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

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required KW 10/5/15
INITIAL/DATE

COMMENTS:

SDG JP0994 **SAF-RC-155**

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Sample Location: 618-10 grout batch # GR-131

ANALYTICAL REPORT

Job Number: 280-74227-1

SDG Number: JP0994

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
9/23/2015 3:35 PM

Kae E Yoder, Senior Project Manager
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
09/23/2015

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: 280-74227-1

SDG #: JP0994
SAF#: RC-155

Date SDG Closed: September 16, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V839	280-74227-1	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 9/16/2015 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4º C.

TCLP METALS - SW846 1311/6010B/7470A
Sodium was recovered outside the control limits, biased high, in the LCS associated with batch 280-295562, 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 280-295562. The reagent used to make the blank fluid for this TCLP extraction contains Sodium; therefore, data are reported.

Low levels of Arsenic, Barium, Zinc and Mercury are present in the method blanks associated with batches 280-295562 and 280-295769, respectively. Because the concentrations in the method blanks are not present at levels 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 J1V839; therefore, control limits are not applicable.

The duplicate analysis of sample J1V839 exhibited RPD data outside the control limits for Arsenic and Mercury, and the associated sample results have been flagged “M”. There is no indication that the analytical systems were operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

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
	M	Sample duplicate precision not met.
	C	The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-74227-1	J1V839	Solid	09/14/2015 0925	09/16/2015 0930

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

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: 280-74227-1
Sdg Number: JP0994

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

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

Client Sample ID: **J1V839**

Lab Sample ID: 280-74227-1
Client Matrix: Solid

Date Sampled: 09/14/2015 0925
Date Received: 09/16/2015 0930

6010B TCLP Metals (ICP)-TCLP

Analysis Method:	6010B	Analysis Batch:	280-295681	Instrument ID:	MT_025
Prep Method:	3010A	Prep Batch:	280-295562	Lab File ID:	25A091815G.asc
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	10 mL
Analysis Date:	09/19/2015 0013			Final Weight/Volume:	50 mL
Prep Date:	09/18/2015 1415				
Leach Date:	09/17/2015 1530				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Aluminum		0.50	B	0.090	10.0
Antimony		0.016	U	0.016	0.20
Arsenic		0.084	B C M	0.022	0.50
Barium		2.2		0.0020	1.0
Beryllium		0.0020	U	0.0020	0.030
Cadmium		0.0020	U	0.0020	0.10
Chromium		0.091	B	0.0030	0.50
Lead		0.013	U	0.013	0.50
Nickel		0.0060	U	0.0060	0.40
Selenium		0.15		0.024	0.10
Silver		0.0040	U	0.0040	0.50
Sodium		1470	C N	0.46	50.0
Thallium		0.070	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:	280-295986	Instrument ID:	MT_034
Prep Method:	7470A	Prep Batch:	280-295769	Lab File ID:	150922aa.txt
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	30 mL
Analysis Date:	09/22/2015 1104			Final Weight/Volume:	50 mL
Prep Date:	09/21/2015 1215				
Leach Date:	09/17/2015 1530				

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	MDL	RL
Mercury		0.000060	B C M	0.000030	0.0020

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

TCLP SPLPE Leachate Blank - Batch: 280-295562

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LB 280-295394/1-B	Analysis Batch:	280-295681	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-295562	Lab File ID:	25A091815G.asc
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	10 mL
Analysis Date:	09/19/2015 0008	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/18/2015 1415				
Leach Date:	09/17/2015 1530				

Analyte	Result	Qual	MDL	RL
Aluminum	0.090	U	0.090	10.0
Antimony	0.016	U	0.016	0.20
Arsenic	0.0451	B	0.022	0.50
Barium	0.00625	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	1546		0.46	50.0
Thallium	0.024	U	0.024	0.10
Vanadium	0.0060	U	0.0060	0.10
Zinc	0.0309	B	0.022	2.0

Lab Control Sample - Batch: 280-295562

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	LCS 280-295394/2-B	Analysis Batch:	280-295681	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-295562	Lab File ID:	25A091815G.asc
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	10 mL
Analysis Date:	09/19/2015 0011	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/18/2015 1415				
Leach Date:	09/17/2015 1530				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	2.00	1.87	94	80 - 120	B
Antimony	0.500	0.453	91	80 - 120	
Arsenic	4.00	3.95	99	80 - 120	
Barium	12.0	11.60	97	80 - 120	
Beryllium	0.0500	0.0482	96	80 - 120	
Cadmium	1.10	1.10	100	80 - 120	
Chromium	5.20	4.96	95	80 - 120	
Lead	5.50	5.30	96	80 - 120	
Nickel	0.500	0.476	95	80 - 120	
Selenium	3.00	2.95	98	80 - 120	
Silver	1.05	1.01	97	80 - 120	
Sodium	50.0	1361	2722	80 - 120	N
Thallium	2.00	1.81	90	80 - 120	
Vanadium	0.500	0.472	94	80 - 120	
Zinc	2.50	2.51	100	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

Matrix Spike - Batch: 280-295562

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-74227-1	Analysis Batch:	280-295681	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-295562	Lab File ID:	25A091815G.asc
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	10 mL
Analysis Date:	09/19/2015 0021	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/18/2015 1415				
Leach Date:	09/17/2015 1530				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	0.50	B	2.00	2.29	90	80 - 120	B
Antimony	0.016	U	0.500	0.448	90	80 - 120	
Arsenic	0.084	B	4.00	4.03	99	80 - 120	
Barium	2.2		12.0	13.34	93	80 - 120	
Beryllium	0.0020	U	0.0500	0.0450	90	80 - 120	
Cadmium	0.0020	U	1.10	1.12	102	80 - 120	
Chromium	0.091	B	5.20	5.04	95	80 - 120	
Lead	0.013	U	5.50	5.28	96	80 - 120	
Nickel	0.0060	U	0.500	0.466	93	80 - 120	
Selenium	0.15		3.00	3.06	97	80 - 120	
Silver	0.0040	U	1.05	1.03	99	80 - 120	
Sodium	1470		50.0	1344	-255	80 - 120	C 4
Thallium	0.070	B	2.00	1.85	89	80 - 120	
Vanadium	0.0060	U	0.500	0.475	95	80 - 120	
Zinc	0.022	U	2.50	2.47	99	80 - 120	

