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

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required KW 10/6/15
INITIAL/DATE

COMMENTS:

SDG JP0997 **SAF-RC-155**

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location: 618-10 grout batch # GR-136D

ANALYTICAL REPORT

Job Number: 280-74341-1

SDG Number: JP0997

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
9/24/2015 1:46 PM

Kae E Yoder, Senior Project Manager
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
09/24/2015

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: 280-74341-1

SDG #: JP0997
SAF#: RC-155

Date SDG Closed: September 18, 2015
Data Deliverable: 3 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V842	280-74341-1	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 9/18/2015 9:20 AM; the sample arrived intact, but at an elevated temperature of 14.9º C. No ice was present in the cooler. The client was notified on 9/18/2015.

TCLP METALS - SW846 1311/6010B/7470A
Sodium was recovered outside the control limits, biased high, in the LCS associated with batch 280-296042, and the associated sample result has been flagged “N”. In addition, Sodium is present at a level greater than the reporting limit in the method blank associated with batch 280-296042. The reagent used to make the blank fluid for this TCLP extraction contains Sodium; therefore, data are reported.

Low levels of Barium are present in the method blank associated with batch 280-296042. Because the concentration in the method blank is not present at a level greater than half the reporting limit, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Sodium in the Matrix Spike performed on sample J1V842; therefore, control limits are not applicable.

No other anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

Lab Section	Qualifier	Description
Metals		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	N	Recovery exceeds upper or lower control limits
	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: 280-74341-1
Sdg Number: JP0997

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-74341-1	J1V842	Solid	09/16/2015 0838	09/18/2015 0920

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

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: 280-74341-1
Sdg Number: JP0997

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

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

Client Sample ID: J1V842

Lab Sample ID: 280-74341-1
Client Matrix: Solid

Date Sampled: 09/16/2015 0838
Date Received: 09/18/2015 0920

6010B TCLP Metals (ICP)-TCLP

Analysis Method:	6010B	Analysis Batch:	280-296118	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-296042	Lab File ID:	25A092215.asc
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	10 mL
Analysis Date:	09/23/2015 0141			Final Weight/Volume:	50 mL
Prep Date:	09/22/2015 1545				
Leach Date:	09/21/2015 2112				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Aluminum		0.47	B	0.090	10.0
Antimony		0.016	U	0.016	0.20
Arsenic		0.032	B	0.022	0.50
Barium		1.8		0.0020	1.0
Beryllium		0.0020	U	0.0020	0.030
Cadmium		0.0020	U	0.0020	0.10
Chromium		0.11	B	0.0030	0.50
Lead		0.013	U	0.013	0.50
Nickel		0.0060	U	0.0060	0.40
Selenium		0.034	B	0.024	0.10
Silver		0.0040	U	0.0040	0.50
Sodium		1450	C N	0.46	50.0
Thallium		0.033	B	0.024	0.10
Vanadium		0.0060	U	0.0060	0.10
Zinc		0.022	U	0.022	2.0

7470A TCLP Mercury-TCLP

Analysis Method:	7470A	Analysis Batch:	280-296304	Instrument ID:	MT_034
Prep Method:	7470A	Prep Batch:	280-296145	Lab File ID:	150923bb.txt
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	30 mL
Analysis Date:	09/23/2015 1844			Final Weight/Volume:	50 mL
Prep Date:	09/23/2015 1420				
Leach Date:	09/21/2015 2112				

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

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

TCLP SPLPE Leachate Blank - Batch: 280-296042

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LB 280-295857/1-B	Analysis Batch:	280-296118	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-296042	Lab File ID:	25A092215.asc
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	10 mL
Analysis Date:	09/23/2015 0136	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/22/2015 1545				
Leach Date:	09/21/2015 2112				

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	0.00600	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
Sodium	1715		0.46	50.0
Thallium	0.024	U	0.024	0.10
Vanadium	0.0060	U	0.0060	0.10
Zinc	0.022	U	0.022	2.0

Lab Control Sample - Batch: 280-296042

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LCS 280-295857/2-B	Analysis Batch:	280-296118	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-296042	Lab File ID:	25A092215.asc
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	10 mL
Analysis Date:	09/23/2015 0139	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/22/2015 1545				
Leach Date:	09/21/2015 2112				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2.00	2.05	103	80 - 120	B
Antimony	0.500	0.497	99	80 - 120	
Arsenic	4.00	4.13	103	80 - 120	
Barium	12.0	13.20	110	80 - 120	
Beryllium	0.0500	0.0510	102	80 - 120	
Cadmium	1.10	1.19	108	80 - 120	
Chromium	5.20	5.57	107	80 - 120	
Lead	5.50	5.89	107	80 - 120	
Nickel	0.500	0.524	105	80 - 120	
Selenium	3.00	3.14	105	80 - 120	
Silver	1.05	1.13	108	80 - 120	
Sodium	50.0	1611	3222	80 - 120	N
Thallium	2.00	2.02	101	80 - 120	
Vanadium	0.500	0.517	103	80 - 120	
Zinc	2.50	2.63	105	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

Matrix Spike - Batch: 280-296042

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-74341-1	Analysis Batch:	280-296118	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-296042	Lab File ID:	25A092215.asc
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	10 mL
Analysis Date:	09/23/2015 0149	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/22/2015 1545				
Leach Date:	09/21/2015 2112				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	0.47	B	2.00	2.42	98	80 - 120	B
Antimony	0.016	U	0.500	0.488	98	80 - 120	
Arsenic	0.032	B	4.00	4.08	101	80 - 120	
Barium	1.8		12.0	14.74	108	80 - 120	
Beryllium	0.0020	U	0.0500	0.0493	99	80 - 120	
Cadmium	0.0020	U	1.10	1.17	106	80 - 120	
Chromium	0.11	B	5.20	5.45	103	80 - 120	
Lead	0.013	U	5.50	5.59	102	80 - 120	
Nickel	0.0060	U	0.500	0.496	99	80 - 120	
Selenium	0.034	B	3.00	3.09	102	80 - 120	
Silver	0.0040	U	1.05	1.10	105	80 - 120	
Sodium	1450		50.0	1565	239	80 - 120	C 4
Thallium	0.033	B	2.00	1.95	96	80 - 120	
Vanadium	0.0060	U	0.500	0.498	100	80 - 120	
Zinc	0.022	U	2.50	2.44	98	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

Duplicate - Batch: 280-296042

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-74341-1	Analysis Batch:	280-296118	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-296042	Lab File ID:	25A092215.asc
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	10 mL
Analysis Date:	09/23/2015 0146	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/22/2015 1545				
Leach Date:	09/21/2015 2112				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	0.47	B	0.515	10	20	B
Antimony	0.016	U	0.016	NC	20	U
Arsenic	0.032	B	0.0343	7	20	B
Barium	1.8		2.06	12	20	
Beryllium	0.0020	U	0.0020	NC	20	U
Cadmium	0.0020	U	0.0020	NC	20	U
Chromium	0.11	B	0.124	12	20	B
Lead	0.013	U	0.013	NC	20	U
Nickel	0.0060	U	0.0060	NC	20	U
Selenium	0.034	B	0.0341	0.9	20	B
Silver	0.0040	U	0.00465	NC	20	B
Sodium	1450		1638	12	20	C N
Thallium	0.033	B	0.024	NC	20	U
Vanadium	0.0060	U	0.0060	NC	20	U
Zinc	0.022	U	0.022	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

TCLP SPLPE Leachate Blank - Batch: 280-296145

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LB 280-295857/1-C	Analysis Batch:	280-296304	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-296145	Lab File ID:	150923bb.txt
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	30 mL
Analysis Date:	09/23/2015 1840	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/23/2015 1420				
Leach Date:	09/21/2015 2112				

Analyte	Result	Qual	MDL	RL
Mercury	0.000030	U	0.000030	0.0020

Lab Control Sample - Batch: 280-296145

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LCS 280-295857/2-C	Analysis Batch:	280-296304	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-296145	Lab File ID:	150923bb.txt
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	30 mL
Analysis Date:	09/23/2015 1842	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/23/2015 1420				
Leach Date:	09/21/2015 2112				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.00500	0.00559	112	90 - 116	

Matrix Spike - Batch: 280-296145

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-74341-1	Analysis Batch:	280-296304	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-296145	Lab File ID:	150923bb.txt
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	30 mL
Analysis Date:	09/23/2015 1849	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/23/2015 1420				
Leach Date:	09/21/2015 2112				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.000030	U	0.00500	0.00567	113	90 - 116	

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

Duplicate - Batch: 280-296145

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-74341-1	Analysis Batch:	280-296304	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-296145	Lab File ID:	150923bb.txt
Dilution:	1.0	Leach Batch:	280-295857	Initial Weight/Volume:	30 mL
Analysis Date:	09/23/2015 1847	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/23/2015 1420				
Leach Date:	09/21/2015 2112				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.000030	U	0.000030	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-74341-1
Sdg Number: JP0997

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-295857					
LCS 280-295857/2-B	Lab Control Sample	P	Solid	1311	
LCS 280-295857/2-C	Lab Control Sample	P	Solid	1311	
LB 280-295857/1-B	TCLP SPLPE Leachate Blank	P	Solid	1311	
LB 280-295857/1-C	TCLP SPLPE Leachate Blank	P	Solid	1311	
280-74341-1	J1V842	P	Solid	1311	
280-74341-1DU	Duplicate	P	Solid	1311	
280-74341-1MS	Matrix Spike	P	Solid	1311	
Prep Batch: 280-296042					
LCS 280-295857/2-B	Lab Control Sample	P	Solid	3010A	280-295857
LB 280-295857/1-B	TCLP SPLPE Leachate Blank	P	Solid	3010A	280-295857
280-74341-1	J1V842	P	Solid	3010A	280-295857
280-74341-1DU	Duplicate	P	Solid	3010A	280-295857
280-74341-1MS	Matrix Spike	P	Solid	3010A	280-295857
Analysis Batch:280-296118					
LCS 280-295857/2-B	Lab Control Sample	P	Solid	6010B	280-296042
LB 280-295857/1-B	TCLP SPLPE Leachate Blank	P	Solid	6010B	280-296042
280-74341-1	J1V842	P	Solid	6010B	280-296042
280-74341-1DU	Duplicate	P	Solid	6010B	280-296042
280-74341-1MS	Matrix Spike	P	Solid	6010B	280-296042
Prep Batch: 280-296145					
LCS 280-295857/2-C	Lab Control Sample	P	Solid	7470A	280-295857
LB 280-295857/1-C	TCLP SPLPE Leachate Blank	P	Solid	7470A	280-295857
280-74341-1	J1V842	P	Solid	7470A	280-295857
280-74341-1DU	Duplicate	P	Solid	7470A	280-295857
280-74341-1MS	Matrix Spike	P	Solid	7470A	280-295857
Analysis Batch:280-296304					
LCS 280-295857/2-C	Lab Control Sample	P	Solid	7470A	280-296145
LB 280-295857/1-C	TCLP SPLPE Leachate Blank	P	Solid	7470A	280-296145
280-74341-1	J1V842	P	Solid	7470A	280-296145
280-74341-1DU	Duplicate	P	Solid	7470A	280-296145
280-74341-1MS	Matrix Spike	P	Solid	7470A	280-296145

