3E-02	U	pCi/g	95%			7.68E-02
	CM-243/244	-5.40E-03 +- 3.0E-02	U	pCi/g	95%			7.09E-02
6137016 LCS,								
M8MAF1AC	AMERICIUM 241	4.70E+00 +- 9.7E-01		pCi/g	108%	102%	0.0	7.24E-02
GAMMA_GS								
6119039 BLANK QC,								
M8KDV1AA	AMERICIUM 241	-1.91E-03 +- 1.2E-01	U	pCi/g				2.07E-01
	CO-60	4.61E-03 +- 3.5E-02	U	pCi/g				6.44E-02
	CS-137	1.41E-03 +- 2.7E-02	U	pCi/g				4.84E-02
	EU-152	-2.16E-02 +- 5.9E-02	U	pCi/g				9.95E-02
	EU-154	-8.90E-02 +- 9.3E-02	U	pCi/g				1.47E-01
	EU-155	-3.59E-02 +- 5.1E-02	U	pCi/g				8.30E-02
	K-40	-2.37E-01 +- 6.3E-01	U	pCi/g				1.30E+00
6119039 LCS,								
M8KDV1AC	AMERICIUM 241	4.17E+01 +- 5.0E+00		pCi/g		104%	0.0	4.89E-01
	CO-60	9.32E+00 +- 1.9E+00		pCi/g		93%	-0.1	1.07E-01
	CS-137	3.98E+01 +- 5.5E+00		pCi/g		102%	0.0	1.57E-01
SRTOT_SEP_PRECIP_GPC								
6133018 BLANK QC,								
M8KD42AA	STRONTIUM	8.06E-02 +- 2.4E-01	U	pCi/g	70%			4.14E-01
6133018 LCS,								

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

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

QC Results Summary

Date: 20-May-16

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 68627 **SDG No.:** JP1044

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
M8KD42AC	STRONTIUM	3.98E+00 +- 1.0E+00		pCi/g	78%	121%	0.2	3.88E-01
TC99_ETVDSK_LSC								
6119042 BLANK QC,								
M8KD01AA	Tc-99	1.07E-01 +- 2.8E-01	U	pCi/g	100%			5.98E-01
6119042 LCS,								
M8KD01AC	Tc-99	6.75E+00 +- 4.7E-01		pCi/g	100%	100%	0.0	5.94E-01
6119042 MATRIX SPIKE, J1V8X4								
M8KCJ1AN	Tc-99	2.34E+01 +- 1.2E+00		pCi/g	100%	69%	-0.3	6.02E-01
NI63_LSC								
6119044 BLANK QC,								
M8KD21AA	NI-63	-5.43E-01 +- 3.8E+00	U	pCi/g	93%			6.47E+00
6119044 LCS,								
M8KD21AC	NI-63	2.70E+02 +- 3.8E+02		pCi/g	90%	85%	-0.2	7.48E+00

No. of Results: 30

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

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

FORM I

SAMPLE RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044 **Collection Date:** 4/27/2016 10:00:00 AM

Lot-Sample No.: J6D280414-1 **Report No. :** 68627 **Received Date:** 4/28/2016 11:00:00 AM

Client Sample ID: J1V8X4 **COC No. :** **Matrix:** OTHER OTHERSOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6119039	GAMMA_GS			**Work Order:** M8KCJ1AF			**Report DB ID:** 9M8KCJ10					
AMERICIUM 241	**4.25E+02**		4.7E+01	4.7E+01	1.96E+00	pCi/g		*(216.3)*	5/6/16 06:40 p		30.8	GER11$1
								(18.2)			g	
CO-60	**-1.54E-03**	U	5.0E-02	5.0E-02	9.29E-02	pCi/g		*-0.02*	5/6/16 06:40 p		30.8	GER11$1
							5.00E-02	*-0.06*			g	
CS-137	**3.57E+01**		4.5E+00	4.5E+00	1.39E-01	pCi/g		*(257.3)*	5/6/16 06:40 p		30.8	GER11$1
							1.00E-01	*(15.8)*			g	
EU-152	**-5.89E-02**	U	2.2E-01	2.2E-01	3.73E-01	pCi/g		*-0.16*	5/6/16 06:40 p		30.8	GER11$1
							1.00E-01	*-0.52*			g	
EU-154	**5.87E-02**	U	1.5E-01	1.5E-01	2.97E-01	pCi/g		*0.2*	5/6/16 06:40 p		30.8	GER11$1
							1.00E-01	*0.77*			g	
EU-155	**6.45E-02**	U	2.1E-01	2.1E-01	3.26E-01	pCi/g		*0.2*	5/6/16 06:40 p		30.8	GER11$1
							1.00E-01	*0.63*			g	
K-40	**8.00E+00**		1.9E+00	1.9E+00	1.22E+00	pCi/g		*(6.6)*	5/6/16 06:40 p		30.8	GER11$1
								(8.2)			g	
Batch: 6119042	TC99_ETVDSK_LSC			**Work Order:** M8KCJ1AE			**Report DB ID:** 9M8KCJ10					
Tc-99	**8.42E+00**		4.6E-01	5.2E-01	5.98E-01	pCi/g	100%	*(14.1)*	5/12/16 11:51 a		2.0	LSC10
						2.87E-01	1.50E+01	*(32.4)*			g	
Batch: 6119043	UISO_IE_PLATE_AEA			**Work Order:** M8KCJ1AA			**Report DB ID:** 9M8KCJ10					
U-234	**2.66E+00**		6.9E-01	8.8E-01	1.80E-01	pCi/g	64%	*(14.8)*	5/17/16 06:20 p		0.49	ALP407
						4.54E-02	1.00E+00	*(6.1)*			g	

TestAmerica Inc
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V5.5.1 A2002

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

FORM I

SAMPLE RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044 **Collection Date:** 4/27/2016 10:00:00 AM

Lot-Sample No.: J6D280414-1 **Report No. :** 68627 **Received Date:** 4/28/2016 11:00:00 AM

Client Sample ID: J1V8X4 **COC No. :** **Matrix:** OTHER OTHERSOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
U-235	8.70E-02	U	1.3E-01	1.3E-01	1.50E-01	pCi/g	64%	*0.58*	5/17/16 06:20 p		0.49	ALP407
						3.18E-02	1.00E+00	*(1.4)*			g	
U-238	1.20E+00		4.6E-01	5.2E-01	1.50E-01	pCi/g	64%	*(8.)*	5/17/16 06:20 p		0.49	ALP407
						3.18E-02	1.00E+00	*(4.6)*			g	
								Ratio U-234/238 = 2.2				
Batch: 6119044	NI63_LSC			**Work Order:**	M8KCJ1AD		**Report DB ID:**	9M8KCJ10				
NI-63	4.19E+00	U	2.9E+00	7.8E+00	6.75E+00	pCi/g	93%	*0.62*	5/12/16 10:38 a		0.52	LSC4
						3.16E+00	3.00E+01	*(1.1)*			g	
Batch: 6119045	C14_CHEM_LSC			**Work Order:**	M8KCJ1AJ		**Report DB ID:**	9M8KCJ10				
C-14	-8.60E-02	U	1.4E-01	1.6E-01	3.36E-01	pCi/g	100%	*-0.26*	5/4/16 06:56 a		5.1	LSC4
						1.61E-01	5.00E+01	*-(1.1)*			g	
Batch: 6133018	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M8KCJ2AU		**Report DB ID:**	9M8KCJ20				
STRONTIUM	1.78E+03		1.7E+01	4.2E+02	1.18E+00	pCi/g	93%	*(1508.7)*	5/18/16 08:15 p		0.52	GPC31C
						5.36E-01	1.00E+00	*(8.4)*			g	
Batch: 6137014	PUISO_IE_PRECIP_AEA			**Work Order:**	M8KCJ3AH		**Report DB ID:**	9M8KCJ30				
PU-238	9.35E+00		2.4E+00	2.8E+00	4.78E-01	pCi/g	127%	*(19.6)*	5/20/16 11:37 a		0.0553	ALP39
						1.65E-01	1.00E+00	*(6.8)*			g	
PU239/40	4.40E+02		1.6E+01	6.9E+01	5.44E-01	pCi/g	127%	*(809.7)*	5/20/16 11:37 a		0.0553	ALP39
						2.05E-01	1.00E+00	*(12.8)*			g	
Batch: 6137016	AMCMISO_EIE_PREC_AEA			**Work Order:**	M8KCJ2AG		**Report DB ID:**	9M8KCJ20				
AMERICIUM 241	1.76E+02		1.3E+01	3.4E+01	1.19E+00	pCi/g	117%	*(147.8)*	5/19/16 12:09 p		0.05531	ALP430
						4.33E-01	1.00E+00	*(10.5)*			g	

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

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

V5.5.1 A2002

FORM I

SAMPLE RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc
Lot-Sample No.: J6D280414-1
Client Sample ID: J1V8X4

SDG: JP1044
Report No. : 68627
COC No. :

Collection Date: 4/27/2016 10:00:00 AM
Received Date: 4/28/2016 11:00:00 AM
Matrix: OTHER OTHERSOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
CM-243/244	-8.28E-02	U	5.2E-01	5.2E-01	1.02E+00	pCi/g	117%	*-0.08*	5/19/16 12:09 p		0.05531	ALP430
						3.34E-01	1.00E+00	*-0.32*			g	

No. of Results: 18 **Comments:**

TestAmerica Inc
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V5.5.1 A2002

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

FORM II

Date: 20-May-16

DUPLICATE RESULTS

Lab Name: TestAmerica Inc
SDG: JP1044
Collection Date: 4/27/2016 10:00:00 AM

Lot-Sample No.: J6D280414-1
Report No. : 68627
Received Date: 4/28/2016 11:00:00 AM

Client Sample ID: J1V8X4
COC No. :
Matrix: OTHER OTHERSOLID

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6133018	SRTOT_SEP_PRECIP_GPC			**Work Order:** M8KCJ2AC		**Report DB ID:** M8KCJ2CR			**Orig Sa DB ID:** 9M8KCJ20			
STRONTIUM	1.14E+02		4.3E+00	2.7E+01	1.14E+00	pCi/g	90%	(100.)	5/18/16 08:15 p		0.55	GPC31B
	1.78E+03		**RPD**	**175.9**		1.00E+00		(8.4)			g	