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

Duplicate - Batch: 280-295562

Method: 6010B
Preparation: 3010A
TCLP

Lab Sample ID:	280-74227-1	Analysis Batch:	280-295681	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-295562	Lab File ID:	25A091815G.asc
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	10 mL
Analysis Date:	09/19/2015 0018	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/18/2015 1415				
Leach Date:	09/17/2015 1530				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	0.50	B	0.473	5	20	B
Antimony	0.016	U	0.016	NC	20	U
Arsenic	0.084	B	0.0601	33	20	B M C
Barium	2.2		2.05	8	20	
Beryllium	0.0020	U	0.0020	NC	20	U
Cadmium	0.0020	U	0.0020	NC	20	U
Chromium	0.091	B	0.0816	10	20	B
Lead	0.013	U	0.013	NC	20	U
Nickel	0.0060	U	0.0060	NC	20	U
Selenium	0.15		0.124	19	20	
Silver	0.0040	U	0.0040	NC	20	U
Sodium	1470		1359	8	20	C N
Thallium	0.070	B	0.0779	11	20	B
Vanadium	0.0060	U	0.0060	NC	20	U
Zinc	0.022	U	0.022	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

TCLP SPLPE Leachate Blank - Batch: 280-295769

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LB 280-295394/1-C	Analysis Batch:	280-295986	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-295769	Lab File ID:	150922aa.txt
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	30 mL
Analysis Date:	09/22/2015 1059	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/21/2015 1215				
Leach Date:	09/17/2015 1530				

Analyte	Result	Qual	MDL	RL
Mercury	0.000262	B	0.000030	0.0020

Lab Control Sample - Batch: 280-295769

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	LCS 280-295394/2-C	Analysis Batch:	280-295986	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-295769	Lab File ID:	150922aa.txt
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	30 mL
Analysis Date:	09/22/2015 1102	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/21/2015 1215				
Leach Date:	09/17/2015 1530				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.00500	0.00549	110	90 - 116	

Matrix Spike - Batch: 280-295769

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-74227-1	Analysis Batch:	280-295986	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-295769	Lab File ID:	150922aa.txt
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	30 mL
Analysis Date:	09/22/2015 1109	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/21/2015 1215				
Leach Date:	09/17/2015 1530				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.000060	B	0.00500	0.00569	113	90 - 116	

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

Duplicate - Batch: 280-295769

Method: 7470A
Preparation: 7470A
TCLP

Lab Sample ID:	280-74227-1	Analysis Batch:	280-295986	Instrument ID:	MT_034
Client Matrix:	Solid	Prep Batch:	280-295769	Lab File ID:	150922aa.txt
Dilution:	1.0	Leach Batch:	280-295394	Initial Weight/Volume:	30 mL
Analysis Date:	09/22/2015 1106	Units:	mg/L	Final Weight/Volume:	50 mL
Prep Date:	09/21/2015 1215				
Leach Date:	09/17/2015 1530				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.000060	B	0.0000817	31	20	B C M

Client: Washington Closure Hanford

Job Number: 280-74227-1
Sdg Number: JP0994

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-295394					
LCS 280-295394/2-B	Lab Control Sample	P	Solid	1311	
LCS 280-295394/2-C	Lab Control Sample	P	Solid	1311	
LB 280-295394/1-B	TCLP SPLPE Leachate Blank	P	Solid	1311	
LB 280-295394/1-C	TCLP SPLPE Leachate Blank	P	Solid	1311	
280-74227-1	J1V839	P	Solid	1311	
280-74227-1DU	Duplicate	P	Solid	1311	
280-74227-1MS	Matrix Spike	P	Solid	1311	
Prep Batch: 280-295562					
LCS 280-295394/2-B	Lab Control Sample	P	Solid	3010A	280-295394
LB 280-295394/1-B	TCLP SPLPE Leachate Blank	P	Solid	3010A	280-295394
280-74227-1	J1V839	P	Solid	3010A	280-295394
280-74227-1DU	Duplicate	P	Solid	3010A	280-295394
280-74227-1MS	Matrix Spike	P	Solid	3010A	280-295394
Analysis Batch:280-295681					
LCS 280-295394/2-B	Lab Control Sample	P	Solid	6010B	280-295562
LB 280-295394/1-B	TCLP SPLPE Leachate Blank	P	Solid	6010B	280-295562
280-74227-1	J1V839	P	Solid	6010B	280-295562
280-74227-1DU	Duplicate	P	Solid	6010B	280-295562
280-74227-1MS	Matrix Spike	P	Solid	6010B	280-295562
Prep Batch: 280-295769					
LCS 280-295394/2-C	Lab Control Sample	P	Solid	7470A	280-295394
LB 280-295394/1-C	TCLP SPLPE Leachate Blank	P	Solid	7470A	280-295394
280-74227-1	J1V839	P	Solid	7470A	280-295394
280-74227-1DU	Duplicate	P	Solid	7470A	280-295394
280-74227-1MS	Matrix Spike	P	Solid	7470A	280-295394
Analysis Batch:280-295986					
LCS 280-295394/2-C	Lab Control Sample	P	Solid	7470A	280-295769
LB 280-295394/1-C	TCLP SPLPE Leachate Blank	P	Solid	7470A	280-295769
280-74227-1	J1V839	P	Solid	7470A	280-295769
280-74227-1DU	Duplicate	P	Solid	7470A	280-295769
280-74227-1MS	Matrix Spike	P	Solid	7470A	280-295769