Report Basis
P = TCLP

Washington Closure Hanford — CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-155-169 | Page 1 of 1

Collector: B. Jackson	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 618-10 & 618-11 Remediation	Sampling Location: 618-10 grout batch # GR-136D		SAF No.: RC-155
Ice Chest No.: WCH-11-070	Field Logbook No.: EL-1664-01	COA: R618102F20	Method of Shipment: Commercial Carrier
Shipped To: TestAmerica Denver	Offsite Property No.: N/A	TRE 9-17-15	Bill of Lading/Air Bill No.: JEERSR

Price Code: 9A | Data Turnaround: 3 days

Other Labs Shipped To: TestAmerica Richland

280-74341 Chain of Custody

Preservation	None	none
Type of Container	G/P	G/P
No. of Container(s)	1	0
Volume	500mL	500mL
Sample Analysis	See item (1) in Special Instructions	RCF Shipping Screen

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive

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

Sample No.	Matrix	Sample Date	Sample Time										
J1V842	OTHER	09/16/15	0838	X	X		~~39847~~	112g					
							~~39388~~						
							MG 9-16-15						
							39387						

Page 17 of 19

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
W.F. JACKSON, JR	9-16-15/0900	C. Martinez/C. Martinez	0900 9/16/15
C. Martinez/C. Martinez	1000 9/16/15	T.R. Edmundson T.R. Edmundson	9-16-15 1000
T.R. Edmundson T.R. Edmundson	9-16-15 1020	M. Grott RCF	9-16-15 1020
D. Miller RCF	9-17-15 1035	T.R. Edmundson T.R. Edmundson	9-17-15 1035
T.R. Edmundson WCH T.R. Edmundson	9-17-15 1500	Fed Ex	9-17-15
		[signature]	9-18-15 9:20

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

SPECIAL INSTRUCTIONS

~~Please run ISO-Pu, Np-237, total Sr, Am-241 analysis from material in ISO-U container.~~ TRE 9-17-15

~~Please run Ni-63, Tc-99 analysis from material in C-14 container.~~ TRE 9-17-15

(1) 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}

14.8 IRS +0.1
Transferred by MG 9/18/15
No ICE

REVIEWED BY KW Pestele DATE 9-17-15

JP0997

WCH-EE-011

Temp 14.8 IR# 5
CF +0.1 Initals (JW)
Date: 09/18/15
No ice

90w Permission

Project 28002142
Report Due: 9/23/2015 D.B. 9-18-15
TALs TAT: Rush 3 day

Sample Check-in List

Date/Time Received: 9/18/15 9:20 **GM Screen Result** 11 microR/hr

Client: Washington Closure Hanford **SDG #:** JP0997 NA[ ] **SAF #:** RC-155 NA [ ]

Job Number: 74341 **Chain of Custody #** RC-155-169 D.B. 9-18-15

Shipping Container ID: WCH-11-020 **Air Bill #** 7745 3675 6410

1. Custody Seals on shipping container intact? NA [ ] Yes [✓] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [✓] No [ ]
3. Chain of Custody record present? NA [ ] Yes [✓] No [ ]
4. Cooler Temperature °C: 14.8 IRS+0.1 NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [✓]
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
8. Samples have:
   - ✓ Tape
   - ✓ Custody Seals
   - ✓ Hazard Labels
   - ✓ Appropriate Sample Labels
9. Samples are:
   - ✓ In Good Condition
   - ___ Broken
   - ___ Leaking
   - ___ Have Air Bubbles (Only for samples requiring no head space.)
10. Sample pH taken? NA [✓] pH<2 [ ] pH>2 [ ] pH>9 [ ] **Amount HNO_3 Added** ___
11. Sample Location, Sample Collector Listed? * yes
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [X] No [ ]
13. Description of anomalies (include sample numbers): Sample not Received on ICE. TCLP Hg/Metals should be Kept cold.

Sample Custodian: [signature] **Date:** 9/18/15

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on 9-18-15 by D.B. Person Contacted Joan Kessner

[ ] No action necessary; process as is.

Project Manager Darlene Brandy Date 9-18-15

LS-023, Rev. 7, 1/08

ORIGIN ID:PSCA (509) 376-6016
JEFF EHLIS
US DOE C/O WASHINGTON CLOSURE HAN
2355 STEVENS DR BLDG 1162
RICHLAND, WA 99354
UNITED STATES US

SHIP DATE: 17SEP15
ACTWGT: 17.00 LB
CAD: 105286502/INET3670

BILL THIRD PARTY

TO KAE YODER
TEST AMERICA
4955 YARROW ST
ARVADA CO 80002
(303) 736-0190
INV:
PO:
REF: R618102F20 RMWC-9081
DEPT:

539J2/CBB9/31D0

FedEx Express

J152015062601uv

FRI - 18 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7745 3675 6410

XH WHHA

80002
CO-US DEN

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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 72 *Pages*

Report No.: 67314

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.
JP0997	RC-155	J1V842	J5I170414-1	M7LAA1AD	9M7LAA10	5260034
		J1V842	J5I170414-1	M7LAA1AG	9M7LAA10	5260036
		J1V842	J5I170414-1	M7LAA1AJ	9M7LAA10	5260037
		J1V842	J5I170414-1	M7LAA1AM	9M7LAA10	5260038
		J1V842	J5I170414-1	M7LAA1AC	9M7LAA10	5260039
		J1V842	J5I170414-1	M7LAA2AT	9M7LAA20	5265021
		J1V842	J5I170414-1	M7LAA2AA	9M7LAA20	5268043
		J1V842	J5I170414-1	M7LAA3AL	9M7LAA30	5273029
		J1V842	J5I170414-1	M7LAA3AK	9M7LAA30	5273030

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

October 5, 2015

Attention: Joan Kessner

SAF Number	:	RC-155
Date SDG Closed	:	September 17, 2015
Number of Samples	:	One (1)
Sample Type	:	Other Solid
SDG Number	:	JP0997
Data Deliverable	:	7– Day / Summary

CASE NARRATIVE

I. Introduction

On September 17, 2015, 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
J1V842	M7LAA	OTHER	9/17/15

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 by method RL-ALP-003
Neptunium-237 by method RL-ALP-013

Gas Proportional Counting
Strontium-90 by method RL-GPC-010
Liquid Scintillation Counting
Technetium-99 by method RL-LSC-013
Tritium by method RL-LSC-005
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 initial analysis failed due to extremely high tracer yields; a reanalysis was performed at a lower aliquot size and failed with the duplicate agreement outside the acceptance criteria. The batch was reanalyzed again and the tracer yields for the sample and sample duplicate remain above the acceptance limits, the elevated tracer yields maybe due to probable sample contribution based on the other sample analysis results. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Uranium 234, 235 and 238 by method RL-ALP-015:
The batch was reanalyzed due to the high activity in the sample. In the reanalysis the achieved MDA for the sample and sample duplicate (J1V842) exceeded the CRDL due to the aliquot reductions. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Americium 241by method RL-ALP-003:
The initial analysis failed due to extremely high tracer yields; a reanalysis was performed at a lower aliquot size and failed with the duplicate agreement outside the acceptance criteria. The batch was reanalyzed again and the tracer yield for the sample is slightly above the acceptance limits, the elevated tracer yield maybe due to probable sample contribution based on the other sample analysis results. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Neptunium-237 by method RL-ALP-013:
The LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Gas Proportional Counting
Strontium-90 by method RL-GPC-010:
The LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Liquid Scintillation Counting
Technetium-99 by method RL-LSC-013:

The LCS, batch blank, sample, sample duplicate (J1V842) and sample matrix spike (J1V842) results are within contractual requirements.

Tritium by method RL-LSC-005:
The LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Carbon-14 by method RL-LSC-008:
The LCS, batch blank, sample and sample duplicate (J1V842) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, sample and sample duplicate (J1V842) 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

TestAmerica Inc TARL

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

Date: 05-Oct-15

Report No. : 67314

SDG No: JP0997

Batch	Client Id / Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5260037 C14_CHEM_LSC									
J1V842									
	M7LAA1AJ	c-14	3.55E-01 +- 1.9E-01	U	pCi/g	100%	3.59E-01	5.00E+01	
J1V842 DUP									
	M7LAA1AX	c-14	4.25E-01 +- 1.9E-01		pCi/g	100%	3.59E-01	5.00E+01	17.9
5273030 PUISO_IE_PRECIP_AEA									
J1V842									
	M7LAA3AK	PU-238	5.61E+00 +- 2.1E+00		pCi/g	126%	5.56E-01	1.00E+00	
		PU239/40	3.30E+02 +- 5.9E+01		pCi/g	126%	4.31E-01	1.00E+00	
J1V842 DUP									
	M7LAA3AN	PU-238	3.88E+00 +- 1.7E+00		pCi/g	117%	5.09E-01	1.00E+00	36.4
		PU239/40	3.16E+02 +- 5.7E+01		pCi/g	117%	4.71E-01	1.00E+00	4.3
5268043 UISO_IE_PLATE_AEA									
J1V842									
	M7LAA2AA	U-234	6.78E+01 +- 1.4E+03		pCi/g	80%	4.37E+01	1.00E+00	
		U-235	-4.01E-01 +- 2.2E+01	U	pCi/g	80%	3.39E+01	1.00E+00	
		U-238	5.01E+02 +- 1.0E+04		pCi/g	80%	3.39E+01	1.00E+00	
J1V842 DUP									
	M7LAA2AQ	U-234	6.57E+01 +- 1.4E+03		pCi/g	81%	3.70E+01	1.00E+00	3.2
		U-235	-3.82E-01 +- 2.1E+01	U	pCi/g	81%	3.23E+01	1.00E+00	-5.0
		U-238	4.01E+02 +- 8.4E+03		pCi/g	81%	3.23E+01	1.00E+00	22.2
5273029 RL-ALP-010									
J1V842									
	M7LAA3AL	AMERICIUM 241	8.54E+01 +- 1.6E+01		pCi/g	116%	5.19E-01	1.00E+00	
J1V842 DUP									
	M7LAA3AP	AMERICIUM 241	8.36E+01 +- 1.7E+01		pCi/g	110%	7.23E-01	1.00E+00	2.2
5260039 SRTOT_SEP_PRECIP_GPC									
J1V842									
	M7LAA1AC	STRONTIUM	9.49E+01 +- 2.2E+01		pCi/g	74%	4.58E-01	1.00E+00	
J1V842 DUP									
	M7LAA1A1	STRONTIUM	7.57E+01 +- 1.7E+01		pCi/g	74%	4.22E-01	1.00E+00	22.5
5265021 NP237_LLE_PLATE_AEA									
J1V842									
	M7LAA2AT	NP-237	-6.39E-03 +- 3.2E-01	U	pCi/g	93%	5.40E-01	1.00E+00	
J1V842 DUP									
	M7LAA2AU	NP-237	-6.75E-03 +- 3.4E-01	U	pCi/g	87%	5.70E-01	1.00E+00	-5.4
5260034 NI63_LSC									
J1V842									
	M7LAA1AD	NI-63	7.62E-01 +- 6.4E+00	U	pCi/g	77%	8.22E+00	3.00E+01	