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

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

FORM II

Date: 20-May-16

DUPLICATE RESULTS

Lab Name: TestAmerica Inc **SDG:** JP1044 **Collection Date:** 4/27/2016 10:00:00 AM

Lot-Sample No.: J6D280414-1 **Report No. :** 68627 **Received Date:** 4/28/2016 11:00:00 AM

Client Sample ID: J1V8X4 DUP **COC No. :** **Matrix:** OTHER OTHERSOLID

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6119039	GAMMA_GS			**Work Order:** M8KCJ1AK		**Report DB ID:** M8KCJ1KR			**Orig Sa DB ID:** 9M8KCJ10			
AMERICIUM 241	4.45E+02		4.8E+01	4.8E+01	1.90E+00	pCi/g		(233.9)	5/6/16 11:46 p		30.8	GER10$1
	4.25E+02		**RPD**	**4.6**				(18.7)			g	
CO-60	2.88E-02	U	6.2E-02	6.2E-02	1.20E-01	pCi/g		0.24	5/6/16 11:46 p		30.8	GER10$1
	-1.54E-03	U	**RPD**	**222.6**		5.00E-02		0.93			g	
CS-137	3.54E+01		4.1E+00	4.1E+00	1.53E-01	pCi/g		(231.2)	5/6/16 11:46 p		30.8	GER10$1
	3.57E+01		**RPD**	**0.8**		1.00E-01		(17.1)			g	
EU-152	-1.26E-01	U	3.2E-01	3.2E-01	5.37E-01	pCi/g		-0.24	5/6/16 11:46 p		30.8	GER10$1
	-5.89E-02	U	**RPD**	**-72.8**		1.00E-01		-0.78			g	
EU-154	7.88E-02	U	1.9E-01	1.9E-01	3.61E-01	pCi/g		0.22	5/6/16 11:46 p		30.8	GER10$1
	5.87E-02	U	**RPD**	**29.2**		1.00E-01		0.82			g	
EU-155	9.87E-02	U	2.9E-01	2.9E-01	4.84E-01	pCi/g		0.2	5/6/16 11:46 p		30.8	GER10$1
	6.45E-02	U	**RPD**	**41.9**		1.00E-01		0.68			g	
K-40	9.05E+00		1.9E+00	1.9E+00	1.20E+00	pCi/g		(7.6)	5/6/16 11:46 p		30.8	GER10$1
	8.00E+00		**RPD**	**12.3**				(9.7)			g	
Batch: 6119042	TC99_ETVDSK_LSC			**Work Order:** M8KCJ1AP		**Report DB ID:** M8KCJ1PR			**Orig Sa DB ID:** 9M8KCJ10			
Tc-99	2.32E+00		3.1E-01	3.4E-01	5.84E-01	pCi/g	100%	(4.)	5/12/16 02:00 p		2.05	LSC10
	8.42E+00		**RPD**	**113.7**		1.50E+01		(13.5)			g	
Batch: 6119043	UISO_IE_PLATE_AEA			**Work Order:** M8KCJ1AQ		**Report DB ID:** M8KCJ1QR			**Orig Sa DB ID:** 9M8KCJ10			
U-234	2.26E+00		5.8E-01	7.3E-01	1.27E-01	pCi/g	73%	(17.7)	5/17/16 06:20 p		0.48	ALP408
	2.66E+00		**RPD**	**16.3**		1.00E+00		(6.2)			g	

TestAmerica Inc **RPD** - Relative Percent Difference.

rptSTLRchDupV5. 5.1 A2002 **MDC|MDA,Lc** - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

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

FORM II

Date: 20-May-16

DUPLICATE RESULTS

Lab Name: TestAmerica Inc **SDG:** JP1044 **Collection Date:** 4/27/2016 10:00:00 AM

Lot-Sample No.: J6D280414-1 **Report No. :** 68627 **Received Date:** 4/28/2016 11:00:00 AM

Client Sample ID: J1V8X4 DUP **COC No. :** **Matrix:** OTHER OTHERSOLID

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
U-235	3.61E-02	U	7.5E-02	7.6E-02	1.27E-01	pCi/g	73%	0.28	5/17/16 06:20 p		0.48	ALP408
	8.70E-02	U	**RPD**	**82.7**		1.00E+00		0.95			g	
U-238	9.37E-01		3.8E-01	4.2E-01	1.38E-01	pCi/g	73%	(6.8)	5/17/16 06:20 p		0.48	ALP408
	1.20E+00		**RPD**	**24.5**		1.00E+00		(4.5)			g	
									Alpha Spec Result Sum = 9.7E-01			
Batch: 6119044	NI63_LSC			**Work Order:**	M8KCJ1AR	**Report DB ID:**	M8KCJ1RR		**Orig Sa DB ID:** 9M8KCJ10			
NI-63	2.27E+00	U	2.9E+00	6.0E+00	6.93E+00	pCi/g	100%	0.33	5/12/16 11:02 a		0.47	LSC4
	4.19E+00	U	**RPD**	**59.6**		3.00E+01		0.76			g	
									Alpha Spec Result Sum = 9.7E-01			
Batch: 6119045	C14_CHEM_LSC			**Work Order:**	M8KCJ1AT	**Report DB ID:**	M8KCJ1TR		**Orig Sa DB ID:** 9M8KCJ10			
C-14	-1.67E-01	U	1.3E-01	1.6E-01	3.38E-01	pCi/g	100%	-0.49	5/4/16 07:40 a		5.1	LSC4
	-8.60E-02	U	**RPD**	**-64.0**		5.00E+01		-(2.1)			g	
									Alpha Spec Result Sum = 9.7E-01			
Batch: 6137014	PUISO_IE_PRECIP_AEA			**Work Order:**	M8KCJ2AV	**Report DB ID:**	M8KCJ2VR		**Orig Sa DB ID:** 9M8KCJ30			
PU-238	7.33E+00		2.1E+00	2.4E+00	5.55E-01	pCi/g	106%	(13.2)	5/19/16 06:48 p		0.0583	ALP44
	9.35E+00		**RPD**	**24.1**		1.00E+00		(6.2)			g	
PU239/40	4.07E+02		1.5E+01	6.5E+01	5.96E-01	pCi/g	106%	(682.6)	5/19/16 06:48 p		0.0583	ALP44
	4.40E+02		**RPD**	**7.9**		1.00E+00		(12.5)			g	
									Alpha Spec Result Sum = 4.2E+02			
Batch: 6137016	AMCMISO_EIE_PREC_AEA			**Work Order:**	M8KCJ1AW	**Report DB ID:**	M8KCJ1WR		**Orig Sa DB ID:** 9M8KCJ20			

RPD - Relative Percent Difference.

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

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

FORM II

Date: 20-May-16

DUPLICATE RESULTS

Lab Name: TestAmerica Inc **SDG:** JP1044 **Collection Date:** 4/27/2016 10:00:00 AM

Lot-Sample No.: J6D280414-1 **Report No. :** 68627 **Received Date:** 4/28/2016 11:00:00 AM

Client Sample ID: J1V8X4 DUP **COC No. :** **Matrix:** OTHER OTHERSOLID

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
AMERICIUM 241	1.91E+02		1.4E+01	3.7E+01	1.22E+00	pCi/g	106%	(156.6)	5/19/16 12:08 p		0.05834	ALP429
	1.76E+02		**RPD 8.2**			1.00E+00		(10.4)			g	
CM-243/244	1.69E-01	U	5.0E-01	5.0E-01	1.08E+00	pCi/g	106%	0.16	5/19/16 12:08 p		0.05834	ALP429
	-8.28E-02	U	**RPD 586.5**			1.00E+00		0.67			g	

Alpha Spec Result Sum = 1.9E+02

No. of Results: 17 **Comments:**

RPD - Relative Percent Difference.

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

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

FORM II

BLANK RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044

Matrix: OTHER **Report No. :** 68627

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6119045	C14_CHEM_LSC			**Work Order:**	M8KD31AA	**Report DB ID:**	M8KD31AB					
C-14	-1.18E-01	U	1.4E-01	1.6E-01	3.48E-01	pCi/g	100%	-0.34	5/4/16 08:23 a		5.0	LSC4
					1.67E-01	5.00E+01		-(1.4)			g	
Batch: 6137016	AMCMISO_EIE_PREC_AEA			**Work Order:**	M8MAF1AA	**Report DB ID:**	M8MAF1AB					
AMERICIUM 241	2.22E-02	U	4.3E-02	4.3E-02	7.68E-02	pCi/g	95%	0.29	5/19/16 12:10 p		1.01	ALP431
					2.32E-02	1.00E+00		(1.)			g	
CM-243/244	-5.40E-03	U	3.0E-02	3.0E-02	7.09E-02	pCi/g	95%	-0.08	5/19/16 12:10 p		1.01	ALP431
					2.02E-02	1.00E+00		-0.36			g	
Batch: 6137014	PUISO_IE_PRECIP_AEA			**Work Order:**	M8L911AA	**Report DB ID:**	M8L911AB					
PU-238	1.06E-02	U	2.8E-02	2.8E-02	6.00E-02	pCi/g	102%	0.18	5/19/16 10:41 a		1.01	ALP43
					1.64E-02	1.00E+00		0.75			g	
PU239/40	7.78E-02		6.9E-02	7.0E-02	6.80E-02	pCi/g	102%	(1.1)	5/19/16 10:41 a		1.01	ALP43
					2.03E-02	1.00E+00		(2.2)			g	
Batch: 6119043	UISO_IE_PLATE_AEA			**Work Order:**	M8KD11AA	**Report DB ID:**	M8KD11AB					
U-234	8.71E-02	U	1.0E-01	1.0E-01	1.09E-01	pCi/g	92%	0.8	5/17/16 06:21 p		0.49	ALP410
					2.50E-02	1.00E+00		(1.7)			g	
U-235	0.00E+00	U	0.0E+00	6.0E-02	1.01E-01	pCi/g	92%	0.	5/17/16 06:21 p		0.49	ALP410
					2.14E-02	1.00E+00		0.			g	
U-238	2.98E-02	U	6.0E-02	6.0E-02	1.01E-01	pCi/g	92%	0.3	5/17/16 06:21 p		0.49	ALP410
					2.14E-02	1.00E+00		0.99			g	
								Ratio U-234/238 = 2.9				
Batch: 6119044	NI63_LSC			**Work Order:**	M8KD21AA	**Report DB ID:**	M8KD21AB					