Report Basis
P = TCLP

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-155-166

Collector: J. Craig	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9B	Data Turnaround: 7 days		
Project Designation: 618-10 & 618-11 Remediation	Sampling Location: 618-10 grout batch # GR-131		SAF No.: RC-155
Ice Chest No.: WCH-11-023	Field Logbook No.: EL-1664-01	COA: R618102F20	Method of Shipment: Commercial Carrier
Shipped To: TestAmerica Denver ~~RCF~~ TRE 9-15-15	Offsite Property No.: N/A TRE 9-15-15		Bill of Lading/Air Bill No.: STEF RSR

Other Labs Shipped To: TestAmerica Richland

280-74227 Chain of Custody

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Trans ship RCF to RAD

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											

Sample No.	Matrix	Sample Date	Sample Time											
JHV839	OTHER	09/14/15	0925	X	X			39372	154g					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jim Craig Dig Cong	0950 9-14-15	C. Martinez/C. Martinez	0950 09/14/15
C. Martinez/C. Martinez	1300 9/14/15	T.R. Edmundson T.R. Edmundson	9-14-15 1300
T.R. Edmundson T.R. Edmundson	9-14-15 1410	M. Gridl	9-14-15 1410
D. Miller	RCF 1325 9-15-15	T.R. Edmundson T.R. Edmundson	9-15-15 1325
T.R. Edmundson T.R. Edmundson	WCH 9-15-15 1500	Fed Ex	9-15-15
			9/16/15 9:30

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

Please run ISO-U and ISO-Pu from available material in GEA container.

(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}

2.3 TRS +0.1 9/16/15

REVIEWED BY JK per Cale DATE 9-15-15

JP0994

WCH-EE-011

Temp 2.3 IR# 5
CF +0.1 Initals MG
Date: 09/16/15

90w/Permission

Project 28002142

Report Due: 9/23/2015 D.L. 9-16-15

TALs TAT: 5d Rush

Sample Check-in List

Date/Time Received: 9/16/15 9:30 **GM Screen Result** 11 **microR/hr**

Client: Washington Closure Hanford **SDG #:** JP0994 NA[ ] **SAF #:** RC-155 NA [ ]

Job Number: 74227 **Chain of Custody #** RC-155-166

Shipping Container ID: WCH-11-023 **Air Bill #** 7745 1733 3055

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: 2.3 RC 10.1 MG 9/16/15 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 [ ] No [✓]
13. Description of anomalies (include sample numbers): ___

Sample Custodian: [signature] **Date:** 9/16/15

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on ___ by ___ Person Contacted ___

[ ] No action necessary; process as is.

Project Manager Darlene Bandy Date 9-16-15

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: 15SEP15
ACTWGT: 27.00 LB
CAD: 105266502/INET3670

BILL THIRD PARTY

TO KAE YODER
TEST AMERICA
4955 YARROW ST
ARVADA CO 80002
(303) 736-0190
INV:
PO:
REF: R6161102F20 RMWC-6078
DEPT:

539J2/CBB9/31D0

J152015062601uv

FedEx Express

WED - 16 SEP 10:30A
PRIORITY OVERNIGHT

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QUANTITY OF MATERIAL

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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 34 *Pages*

Report No.: 67276

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.
JP0994	RC-155	J1V839	J5I150412-1	M7K0N1AA	9M7K0N10	5258031
		J1V839	J5I150412-1	M7K0N1AL	M7K0N1LR	5264026
		J1V839	J5I150412-1	M7K0N3AC	9M7K0N30	5268042

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

September 30, 2015

Attention: Joan Kessner

SAF Number	:	RC-155
Date SDG Closed	:	September 15, 2015
Number of Samples	:	One (1)
Sample Type	:	Other Solid
SDG Number	:	JP0994
Data Deliverable	:	7– Day / Summary

CASE NARRATIVE

I. Introduction

On September 15, 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
J1V839	M7K0N	OTHER SOLID	9/15/15

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
Gamma Spectroscopy
Gamma Spec by method RL-GAM-001

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 LCS, batch blank, sample and sample duplicate (J1V839) 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 batch blank result for U-238 is above the achieved MDA but below the CRDL. The achieved MDA for the sample and sample duplicate (J1V839) exceeded the CRDL due to the aliquot reductions. Except as note; the LCS, batch blank, sample and sample duplicate (J1V839) results are within contractual requirements.

Gamma Spectroscopy

Gamma Spec by method RL-GAM-001:

The CRDL was not met for some of the analytes. Except as noted, the LCS, batch blank, sample and sample duplicate (J1V839) 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: 30-Sep-15