TestAmerica Inc

rptTALRchSaSummary2 V5.4 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: 05-Oct-15

TestAmerica Inc TARL

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

Report No. : 67314

SDG No: JP0997

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5260034 NI63_LSC									
J1V842 DUP									
	M7LAA1AR	NI-63	4.79E+00 +- 8.2E+00	U	pCi/g	93%	6.82E+00	3.00E+01	145.1
5260036 TC99_ETVDSK_LSC									
J1V842									
	M7LAA1AG	TC-99	4.81E+01 +- 1.5E+00		pCi/g	100%	5.84E-01	1.50E+01	
J1V842 DUP									
	M7LAA1AW	TC-99	6.71E+01 +- 2.0E+00		pCi/g	100%	5.81E-01	1.50E+01	33.1
5260038 TRITIUM_DIST_LSC									
J1V842									
	M7LAA1AM	H-3	9.70E-02 +- 1.9E-01	U	pCi/g	100%	4.38E-01	4.00E+02	
J1V842 DUP									
	M7LAA1A0	H-3	4.61E-03 +- 1.8E-01	U	pCi/g	100%	4.08E-01	4.00E+02	181.8

No. of Results: 24

TestAmerica Inc

rptTALRchSaSummary2 V5.4 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.

QC Results Summary

Date: 05-Oct-15

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 67314 **SDG No.:** JP0997

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_CHEM_LSC								
5260037 BLANK QC,								
M7LAN1AA	c-14	-1.18E-02 +- 1.8E-01	U	pCi/g	100%			3.60E-01
5260037 LCS,								
M7LAN1AC	c-14	7.00E+00 +- 5.2E-01		pCi/g	100%	97%	0.0	3.61E-01
PUISO_IE_PRECIP_AEA								
5273030 BLANK QC,								
M7MQF2AA	PU-238	-2.58E-03 +- 2.6E-02	U	pCi/g	108%			5.01E-02
	PU239/40	-5.68E-03 +- 2.6E-02	U	pCi/g	108%			5.87E-02
5273030 LCS,								
M7MQF2AC	PU239/40	4.85E+00 +- 1.0E+00		pCi/g	113%	111%	0.1	4.70E-02
UISO_IE_PLATE_AEA								
5268043 BLANK QC,								
M7MQE1AA	U-234	1.64E-02 +- 3.6E-02	U	pCi/g	77%			6.50E-02
	U-235	0.00E+00 +- 3.6E-02	U	pCi/g	77%			6.01E-02
	U-238	3.48E-02 +- 5.1E-02	U	pCi/g	77%			6.01E-02
5268043 LCS,								
M7MQE1AC	U-234	3.03E+00 +- 7.1E-01		pCi/g	83%	96%	0.0	5.39E-02
	U-238	3.19E+00 +- 7.4E-01		pCi/g	83%	96%	0.0	5.83E-02
RL-ALP-010								
5273029 BLANK QC,								
M7MQG2AA	AMERICIUM 241	2.07E-02 +- 3.9E-02	U	pCi/g	113%			6.09E-02
5273029 LCS,								
M7MQG2AC	AMERICIUM 241	4.64E+00 +- 9.7E-01		pCi/g	112%	115%	0.1	5.60E-02
SRTOT_SEP_PRECIP_GPC								
5260039 BLANK QC,								
M7LAQ1AA	STRONTIUM	5.60E-02 +- 4.9E-01	U	pCi/g	71%			8.64E-01
5260039 LCS,								
M7LAQ1AC	STRONTIUM	7.17E+00 +- 1.9E+00		pCi/g	77%	112%	0.1	7.93E-01
NP237_LLE_PLATE_AEA								
5265021 BLANK QC,								
M7LAL2AA	NP-237	-2.69E-03 +- 3.4E-02	U	pCi/g	82%			6.82E-02
5265021 LCS,								
M7LAL2AC	NP-237	1.59E+00 +- 5.2E-01		pCi/g	98%	95%	-0.1	5.26E-02
NI63_LSC								
5260034 BLANK QC,								
M7LAK1AA	NI-63	1.59E-01 +- 3.4E+00	U	pCi/g	94%			6.32E+00
5260034 LCS,								
M7LAK1AC	NI-63	2.99E+02 +- 4.2E+02		pCi/g	79%	100%	0.0	7.83E+00
TC99_ETVDSK_LSC								
5260036 BLANK QC,								
M7LAM1AA	TC-99	5.19E-01 +- 5.0E-01	U	pCi/g	100%			1.04E+00
5260036 LCS,								

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

rptSTLRchQcSummary V5.4 A2002 **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: 05-Oct-15

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 67314

SDG No.: JP0997

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
M7LAM1AC	TC-99	5.35E+01 +- 2.1E+00		pCi/g	100%	82%	-0.2	1.08E+00
5260036 MATRIX SPIKE, J1V842								
M7LAA1AV	TC-99	1.26E+02 +- 4.7E+00		pCi/g	100%	56%	-0.4	5.68E-01
TRITIUM_DIST_LSC								
5260038 BLANK QC,								
M7LAP1AA	H-3	2.42E-02 +- 9.0E-02	U	pCi/g	100%			1.99E-01
5260038 LCS,								
M7LAP1AC	H-3	6.03E-01 +- 1.7E-01		pCi/g	100%	84%	-0.2	2.83E-01

No. of Results: 23

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

rptSTLRchQcSummary V5.4 A2002 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: 05-Oct-15

Lab Name: TestAmerica Inc
Lot-Sample No.: J5I170414-1
Client Sample ID: J1V842

SDG: JP0997
Report No. : 67314
COC No. : RC-155-169

Collection Date: 9/16/2015 8:38:00 AM
Received Date: 9/17/2015 11:20:00 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
Batch: 5260034	NI63_LSC			**Work Order:**	M7LAA1AD		**Report DB ID:**	9M7LAA10				
NI-63	**7.62E-01**	U	3.3E+00	6.4E+00	8.22E+00	pCi/g	77%	*0.09*	9/25/15 11:46 p		0.5	LSC4
						3.83E+00	3.00E+01	*0.24*			g	
Batch: 5260036	TC99_ETVDSK_LSC			**Work Order:**	M7LAA1AG		**Report DB ID:**	9M7LAA10				
TC-99	**4.81E+01**		9.7E-01	1.5E+00	5.84E-01	pCi/g	100%	*(82.2)*	9/24/15 02:13 a		1.97	LSC8
						2.80E-01	1.50E+01	*(63.5)*			g	
Batch: 5260037	C14_CHEM_LSC			**Work Order:**	M7LAA1AJ		**Report DB ID:**	9M7LAA10				
c-14	**3.55E-01**	U	1.6E-01	1.9E-01	3.59E-01	pCi/g	100%	*0.99*	9/21/15 09:26 a		5.0	LSC4
						1.72E-01	5.00E+01	*(3.8)*			g	
Batch: 5260038	TRITIUM_DIST_LSC			**Work Order:**	M7LAA1AM		**Report DB ID:**	9M7LAA10				
H-3	**9.70E-02**	U	1.7E-01	1.9E-01	4.38E-01	pCi/g	100%	*0.22*	9/21/15 12:22 p		14.6	LSC4
						1.99E-01	4.00E+02	*(1.)*			g	
Batch: 5260039	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M7LAA1AC		**Report DB ID:**	9M7LAA10				
STRONTIUM	**9.49E+01**		2.3E+00	2.2E+01	4.58E-01	pCi/g	74%	*(207.3)*	9/22/15 02:01 p		1.99	GPC31A
						2.09E-01	1.00E+00	*(8.7)*			g	
Batch: 5265021	NP237_LLE_PLATE_AEA			**Work Order:**	M7LAA2AT		**Report DB ID:**	9M7LAA20				
NP-237	**-6.39E-03**	U	3.2E-01	3.2E-01	5.40E-01	pCi/g	93%	*-0.01*	9/23/15 07:46 p		0.10204	ALP425
						1.14E-01	1.00E+00	*-0.04*			g	
Batch: 5268043	UISO_IE_PLATE_AEA			**Work Order:**	M7LAA2AA		**Report DB ID:**	9M7LAA20				
U-234	**6.78E+01**		5.3E+01	1.4E+03	4.37E+01	pCi/g	80%	*(1.6)*	9/29/15 05:30 p		0.00166	ALP423
						1.17E+01	1.00E+00	*0.1*			g	

TestAmerica Inc
rptSTLRchSample
V5.4 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: 05-Oct-15