TestAmerica Inc
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V5.5.1 A2002

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

FORM II

BLANK RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044

Matrix: OTHER **Report No. :** 68627

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
NI-63	-5.43E-01	U	2.5E+00	3.8E+00	6.47E+00	pCi/g	93%	-0.08	5/12/16 11:25 a		0.54	LSC4
					3.03E+00	3.00E+01		-0.29			g	
Batch: 6119042	TC99_ETVDSK_LSC			**Work Order:**	M8KD01AA		**Report DB ID:**	M8KD01AB				
Tc-99	1.07E-01	U	2.5E-01	2.8E-01	5.98E-01	pCi/g	100%	0.18	5/12/16 03:05 p		1.97	LSC10
					2.87E-01	1.50E+01		0.75			g	
Batch: 6119039	GAMMA_GS			**Work Order:**	M8KDV1AA		**Report DB ID:**	M8KDV1AB				
AMERICIUM 241	-1.91E-03	U	1.2E-01	1.2E-01	2.07E-01	pCi/g		-0.01	5/6/16 10:33 p		52.0	GER11$1
								-0.03			g	
CO-60	4.61E-03	U	3.5E-02	3.5E-02	6.44E-02	pCi/g		0.07	5/6/16 10:33 p		52.0	GER11$1
						5.00E-02		0.27			g	
CS-137	1.41E-03	U	2.7E-02	2.7E-02	4.84E-02	pCi/g		0.03	5/6/16 10:33 p		52.0	GER11$1
						1.00E-01		0.1			g	
EU-152	-2.16E-02	U	5.9E-02	5.9E-02	9.95E-02	pCi/g		-0.22	5/6/16 10:33 p		52.0	GER11$1
						1.00E-01		-0.73			g	
EU-154	-8.90E-02	U	9.3E-02	9.3E-02	1.47E-01	pCi/g		-0.61	5/6/16 10:33 p		52.0	GER11$1
						1.00E-01		-(1.9)			g	
EU-155	-3.59E-02	U	5.1E-02	5.1E-02	8.30E-02	pCi/g		-0.43	5/6/16 10:33 p		52.0	GER11$1
						1.00E-01		-(1.4)			g	
K-40	-2.37E-01	U	6.3E-01	6.3E-01	1.30E+00	pCi/g		-0.18	5/6/16 10:33 p		52.0	GER11$1
								-0.75			g	
Batch: 6133018	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M8KD42AA		**Report DB ID:**	M8KD42AB				
STRONTIUM	8.06E-02	U	2.4E-01	2.4E-01	4.14E-01	pCi/g	70%	0.19	5/18/16 08:15 p		2.01	GPC31D
					1.88E-01	1.00E+00		0.67			g	

TestAmerica Inc
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V5.5.1 A2002

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

FORM II

BLANK RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044

Matrix: OTHER **Report No. :** 68627

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector

No. of Results: 18 **Comments:**

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

rptSTLRchBlank
V5.5.1 A2002

FORM II

LCS RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044

Matrix: OTHER **Report No. :** 68627

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 6119045	C14_CHEM_LSC			**Work Order:**	M8KD31AC		**Report DB ID:**	M8KD31CS					
C-14	7.38E+00		3.1E-01	5.8E-01	3.40E-01	pCi/g	100%	7.26E+00	1.5E-01	102%	5/4/16 09:07 a	5.1	LSC4
							Rec Limits:			0.0		g	
Batch: 6137016	AMCMISO_EIE_PREC_AEA			**Work Order:**	M8MAF1AC		**Report DB ID:**	M8MAF1CS					
AMERICIUM 241	4.70E+00		5.0E-01	9.7E-01	7.24E-02	pCi/g	108%	4.60E+00	4.6E-02	102%	5/19/16 12:10 p	1.01	ALP432
							Rec Limits:	70	130	0.0		g	
Batch: 6137014	PUISO_IE_PRECIP_AEA			**Work Order:**	M8L911AC		**Report DB ID:**	M8L911CS					
PU239/40	3.85E+00		5.0E-01	8.5E-01	5.82E-02	pCi/g	110%	4.41E+00	5.2E-02	87%	5/19/16 10:42 a	1.02	ALP44
							Rec Limits:	70	130	-0.1		g	
Batch: 6119043	UISO_IE_PLATE_AEA			**Work Order:**	M8KD11AC		**Report DB ID:**	M8KD11CS					
U-234	5.63E+00		8.0E-01	1.3E+00	1.28E-01	pCi/g	87%	5.91E+00	3.1E-02	95%	5/17/16 06:21 p	0.55	ALP426
							Rec Limits:	70	130	0.0		g	
U-238	5.91E+00		8.2E-01	1.4E+00	1.34E-01	pCi/g	87%	6.19E+00	3.3E-02	95%	5/17/16 06:21 p	0.55	ALP426
							Rec Limits:	70	130	0.0		g	
Batch: 6119044	NI63_LSC			**Work Order:**	M8KD21AC		**Report DB ID:**	M8KD21CS					
NI-63	2.70E+02		1.0E+01	3.8E+02	7.48E+00	pCi/g	90%	3.18E+02	5.2E-01	85%	5/12/16 11:48 a	0.48	LSC4
							Rec Limits:	70	130	-0.2		g	
Batch: 6119042	TC99_ETVDSK_LSC			**Work Order:**	M8KD01AC		**Report DB ID:**	M8KD01CS					
Tc-99	6.75E+00		4.3E-01	4.7E-01	5.94E-01	pCi/g	100%	6.76E+00	4.0E-02	100%	5/12/16 04:09 p	2.01	LSC10
							Rec Limits:	70	130	0.0		g	
Batch: 6119039	GAMMA_GS			**Work Order:**	M8KDV1AC		**Report DB ID:**	M8KDV1CS					
AMERICIUM 241	4.17E+01		5.0E+00	5.0E+00	4.89E-01	pCi/g		3.99E+01	5.6E-03	104%	5/6/16 11:47 p	54.51	GER7$1
							Rec Limits:	70	130	0.0		g	

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

rptSTLRchLcs
V5.5.1 A2002

FORM II

LCS RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044

Matrix: OTHER **Report No. :** 68627

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
CO-60	9.32E+00		1.9E+00	1.9E+00	1.07E-01	pCi/g		1.00E+01	1.4E-03	93%	5/6/16 11:47 p	54.51	GER7$1
							Rec Limits:	70	130	-0.1		g	
CS-137	3.98E+01		5.5E+00	5.5E+00	1.57E-01	pCi/g		3.91E+01	5.5E-03	102%	5/6/16 11:47 p	54.51	GER7$1
							Rec Limits:	70	130	0.0		g	
Batch: 6133018	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M8KD42AC		**Report DB ID:**	M8KD42CS					
STRONTIUM	3.98E+00		5.0E-01	1.0E+00	3.88E-01	pCi/g	78%	3.28E+00	2.3E-02	121%	5/18/16 08:15 p	2.06	GPC32A
							Rec Limits:	70	130	0.2		g	

No. of Results: 11 **Comments:**

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

rptSTLRchLcs
V5.5.1 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 20-May-16

Lab Name: TestAmerica Inc **SDG:** JP1044

Lot-Sample No.: J6D280414-1, J1V8X4 **Report No. :** 68627 **Matrix:** OTHER OTHERSOLID

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDC|MDA	Rpt Unit	Yield	Rec-overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 6119042	**Work Order:** M8KCJ1AN			**Report DB ID:** M8KCJ1NW			**Orig Sa DB ID:** 9M8KCJ10					
Tc-99	2.34E+01		8.0E-01	1.2E+00	6.02E-01	pCi/g	100%	68.53%	3.41E+01	5/12/16 12:56 p	1.99	TC99_ETVDSK_LSC
	8.42E+00								2.0E-01		g	LSC10

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.5.1 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

5/20/2016 2:18:27 PM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6137014; RPUISO Pulso by ALP
SDG, Matrix: JP1044; OTHER

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** 5/20/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 6137014

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 Nonconformances (NCM) included and noted?	✓		
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response:

CRDL = 10 pCi/g
See NCM # 18-32829

Second Level Review: [signature] Date: 5/20/16

DR-001, Rev. 01, 10/30/2013

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-32829**
NCM Initiated By: Lisa Antonson
Date Opened: 05/20/2016
Date Closed:

Classification: **Anomaly**
Status: **QAREVIEW**
Production Area: Environmental - Sep
Tests: Pulso by ALP
Lot #'s (Sample #'s): J6D280414 (1), J6E160000 (14),
QC Batches: 6137014,

Nonconformance: Tracer yield out of limits
Subcategory: Unknown

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	05/20/2016	This batch is a reanalysis of batch 6119040 due high tracer yields. Tracer yields were high due to high activity in the sample tailing into the tracer region. The samples were reanalyzed with reduced aliquot. In the reanalysis, The sample has a high tracer yield of 127%. The sample and duplicate agree with in limits, and the tracer yield for the duplicate is acceptable at 106%. Both the sample and duplicate were recounted due to suspected counting error in the original count of the batch.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	05/20/2016	The batch was reanalyzed. Data will be uploaded for client review.