Report No. : 67276

SDG No: JP0994

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5264026 PUISO_IE_PRECIP_AEA									
J1V839									
	M7K0N1AL	PU-238	1.31E-01 +- 3.5E-01	U	pCi/g	94%	7.48E-01	1.00E+00	
		PU239/40	5.66E+00 +- 2.2E+00		pCi/g	94%	5.81E-01	1.00E+00	
J1V839 DUP									
	M7K0N1AM	PU-238	4.77E-01 +- 5.7E-01	U	pCi/g	108%	5.52E-01	1.00E+00	114.0
		PU239/40	6.86E+00 +- 2.4E+00		pCi/g	108%	5.10E-01	1.00E+00	19.0
5268042 UISO_IE_PLATE_AEA									
J1V839									
	M7K0N3AC	U-234	5.14E+02 +- 1.1E+04		pCi/g	77%	4.30E+01	1.00E+00	
		U-235	8.50E+01 +- 1.9E+03		pCi/g	77%	3.71E+01	1.00E+00	
		U-238	6.39E+03 +- 1.4E+05		pCi/g	77%	4.41E+01	1.00E+00	
J1V839 DUP									
	M7K0N1AQ	U-234	4.09E+02 +- 8.8E+03		pCi/g	72%	4.54E+01	1.00E+00	22.8
		U-235	2.82E+01 +- 6.1E+02	U	pCi/g	72%	3.17E+01	1.00E+00	100.5
		U-238	5.65E+03 +- 1.2E+05		pCi/g	72%	4.54E+01	1.00E+00	12.4
5258031 GAMMA_GS									
J1V839									
	M7K0N1AA	AMERICIUM 241	4.60E-01 +- 2.5E-01		pCi/g		3.74E-01		
		CO-60	1.04E-02 +- 6.9E-02	U	pCi/g		1.21E-01	5.00E-02	
		CS-137	6.24E-01 +- 2.5E-01		pCi/g		1.87E-01	1.00E-01	
		EU-152	-1.26E-01 +- 2.2E-01	U	pCi/g		3.63E-01	1.00E-01	
		EU-154	-1.04E-01 +- 2.3E-01	U	pCi/g		3.87E-01	1.00E-01	
		EU-155	7.49E-01 +- 3.8E-01		pCi/g		4.27E-01	1.00E-01	
		K-40	7.13E+00 +- 1.7E+00		pCi/g		1.07E+00		
		U-235	1.11E+01 +- 1.8E+00		pCi/g		7.38E-01		
		U-238	9.46E+02 +- 1.1E+02		pCi/g		3.30E+00		
J1V839 DUP									
	M7K0N1AE	AMERICIUM 241	3.95E-01 +- 2.3E-01		pCi/g		3.24E-01		15.1
		CO-60	-4.05E-02 +- 6.2E-02	U	pCi/g		1.02E-01	5.00E-02	-337.7
		CS-137	5.49E-01 +- 1.9E-01		pCi/g		1.55E-01	1.00E-01	12.8
		EU-152	-2.59E-02 +- 1.9E-01	U	pCi/g		3.03E-01	1.00E-01	-131.8
		EU-154	9.11E-02 +- 1.9E-01	U	pCi/g		3.36E-01	1.00E-01	-3034.4
		EU-155	3.50E-01 +- 2.7E-01	U	pCi/g		3.79E-01	1.00E-01	72.5
		K-40	1.09E+01 +- 1.9E+00		pCi/g		7.95E-01		41.4
		U-235	9.41E+00 +- 1.6E+00		pCi/g		6.51E-01		16.9
		U-238	8.20E+02 +- 9.1E+01		pCi/g		2.87E+00		14.3

No. of Results: 28

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

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Date: 30-Sep-15

Report No. : 67276

SDG No.: JP0994

Batch Work Order	Parameter	Result +- CSU (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
PUISO_IE_PRECIP_AEA								
5264026 BLANK QC,								
M7LP11AA	PU-238	-3.35E-03 +- 2.8E-02	U	pCi/g	96%			6.08E-02
	PU239/40	1.06E-02 +- 2.8E-02	U	pCi/g	96%			6.08E-02
5264026 LCS,								
M7LP11AC	PU239/40	6.78E+00 +- 1.4E+00		pCi/g	97%	107%	0.1	5.81E-02
UISO_IE_PLATE_AEA								
5268042 BLANK QC,								
M7MQD1AA	U-234	3.77E-02 +- 4.7E-02	U	pCi/g	88%			5.67E-02
	U-235	2.53E-02 +- 3.8E-02	U	pCi/g	88%			5.21E-02
	U-238	6.43E-01 +- 2.2E-01		pCi/g	88%			5.86E-02
5268042 LCS,								
M7MQD1AC	U-234	3.14E+00 +- 6.9E-01		pCi/g	84%	97%	0.0	4.95E-02
	U-238	4.14E+00 +- 8.7E-01		pCi/g	84%	122%	0.2	5.70E-02
GAMMA_GS								
5258031 BLANK QC,								
M7K0P1AA	AMERICIUM 241	-3.27E-03 +- 1.6E-02	U	pCi/g				2.85E-02
	CO-60	9.91E-03 +- 2.4E-02	U	pCi/g				4.89E-02
	CS-137	-1.14E-02 +- 2.4E-02	U	pCi/g				4.07E-02
	EU-152	3.90E-03 +- 4.7E-02	U	pCi/g				8.23E-02
	EU-154	4.96E-02 +- 8.7E-02	U	pCi/g				1.73E-01
	EU-155	-4.70E-03 +- 2.8E-02	U	pCi/g				5.00E-02
	K-40	-1.62E-01 +- 7.5E-01	U	pCi/g				1.54E+00
	U-235	5.34E-03 +- 7.6E-02	U	pCi/g				1.33E-01
	U-238	-9.72E-02 +- 1.6E-01	U	pCi/g				2.73E-01
5258031 LCS,								
M7K0P1AC	AMERICIUM 241	3.55E+01 +- 4.0E+00		pCi/g		89%	-0.1	1.23E-01
	CO-60	1.02E+01 +- 1.2E+00		pCi/g		94%	-0.1	8.32E-02
	CS-137	3.77E+01 +- 4.5E+00		pCi/g		95%	-0.1	9.91E-02