Lab Name:	TestAmerica Inc	**SDG:**	JP0997	**Collection Date:**	9/16/2015 8:38:00 AM
Lot-Sample No.:	J5I170414-1	**Report No. :**	67314	**Received Date:**	9/17/2015 11:20:00 AM
Client Sample ID:	J1V842	**COC No. :**	RC-155-169	**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	-4.01E-01	U	2.0E+01	2.2E+01	3.39E+01	pCi/g	80%	*-0.01*	9/29/15 05:30 p		0.00166	ALP423
						7.19E+00	1.00E+00	*-0.04*			g	
U-238	5.01E+02		1.4E+02	1.0E+04	3.39E+01	pCi/g	80%	*(14.8)*	9/29/15 05:30 p		0.00166	ALP423
						7.19E+00	1.00E+00	*0.1*			g	
								Ratio U-234/238 = 0.1				
Batch: 5273029	RL-ALP-010			**Work Order:**	M7LAA3AL		**Report DB ID:**	9M7LAA30				
AMERICIUM 241	8.54E+01		6.9E+00	1.6E+01	5.19E-01	pCi/g	116%	*(164.6)*	10/5/15 12:19 p		0.10196	ALP43
						1.62E-01	1.00E+00	*(10.4)*			g	
Batch: 5273030	PUISO_IE_PRECIP_AEA			**Work Order:**	M7LAA3AK		**Report DB ID:**	9M7LAA30				
PU-238	5.61E+00		1.9E+00	2.1E+00	5.56E-01	pCi/g	126%	*(10.1)*	10/5/15 12:13 p		0.10196	ALP39
						1.88E-01	1.00E+00	*(5.2)*			g	
PU239/40	3.30E+02		1.5E+01	5.9E+01	4.31E-01	pCi/g	126%	*(765.6)*	10/5/15 12:13 p		0.10196	ALP39
						1.16E-01	1.00E+00	*(11.2)*			g	

No. of Results: 12 **Comments:**

TestAmerica Inc
rptSTLRchSample
V5.4 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: 05-Oct-15

DUPLICATE RESULTS

Lab Name: TestAmerica Inc
SDG: JP0997
Collection Date: 9/16/2015 8:38:00 AM
Lot-Sample No.: J5I170414-1
Report No. : 67314
Received Date: 9/17/2015 11:20:00 AM
Client Sample ID: J1V842 DUP
COC No. : RC-155-169
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: 5260034	NI63_LSC			**Work Order:** M7LAA1AR		**Report DB ID:** M7LAA1RR			**Orig Sa DB ID:** 9M7LAA10			
NI-63	4.79E+00	U	3.0E+00	8.2E+00	6.82E+00	pCi/g	93%	0.7	9/26/15 12:09 a		0.5	LSC4
	7.62E-01	U	**RPD**	**145.1**		3.00E+01		(1.2)			g	
Batch: 5260036	TC99_ETVDSK_LSC			**Work Order:** M7LAA1AW		**Report DB ID:** M7LAA1WR			**Orig Sa DB ID:** 9M7LAA10			
TC-99	6.71E+01		1.1E+00	2.0E+00	5.81E-01	pCi/g	100%	(115.5)	9/24/15 04:17 a		1.98	LSC8
	4.81E+01		**RPD**	**33.1**		1.50E+01		(68.1)			g	
Batch: 5260037	C14_CHEM_LSC			**Work Order:** M7LAA1AX		**Report DB ID:** M7LAA1XR			**Orig Sa DB ID:** 9M7LAA10			
c-14	4.25E-01		1.6E-01	1.9E-01	3.59E-01	pCi/g	100%	(1.2)	9/21/15 10:09 a		5.0	LSC4
	3.55E-01	U	**RPD**	**17.9**		5.00E+01		(4.4)			g	
Batch: 5260038	TRITIUM_DIST_LSC			**Work Order:** M7LAA1A0		**Report DB ID:** M7LAA10R			**Orig Sa DB ID:** 9M7LAA10			
H-3	4.61E-03	U	1.6E-01	1.8E-01	4.08E-01	pCi/g	100%	0.01	9/21/15 12:45 p		13.0	LSC4
	9.70E-02	U	**RPD**	**181.8**		4.00E+02		0.05			g	
Batch: 5260039	SRTOT_SEP_PRECIP_GPC			**Work Order:** M7LAA1A1		**Report DB ID:** M7LAA11R			**Orig Sa DB ID:** 9M7LAA10			
STRONTIUM	7.57E+01		2.1E+00	1.7E+01	4.22E-01	pCi/g	74%	(179.6)	9/22/15 02:01 p		1.95	GPC31B
	9.49E+01		**RPD**	**22.5**		1.00E+00		(8.7)			g	
Batch: 5265021	NP237_LLE_PLATE_AEA			**Work Order:** M7LAA2AU		**Report DB ID:** M7LAA2UR			**Orig Sa DB ID:** 9M7LAA20			
NP-237	-6.75E-03	U	3.4E-01	3.4E-01	5.70E-01	pCi/g	87%	-0.01	9/23/15 07:47 p		0.10204	ALP426
	-6.39E-03	U	**RPD**	**-5.4**		1.00E+00		-0.04			g	

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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: 05-Oct-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0997	**Collection Date:**	9/16/2015 8:38:00 AM
Lot-Sample No.:	**J5I170414-1**	**Report No. :**	67314	**Received Date:**	9/17/2015 11:20:00 AM
Client Sample ID:	**J1V842 DUP**	**COC No. :**	RC-155-169	**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: 5268043	UISO_IE_PLATE_AEA			**Work Order:**	M7LAA2AQ	**Report DB ID:**	M7LAA2QR		**Orig Sa DB ID:** 9M7LAA20			
U-234	6.57E+01		5.1E+01	1.4E+03	3.70E+01	pCi/g	81%	(1.8)	9/29/15 05:30 p		0.00166	ALP424
	6.78E+01		**RPD**	**3.2**		1.00E+00		0.1			g	
U-235	-3.82E-01	U	1.9E+01	2.1E+01	3.23E+01	pCi/g	81%	-0.01	9/29/15 05:30 p		0.00166	ALP424
	-4.01E-01	U	**RPD**	**-5.0**		1.00E+00		-0.04			g	
U-238	4.01E+02		1.2E+02	8.4E+03	3.23E+01	pCi/g	81%	(12.4)	9/29/15 05:30 p		0.00166	ALP424
	5.01E+02		**RPD**	**22.2**		1.00E+00		0.1			g	
						Ratio U-234/238 = 0.2			***Alpha Spec Result Sum = 4.7E+02***			
Batch: 5273029	RL-ALP-010			**Work Order:**	M7LAA3AP	**Report DB ID:**	M7LAA3PR		**Orig Sa DB ID:** 9M7LAA30			
AMERICIUM 241	8.36E+01		7.1E+00	1.7E+01	7.23E-01	pCi/g	110%	(115.6)	10/5/15 02:32 p		0.10219	ALP413
	8.54E+01		**RPD**	**2.2**		1.00E+00		(10.1)			g	
									Alpha Spec Result Sum = 5.5E+02			
Batch: 5273030	PUISO_IE_PRECIP_AEA			**Work Order:**	M7LAA3AN	**Report DB ID:**	M7LAA3NR		**Orig Sa DB ID:** 9M7LAA30			
PU-238	3.88E+00		1.6E+00	1.7E+00	5.09E-01	pCi/g	117%	(7.6)	10/5/15 12:15 p		0.10219	ALP40
	5.61E+00		**RPD**	**36.4**		1.00E+00		(4.5)			g	
PU239/40	3.16E+02		1.4E+01	5.7E+01	4.71E-01	pCi/g	117%	(672.4)	10/5/15 12:15 p		0.10219	ALP40
	3.30E+02		**RPD**	**4.3**		1.00E+00		(11.)			g	
									Alpha Spec Result Sum = 8.7E+02			

No. of Results: 12 **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: 05-Oct-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0997

Report No. : 67314

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: 5260037	C14_CHEM_LSC			**Work Order:**	M7LAN1AA		**Report DB ID:**	M7LAN1AB				
c-14	-1.18E-02	U	1.5E-01	1.8E-01	3.60E-01	pCi/g	100%	-0.03	9/21/15 10:52 a		5.0	LSC4
					1.73E-01	5.00E+01		-0.14			g	
Batch: 5273030	PUISO_IE_PRECIP_AEA			**Work Order:**	M7MQF2AA		**Report DB ID:**	M7MQF2AB				
PU-238	-2.58E-03	U	2.6E-02	2.6E-02	5.01E-02	pCi/g	108%	-0.05	10/5/15 12:16 p		1.08	ALP41
					1.42E-02	1.00E+00		-0.2			g	
PU239/40	-5.68E-03	U	2.6E-02	2.6E-02	5.87E-02	pCi/g	108%	-0.1	10/5/15 12:16 p		1.08	ALP41
					1.87E-02	1.00E+00		-0.44			g	
Batch: 5268043	UISO_IE_PLATE_AEA			**Work Order:**	M7MQE1AA		**Report DB ID:**	M7MQE1AB				
U-234	1.64E-02	U	3.6E-02	3.6E-02	6.50E-02	pCi/g	77%	0.25	9/29/15 05:31 p		1.01	ALP425
					1.49E-02	1.00E+00		0.92			g	
U-235	0.00E+00	U	0.0E+00	3.6E-02	6.01E-02	pCi/g	77%	0.	9/29/15 05:31 p		1.01	ALP425
					1.27E-02	1.00E+00		0.			g	
U-238	3.48E-02	U	5.0E-02	5.1E-02	6.01E-02	pCi/g	77%	0.58	9/29/15 05:31 p		1.01	ALP425
					1.27E-02	1.00E+00		(1.4)			g	
							Ratio U-234/238 = 0.5					
Batch: 5273029	RL-ALP-010			**Work Order:**	M7MQG2AA		**Report DB ID:**	M7MQG2AB				
AMERICIUM 241	2.07E-02	U	3.9E-02	3.9E-02	6.09E-02	pCi/g	113%	0.34	10/5/15 02:32 p		1.08	ALP414
					2.04E-02	1.00E+00		(1.1)			g	
Batch: 5260034	NI63_LSC			**Work Order:**	M7LAK1AA		**Report DB ID:**	M7LAK1AB				
NI-63	1.59E-01	U	2.5E+00	3.4E+00	6.32E+00	pCi/g	94%	0.03	9/26/15 12:32 a		0.53	LSC4
					2.95E+00	3.00E+01		0.09			g	
Batch: 5260036	TC99_ETVDSK_LSC			**Work Order:**	M7LAM1AA		**Report DB ID:**	M7LAM1AB				

TestAmerica Inc
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V5.4 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: 05-Oct-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0997