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: 5/20/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/18/2016 8:58:20 AM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6119043; RUISO UIso by ALP
SDG, Matrix: JP1044; OTHER

	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 [signature] **Date** 5/18/16

TestAmerica Richland
QAS_RADCALCv4.9.4

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 611903

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 Nonconformances (NCM) included and noted?			✓
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response:

CRDL = 1.0 pCi/g

Second Level Review: [signature] Date: 5/19/16

DR-001, Rev. 01, 10/30/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/20/2016 1:57:31 PM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6137016; RAMCMISO AmCmIso by ALP
SDG, Matrix: JP1044; OTHER

	Yes	No	N/A
1.0 COC			
1.1 Is the COC 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 _____ **Date** 5/20/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 6137016

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 Nonconformances (NCM) included and noted?	✓		
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response:

CRDL = 1.0 pCi/g

See NCM #: 102-32828

Second Level Review: [signature] Date: 5/20/16

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-32828**
NCM Initiated By: Lisa Antonson
Date Opened: 05/20/2016
Date Closed:

Classification: **Anomaly**
Status: **QAREVIEW**
Production Area: Environmental - Prep
Tests: AmCmIso by ALP
Lot #'s (Sample #'s): J6D280414 (1), J6E160000 (16),
QC Batches: 6137016,

Nonconformance: Tracer yield out of limits
Subcategory: Unknown

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	05/20/2016	The tracer for the sample in this batch is slightly high at 117%. The sample results for the sample and it's dup agree, and the duplicate tracer is within limits. The data will be uploaded for client review. This batch is a reanalysis of batch 6119041 due to high tracer yields. Tracer yields were high due to high sample activity tailing into the tracer region. The samples were reanalyzed with reduced aliquot. Due to reduced aliquot, the MDA exceeds CRDL.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	05/20/2016	The batch was reanalyzed with reduced aliquot

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: 5/20/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/19/2016 1:33:20 PM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6133018; RSRTOT SrTot by GPC
SDG, Matrix: JP1044; OTHER

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

6.0 Comments on any No response:

First Level Lisa Anderson **Date** 5/19/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 6133018

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 Nonconformances (NCM) included and noted?	✓		
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response:
CRDL = 10 pCi/g
See NCM #: 10-32821

Second Level Review: [signature] Date: 5/19/16

DR-001, Rev. 01, 10/30/2013

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #:	10-32821		
NCM Initiated By:	Lisa Antonson	Classification:	**Anomaly**
Date Opened:	05/19/2016	Status:	**QAREVIEW**
Date Closed:		Production Area:	Environmental - Prep
		Tests:	SrTot by GPC
		Lot #'s (Sample #'s):	J6D280000 (46), J6D280414 (1),
		QC Batches:	6133018,
Nonconformance:	Dups not within acceptance limits		
Subcategory:	Inhomogenity of the Sample		

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	05/19/2016	This batch is a reanalysis of batch 6119046. In the original batch, the duplicates were out of agreement, and there was high alpha activity in the samples. The batch was reanalyzed with reduced aliquot. MDA exceeds CRDL for the sample and duplicate due to reduced aliquot. Sample results exceed MDA. The duplicates do not agree, suspect non homogenous sample.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	05/19/2016	The data will be uploaded for the client's review.

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: 5/19/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/10/2016 12:32:58 PM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6119039; RGAMMA Gamma by GER
SDG, Matrix: JP1044; OTHER

	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 [signature] **Date** 5/10/16

TestAmerica Richland
QAS_RADCALCv4.9.4

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 6119039

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 Nonconformances (NCM) included and noted?	✓		
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response:
See NCM #10-32783

Second Level Review: [signature] Date: 5/10/16

DR-001, Rev. 01, 10/30/2013

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-32783**
NCM Initiated By: Lisa Antonson
Date Opened: 05/10/2016
Date Closed:

Classification: **Anomaly**
Status: **QAREVIEW**
Production Area: Counting
Tests: Gamma by GER
Lot #'s (Sample #'s): J6D280000 (39), J6D280414 (1),
QC Batches: 6119039,

Nonconformance: MDA not met
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	05/10/2016	CRDL is not met for the samples and QC in this batch.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	05/10/2016	None

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 5/10/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/13/2016 10:20:12 AM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6119042; RTC99 Tc-99 by LSC
SDG, Matrix: JP1044; OTHER

	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 [signature] **Date** 5/13/16

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 6119042

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 Nonconformances (NCM) included and noted?			✓
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response: CRDL = 15.0 pCi/g

Second Level Review: Rhonda W Jan Date: 5/13/16

DR-001, Rev. 01, 10/30/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/6/2016 11:20:00 AM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6119045; RC14LSCC C-14 Digestion
SDG, Matrix: JP1044; OTHER

	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 [signature] Date 5/12/16

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 6119045

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 Nonconformances (NCM) included and noted?			✓
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

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

Second Level Review: [signature] Date: 5/7/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/16/2016 1:27:06 PM

Lot No., Due Date: J6D280414; 05/05/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6119044; RNI63 Ni-63 by LSC
SDG, Matrix: JP1044; OTHER

	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 Jodie G Date 5/16/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 6111904

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 Nonconformances (NCM) included and noted?			✓
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response: CRDL = 30.0 pCi/g

Second Level Review: Rhonda Jones Date: 5/17/16

DR-001, Rev. 01, 10/30/2013

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-155-216

Collector D. Becker	**Company Contact** Joan Kessner	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Project Designation 618-10 & 618-11 Remediation	**Sampling Location** 618-10 drum/grout batches, GR-333C		**SAF No.** RC-155
Ice Chest No. WCH-13-SMS	**Field Logbook No.** EL-1664-01	**COA** R618102F20	**Method of Shipment** Local Delivery
Shipped To TestAmerica Richland	**Offsite Property No.** N/A		**Bill of Lading/Air Bill No.** N/A

Price Code 9A **Data Turnaround** 3 days

Other Labs Shipped To
TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive

Special Handling and/or Storage
Trans ship RCF to TA-DEN

Preservation	None	None	None	None	None	None	None				
Type of Container	G/P	G/P	G/P	G/P	G/P	G/P	G/P				
No. of Container(s)	0	0	0	0	0	0	1				
Volume	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL				
Sample Analysis	Isotopic Plutonium	Isotopic Uranium	Carbon-14	Nickel-63; Strontium-89,90 – Total Sr	Technetium-99	Americium-241/Curium-244 {Americium-241}	See item (1) in Special Instructions				

Sample No.	Matrix	Sample Date	Sample Time										
J1V8X4 MSLCJ	OTHER	04/27/16	1000	X	X	X	X	X	X	X			

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DAVE BECKER Dave Becker	4/27/16 1010	C. Martinez/C. Martinez	04/27/16 1010
C. Martinez/C. Martinez	04/27/16 1200	T.R. Edmundson T.R. Edmundson	4-27-16 1200
T.R. Edmundson T.R. Edmundson	4-27-16 1230	1060 Refer #2	4-27-16 1230
1060 Refer #2	4-28-16 0930	T.R. Edmundson T.R. Edmundson	4-28-16 0930
T.R. Edmundson T.R. Edmundson WCH	4-28-16 1100	L. Anderson, TMRC L. Anderson	4/28/16 1100

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

SPECIAL INSTRUCTIONS

(1) Gamma Spec (Client List) {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

J6D280414
Due 5-5-16
Rw 4/28/16

JP1044

J6D280414

Rw 4-28-16

WCH-EE-011

TestAmerica Laboratories, Inc.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 4/28/16 1100 Container GM Screen Result: (Airlock) 0 cpm Initials[LA]
Sample GM Screen Result (Sample Receiving) 900 cpm Initials[LA]

Client: WCH SDG #: JP1044 SAF #: RC-155 NA [ ]

Lot Number: J6D280414

Chain of Custody # RC-155-216

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

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

Item 5 through 16 for samples. Initial appropriate response.

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

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

Sample Check-in List completed by Sample Custodian:
Signature: Jori Anderson Date: 4/28/16

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

[X] No action necessary; process as is

Project Manager: [signature] Date 4/28/16

LS-023 Rev. 17, 05/13

Page 1 of 1

5/17/2016 8:48:21 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

7I PuAmCm Prp PRP003/PRP005, Sep
SO Plutonium-238,239/40 by Alpha Spec
[redacted]
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6137014 **OTHER** **pCi/g**

PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: 6119041, 7ISN 6119041, 7ISN 6137016, 7ISN 6137016, 7ISN 6119042 ANS5, 6119043 7SSR, 6119044 AFS4, 6119045 5STC, 6119046 CHTH, 6133018 CHTH, 6137014 7ISO, 6137016 7ISN.

All Tests: 6119039 AXTA, 6119040 7ISO, 6119041 7ISN, [redacted]

Prep Tech: JorgensonD

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 M8KCJ-1-AV-X			1.04g,in	0.0583g	PATB5874					41	1132	5/19/16 JSW	
J6D280414-1-DUP			13.08g,fi	233.17g,di	05/06/16,pd 11/21/11,r					AHAL			
04/27/2016 10:00			AmtRec: 1XLP		#Containers: 1				Scr:		Alpha:		Beta:
2 M8KCJ-2-AH			1.04g,in	0.0553g	PATB5875					42			
J6D280414-1-SAMP			12.40g,fi	233.17g,di	05/06/16,pd 11/21/11,r					AHAL			
04/27/2016 10:00			AmtRec: 1XLP		#Containers: 1				Scr:		Alpha:		Beta:
3 M8L91-1-AA-B			1.01g,in	1.01g	PATB5876					43			
J6E160000-14-BLK					05/06/16,pd 11/21/11,r								
05/17/2016 08:45 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 M8L91-1-AC-C			1.02g,in	1.02g	PASC1153					44			
J6E160000-14-LCS					05/17/16,pd 04/04/05,r								
05/17/2016 08:46 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

Sample Preparation/Analysis

7I PuAmCm Prp PRP003/PRP005, Sep
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922,,

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6137014 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,JorgensonD

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

Comments:

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

M8KCJ1AV-DUP Constituent List:

PU-238	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1.00E+00	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

M8L911AA-BLK:

PU-238	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

M8L911AC-LCS:

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

M8KCJ1AV-DUP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M8L911AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M8L911AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/20/2016 2:17:24 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/21/2015, 5/25/2016, Batch: '6137014', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6137014							
AC			**Rev1C**	**CarnesM**	5/18/2016 4:25:49 PM		
SC				Jorgensond	IsBatched	5/17/2016 8:00:57 AM	ICOC_RADCALC v4.8.69
SC				CarnesM	Sep1C	5/18/2016 4:25:49 PM	RL-ALP-001 REVISION 6
SC				RichardsonB	Sep2C	5/19/2016 7:03:28 AM	RL-ALP-016 REV5
SC				WoodT	InCnt1	5/19/2016 9:52:24 AM	RL-CI-008 REVISION 6
SC				DawkinsO	CalcC	5/20/2016 1:00:25 AM	RL-CI-008 REVISION 6
SC				ManisD	CalcC	5/20/2016 1:47:35 PM	RL-CI-008 REVISION 6
SC				antonsonl	Rev1C	5/20/2016 2:16:54 PM	RL-DR-001 Rev 7
AC				**RichardsonB**	5/19/2016 7:03:28		
AC				**WoodT**	5/19/2016 9:52:24		
AC				**DawkinsO**	5/20/2016 1:00:25		
AC				**ManisD**	5/20/2016 1:47:35 PM		
AC				**antonsonl**	5/20/2016 2:16:54 PM		