No. of Results: 20

TestAmerica Inc
rptSTLRchQcSummary V5.4 A2002

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

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

FORM I

SAMPLE RESULTS

Date: 30-Sep-15

Lab Name: TestAmerica Inc
Lot-Sample No.: J5I150412-1
Client Sample ID: J1V839

SDG: JP0994
Report No. : 67276
COC No. : RC-155-166

Collection Date: 9/14/2015 9:25:00 AM
Received Date: 9/15/2015 2:45:00 PM
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: 5258031	GAMMA_GS			**Work Order:**	M7K0N1AA		**Report DB ID:**	9M7K0N10				
AMERICIUM 241	**4.60E-01**		2.5E-01	2.5E-01	3.74E-01	pCi/g		*(1.2)*	9/16/15 07:21 a		56.2	GER16$1
						1.87E-01		*(3.7)*			g	
CO-60	**1.04E-02**	U	6.9E-02	6.9E-02	1.21E-01	pCi/g		*0.09*	9/16/15 07:21 a		56.2	GER16$1
						6.08E-02	5.00E-02	*0.3*			g	
CS-137	**6.24E-01**		2.5E-01	2.5E-01	1.87E-01	pCi/g		*(3.3)*	9/16/15 07:21 a		56.2	GER16$1
						9.34E-02	1.00E-01	*(5.1)*			g	
EU-152	**-1.26E-01**	U	2.2E-01	2.2E-01	3.63E-01	pCi/g		*-0.35*	9/16/15 07:21 a		56.2	GER16$1
						1.81E-01	1.00E-01	*-(1.1)*			g	
EU-154	**-1.04E-01**	U	2.3E-01	2.3E-01	3.87E-01	pCi/g		*-0.27*	9/16/15 07:21 a		56.2	GER16$1
						1.94E-01	1.00E-01	*-0.91*			g	
EU-155	**7.49E-01**		3.8E-01	3.8E-01	4.27E-01	pCi/g		*(1.8)*	9/16/15 07:21 a		56.2	GER16$1
						2.14E-01	1.00E-01	*(3.9)*			g	
K-40	**7.13E+00**		1.7E+00	1.7E+00	1.07E+00	pCi/g		*(6.7)*	9/16/15 07:21 a		56.2	GER16$1
						5.37E-01		*(8.5)*			g	
U-235	**1.11E+01**		1.8E+00	1.8E+00	7.38E-01	pCi/g		*(15.1)*	9/16/15 07:21 a		56.2	GER16$1
						3.69E-01		*(12.3)*			g	
U-238	**9.46E+02**		1.1E+02	1.1E+02	3.30E+00	pCi/g		*(286.6)*	9/16/15 07:21 a		56.2	GER16$1
						1.65E+00		*(17.)*			g	
Batch: 5264026	PUISO_IE_PRECIP_AEA			**Work Order:**	M7K0N1AL		**Report DB ID:**	M7K0N1LR				
PU-238	**1.31E-01**	U	3.5E-01	3.5E-01	7.48E-01	pCi/g	94%	*0.17*	9/23/15 06:08 p		0.10135	ALP39
						2.01E-01	1.00E+00	*0.75*			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: 30-Sep-15

Lab Name: TestAmerica Inc
Lot-Sample No.: J5I150412-1
Client Sample ID: J1V839

SDG: JP0994
Report No. : 67276
COC No. : RC-155-166

Collection Date: 9/14/2015 9:25:00 AM
Received Date: 9/15/2015 2:45:00 PM
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
PU239/40	**5.66E+00**		2.0E+00	2.2E+00	5.81E-01	pCi/g	94%	*(9.7)*	9/23/15 06:08 p		0.10135	ALP39
						1.23E-01	1.00E+00	*(5.1)*			g	
Batch: 5268042	UISO_IE_PLATE_AEA			**Work Order:** M7K0N3AC			**Report DB ID:** 9M7K0N30					
U-234	**5.14E+02**		1.4E+02	1.1E+04	4.30E+01	pCi/g	77%	*(12.)*	9/29/15 05:28 p		0.00159	ALP8
						1.18E+01	1.00E+00	*0.09*			g	
U-235	**8.50E+01**		5.7E+01	1.9E+03	3.71E+01	pCi/g	77%	*(2.3)*	9/29/15 05:28 p		0.00159	ALP8
						8.99E+00	1.00E+00	*0.09*			g	
U-238	**6.39E+03**		4.9E+02	1.4E+05	4.41E+01	pCi/g	77%	*(144.9)*	9/29/15 05:28 p		0.00159	ALP8
						1.24E+01	1.00E+00	*0.09*			g	