Report No. : 67314

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
TC-99	5.19E-01	U	4.5E-01	5.0E-01	1.04E+00	pCi/g	100%	0.5	9/24/15 05:19 a		1.1	LSC8
					4.98E-01	1.50E+01		(2.1)			g	
Batch: 5260038	TRITIUM_DIST_LSC			**Work Order:**	M7LAP1AA		**Report DB ID:**	M7LAP1AB				
H-3	2.42E-02	U	8.0E-02	9.0E-02	1.99E-01	pCi/g	100%	0.12	9/21/15 01:08 p		41.5	LSC4
					9.05E-02	4.00E+02		0.54			g	
Batch: 5260039	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M7LAQ1AA		**Report DB ID:**	M7LAQ1AB				
STRONTIUM	5.60E-02	U	4.9E-01	4.9E-01	8.64E-01	pCi/g	71%	0.06	9/22/15 02:01 p		1.02	GPC31C
					3.94E-01	1.00E+00		0.23			g	
Batch: 5265021	NP237_LLE_PLATE_AEA			**Work Order:**	M7LAL2AA		**Report DB ID:**	M7LAL2AB				
NP-237	-2.69E-03	U	3.4E-02	3.4E-02	6.82E-02	pCi/g	82%	-0.04	9/23/15 07:48 p		1.04	ALP429
					1.72E-02	1.00E+00		-0.16			g	

No. of Results: 12 **Comments:**

TestAmerica Inc
rptSTLRchBlank
V5.4 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

LCS RESULTS

Date: 05-Oct-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0997

Report No. : 67314

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: 5260037	C14_CHEM_LSC			**Work Order:**	M7LAN1AC		**Report DB ID:**	M7LAN1CS					
c-14	7.00E+00		3.1E-01	5.2E-01	3.61E-01	pCi/g	100%	7.23E+00	1.4E-01	97%	9/21/15 11:36 a	5.0	LSC4
							Rec Limits:			0.0		g	
Batch: 5273030	PUISO_IE_PRECIP_AEA			**Work Order:**	M7MQF2AC		**Report DB ID:**	M7MQF2CS					
PU239/40	4.85E+00		5.5E-01	1.0E+00	4.70E-02	pCi/g	113%	4.38E+00	5.1E-02	111%	10/5/15 12:16 p	1.05	ALP42
							Rec Limits:	70	130	0.1		g	
Batch: 5268043	UISO_IE_PLATE_AEA			**Work Order:**	M7MQE1AC		**Report DB ID:**	M7MQE1CS					
U-234	3.03E+00		4.4E-01	7.1E-01	5.39E-02	pCi/g	83%	3.17E+00	1.7E-02	96%	9/29/15 05:31 p	1.03	ALP426
							Rec Limits:	70	130	0.0		g	
U-238	3.19E+00		4.5E-01	7.4E-01	5.83E-02	pCi/g	83%	3.32E+00	1.8E-02	96%	9/29/15 05:31 p	1.03	ALP426
							Rec Limits:	70	130	0.0		g	
Batch: 5273029	RL-ALP-010			**Work Order:**	M7MQG2AC		**Report DB ID:**	M7MQG2CS					
AMERICIUM 241	4.64E+00		5.1E-01	9.7E-01	5.60E-02	pCi/g	112%	4.04E+00	4.1E-02	115%	10/5/15 02:32 p	1.05	ALP419
							Rec Limits:	70	130	0.1		g	
Batch: 5260034	NI63_LSC			**Work Order:**	M7LAK1AC		**Report DB ID:**	M7LAK1CS					
NI-63	2.99E+02		1.1E+01	4.2E+02	7.83E+00	pCi/g	79%	2.99E+02	5.0E+00	100%	9/26/15 12:55 a	0.51	LSC4
							Rec Limits:	70	130	0.0		g	
Batch: 5260036	TC99_ETVDSK_LSC			**Work Order:**	M7LAM1AC		**Report DB ID:**	M7LAM1CS					
TC-99	5.35E+01		1.4E+00	2.1E+00	1.08E+00	pCi/g	100%	6.49E+01	3.7E-01	82%	9/24/15 06:21 a	1.05	LSC8
							Rec Limits:	70	130	-0.2		g	
Batch: 5260038	TRITIUM_DIST_LSC			**Work Order:**	M7LAP1AC		**Report DB ID:**	M7LAP1CS					
H-3	6.03E-01		1.5E-01	1.7E-01	2.83E-01	pCi/g	100%	7.21E-01	2.2E-02	84%	9/21/15 01:31 p	39.3	LSC4
							Rec Limits:	70	130	-0.2		g	

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

rptSTLRchLcs
V5.4 A2002

FORM II

LCS RESULTS

Date: 05-Oct-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0997

Report No. : 67314

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: 5260039	SRTOT_SEP_PRECIP_GPC			**Work Order:**	M7LAQ1AC		**Report DB ID:**	M7LAQ1CS					
STRONTIUM	7.17E+00		9.6E-01	1.9E+00	7.93E-01	pCi/g	77%	6.38E+00	2.5E-01	112%	9/22/15 02:01 p	1.06	GPC31D
							Rec Limits:	70	130	0.1		g	
Batch: 5265021	NP237_LLE_PLATE_AEA			**Work Order:**	M7LAL2AC		**Report DB ID:**	M7LAL2CS					
NP-237	1.59E+00		2.9E-01	5.2E-01	5.26E-02	pCi/g	98%	1.68E+00	7.7E-02	95%	9/23/15 07:49 p	1.07	ALP430
							Rec Limits:	70	130	-0.1		g	

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

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

rptSTLRchLcs
V5.4 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 05-Oct-15

Lab Name: TestAmerica Inc **SDG:** JP0997

Lot-Sample No.: J5I170414-1, J1V842 **Report No. :** 67314 **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: 5260036	Work Order: M7LAA1AV			Report DB ID: M7LAA1VW			Orig Sa DB ID: 9M7LAA10					
TC-99	1.26E+02		1.8E+00	4.7E+00	5.68E-01	pCi/g	100%	55.51%	2.26E+02	9/24/15 03:15 a	2.01	TC99_ETVDSK_LSC
	4.81E+01								1.3E+00		g	LSC8

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.4 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

10/5/2015 4:09:39 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5273030; RPUISO Pulso by ALP
SDG, Matrix: JP0997; 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:
NCM 10-31839

First Level [signature] Date 10/5/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 527-3030

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 #10-31839

Second Level Review: [signature] Date: 10/6/15

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31839**
NCM Initiated By: Tom Mcginnis
Date Opened: 10/05/2015
Date Closed:

Classification: **Deficiency**
Status: PMREVIEW
Production Area: Environmental - Sep
Tests: Pulso by ALP
Lot #'s (Sample #'s): J5I170414 (1), J5I250000 (44),
QC Batches: 5273030,

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Tom Mcginnis	10/05/2015	The initial analysis batch failed with high tracer yields for the sample and duplicate. A reanalysis was performed at a lower aliquot size and failed with duplicate agreement outside of acceptance criteria. The tracer yields for sample J5I170414-1 and its duplicate remain above acceptance criteria in reanalysis batch 5273030, but may be elevated due to probable sample contribution based on other sample analysis results.

Corrective Action

Name	Date	Corrective Action
Tom Mcginnis	10/05/2015	The PM was notified of the batch deficiencies.

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: 10/5/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/30/2015 11:05:34 AM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5268043; RUISO UIso by ALP
SDG, Matrix: JP0997; 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 Gustafson **Date** 9/30/15

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QAS_RADCALCv4.8.68.1

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 5268043

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: 9/30/13

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31814**
NCM Initiated By: Lisa Antonson
Date Opened: 09/30/2015
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Environmental - Prep
Tests: UIso by ALP
Lot #'s (Sample #'s): J5I170414 (1), J5I250000 (43),
QC Batches: 5268043,

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	09/30/2015	This batch is a reanalysis of batch 5260033. In the original batch, the samples had too much activity that caused smearing the spectra. The batch was reanalyzed with reduced aliquot. Due to reduced aliquot, the sample and dup do not meet CRDL. The LCS in the reanalysis has a FWHM for the tracer that slightly exceeds the limit of 100 keV. The sample was manually integrated by count room staff.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	09/30/2015	The samples were reanalyzed with reduced aliquots.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 9/30/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

10/5/2015 4:30:04 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5273029; RAMISO AmIso by ALP
SDG, Matrix: JP0997; 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:
NCM 10-31840

First Level [signature] **Date** 10/5/15

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 52 73029

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 #: 10-31 840

Second Level Review: [signature] Date: 10/5/15

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31840**
NCM Initiated By: Tom Mcginnis
Date Opened: 10/05/2015
Date Closed:

Classification: **Deficiency**
Status: **PMREVIEW**
Production Area: Environmental - Sep
Tests: AmIso by ALP
Lot #'s (Sample #'s): J5I170414 (1), J5I250000 (45),
QC Batches: 5273029,

Nonconformance: Other (describe in detail)
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Tom Mcginnis	10/05/2015	The initial analysis batch 5260032 failed with high tracer yields for the sample and duplicate. A smaller aliquot size was reanalyzed with the batch failing due to duplicate agreement outside of acceptance criteria. The tracer yield for sample J5I170414-1 in reanalysis batch 5273029 is still slightly elevated due to possible sample contribution based on other analytical sample results.

Corrective Action

Name	Date	Corrective Action
Tom Mcginnis	10/05/2015	The PM was notified of the batch deficiencies.

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: 10/5/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/24/2015 8:44:11 AM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5265021; RNP237 Np-237 w/tracer
SDG, Matrix: JP0997; 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** 9/24/15

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: S2L0502L

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 10-31769

Second Level Review: Erika Ford Date: 9-24-15

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31769**
NCM Initiated By: Lisa Antonson
Date Opened: 09/24/2015
Date Closed:

Classification: **Observation**
Status: **PMREVIEW**
Production Area: Environmental - Sep
Tests: Np-237 w/tracer
Lot #'s (Sample #'s): J5I170000 (35), J5I170414 (1),
QC Batches: 5265021,

Nonconformance: QA/QC Observation
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	09/24/2015	This batch is a reanalysis of batch 5260035. In the original batch, U-238 was not completely removed from the samples due to high U activity in the samples. Results were above DL, but suspected to be U-234 interfering and causing a false positive. The samples were reanalyzed with reduced aliquot to reduce Uranium interferance with acceptable results.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	09/24/2015	

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 9/24/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/23/2015 2:40:17 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5260039; RSRTOT SrTot by GPC
SDG, Matrix: JP0997; 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 _____ **Date** 9/23/15

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 5260039

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:

Second Level Review: Erika Ford Date: 9-24-15

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/29/2015 1:12:01 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5260036; RTC99 Tc-99 by LSC
SDG, Matrix: JP0997; 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** 9/28/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 52600036

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=15pCi/g

Second Level Review: [signature] Date: 9/30/15

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/22/2015 1:14:21 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5260038; RTRITIUM H-3 by LSC
SDG, Matrix: JP0997; 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 Lisa Anderson **Date** 9/22/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