AC: Accepting Entry, SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 6

ICOCFractions v4.9.4

5/5/2016 8:40:46 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6119043 **OTHER** **pCi/g** **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 6119039 AXTA, 6119040 7ISO, 6119041 7ISN, 6119042 ANS5, 6119043 7SSR, 6119044 AFS4, 6119045 5STC, 6119046 CHTH,

Prep Tech: WoodT

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 M8KCJ-1-AA			0.49g,in	0.49g	UITC33719								
J6D280414-1-SAMP					01/29/16,pd 06/15/01,r								
04/27/2016 10:00			AmtRec: 1XLP		#Containers: 1					Scr: 407	Alpha: ANAL		Beta:
2 M8KCJ-1-AQ-X			0.48g,in	0.48g	UITC33720								
J6D280414-1-DUP					01/29/16,pd 06/15/01,r								
04/27/2016 10:00			AmtRec: 1XLP		#Containers: 1					Scr: 408	Alpha: ANAL		Beta:
3 M8KD1-1-AA-B			0.49g,in	0.49g	UITC33721								
J6D280000-43-BLK					01/29/16,pd 06/15/01,r								
04/28/2016 14:08 pd			AmtRec:		#Containers: 1					Scr: 410	Alpha:		Beta:
4 M8KD1-1-AC-C			0.55g,in	0.55g	UISH2096								
J6D280000-43-LCS					02/16/16,pd 06/15/01,r								
04/28/2016 14:08 pd			AmtRec:		#Containers: 1					Scr: 420	Alpha:		Beta:

5/17/16 am
100 19 11

Sample Preparation/Analysis

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

Balance Id:1120373922,,

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6119043 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,WoodT

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

Comments:

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

M8KCJ1AA-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:	

M8KD11AA-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:	

M8KD11AC-LCS:

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

M8KCJ1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD11AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD11AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/18/2016 8:51:19 AM

ICOC Fraction Transfer/Status Report

ByDate: 5/19/2015, 5/23/2016, Batch: '6119043', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6119043							
AC			Rev1C	CarnesM	5/17/2016 11:22:32		
SC				campbellsc	IsBatched	4/28/2016 2:15:07 PM	ICOC_RADCALC v4.9.0
SC				CarnesM	Sep1C	5/17/2016 11:22:32 AM	RL-ALP-004 REVISION 7
SC				CarnesM	Sep2C	5/17/2016 1:19:33 PM	RL-ALP-015 REVISION 8
SC				ManisD	InCnt1	5/17/2016 2:02:52 PM	RL-CI-008 REVISION 6
SC				DawkinsO	InCnt1	5/17/2016 3:52:47 PM	RL-CI-008 REVISION 6
SC				DawkinsO	CalcC	5/18/2016 12:22:51 AM	RL-CI-008 REVISION 6
SC				antonsonl	Rev1C	5/18/2016 8:50:51 AM	RL-DR-001 Rev 7
AC				CarnesM	5/17/2016 1:19:33 PM		
AC				ManisD	5/17/2016 2:02:52 PM		
AC				DawkinsO	5/17/2016 3:52:47 PM		
AC				DawkinsO	5/18/2016 12:22:51		
AC				antonsonl	5/18/2016 8:50:51		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 6

ICOCFractions v4.9.4

5/16/2016 10:03:46 AM

Sample Preparation/Analysis

Balance Id:,,

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

7I PuAmCm Prp PRP003/PRP005, Sep
SN Americium-241 and Curium-242,243,244 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6137016 OTHER pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: 6119040, 7ISO 6119040, 7ISO 6137014, 7ISO 6137014, 7ISO

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 M8KCJ-1-AW-X													
J6D280414-1-DUP													
04/27/2016 10:00			AmtRec: 1XLP	#Containers: 1					Scr:		Alpha:		Beta:
2 M8KCJ-2-AG													
J6D280414-1-SAMP													
04/27/2016 10:00			AmtRec: 1XLP	#Containers: 1					Scr:		Alpha:		Beta:
3 M8MAF-1-AA-B													
J6E160000-16-BLK													
05/16/2016 10:03 pd			AmtRec:	#Containers: 1					Scr:		Alpha:		Beta:
4 M8MAF-1-AC-C													
J6E160000-16-LCS													
05/16/2016 10:03 pd			AmtRec:	#Containers: 1					Scr:		Alpha:		Beta:

5/16/2016 10:03:47 AM

Sample Preparation/Analysis

7I PuAmCm Prp PRP003/PRP005, Sep
SN Americium-241 and Curium-242,243,244 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:,,

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6137016 **pCi/g**
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech:

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

Comments:

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

M8KCJ1AW-DUP Constituent List:

M8MAF1AA-BLK:

M8MAF1AC-LCS:

M8KCJ1AW-DUP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8MAF1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8MAF1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/20/2016 1:55:11 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/21/2015, 5/25/2016, Batch: '6137016', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6137016						
AC		**Rev1C**	**CarnesM**	5/18/2016 4:25:20 PM		
SC			Jorgensond	IsBatched	5/17/2016 7:59:49 AM	ICOC_RADCALC v4.8.69
SC			CarnesM	Sep1C	5/18/2016 4:25:20 PM	RL-ALP-001 REVISION 6
SC			RichardsonB	Sep2C	5/19/2016 7:04:19 AM	RL-ALP-016 REV5
SC			WoodT	InCnt1	5/19/2016 11:20:54 AM	RL-CI-008 REVISION 6
SC			ManisD	CalcC	5/20/2016 1:08:03 PM	RL-CI-008 REVISION 6
SC			antonsonl	Rev1C	5/20/2016 1:54:41 PM	RL-DR-001 Rev 7
AC			**RichardsonB**	5/19/2016 7:04:19		
AC			**WoodT**	5/19/2016 11:20:54		
AC			**ManisD**	5/20/2016 1:08:03 PM		
AC			**antonsonl**	5/20/2016 1:54:41 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 5

ICOCFractions v4.9.4

5/18/2016 3:33:03 PM

Sample Preparation/Analysis

Balance Id:,B425712682

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech: 05/18/2016 12:31,JorgensonD

Batch: 6133018 OTHER pCi/g **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 6119039 AXTA, 6119040 7ISO, 6119041 7ISN, 6119042 ANS5, 6119043 7SSR, 6119044 AFS4, 6119045 5STC, 6119046 CHTH, 6133018 CHTH, 6137014 7ISO, 6137016 7ISN,

Prep Tech: CarnesM,JorgensonD

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 M8KCJ-2-AC J6D280414-1-SAMP 04/27/2016 10:00			0.55g,in AmtRec: 1XLP	0.55g #Containers: 1	SRTC5753 05/02/16			10.90mg	05/18/2016 12:31,s1	Scr:	Alpha:	Beta:	5/18/16 2040 31B
2 M8KCJ-2-AU-X J6D280414-1-DUP 04/27/2016 10:00			0.52g,in AmtRec: 1XLP	0.52g #Containers: 1	SRTC5754 05/02/16			11.30mg		Scr:	Alpha:	Beta:	31C
3 M8KD4-2-AA-B J6D280000-46-BLK 05/12/2016 09:04 pd			2.01g,in AmtRec:	2.01g #Containers: 1	SRTC5755 05/02/16			8.50mg		Scr:	Alpha:	Beta:	31D
4 M8KD4-2-AC-C J6D280000-46-LCS 05/12/2016 09:04 pd			2.06g,in AmtRec:	2.06g #Containers: 1	STSF0974 05/04/16			9.40mg		Scr:	Alpha:	Beta:	32A

Sample Preparation/Analysis

Balance Id:,B425712682

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6133018 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: JorgensonD

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: M8KD4-BLK "Comments S-15-00203",S-15-00032,P-16-00156,P-16-00114,S-15-00102

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

M8KCJ2AC-SAMP Constituent List:
Sr-90 RDL:1 pCi/g LCL:70 UCL:130 RPD:35
M8KD42AA-BLK:
Sr-90 RDL:1 pCi/g LCL: UCL: RPD:
M8KD42AC-LCS:
Sr-90 RDL:1 pCi/g LCL:70 UCL:130 RPD:35

M8KCJ2AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD42AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD42AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/19/2016 1:32:09 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/20/2015, 5/24/2016, Batch: '6133018', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6133018						
AC		Rev1C	JorgensonD	5/18/2016 3:43:21 PM		
SC			Jorgensond	IsBatched	5/16/2016 7:13:26 AM	ICOC_RADCALC v4.8.69
SC			JorgensonD	Sep2C	5/18/2016 3:43:21 PM	RL-GPC-010 REVISION 6
SC			DawkinsO	InCnt1	5/18/2016 4:27:42 PM	RL-CI-006 REVISION 6
SC			DawkinsO	CalcC	5/18/2016 11:25:27 PM	RL-CI-006 REVISION 6
SC			WoodT	CalcC	5/19/2016 9:55:55 AM	RL-CI-006 REVISION 6
SC			antonsonl	Rev1C	5/19/2016 1:31:59 PM	RL-DR-001 Rev 7
AC			DawkinsO	5/18/2016 4:27:42 PM		
AC			DawkinsO	5/18/2016 11:25:27		
AC			WoodT	5/19/2016 9:55:55		
AC			antonsonl	5/19/2016 1:31:59 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 5

ICOCFractions v4.9.4

5/5/2016 9:43:11 AM

Sample Preparation/Analysis

Balance Id:1120421763,,

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

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6119039 **OTHER** **pCi/g** **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 6119039 AXTA, 6119040 7ISO, 6119041 7ISN, 6119042 ANS5, 6119043 7SSR, 6119044 AFS4, 6119045 5STC, 6119046 CHTH,