Ratio U-234/238 = 0.1

No. of Results: 14 **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: 30-Sep-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0994	**Collection Date:**	9/14/2015 9:25:00 AM
Lot-Sample No.:	**J5I150412-1**	**Report No. :**	67276	**Received Date:**	9/15/2015 2:45:00 PM
Client Sample ID:	**J1V839 DUP**	**COC No. :**	RC-155-166	**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: 5258031	GAMMA_GS			**Work Order:** M7K0N1AE		**Report DB ID:** M7K0N1ER			**Orig Sa DB ID:** 9M7K0N10			
AMERICIUM 241	3.95E-01		2.3E-01	2.3E-01	3.24E-01	pCi/g		(1.2)	9/16/15 10:52 a		56.2	GER18$1
	4.60E-01		**RPD**	**15.1**				(3.5)			g	
CO-60	-4.05E-02	U	6.2E-02	6.2E-02	1.02E-01	pCi/g		-0.4	9/16/15 10:52 a		56.2	GER18$1
	1.04E-02	U	**RPD**	**-337.7**		5.00E-02		-(1.3)			g	
CS-137	5.49E-01		1.9E-01	1.9E-01	1.55E-01	pCi/g		(3.5)	9/16/15 10:52 a		56.2	GER18$1
	6.24E-01		**RPD**	**12.8**		1.00E-01		(5.9)			g	
EU-152	-2.59E-02	U	1.9E-01	1.9E-01	3.03E-01	pCi/g		-0.09	9/16/15 10:52 a		56.2	GER18$1
	-1.26E-01	U	**RPD**	**-131.8**		1.00E-01		-0.28			g	
EU-154	9.11E-02	U	1.9E-01	1.9E-01	3.36E-01	pCi/g		0.27	9/16/15 10:52 a		56.2	GER18$1
	-1.04E-01	U	**RPD**	**-3034.4**		1.00E-01		0.97			g	
EU-155	3.50E-01	U	2.7E-01	2.7E-01	3.79E-01	pCi/g		0.92	9/16/15 10:52 a		56.2	GER18$1
	7.49E-01		**RPD**	**72.5**		1.00E-01		(2.6)			g	
K-40	1.09E+01		1.9E+00	1.9E+00	7.95E-01	pCi/g		(13.7)	9/16/15 10:52 a		56.2	GER18$1
	7.13E+00		**RPD**	**41.4**				(11.5)			g	
U-235	9.41E+00		1.6E+00	1.6E+00	6.51E-01	pCi/g		(14.5)	9/16/15 10:52 a		56.2	GER18$1
	1.11E+01		**RPD**	**16.9**				(11.9)			g	
U-238	8.20E+02		9.1E+01	9.1E+01	2.87E+00	pCi/g		(285.4)	9/16/15 10:52 a		56.2	GER18$1
	9.46E+02		**RPD**	**14.3**				(18.)			g	
Batch: 5264026	PUISO_IE_PRECIP_AEA			**Work Order:** M7K0N1AM		**Report DB ID:** M7K0N1MR			**Orig Sa DB ID:** M7K0N1LR			
PU-238	4.77E-01	U	5.7E-01	5.7E-01	5.52E-01	pCi/g	108%	0.87	9/23/15 06:08 p		0.10128	ALP40
	1.31E-01	U	**RPD**	**114.0**		1.00E+00		(1.7)			g	

TestAmerica Inc
rptSTLRchDupV5.4 A2002

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

FORM II

Date: 30-Sep-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0994	**Collection Date:**	9/14/2015 9:25:00 AM
Lot-Sample No.:	**J5I150412-1**	**Report No. :**	67276	**Received Date:**	9/15/2015 2:45:00 PM
Client Sample ID:	**J1V839 DUP**	**COC No. :**	RC-155-166	**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
PU239/40	6.86E+00		2.1E+00	2.4E+00	5.10E-01	pCi/g	108%	(13.5)	9/23/15 06:08 p		0.10128	ALP40
	5.66E+00		**RPD**	**19.0**		1.00E+00		(5.6)			g	
									Alpha Spec Result Sum = 6.9E+00			
Batch: 5268042	UISO_IE_PLATE_AEA			**Work Order:** M7K0N1AQ		**Report DB ID:** M7K0N1QR			**Orig Sa DB ID:** 9M7K0N30			
U-234	4.09E+02		1.2E+02	8.8E+03	4.54E+01	pCi/g	72%	(9.)	9/29/15 05:27 p		0.0016	ALP6
	5.14E+02		**RPD**	**22.8**		1.00E+00		0.09			g	
U-235	2.82E+01	U	3.3E+01	6.1E+02	3.17E+01	pCi/g	72%	0.89	9/29/15 05:27 p		0.0016	ALP6
	8.50E+01		**RPD**	**100.5**		1.00E+00		0.09			g	
U-238	5.65E+03		4.6E+02	1.2E+05	4.54E+01	pCi/g	72%	(124.5)	9/29/15 05:27 p		0.0016	ALP6
	6.39E+03		**RPD**	**12.4**		1.00E+00		0.09			g	
						Ratio U-234/238 = 0.1			*Alpha Spec Result Sum = 6.1E+03*			

No. of Results: 14 **Comments:**

FORM II

BLANK RESULTS

Date: 30-Sep-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0994

Report No. : 67276

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: 5264026	PUISO_IE_PRECIP_AEA			**Work Order:**	M7LP11AA		**Report DB ID:**	M7LP11AB				
PU-238	-3.35E-03	U	2.8E-02	2.8E-02	6.08E-02	pCi/g	96%	-0.06	9/23/15 06:09 p		1.05	ALP43
					1.63E-02	1.00E+00		-0.24			g	
PU239/40	1.06E-02	U	2.8E-02	2.8E-02	6.08E-02	pCi/g	96%	0.17	9/23/15 06:09 p		1.05	ALP43
					1.63E-02	1.00E+00		0.75			g	
Batch: 5268042	UISO_IE_PLATE_AEA			**Work Order:**	M7MQD1AA		**Report DB ID:**	M7MQD1AB				
U-234	3.77E-02	U	4.7E-02	4.7E-02	5.67E-02	pCi/g	88%	0.66	9/29/15 05:28 p		0.99	ALP9
					1.48E-02	1.00E+00		(1.6)			g	
U-235	2.53E-02	U	3.8E-02	3.8E-02	5.21E-02	pCi/g	88%	0.49	9/29/15 05:28 p		0.99	ALP9
					1.26E-02	1.00E+00		(1.3)			g	
U-238	6.43E-01		1.9E-01	2.2E-01	5.86E-02	pCi/g	88%	(11.)	9/29/15 05:28 p		0.99	ALP9
					1.57E-02	1.00E+00		(5.9)			g	
								Ratio U-234/238 = 0.1				
Batch: 5258031	GAMMA_GS			**Work Order:**	M7K0P1AA		**Report DB ID:**	M7K0P1AB				
AMERICIUM 241	-3.27E-03	U	1.6E-02	1.6E-02	2.85E-02	pCi/g		-0.12	9/16/15 07:21 a		52.0	GER18$1
					1.43E-02			-0.4			g	
CO-60	9.91E-03	U	2.4E-02	2.4E-02	4.89E-02	pCi/g		0.2	9/16/15 07:21 a		52.0	GER18$1
					2.47E-02	5.00E-02		0.83			g	
CS-137	-1.14E-02	U	2.4E-02	2.4E-02	4.07E-02	pCi/g		-0.28	9/16/15 07:21 a		52.0	GER18$1
					2.05E-02	1.00E-01		-0.95			g	
EU-152	3.90E-03	U	4.7E-02	4.7E-02	8.23E-02	pCi/g		0.05	9/16/15 07:21 a		52.0	GER18$1
					4.13E-02	1.00E-01		0.17			g	
EU-154	4.96E-02	U	8.7E-02	8.7E-02	1.73E-01	pCi/g		0.29	9/16/15 07:21 a		52.0	GER18$1
					8.72E-02	1.00E-01		(1.1)			g	