Page 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 5260038

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 Observation 10-31755

Second Level Review: Erika Ord Date: 9-23-15

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31755**
NCM Initiated By: Lisa Antonson
Date Opened: 09/22/2015
Date Closed:

Classification: **Observation**
Status: **PMREVIEW**
Production Area: Counting
Tests: H-3 by LSC
Lot #'s (Sample #'s): J5I170000 (38), J5I170414 (1),
QC Batches: 5260038,

Nonconformance: QA/QC Observation
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	09/22/2015	In the counts for the blank there was one short count that was high and inconsistent with the remainder of the short counts. Suspect spurious counts from electrostatic discharge. This count was deleted and the batch recalculated with acceptable results.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	09/22/2015	

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 9/22/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/21/2015 1:16:14 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5260037; RC14LSCC C-14 Digestion
SDG, Matrix: JP0997; 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** 9/21/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: S260037

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:

Second Level Review: Emilia Ford Date: 9-23-15

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/28/2015 2:37:34 PM

Lot No., Due Date: J5I170414; 09/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5260034; RNI63 Ni-63 by LSC
SDG, Matrix: JP0997; 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** 9/28/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 5260034

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 pCi/g

Second Level Review: [signature] Date: 9/28/15

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

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-155-169

Page 1 of 1

Collector: B Jackson	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: 618-10 & 618-11 Remediation	Sampling Location: 618-10 grout batch # GR-136D		SAF No.: RC-155
Ice Chest No.: WCH-12-11-5	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: 9B

Data Turnaround: 7 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)	1	0	0	0	1	0	0			
Volume	60mL	60mL	60mL	60mL	60mL	60mL	60mL			
Sample Analysis	Isotopic Uranium	Isotopic Plutonium	Americium-241/Curium-244 {Americium-241}	Strontium-89,90 -- Total Sr	Carbon-14; Tritium - H3 ~~Low Level Soil~~ Rw 9/17/15	Nickel-63	Technetium-99	Np-237 ⊗		

Sample No.	Matrix	Sample Date	Sample Time										
J1V842 M7LAA	OTHER	09/16/15	0838	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
W.F. JACKSON, JR. [signature]	9-16-15 0900	C. Martinez/C. Martinez	0900 9/16/15
C. Martinez/C. Martinez	1000 9/16/15	T.R. Edmundson J.R. Edmundson	9-16-15 1000
T.R. Edmundson J.R. Edmundson	9-16-15 1100	1060 Battelle Refer #3	9-16-15 1100
1060 Battelle Refer #3	9-17-15 0930	T.R. Edmundson J.R. Edmundson	9-17-15 0930
T.R. Edmundson WCH J.R. Edmundson	9-17-15 1120	J. Friesz, TARL [signature]	9/17/15 1120

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

SPECIAL INSTRUCTIONS

Please run ISO-Pu, Np-237, total Sr, Am-241 analysis from material in ISO-U container.

Please run Ni--63, Tc-99 analysis from material in C-14 container

J5I170414

J5I170414
SDG# JP0997
Due 9/24/15

⊗ Added Np-237 per J. Kessner on 9/17/15. Rw 9/17/15

REVIEWED BY KW DATE 9/17/15

JP0997

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 9/17/15 1120 Container GM Screen Result: (Airlock) 40 cpm Initials[ ]
Sample GM Screen Result (Sample Receiving) 280 cpm Initials[ ]

Client: WCH SDG #: JP0997 SAF #: RC-155 NA [ ]

Lot Number: J5I170414

Chain of Custody # RC-155-169

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

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

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

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 2 x 60ml aq
8. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
9. Samples have: _____tape _____hazard labels _____custody seals _____appropriate sample labels
10. Matrix: _____A (FLT, Wipe, Solid, Soil) _____I (Water) _____S (Air, Niosh 7400) _____T (Biological, Ni-63)
11. Samples:
    _____are in good condition _____are leaking _____are broken
    _____have air bubbles (Only for samples requiring no head space) _____Other _____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [ ]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO_3 added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [ ]
14. Description of anomalies (include sample numbers): NA [ ] _____
15. Sample Location, Sample Collector Listed on COC? * Yes [ ] No [ ]
    *For documentation only. No corrective action needed.
16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: _____ Date: 9/17/15

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

[ ] No action necessary; process as is

Project Manager _____ Date 9/17/15

LS-023 Rev. 17, 05/13

10/1/2015 10:12:11 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

6I PuAm Prp PRP003/PRP005, Sep
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5273030 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 M7LAA-3-AK J5I170414-1-SAMP 09/16/2015 08:38			1.02g,in 13.75g,fi AmtRec: 2X60MLAG	0.102g 137.55g,di	PATB5735 09/17/15,pd 05/06/15,r #Containers: 2				160 Scr:	59 Alpha:	1306	10-5-15 Beta:	
2 M7LAA-3-AN-X J5I170414-1-DUP 09/16/2015 08:38			1.02g,in 13.78g,fi AmtRec: 2X60MLAG	0.1022g 137.55g,di	PATB5736 09/17/15,pd 05/06/15,r #Containers: 2				Scr:	40 Alpha:		Beta:	
3 M7MQF-2-AA-B J5I250000-44-BLK 09/30/2015 14:04 pd			1.08g,in AmtRec:	1.08g	patb5678 #Containers: 1				Scr:	41 Alpha:		Beta:	
4 M7MQF-2-AC-C J5I250000-44-LCS 09/30/2015 14:04 pd			1.05g,in AmtRec:	1.05g	pasc1096 #Containers: 1				Scr:	42 Alpha:		Beta:	

31839

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1
pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 4
Prep_SamplePrep v4.8.69

10/1/2015 10:12:12 AM

Sample Preparation/Analysis

6I PuAm Prp PRP003/PRP005, Sep
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922,,

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5273030 pCi/g

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:

Comments: M7MQF-BLK "Comments S-15-00203",S-15-00228,P-15-00374,P-15-00456,S-15-00102

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

M7LAA3AK-SAMP Constituent List:

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

M7MQF2AA-BLK:

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

M7MQF2AC-LCS:

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

M7LAA3AK-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M7MQF2AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M7MQF2AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

10/5/2015 3:59:24 PM

ICOC Fraction Transfer/Status Report

ByDate: 10/5/2014, 10/10/2015, Batch: '5273030', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5273030						
AC		**Rev1C**	**WoodT**	10/1/2015 10:15:50		
SC			antonsonl	IsBatched	9/30/2015 2:03:47 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	10/1/2015 10:15:50 AM	RL-PRP-003 REVISION 6
SC			BullJ	CalcC	10/5/2015 2:12:14 PM	RL-CI-008 REVISION 6
SC			Mcginnist	Rev1C	10/5/2015 3:58:23 PM	RL-DR-001 Rev 7
AC			**BullJ**	10/5/2015 2:12:14 PM		
AC			**Mcginnist**	10/5/2015 3:58:23 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 3

ICOCFractions

10/5/2015 3:59:23 PM

Rpt DB Transfer log (Batch Results)

SDG or Batch / Isotope	Rpt Db Id / Method	RTst	Qc	LotSample / Analysis Date	Client Id / Result	Matrix / Cnt Uncert	Received Date / Tot uncert	Mda	Sample Date / Units	Expected	Yield	Volumes
JP0997	**9M7LAA30**			**J5I1704141**	J1V842	OTHER	9/17/2015 11:20:00		9/16/2015 8:38:00 AM			
PU-238	6ISO	2		10/5/2015 12:13:45 PM	**5.6061E+00**	9.543E-01	1.07E+00	5.558E-01	pCi/g		1.263	1.02E-1
PU-239	6ISO	2		10/5/2015 12:13:45 PM	**3.3032E+02**	7.297E+00	2.938E+01	4.315E-01	pCi/g		1.263	1.02E-1
JP0997	**M7LAA3NR**			**J5I1704141**	J1V842 DUP	OTHER	9/17/2015 11:20:00		9/16/2015 8:38:00 AM			
PU-238	6ISO	2	R	10/5/2015 12:15:05 PM	**3.8809E+00**	7.949E-01	8.648E-01	5.094E-01	pCi/g		1.165	1.022E-1
PU-239	6ISO	2	R	10/5/2015 12:15:05 PM	**3.164E+02**	7.163E+00	2.868E+01	4.705E-01	pCi/g		1.165	1.022E-1
JP0997	**M7MQF2AB**			**J5I25000044**	INTRA-LAB BLANK	OTHER	9/17/2015 11:20:00		9/16/2015 8:38:00 AM			
PU-238	6ISO	1	B	10/5/2015 12:16:11 PM	**-2.5836E-03**	1.296E-02	1.297E-02	5.012E-02	pCi/g		1.085	1.08E+0
PU-239	6ISO	1	B	10/5/2015 12:16:11 PM	**-5.6817E-03**	1.302E-02	1.303E-02	5.873E-02	pCi/g		1.085	1.08E+0
JP0997	**M7MQF2CS**			**J5I25000044**	INTRA-LAB CHECK	OTHER	9/17/2015 11:20:00		9/16/2015 8:38:00 AM			
PU-239	6ISO	1	S	10/5/2015 12:16:53 PM	**4.8508E+00**	2.76E-01	5.097E-01	4.702E-02	pCi/g	4.3815E+00	1.129	1.05E+0

5273030, **Samples Inserted | Updated | NotUpdated => 4 | 0 | 0,
**Results Inserted | ReTestInserted | Updated | NotInserted => 7 | 0 | 0 | 0.
**Diff RptDb | Qtims => *wo:M7MQF2AA=> , mat:OTHER | Solid *wo:M7MQF2AA=> , mat:OTHER | Solid *wo:M7MQF2AC=> , mat:OTHER | Solid.