Prep Tech: WoodT

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 M8KCJ-1-AF			30.80g,in 258.10g,fi	30.80g					525	200	G11	2200 5/6/16	
J6D280414-1-SAMP													
04/27/2016 10:00			AmtRec: 1XLP	#Containers: 1					Scr:		Alpha:		Beta:
2 M8KCJ-1-AK-X			ISV								G10	0306 5/6/16	
J6D280414-1-DUP													
04/27/2016 10:00			AmtRec: 1XLP	#Containers: 1					Scr:		Alpha:		Beta:
3 M8KDV-1-AA-B			52.00g,in	52.00g	osbk				525	200	G11	0153 5/5/16	
J6D280000-39-BLK													
04/28/2016 14:08 pd			AmtRec:	#Containers: 1					Scr:		Alpha:	5/6/16 0940	Beta:
4 M8KDV-1-AC-C			54.51g,in	54.51g	CAL5446						G7	0307	
J6D280000-39-LCS					05/19/05,pd 06/08/05,r								
04/28/2016 14:08 pd			AmtRec:	#Containers: 1					Scr:		Alpha:		Beta:

Sample Preparation/Analysis

Balance Id:1120421763,,

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6119039 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: WoodT

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: M8KDV-BLK "Comments Not enough sample for a duplicate, please recount on a separate detector. 5/6/2016 tgw"

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

M8KCJ1AF-SAMP Constituent List:

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

M8KDV1AA-BLK:

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

M8KDV1AC-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						

M8KCJ1AF-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M8KDV1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M8KDV1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/10/2016 12:25:24 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/11/2015, 5/15/2016, Batch: '6119039', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6119039							
AC			**Rev1C**	**WoodT**	5/5/2016 9:43:47 AM		
SC				campbellsc	IsBatched	4/28/2016 2:14:58 PM	ICOC_RADCALC v4.9.0
SC				WoodT	Prep1C	5/5/2016 9:43:47 AM	RL-PRP-003 REVISION 5
SC				WoodT	Prep2C	5/5/2016 9:44:12 AM	RL-GAM-001 REVISION 5
SC				ManisD	InCnt1	5/5/2016 12:22:33 PM	RL-CI-007 REVISION 5
SC				DawkinsO	CalcC	5/8/2016 7:09:57 PM	RL-CI-007 REVISION 5
SC				antonsonl	Rev1C	5/10/2016 12:25:05 PM	RL-DR-001 Rev 7
AC				**WoodT**	5/5/2016 9:44:12 AM		
AC				**ManisD**	5/5/2016 12:22:33 PM		
AC				**DawkinsO**	5/8/2016 7:09:57 PM		
AC				**antonsonl**	5/10/2016 12:25:05		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 5

ICOCFractions v4.9.4

EIEHRem Prep

4/28/2016 2:09:00 PM

Sample Preparation/Analysis

PRIORITY

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

AN Tc-99 Prp/Sep PRP003/LSC013
S5 Technetium-99 by Liquid Scint
5I CLIENT: HANFORD

Balance Id:,,
Pipet #: _____

AnalyDueDate: 05/05/2016

Batch: 6119042 OTHER pCi/g
SEQ Batch, Test: None

PM, Quote: RW2, 27038

Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

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

1 M8KCJ-1-AE 2qr 60

J6D280414-1-SAMP

04/27/2016 10:00 AmtRec: 1XLP #Containers: 1 Scr: Alpha: Beta:

2 M8KCJ-1-AN-S TCSE

J6D280414-1-MS

04/27/2016 10:00 AmtRec: 1XLP #Containers: 1 Scr: Alpha: Beta:

3 M8KCJ-1-AP-X

J6D280414-1-DUP

04/27/2016 10:00 AmtRec: 1XLP #Containers: 1 Scr: Alpha: Beta:

4 M8KD0-1-AA-B

J6D280000-42-BLK

04/28/2016 14:08 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

5 M8KD0-1-AC-C TCSB

J6D280000-42-LCS

04/28/2016 14:08 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

6 M8KD0-1-AD-BN

J6D280000-42-IBLK

04/28/2016 14:08 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

Sample Preparation/Analysis

AN Tc-99 Prp/Sep PRP003/LSC013
S5 Technetium-99 by Liquid Scint
5I CLIENT: HANFORD

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

AnalyDueDate: 05/05/2016

Batch: 6119042 pCi/g
SEQ Batch, Test: None

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

Comments:

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

M8KCJ1AE-SAMP Constituent List:

M8KCJ1AN-MS Constituent List:

M8KD01AA-BLK:

M8KD01AC-LCS:

M8KD01AD-IBLK:

M8KCJ1AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KCJ1AN-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD01AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD01AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD01AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/13/2016 10:19:33 AM

ICOC Fraction Transfer/Status Report

ByDate: 5/14/2015, 5/18/2016, Batch: '6119042', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6119042						
AC		Rev1C	FussnerC	5/11/2016 2:20:26 PM		
SC			campbellsc	IsBatched	4/28/2016 2:15:05 PM	ICOC_RADCALC v4.9.0
SC			FussnerC	Sep1C	5/11/2016 2:20:26 PM	RL-LSC-014 REVISION 5
SC			NeyensA	Sep1C	5/11/2016 2:20:34 PM	RL-LSC-014 REVISION 5
SC			WoodT	InCnt1	5/12/2016 6:54:03 AM	RL-CI-005 REVISION 5
SC			WoodT	CalcC	5/13/2016 8:27:16 AM	RL-CI-005 REVISION 5
SC			antonsonl	Rev1C	5/13/2016 10:19:20 AM	RL-DR-001 Rev 7
AC			NeyensA	5/11/2016 2:20:34 PM		
AC			WoodT	5/12/2016 6:54:03		
AC			WoodT	5/13/2016 8:27:16		
AC			antonsonl	5/13/2016 10:19:20		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions v4.9.4

4/28/2016 2:09:06 PM

Sample Preparation/Analysis

PRIORITY

Balance Id:,,

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

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6119045 OTHER pCi/g **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

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 M8KCJ-1-AJ

J6D280414-1-SAMP

04/27/2016 10:00 AmtRec: 1XLP #Containers: 1 Scr: Alpha: Beta:

2 M8KCJ-1-AT-X

J6D280414-1-DUP

04/27/2016 10:00 AmtRec: 1XLP #Containers: 1 Scr: Alpha: Beta:

3 M8KD3-1-AA-B

J6D280000-45-BLK

04/28/2016 14:08 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

4 M8KD3-1-AC-C

J6D280000-45-LCS

04/28/2016 14:08 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

5 M8KD3-1-AD-BN

J6D280000-45-IBLK

04/28/2016 14:08 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

Sample Preparation/Analysis

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

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

AnalyDueDate: 05/05/2016

Batch: 6119045 pCi/g
SEQ Batch, Test: None

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

Comments:

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

M8KCJ1AJ-SAMP Constituent List:

M8KD31AA-BLK:

M8KD31AC-LCS:

M8KD31AD-IBLK:

M8KCJ1AJ-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD31AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD31AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD31AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/6/2016 11:19:17 AM

ICOC Fraction Transfer/Status Report

ByDate: 5/7/2015, 5/11/2016, Batch: '6119045', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6119045						
AC		**Rev1C**	**NortonP**	5/3/2016 2:42:22 PM		
SC			campbellsc	IsBatched	4/28/2016 2:15:13 PM	ICOC_RADCALC v4.9.0
SC			NortonP	Sep1C	5/3/2016 2:42:22 PM	RL-LSC-008 REVISION 5
SC			DawkinsO	InCnt1	5/3/2016 5:07:27 PM	RL-CI-005 REVISION 5
SC			DawkinsO	CalcC	5/6/2016 1:18:37 AM	RL-CI-005 REVISION 5
SC			antonsonl	Rev1C	5/6/2016 11:18:55 AM	RL-DR-001 Rev 7
AC			**DawkinsO**	5/3/2016 5:07:27 PM		
AC			**DawkinsO**	5/6/2016 1:18:37 AM		
AC			**antonsonl**	5/6/2016 11:18:55		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 4

ICOCFractions v4.9.4

5/5/2016 8:35:15 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

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

Pipet #: _____

AnalyDueDate: 05/05/2016

Sep1 DT/Tm Tech:

Batch: 6119044 OTHER pCi/g

PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: WoodT

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 M8KCJ-1-AD			0.52g,in	0.52g	NITA16958 03/14/16								
J6D280414-1-SAMP													
04/27/2016 10:00			AmtRec: 1XLP		#Containers: 1				Scr:		Alpha:		Beta:
2 M8KCJ-1-AR-X			0.47g,in	0.47g	NITA16959 03/14/16								
J6D280414-1-DUP													
04/27/2016 10:00			AmtRec: 1XLP		#Containers: 1				Scr:		Alpha:		Beta:
3 M8KD2-1-AA-B			0.54g,in	0.54g	NITA16960 03/14/16								
J6D280000-44-BLK													
04/28/2016 14:08 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 M8KD2-1-AC-C			0.48g,in	0.48g	NISA2458 12/30/15								
J6D280000-44-LCS													
04/28/2016 14:08 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M8KD2-1-AD-BN													
J6D280000-44-IBLK													
04/28/2016 14:08 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

Sample Preparation/Analysis

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

Balance Id:,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 05/05/2016

Batch: 6119044 **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: M8KD2-BLK "Comments S-15-00203",S-15-00032,P-16-00156,P-16-00114,S-15-00102

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

M8KCJ1AD-SAMP Constituent List:
Ni-63 RDL:30 pCi/g LCL:70 UCL:130 RPD:35
M8KD21AA-BLK:
Ni-63 RDL:30 pCi/g LCL: UCL: RPD:
M8KD21AC-LCS:
Ni-63 RDL:30 pCi/g LCL:70 UCL:130 RPD:35
M8KD21AD-IBLK:
Ni-63 RDL:30 pCi/g LCL: UCL: RPD:

M8KCJ1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD21AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD21AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8KD21AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/16/2016 1:26:01 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/17/2015, 5/21/2016, Batch: '6119044', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6119044						
AC		**Rev1C**	**JorgensonD**	5/11/2016 4:09:36 PM		
SC			campbellsc	IsBatched	4/28/2016 2:15:10 PM	ICOC_RADCALC v4.9.0
SC			JorgensonD	Sep1C	5/11/2016 4:09:36 PM	RL-LSC-017 REVISION 6
SC			DawkinsO	InCnt1	5/11/2016 4:51:26 PM	RL-CI-005 REVISION 5
SC			DawkinsO	CalcC	5/13/2016 10:36:23 PM	RL-CI-005 REVISION 5
SC			carnesj	Rev1C	5/16/2016 1:25:51 PM	RL-DR-001 Rev 7
AC			**DawkinsO**	5/11/2016 4:51:26 PM		
AC			**DawkinsO**	5/13/2016 10:36:23		
AC			**carnesj**	5/16/2016 1:25:51 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 4

ICOCFractions v4.9.4

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-82529-1

SDG Number: JP1044

Job Description: SAF# RC-155

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

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Senior Project Manager
5/4/2016 1:04 PM

Kae E Yoder, Senior Project Manager
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
05/04/2016

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 4025.