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

BLANK RESULTS

Date: 30-Sep-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0994

Report No. : 67276

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
EU-155	-4.70E-03	U	2.8E-02	2.8E-02	5.00E-02	pCi/g		-0.09	9/16/15 07:21 a		52.0	GER18$1
					2.50E-02	1.00E-01		-0.33			g	
K-40	-1.62E-01	U	7.5E-01	7.5E-01	1.54E+00	pCi/g		-0.1	9/16/15 07:21 a		52.0	GER18$1
					7.72E-01			-0.43			g	
U-235	5.34E-03	U	7.6E-02	7.6E-02	1.33E-01	pCi/g		0.04	9/16/15 07:21 a		52.0	GER18$1
					6.69E-02			0.14			g	
U-238	-9.72E-02	U	1.6E-01	1.6E-01	2.73E-01	pCi/g		-0.36	9/16/15 07:21 a		52.0	GER18$1
					1.37E-01			-(1.2)			g	

No. of Results: 14 **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: 30-Sep-15

Lab Name: TestAmerica Inc

Matrix: OTHER

SDG: JP0994

Report No. : 67276

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: 5264026	PUISO_IE_PRECIP_AEA			**Work Order:**	M7LP11AC		**Report DB ID:**	M7LP11CS					
PU239/40	6.78E+00		6.6E-01	1.4E+00	5.81E-02	pCi/g	97%	6.35E+00	7.4E-02	107%	9/23/15 06:10 p	1.09	ALP44
							Rec Limits:	70	130	0.1		g	
Batch: 5268042	UISO_IE_PLATE_AEA			**Work Order:**	M7MQD1AC		**Report DB ID:**	M7MQD1CS					
U-234	3.14E+00		4.1E-01	6.9E-01	4.95E-02	pCi/g	84%	3.23E+00	1.7E-02	97%	9/29/15 05:29 p	1.01	ALP12
							Rec Limits:	70	130	0.0		g	
U-238	4.14E+00		4.7E-01	8.7E-01	5.70E-02	pCi/g	84%	3.39E+00	1.8E-02	122%	9/29/15 05:29 p	1.01	ALP12
							Rec Limits:	70	130	0.2		g	
Batch: 5258031	GAMMA_GS			**Work Order:**	M7K0P1AC		**Report DB ID:**	M7K0P1CS					
AMERICIUM 241	3.55E+01		4.0E+00	4.0E+00	1.23E-01	pCi/g		3.99E+01	5.6E-03	89%	9/16/15 07:22 a	54.51	GER19$1
							Rec Limits:	70	130	-0.1		g	
CO-60	1.02E+01		1.2E+00	1.2E+00	8.32E-02	pCi/g		1.09E+01	1.5E-03	94%	9/16/15 07:22 a	54.51	GER19$1
							Rec Limits:	70	130	-0.1		g	
CS-137	3.77E+01		4.5E+00	4.5E+00	9.91E-02	pCi/g		3.96E+01	5.6E-03	95%	9/16/15 07:22 a	54.51	GER19$1
							Rec Limits:	70	130	-0.1		g	

No. of Results: 6 **Comments:**

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/24/2015 8:28:08 AM

Lot No., Due Date: J5I150412; 09/22/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5264026; RPUISO Pulso by ALP
SDG, Matrix: JP0994; 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 Tina Quistorff **Date** 9/24/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

Page 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: S2640226

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?	~~√~~ 9-24-15	√	
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 10-31768

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

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31768**
NCM Initiated By: Lisa Antonson
Date Opened: 09/24/2015
Date Closed:

Classification: **Observation**
Status: **PMREVIEW**
Production Area: Environmental - Sep
Tests: Pulso by ALP
Lot #'s (Sample #'s): J5I150412 (1), J5I210000 (26),
QC Batches: 5264026,

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 5258032. In the original batch, Uranium was not completely seperated due to high U content. The samples were stripped and rerun through the columns for additional cleanup. The duplicates on the reprocess were out of limits. The samples were also reanalyzed with reduced aliquot. The samples have acceptable results and will be reported from the reanalysis.

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

9/30/2015 9:55:50 AM

Lot No., Due Date: J5I150412; 09/22/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5268042; RUISO UIso by ALP
SDG, Matrix: JP0994; 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 Lee Antonson **Date** 9/30/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 5268042

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: CEDL: 1.0pCi/g

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

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31812**
NCM Initiated By: Lisa Antonson
Date Opened: 09/30/2015
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Environmental - Prep
Tests: Ulso by ALP
Lot #'s (Sample #'s): J5I150412 (1), J5I250000 (42),
QC Batches: 5268042,

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 batches 5258033 and 5261053. Samples were reanalyzed due to high activity in the samples. In the reanalysis, the blank result for U-238 is above MDA but below CRDL. In the duplicates the U-235 is out of limits. MDA exceeds CRDL due to the aliquot reductions. Data will be uploaded for client review.