TestAmerica Richland : Review v4.8.68.1

Page 1

9/28/2015 9:09:38 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: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5268043 OTHER pCi/g **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

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 **M7LAA-2-AA** J5I170414-1-SAMP 09/16/2015 08:38			0.0017g,in	0.0017g	UITC33242 07/27/15,pd 06/15/01,r				423		1921	9/29/15 OAD	
			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
2 **M7LAA-2-AQ-X** J5I170414-1-DUP 09/16/2015 08:38			0.0017g,in	0.0017g	UITC33243 07/27/15,pd 06/15/01,r				424		ANAL		
			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
3 **M7MQE-1-AA-B** J5I250000-43-BLK 09/28/2015 09:07 pd			1.01g,in	1.01g	UITC33244 07/27/15,pd 06/15/01,r				425				
			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 **M7MQE-1-AC-C** J5I250000-43-LCS 09/28/2015 09:08 pd			1.03g,in	1.03g	UISH2002 09/15/15,pd 06/15/01,r				426		ANAL		
			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

9/28/2015 8:09:37 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5268043 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

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

M7LAA2AA-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:

M7MQE1AA-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:

M7MQE1AC-LCS:

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

M7LAA2AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7MQE1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7MQE1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/30/2015 11:04:38 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/30/2014, 10/5/2015, Batch: '5268043', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5268043						
AC		**Rev1C**	**NeyensA**	9/29/2015 3:22:51 PM		
SC			McginnIst	IsBatched	9/25/2015 4:04:43 PM	ICOC_RADCALC v4.9.0
SC			NeyensA	Sep1C	9/29/2015 3:22:51 PM	RL-ALP-004 REVISION 7
SC			FentonS	Sep1C	9/29/2015 3:22:57 PM	RL-ALP-004 REVISION 7
SC			FentonS	Sep2C	9/29/2015 3:23:35 PM	RL-ALP-015 REVISION 8
SC			DawkinsO	InCnt1	9/29/2015 3:43:22 PM	RL-GPC-008 REVISION 6
SC			DawkinsO	CalcC	9/30/2015 12:01:03 AM	RL-GPC-008 REVISION 6
SC			antonsonI	Rev1C	9/30/2015 11:04:24 AM	RL-DR-001 Rev 7
AC			**FentonS**	9/29/2015 3:22:57 PM		
AC			**FentonS**	9/29/2015 3:23:35 PM		
AC			**DawkinsO**	9/29/2015 3:43:22 PM		
AC			**DawkinsO**	9/30/2015 12:01:03		
AC			**antonsonI**	9/30/2015 11:04:24		

AC: Accepting Entry, SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 6

ICOCFractions

10/1/2015 10:12:09 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

8E Am Prp PRP003/PRP005, Sep ALP010(ALP016)
SX Americium-241 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5273029 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 M7LAA-3-AL J5I170414-1-SAMP 09/16/2015 08:38			1.02g,in 13.75g,fi AmtRec: 2X60MLAG	0.102g 137.55g,di	PATB5735 09/17/15,pd 05/06/15,r #Containers: 2				100 Scr:	43 Alpha:	1309 Beta:	10-5-18	
2 M7LAA-3-AP-X J5I170414-1-DUP 09/16/2015 08:38			1.02g,in 13.78g,fi AmtRec: 2X60MLAG	0.1022g 137.55g,di	PATB5736 09/17/15,pd 05/06/15,r #Containers: 2				Scr:	~~44~~ 413 Alpha:	1522 Beta:	10/5/15 MK	
3 M7MQG-2-AA-B J5I250000-45-BLK 09/30/2015 14:04 pd			1.08g,in AmtRec:	1.08g #Containers: 1	Patb5678				Scr:	414 Alpha:	Beta:		
4 M7MQG-2-AC-C J5I250000-45-LCS 10/01/2015 09:43 pd			1.05g,in AmtRec:	1.05g #Containers: 1	Pasc1096				Scr:	49 Alpha:	Beta:		

31840

10/1/2015 10:12:11 AM

Sample Preparation/Analysis

8E Am Prp PRP003/PRP005, Sep ALP010(ALP016)
SX Americium-241 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922,,

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5273029 pCi/g

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:

Comments: M7MQG-BLK "Comments S-15-00203",S-15-00228,P-15-00374,P-15-00456,S-15-00102

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

M7LAA3AL-SAMP Constituent List:

Am-241	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
M7MQG2AA-BLK:											
Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
M7MQG2AC-LCS:											
Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

M7LAA3AL-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7MQG2AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7MQG2AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

10/5/2015 4:23:44 PM

ICOC Fraction Transfer/Status Report

ByDate: 10/5/2014, 10/10/2015, Batch: '5273029', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5273029						
AC		**Rev1C**	**WoodT**	10/1/2015 10:16:01		
SC			antonsonl	IsBatched	9/30/2015 2:03:47 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	10/1/2015 10:16:01 AM	RL-PRP-003 REVISION 6
SC			BullJ	CalcC	10/5/2015 4:15:33 PM	RL-CI-008 REVISION 4
SC			Mcginnist	Rev1C	10/5/2015 4:23:37 PM	RL-DR-001 Rev 7
AC			**BullJ**	10/5/2015 4:15:33 PM		
AC			**Mcginnist**	10/5/2015 4:23:37 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 3

ICOCFractions

9/23/2015 6:08:26 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

D3 Np Prp PRP003/PRP009, Sep ALP013(ALP016)
XW Neptunium-237 with tracer by alpha spec
5I CLIENT: HANFORD

Pipet #:

Sep1 DT/Tm Tech: 715 9-23-15

AnalyDueDate: 09/24/2015

Batch: 5265021 OTHER pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 6ASO, 8ESX, D3XW, 5260031 6ISO, 5260032 8ESX, 5260033 7SSR, 5260034 AFS4, 5260035 D3XW, 5260036 ANS5, 5260037 5STC, 5260038 ATS6, 5260039 CHTH, 5265021 D3XW,

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 M7LAA-2-AT J5I170414-1-SAMP 09/16/2015 08:38			1.02g,in 13.76g,fi AmtRec: 2X60MLAG	0.102g 137.55g,di	NPTA9298 09/17/15,pd 11/21/11,r #Containers: 2					425 Scr:	2039 Alpha: ANAL	9/23/1500 Beta:	
2 M7LAA-2-AU-X J5I170414-1-DUP 09/16/2015 08:38			1.02g,in 13.76g,fi AmtRec: 2X60MLAG	0.102g 137.55g,di	NPTA9299 09/17/15,pd 11/21/11,r #Containers: 2					426 Scr:	Alpha: ANAL	Beta:	
3 M7LAL-2-AA-B J5I170000-35-BLK 09/22/2015 09:14 pd			1.04g,in AmtRec:	1.04g	NPTA9300 09/17/15,pd 11/21/11,r #Containers: 1					429 Scr:	Alpha: ANAL	Beta:	
4 M7LAL-2-AC-C J5I170000-35-LCS 09/22/2015 09:14 pd			1.07g,in AmtRec:	1.07g	NPSE0847 09/17/15,pd 11/21/11,r #Containers: 1					430 Scr:	ANAL Alpha:	Beta:	

9/23/2015 6:08:31 AM

Sample Preparation/Analysis

D3 Np Prp PRP003/PRP009, Sep ALP013(ALP016)
XW Neptunium-237 with tracer by alpha spec
5I CLIENT: HANFORD

Balance Id:1120373922,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: WoodT

AnalyDueDate: 09/24/2015

Batch: 5265021 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: M7LAL-BLK "Comments S-14-00242",S-15-00228,P-15-00374,P-15-00456,S-15-00102

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

M7LAA2AT-SAMP Constituent List:

Np-237	RDL:1	pCi/g	LCL:	UCL:	RPD:	Np-239	RDL:	pCi/g	LCL:30	UCL:110	RPD:35

M7LAL2AA-BLK:

Np-237	RDL:1	pCi/g	LCL:	UCL:	RPD:	Np-239	RDL:	pCi/g	LCL:30	UCL:110	RPD:35

M7LAL2AC-LCS:

Np-237	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Np-239	RDL:	pCi/g	LCL:30	UCL:110	RPD:35

M7LAA2AT-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAL2AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAL2AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/24/2015 8:43:16 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/24/2014, 9/29/2015, Batch: '5265021', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5265021						
AC		**Rev1C**	**WoodT**	9/22/2015 9:54:26		
SC			Mcginnist	IsBatched	9/22/2015 9:39:56 AM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	9/22/2015 9:54:26 AM	RL-PRP-003 REVISION 6
SC			JorgensonD	Sep1C	9/23/2015 9:15:02 AM	RL-ALP-006 REVISION 5
SC			DawkinsO	InCnt1	9/23/2015 4:29:19 PM	RL-GPC-008 REVISION 6
SC			DawkinsO	CalcC	9/24/2015 12:08:51 AM	RL-GPC-008 REVISION 6
SC			antonsonl	Rev1C	9/24/2015 8:43:07 AM	RL-DR-001 Rev 7
AC			**JorgensonD**	9/23/2015 9:15:02		
AC			**DawkinsO**	9/23/2015 4:29:19 PM		
AC			**DawkinsO**	9/24/2015 12:08:51		
AC			**antonsonl**	9/24/2015 8:43:07		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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ICOCFractions

9/22/2015 1:26:54 PM

Sample Preparation/Analysis

Balance Id:1120373922,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: 09/24/2015

Sep1 DT/Tm Tech: 09/22/2015 08:50,FentonS

Batch: 5260039 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 M7LAA-1-AC J5I170414-1-SAMP 09/16/2015 08:38			1.99g,in	1.99g	SRTC4797 06/22/15			8.90mg	50 min	31A	1422	9/22/15 JM	
			AmtRec: 2X60MLAG		#Containers: 2		09/22/2015 08:50,s1			Scr:	Alpha:		Beta:
2 M7LAA-1-A1-X J5I170414-1-DUP 09/16/2015 08:38			1.95g,in	1.95g	SRTC4798 06/22/15			9.00mg		31B			
			AmtRec: 2X60MLAG		#Containers: 2					Scr:	Alpha:		Beta:
3 M7LAQ-1-AA-B J5I170000-39-BLK 09/17/2015 13:14 pd			1.02g,in	1.02g	SRTC4799 06/22/15			8.60mg		31C			
			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:
4 M7LAQ-1-AC-C J5I170000-39-LCS 09/17/2015 13:14 pd			1.06g,in	1.06g	STSF0819 06/23/15			9.30mg		31D	✓	✓	
			AmtRec:		#Containers: 1					Scr:	Alpha:		Beta:

9/21/2015 9:46:50 AM

Sample Preparation/Analysis

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

Balance Id:1120373922,,

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5260039 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: M7LAQ-BLK "Comments S-14-00242",S-15-00228,P-15-00374,P-15-00456,S-15-00102

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

M7LAA1AC-SAMP Constituent List:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35
M7LAQ1AA-BLK:
  Sr-90       RDL:1          pCi/g     LCL:        UCL:        RPD:
M7LAQ1AC-LCS:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35

M7LAA1AC-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAQ1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAQ1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