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

Job Number: 280-82529-1

SDG #: JP1044
SAF#: RC-155

Date SDG Closed: April 29, 2016
Data Deliverable: 3 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V8X4	280-82529-1	1311-6010-7470	1311-6010B-7470A

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.

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 4/29/2016 9:30 AM; the sample arrived intact, but at an elevated temperature of 9.7º C. No ice was present in the cooler. The client was notified on 4/29/2016.

TCLP METALS - SW846 1311/6010B/7470A
Low levels of Barium and Sodium are present in the method blank associated with batch 280-323430. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V8X4 exhibited RPD data outside the control limits for Nickel, and the associated sample result has been flagged “M”. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

Mercury was recovered outside the control limits in the Matrix Spike performed on sample J1V8X4, 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.

The continuing calibration verification (CCV) associated with analysis batch 280-323616 recovered above the upper control limit for Zinc. The sample associated with this CCV was non-detect for the affected analyte; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Lab Section	Qualifier	Description
Metals		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	N	Recovery exceeds upper or lower control limits
	M	Sample duplicate precision not met.
	C	The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-82529-1	J1V8X4	Solid	04/27/2016 1000	04/29/2016 0930

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
TCLP Metals (ICP)	TAL DEN	SW846 6010B	
TCLP Extraction	TAL DEN		SW846 1311
Preparation, Total Metals	TAL DEN		SW846 3010A
TCLP Mercury	TAL DEN	SW846 7470A	
TCLP Extraction	TAL DEN		SW846 1311
Preparation, Mercury	TAL DEN		SW846 7470A

Lab References:

TAL DEN = TestAmerica Denver

Method References:

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: 280-82529-1
Sdg Number: JP1044

Method	Analyst	Analyst ID
SW846 6010B	Kelly, Cara M	CMK
SW846 6010B	Rhoades, Chris R	CRR
SW846 7470A	Henning, Christopher D	CDH

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Client Sample ID: **J1V8X4**

Lab Sample ID: 280-82529-1
Client Matrix: Solid

Date Sampled: 04/27/2016 1000
Date Received: 04/29/2016 0930

6010B TCLP Metals (ICP)-TCLP

Analysis Method:	6010B	Analysis Batch:	280-323616	Instrument ID:	MT_026
Prep Method:	3010A	Prep Batch:	280-323430	Lab File ID:	26C050216.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 0338			Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Aluminum		0.43	B	0.090	10.0
Antimony		0.016	U	0.016	0.20
Arsenic		0.024	B	0.022	0.50
Barium		4.0		0.0020	1.0
Beryllium		0.0020	U	0.0020	0.030
Cadmium		0.0020	U	0.0020	0.10
Chromium		0.23	B	0.0030	0.50
Lead		0.013	U	0.013	0.50
Nickel		0.0074	B M	0.0060	0.40
Selenium		0.034	B	0.024	0.10
Silver		0.0046	B	0.0040	0.50
Thallium		0.024	U	0.024	0.10
Vanadium		0.0060	U	0.0060	0.10
Zinc		0.022	U	0.022	2.0

Analysis Method:	6010B	Analysis Batch:	280-323697	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-323430	Lab File ID:	25Z050316.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 1205			Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Sodium		22.4	B C	0.46	50.0

7470A TCLP Mercury-TCLP

Analysis Method:	7470A	Analysis Batch:	280-323804	Instrument ID:	MT_034
Prep Method:	7470A	Prep Batch:	280-323626	Lab File ID:	160503ba.txt
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	30 mL
Analysis Date:	05/03/2016 1942			Final Weight/Volume:	50 mL
Prep Date:	05/03/2016 1145				
Leach Date:	04/30/2016 1315				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Mercury		0.0013	B N	0.000030	0.0020

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

TCLP SPLPW Leachate Blank - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LB2 280-323403/1-B	Analysis Batch:	280-323616	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	26C050216.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 0333	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Result	Qual	MDL	RL
Aluminum	0.090	U	0.090	10.0
Antimony	0.016	U	0.016	0.20
Arsenic	0.022	U	0.022	0.50
Barium	0.00430	B	0.0020	1.0
Beryllium	0.0020	U	0.0020	0.030
Cadmium	0.0020	U	0.0020	0.10
Chromium	0.0030	U	0.0030	0.50
Lead	0.013	U	0.013	0.50
Nickel	0.0060	U	0.0060	0.40
Selenium	0.024	U	0.024	0.10
Silver	0.0040	U	0.0040	0.50
Thallium	0.024	U	0.024	0.10
Vanadium	0.0060	U	0.0060	0.10
Zinc	0.022	U	0.022	2.0

TCLP SPLPW Leachate Blank - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LB2 280-323403/1-B	Analysis Batch:	280-323697	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	25Z050316.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 1200	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Result	Qual	MDL	RL
Sodium	4.50	B	0.46	50.0

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Lab Control Sample - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LCS 280-323403/2-B	Analysis Batch:	280-323616	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	26C050216.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 0335	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2.00	2.11	105	80 - 120	B
Antimony	0.500	0.491	98	80 - 120	
Arsenic	4.00	4.06	101	80 - 120	
Barium	12.0	12.74	106	80 - 120	
Beryllium	0.0500	0.0468	94	80 - 120	
Cadmium	1.10	1.05	96	80 - 120	
Chromium	5.20	5.76	111	80 - 120	
Lead	5.50	5.92	108	80 - 120	
Nickel	0.500	0.507	101	80 - 120	
Selenium	3.00	2.88	96	80 - 120	
Silver	1.05	1.10	105	80 - 120	
Thallium	2.00	2.03	102	80 - 120	
Vanadium	0.500	0.517	103	80 - 120	
Zinc	2.50	2.83	113	80 - 120	

Lab Control Sample - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LCS 280-323403/2-B	Analysis Batch:	280-323697	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	25Z050316.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 1202	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Sodium	50.0	54.31	109	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Matrix Spike - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-82529-1	Analysis Batch:	280-323616	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	26C050216.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 0346	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	0.43	B	2.00	2.40	98	80 - 120	B
Antimony	0.016	U	0.500	0.493	99	80 - 120	
Arsenic	0.024	B	4.00	4.16	103	80 - 120	
Barium	4.0		12.0	16.27	102	80 - 120	
Beryllium	0.0020	U	0.0500	0.0450	90	80 - 120	
Cadmium	0.0020	U	1.10	1.07	97	80 - 120	
Chromium	0.23	B	5.20	5.31	98	80 - 120	
Lead	0.013	U	5.50	5.61	102	80 - 120	
Nickel	0.0074	B	0.500	0.484	95	80 - 120	
Selenium	0.034	B	3.00	2.93	97	80 - 120	
Silver	0.0046	B	1.05	1.12	106	80 - 120	
Thallium	0.024	U	2.00	1.84	92	80 - 120	
Vanadium	0.0060	U	0.500	0.503	101	80 - 120	
Zinc	0.022	U	2.50	2.66	107	80 - 120	

Matrix Spike - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-82529-1	Analysis Batch:	280-323697	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	25Z050316.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 1213	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Sodium	22.4	B	50.0	70.66	96	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Duplicate - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-82529-1	Analysis Batch:	280-323616	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	26C050216.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 0343	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	0.43	B	0.389	10	20	B
Antimony	0.016	U	0.016	NC	20	U
Arsenic	0.024	B	0.022	NC	20	U
Barium	4.0		3.68	9	20	
Beryllium	0.0020	U	0.0020	NC	20	U
Cadmium	0.0020	U	0.0020	NC	20	U
Chromium	0.23	B	0.207	11	20	B
Lead	0.013	U	0.013	NC	20	U
Nickel	0.0074	B	0.00985	29	20	B M
Selenium	0.034	B	0.024	NC	20	U
Silver	0.0046	B	0.0040	NC	20	U
Thallium	0.024	U	0.024	NC	20	U
Vanadium	0.0060	U	0.0060	NC	20	U
Zinc	0.022	U	0.022	NC	20	U

Duplicate - Batch: 280-323430

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-82529-1	Analysis Batch:	280-323697	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-323430	Lab File ID:	25Z050316.asc
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	10 mL
Analysis Date:	05/03/2016 1211	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/02/2016 1430				
Leach Date:	04/30/2016 1315				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Sodium	22.4	B	20.40	9	20	B C

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

TCLP SPLPW Leachate Blank - Batch: 280-323626

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LB2 280-323403/1-C	Analysis Batch:	280-323804	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-323626	Lab File ID:	160503ba.txt
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	30 mL
Analysis Date:	05/03/2016 1932	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/03/2016 1145				
Leach Date:	04/30/2016 1315				

Analyte	Result	Qual	MDL	RL
Mercury	0.000030	U	0.000030	0.0020

Lab Control Sample - Batch: 280-323626

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LCS 280-323403/2-C	Analysis Batch:	280-323804	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-323626	Lab File ID:	160503ba.txt
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	30 mL
Analysis Date:	05/03/2016 1939	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/03/2016 1145				
Leach Date:	04/30/2016 1315				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.00500	0.00554	111	90 - 116	

Matrix Spike - Batch: 280-323626

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-82529-1	Analysis Batch:	280-323804	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-323626	Lab File ID:	160503ba.txt
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	30 mL
Analysis Date:	05/03/2016 1946	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/03/2016 1145				
Leach Date:	04/30/2016 1315				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0013	B	0.00500	0.00495	74	90 - 116	N