9/23/2015 2:39:31 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/23/2014, 9/28/2015, Batch: '5260039', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5260039						
AC		**Rev1C**	**WoodT**	9/21/2015 9:42:33		
SC			wagarr	IsBatched	9/17/2015 1:16:10 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	9/21/2015 9:42:33 AM	RL-PRP-003 REVISION 6
SC			FentonS	Sep1C	9/22/2015 1:33:07 PM	RL-GPC-010 REVISION 5
SC			BullJ	InCnt1	9/22/2015 1:34:14 PM	RL-CI-006 REVISION 5
SC			DawkinsO	CalcC	9/22/2015 10:27:08 PM	RL-CI-006 REVISION 5
SC			Mcginnist	Rev1C	9/23/2015 2:39:24 PM	RL-DR-001 Rev 7
AC			**FentonS**	9/22/2015 1:33:07 PM		
AC			**BullJ**	9/22/2015 1:34:14 PM		
AC			**DawkinsO**	9/22/2015 10:27:08		
AC			**Mcginnist**	9/23/2015 2:39:24 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions

9/21/2015 9:46:24 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

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

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

PRIORITY

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5260036 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 M7LAA-1-AG J5I170414-1-SAMP 09/16/2015 08:38			1.97g,in	1.97g									
			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
2 M7LAA-1-AV-S J5I170414-1-MS 09/16/2015 08:38			2.01g,in	2.01g	TCSG3663 04/01/15,pd 09/01/96,r								
			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
3 M7LAA-1-AW-X J5I170414-1-DUP 09/16/2015 08:38			1.98g,in	1.98g									
			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
4 M7LAM-1-AA-B J5I170000-36-BLK 09/17/2015 13:14 pd			1.10g,in	1.10g									
			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M7LAM-1-AC-C J5I170000-36-LCS 09/17/2015 13:14 pd			1.05g,in	1.05g	TCSE3168 08/07/15,pd 09/01/96,r								
			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
6 M7LAM-1-AD-BN J5I170000-36-IBLK 09/17/2015 13:14 pd													
			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

9/21/2015 9:46:26 AM

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: 09/24/2015

Batch: 5260036 **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: M7LAM-BLK "Comments S-15-00203",P-15-00386,S-15-00102

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

M7LAA1AG-SAMP Constituent List:
  Tc-99       RDL:15          pCi/g     LCL:70      UCL:130     RPD:35
M7LAA1AV-MS Constituent List:

M7LAM1AA-BLK:
  Tc-99       RDL:15          pCi/g     LCL:        UCL:        RPD:
M7LAM1AC-LCS:
  Tc-99       RDL:15          pCi/g     LCL:70      UCL:130     RPD:35
M7LAM1AD-IBLK:
  Tc-99       RDL:15          pCi/g     LCL:        UCL:        RPD:

M7LAA1AG-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAA1AV-MS Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAM1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAM1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAM1AD-IBLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

9/29/2015 1:11:14 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/29/2014, 10/4/2015, Batch: '5260036', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5260036						
AC		**Rev1C**	**WoodT**	9/21/2015 9:45:47		
SC			wagarr	IsBatched	9/17/2015 1:16:10 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	9/21/2015 9:45:47 AM	RL-PRP-003 REVISION 6
SC			NeyensA	Sep2C	9/21/2015 1:06:16 PM	RL-LSC-014 REVISION 5
SC			BullJ	InCnt1	9/21/2015 1:47:59 PM	RL-CI-005 REVISION 5
SC			BullJ	CalcC	9/24/2015 8:40:40 AM	RL-CI-005 REVISION 5
SC			antonsonl	Rev1C	9/29/2015 1:10:51 PM	RL-DR-001 Rev 7
AC			**NeyensA**	9/21/2015 1:06:16 PM		
AC			**BullJ**	9/21/2015 1:47:59 PM		
AC			**BullJ**	9/24/2015 8:40:40		
AC			**antonsonl**	9/29/2015 1:10:51 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions

4 15

9/17/2015 1:14:54 PM

Sample Preparation/Analysis

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

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

PRIORITY

Balance Id:,,
Pipet #: 297

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5260038 OTHER pCi/g
SEQ Batch, Test: None

PM, Quote: RW2, 27038

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 M7LAA-1-AM													
J5I170414-1-SAMP													
09/16/2015 08:38			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
2 M7LAA-1-A0-X													
J5I170414-1-DUP													
09/16/2015 08:38			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
3 M7LAP-1-AA-B													
J5I170000-38-BLK													
09/17/2015 13:14 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 M7LAP-1-AC-C													
J5I170000-38-LCS													
09/17/2015 13:14 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M7LAP-1-AD-BN													
J5I170000-38-IBLK													
09/17/2015 13:14 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1
pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 5
ICOC v4.9.0

9/17/2015 1:14:55 PM

Sample Preparation/Analysis

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

PRIORITY

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

AnalyDueDate: 09/24/2015

Batch: 5260038 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

M7LAA1AM-SAMP Constituent List:

M7LAP1AA-BLK:

M7LAP1AC-LCS:

M7LAP1AD-IBLK:

M7LAA1AM-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAP1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAP1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAP1AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/22/2015 1:13:27 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/22/2014, 9/27/2015, Batch: '5260038', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5260038						
AC		**Rev1C**	**NortonP**	9/19/2015 1:12:08 PM		
SC			wagarr	IsBatched	9/17/2015 1:16:10 PM	ICOC_RADCALC v4.9.0
SC			NortonP	Sep1C	9/19/2015 1:12:08 PM	RL-LSC-002 REVISION 6
SC			BullJ	InCnt1	9/20/2015 7:42:06 AM	RL-CI-005 REVISION5
SC			BullJ	CalcC	9/22/2015 9:13:55 AM	RL-CI-005 REVISION 5
SC			antonsonl	Rev1C	9/22/2015 1:13:13 PM	RL-DR-001 Rev 7
AC			**BullJ**	9/20/2015 7:42:06		
AC			**BullJ**	9/20/2015 7:42:29		
AC			**BullJ**	9/22/2015 9:13:55		
AC			**antonsonl**	9/22/2015 1:13:13 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions

4 4

9/17/2015 1:14:52 PM

Sample Preparation/Analysis

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

AnalyDueDate: 09/24/2015

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

PRIORITY

Batch: 5260037 OTHER pCi/g
SEQ Batch, Test: None

PM, Quote: RW2, 27038

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

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M7LAA-1-AJ J5I170414-1-SAMP 09/16/2015 08:38		5.0g		AmtRec: 2X60MLAG	#Containers: 2				120	Scr:	Alpha:	Beta:	
2 M7LAA-1-AX-X J5I170414-1-DUP 09/16/2015 08:38				AmtRec: 2X60MLAG	#Containers: 2					Scr:	Alpha:	Beta:	
3 M7LAN-1-AA-B J5I170000-37-BLK 09/17/2015 13:14 pd				AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:	
4 M7LAN-1-AC-C J5I170000-37-LCS 09/17/2015 13:14 pd				AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:	
5 M7LAN-1-AD-BN J5I170000-37-IBLK 09/17/2015 13:14 pd				AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:	

TestAmerica Laboratories, Inc.

9/17/2015 1:14:54 PM

Sample Preparation/Analysis

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

PRIORITY

Balance Id:,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 09/24/2015

Batch: 5260037 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:

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

M7LAA1AJ-SAMP Constituent List:

M7LAN1AA-BLK:

M7LAN1AC-LCS:

M7LAN1AD-IBLK:

M7LAA1AJ-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAN1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAN1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M7LAN1AD-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

9/21/2015 1:15:36 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/21/2014, 9/26/2015, Batch: '5260037', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5260037						
AC		**Rev1C**	**NortonP**	9/19/2015 1:11:52 PM		
SC			wagarr	IsBatched	9/17/2015 1:16:10 PM	ICOC_RADCALC v4.9.0
SC			NortonP	Sep1C	9/19/2015 1:11:52 PM	RL-LSC-008 REVISION 5
SC			BullJ	InCnt1	9/20/2015 7:42:43 AM	RL-Cl-005 REVISION5
SC			BullJ	CalcC	9/21/2015 12:48:41 PM	RL-Cl-005 REVISION 5
SC			antonsonl	Rev1C	9/21/2015 1:15:24 PM	RL-DR-001 Rev 7
AC			**BullJ**	9/20/2015 7:42:43		
AC			**BullJ**	9/21/2015 12:48:41		
AC			**antonsonl**	9/21/2015 1:15:24 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 4

ICOCFractions

9/17/2015 1:14:48 PM

Sample Preparation/Analysis

Balance Id:,,

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

PRIORITY

Pipet #: _____

AnalyDueDate: 09/24/2015

Sep1 DT/Tm Tech:

Batch: 5260034 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 M7LAA-1-AD													
J5I170414-1-SAMP													
09/16/2015 08:38			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
2 M7LAA-1-AR-X													
J5I170414-1-DUP													
09/16/2015 08:38			AmtRec: 2X60MLAG		#Containers: 2				Scr:		Alpha:		Beta:
3 M7LAK-1-AA-B													
J5I170000-34-BLK													
09/17/2015 13:14 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 M7LAK-1-AC-C													
J5I170000-34-LCS													
09/17/2015 13:14 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M7LAK-1-AD-BN													
J5I170000-34-IBLK													
09/17/2015 13:14 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

0.58

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

Page 1

ISV - Insufficient Volume for Analysis

WO Cnt: 5

ICOC v4.9.0

9/17/2015 1:14:49 PM

Sample Preparation/Analysis

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

PRIORITY

Balance Id:,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 09/24/2015

Batch: 5260034 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

M7LAA1AD-SAMP Constituent List:

M7LAK1AA-BLK:

M7LAK1AC-LCS:

M7LAK1AD-IBLK:

M7LAA1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAK1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAK1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LAK1AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/28/2015 2:36:15 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/28/2014, 10/3/2015, Batch: '5260034', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting		SOPs,Reagents,Comments
5260034						
AC		**Rev1C**	**WoodT**	9/18/2015 10:44:54		
SC			wagarr	IsBatched	9/17/2015 1:16:10 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	9/18/2015 10:44:54 AM	RL-PRP-003 REVISION 6
SC			ManisD	InPrep	9/25/2015 1:34:02 PM	rl-lsc-017 rev 6
SC			ManisD	Sep1C	9/25/2015 1:50:06 PM	RL-LSC-017 REV 6
SC			BullJ	CalcC	9/28/2015 8:52:53 AM	RL-CI-005 REVISION 5
SC			antonsonl	Rev1C	9/28/2015 2:36:06 PM	RL-DR-001 Rev 7
AC			**ManisD**	9/25/2015 1:34:02 PM		
AC			**ManisD**	9/25/2015 1:50:06 PM		
AC			**BullJ**	9/28/2015 8:52:53		
AC			**antonsonl**	9/28/2015 2:36:06 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 5

ICOCFractions