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

Duplicate - Batch: 280-323626

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-82529-1	Analysis Batch:	280-323804	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-323626	Lab File ID:	160503ba.txt
Dilution:	1.0	Leach Batch:	280-323403	Initial Weight/Volume:	30 mL
Analysis Date:	05/03/2016 1944	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	05/03/2016 1145				
Leach Date:	04/30/2016 1315				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0013	B	0.00129	2	20	B

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-323403					
LCS 280-323403/2-B	Lab Control Sample	P	Solid	1311	
LCS 280-323403/2-C	Lab Control Sample	P	Solid	1311	
LB2 280-323403/1-B	TCLP SPLPW Leachate Blank	P	Solid	1311	
LB2 280-323403/1-C	TCLP SPLPW Leachate Blank	P	Solid	1311	
280-82529-1	J1V8X4	P	Solid	1311	
280-82529-1DU	Duplicate	P	Solid	1311	
280-82529-1MS	Matrix Spike	P	Solid	1311	
Prep Batch: 280-323430					
LCS 280-323403/2-B	Lab Control Sample	P	Solid	3010A	280-323403
LB2 280-323403/1-B	TCLP SPLPW Leachate Blank	P	Solid	3010A	280-323403
280-82529-1	J1V8X4	P	Solid	3010A	280-323403
280-82529-1DU	Duplicate	P	Solid	3010A	280-323403
280-82529-1MS	Matrix Spike	P	Solid	3010A	280-323403
Analysis Batch:280-323616					
LCS 280-323403/2-B	Lab Control Sample	P	Solid	6010B	280-323430
LB2 280-323403/1-B	TCLP SPLPW Leachate Blank	P	Solid	6010B	280-323430
280-82529-1	J1V8X4	P	Solid	6010B	280-323430
280-82529-1DU	Duplicate	P	Solid	6010B	280-323430
280-82529-1MS	Matrix Spike	P	Solid	6010B	280-323430
Prep Batch: 280-323626					
LCS 280-323403/2-C	Lab Control Sample	P	Solid	7470A	280-323403
LB2 280-323403/1-C	TCLP SPLPW Leachate Blank	P	Solid	7470A	280-323403
280-82529-1	J1V8X4	P	Solid	7470A	280-323403
280-82529-1DU	Duplicate	P	Solid	7470A	280-323403
280-82529-1MS	Matrix Spike	P	Solid	7470A	280-323403
Analysis Batch:280-323697					
LCS 280-323403/2-B	Lab Control Sample	P	Solid	6010B	280-323430
LB2 280-323403/1-B	TCLP SPLPW Leachate Blank	P	Solid	6010B	280-323430
280-82529-1	J1V8X4	P	Solid	6010B	280-323430
280-82529-1DU	Duplicate	P	Solid	6010B	280-323430
280-82529-1MS	Matrix Spike	P	Solid	6010B	280-323430
Analysis Batch:280-323804					
LCS 280-323403/2-C	Lab Control Sample	P	Solid	7470A	280-323626
LB2 280-323403/1-C	TCLP SPLPW Leachate Blank	P	Solid	7470A	280-323626
280-82529-1	J1V8X4	P	Solid	7470A	280-323626
280-82529-1DU	Duplicate	P	Solid	7470A	280-323626
280-82529-1MS	Matrix Spike	P	Solid	7470A	280-323626

Client: Washington Closure Hanford

Job Number: 280-82529-1
Sdg Number: JP1044

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch

Report Basis
P = TCLP

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-155-216

Collector D. Becker	**Company Contact** Joan Kessner	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Price Code 9A	**Data Turnaround** 3 days		
Project Designation 618-10 & 618-11 Remediation	**Sampling Location** 618-10 drum/grout batches, GR-333C		**SAF No.** RC-155
Ice Chest No. WCH-11-072	**Field Logbook No.** EL-1664-01	**COA** R618102F20	**Method of Shipment** Commercial Carrier
Shipped To TestAmerica Denver	**Offsite Property No.** N/A		**Bill of Lading/Air Bill No.** TRE 4-28-16 SEE ~~OSPREY~~ SR

Other Labs Shipped To
TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive

Special Handling and/or Storage
Trans ship RCF to TA-DEN

Preservation	None	None										
Type of Container	G/P	G/P										
No. of Container(s)	1	0										
Volume	1000mL	1000mL										
Sample Analysis	See item (2) in Special Instructions	RCF GEA Screen Tranship DN										

280-82529 Chain of Custody

Sample No.	Matrix	Sample Date	Sample Time										
JHV8X4	OTHER	04/27/16	1000	X	X	39166	178g						

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
David Becker	4/27/16 1010	L. Martinez/L. Martinez	04/27/16 1010
L. Martinez/L. Martinez	04/27/16 1200	RCF D. Miller	4-27-16 1200
RCF D. Miller	4-28-16 0730	T.R. Edmundson	4-28-16 0730
WCH T.R. Edmundson	4-28-16 1500	Fed Ex	4-28-16 —
			0930 29Apr16

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

SPECIAL INSTRUCTIONS

(2) ICP Metals (TCLP) (Client List) - 1311/6010 {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Lead, Nickel, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc}; Mercury (TCLP) - 1311/7470 (Client List) {Mercury}

9.91R7-0.2 29Apr16
Transfer

REVIEWED BY Kuperstein DATE 4-28-16

JP1044

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

☆900/permission (MW)

Temp 9.9 IR# 7
CF -0.2 Initials MS
Date: 04/29/16 NOICE

Project 28002142
Report Due: 5/4/2016
TALs TAT: 3-Day - RUSH D.B. 4-29-16

Sample Check-in List

Date/Time Received: 0930 29Apr16 **GM Screen Result** 13 **microR/hr**

Client: Washington Closure Hanford **SDG #:** JP1044 NA[ ] **SAF #:** RC-155 NA [ ]

Job Number: 82529 **Chain of Custody #** RC-155-214

Shipping Container ID: WCH-11-072 **Air Bill #** 7762 1736 4860

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? NA [ ] Yes [X] No [ ]
4. Cooler Temperature °C: 9.7C NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? NA [ ] Yes [ ] No [X]
8. Samples have:
   - [X] Tape
   - [X] Custody Seals
   - [X] Hazard Labels
   - [X] Appropriate Sample Labels
9. Samples are:
   - [X] In Good Condition
   - [ ] Broken
   - [ ] Leaking
   - [ ] Have Air Bubbles (Only for samples requiring no head space.)
10. Sample pH taken? NA [X] pH<2 [ ] pH>2 [ ] pH>9 [ ] **Amount HNO_3 Added**
11. Sample Location, Sample Collector Listed? * Y
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [X] ~~No [X]~~ D.B. 4-29-16
13. Description of anomalies (include sample numbers): Sample 1 was received at the laboratory at an elevated temperature of 9.7°C — No ice was present. D.B. 4-29-16

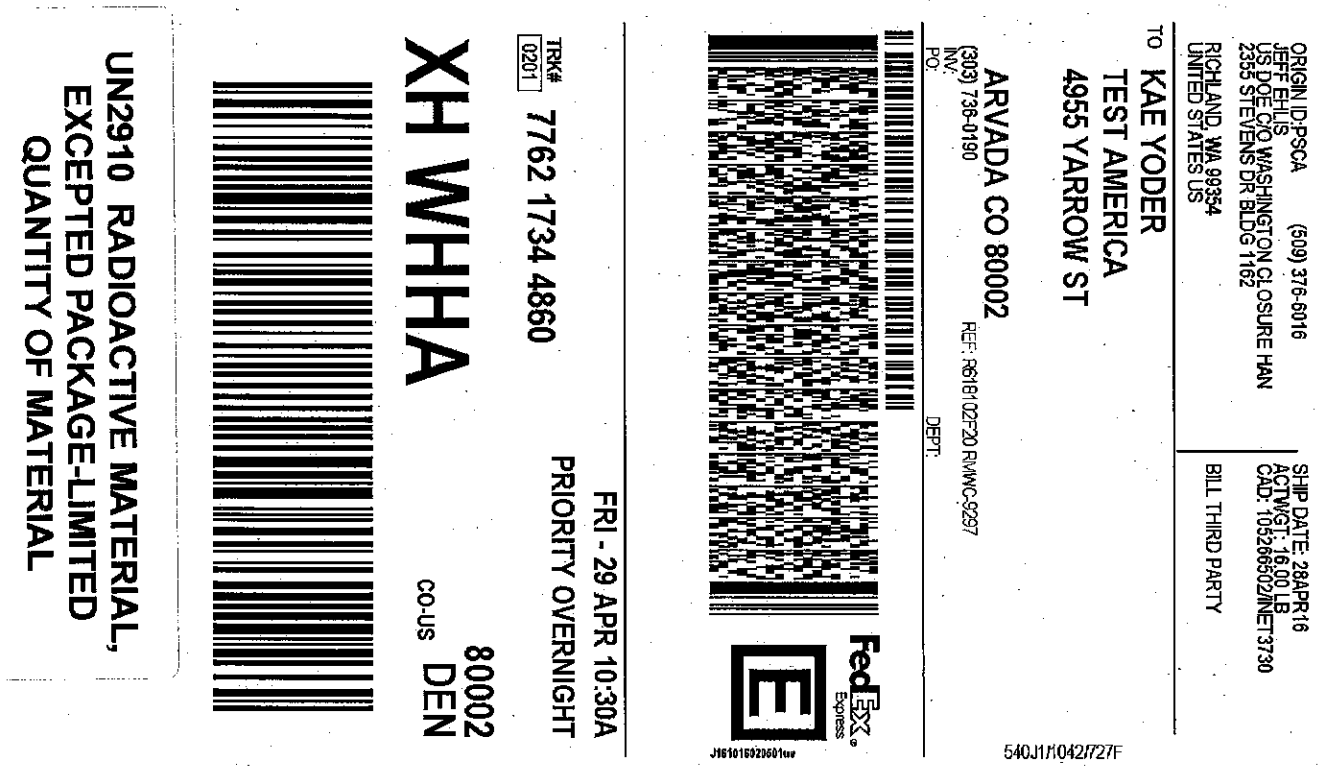
Sample Custodian: [signature] **Date:** 29Apr16

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on 4-29-16 by D.B. Person Contacted Joan Kessner

[ ] No action necessary; process as is.

Project Manager Darlene Bradley Date 4-29-16



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2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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