Corrective Action

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

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 9/30/2015

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

9/17/2015 1:42:18 PM

Lot No., Due Date: J5I150412; 09/22/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5258031; RGAMMA Gamma by GER
SDG, Matrix: JP0994; 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?	✓		✓ JC 9/17/15
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 31743

First Level Jodie G **Date** 9/17/15

TestAmerica Richland
QAS_RADCALCv4.8.68.1

Page 1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 5258031

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 # 10-3174B

Second Level Review: [signature] Date: 9/17/15

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-31743**
NCM Initiated By: Jodie Carnes
Date Opened: 09/17/2015
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Counting
Tests: Gamma by GER
Lot #'s (Sample #'s): J5I150000 (31), J5I150412 (1),
QC Batches: 5258031,

Nonconformance: MDA not met
Subcategory: Data accepted

Problem Description / Root Cause

Name	Date	Description
Jodie Carnes	09/17/2015	The CRDL was not met for some of the analytes

Corrective Action

Name	Date	Corrective Action
Jodie Carnes	09/17/2015	n/a

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: 9/17/2015

Page 1 of 1

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-155-166

Collector: J. Craig	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9B	Data Turnaround: 7 days		
Project Designation: 618-10 & 618-11 Remediation	Sampling Location: 618-10 grout batch # GR-131		SAF No.: RC-155
Ice Chest No.: WCH-11-070	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

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Trans ship RCF to RAD

Preservation	None	None	None								
Type of Container	G/P	G/P	G/P								
No. of Container(s)	1	0	0								
Volume	500mL	60mL	60mL								
Sample Analysis	See item (2) in Special Instructions	Isotopic Plutonium	Isotopic Uranium								

Sample No.	Matrix	Sample Date	Sample Time										
J1V839 M7KDN	OTHER	09/14/15	0925	X	X	X							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jim Craig Jim Craig	0950 9-14-15	C. Martinez C. Martinez	0950 09/14/15
C. Martinez C. Martinez	1300 9/14/15	T.R. Edmundson T.R. Edmundson	1300 9-14-15
T.R. Edmundson T.R. Edmundson	9-14-15 1330	1060 Battelle Refer. #3	9-14-15 1330
1060 Battelle Refer #3	5 TRE 9-15-15 9-14-15 1200	T.R. Edmundson T.R. Edmundson	9-15-15 1200
T.R. Edmundson T.R. Edmundson	WCH 9-15-15 1445	J. Friesz, TARL	9/15/15 1445

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

Please run ISO-U and ISO-Pu from available material in GEA container.

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

J5I150412
SDG# JP0994
Due 9/22/15

JP0994

J5I150412

REVIEWED BY JK per tel
DATE 9-15-15

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 9/15/15 1445 Container GM Screen Result: (Airlock) 40 cpm Initials[J]
Sample GM Screen Result (Sample Receiving) 900 cpm Initials[J]

Client: WCH SDG #: JP0994 SAF #: RC-155 NA [ ]

Lot Number: J5I150412

Chain of Custody # RC-155-166

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

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

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [J] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 1x500mlp
8. Sample holding times exceeded? NA [ ] Yes [ ] No [J]
9. Samples have: ____tape ____hazard labels J custody seals J appropriate sample labels
10. Matrix: J A (FLT, Wipe, Solid, Soil) ____I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    J are in good condition ____are leaking ____are broken
    J have air bubbles (Only for samples requiring no head space) ____Other _____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [J]
    (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 [J]
14. Description of anomalies (include sample numbers): NA [J] _____
15. Sample Location, Sample Collector Listed on COC? * Yes [J] 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: 9/15/15

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

[X] No action necessary; process as is

Project Manager _____ Date 9/16/15

LS-023 Rev. 17, 05/13

9/21/2015 10:16:49 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

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

Pipet #: _____

AnalyDueDate: 09/22/2015

Sep1 DT/Tm Tech:

Batch: 5264026 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 M7K0N-1-AL-X J5I150412-1-DUP 09/14/2015 09:25			1.01g,in 13.83g,fi AmtRec: 1X500MLP	0.1014g 137.82g,di	PUTC14361 08/28/15,pd 01/01/10,r #Containers: 1					39 Scr:	1900 Alpha:	9/23/1500 Beta:	
2 M7K0N-1-AM-X J5I150412-1-DUP 09/14/2015 09:25			1.01g,in 13.82g,fi AmtRec: 1X500MLP	0.1013g 137.82g,di	PUTC14362 08/28/15,pd 01/01/10,r #Containers: 1					40 Scr:	Alpha:	Beta:	
3 M7K0N-1-AN-X J5I150412-1-DUP 09/14/2015 09:25			1.01g,in 6.90g,fi AmtRec: 1X500MLP	0.0506g 137.82g,di	PUTC14363 08/28/15,pd 01/01/10,r #Containers: 1					41 Scr:	Alpha:	Beta:	
4 M7K0N-4-AD J5I150412-1-SAMP 09/14/2015 09:25			1.01g,in 6.89g,fi AmtRec: 1X500MLP	0.0505g 137.82g,di	PUTC14364 08/28/15,pd 01/01/10,r #Containers: 1					42 Scr:	Alpha:	Beta:	
5 M7LP1-1-AA-B J5I210000-26-BLK 09/21/2015 09:59 pd			1.05g,in AmtRec:	1.05g #Containers: 1	PUTC14365 08/28/15,pd 01/01/10,r					43 Scr:	Alpha:	Beta:	
6 M7LP1-1-AC-C J5I210000-26-LCS 09/21/2015 09:59 pd			1.09g,in AmtRec:	1.09g #Containers: 1	PUSK1104 04/06/15,pd 06/18/14,r					44 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: 6
Prep_SamplePrep v4.8.69

9/21/2015 10:16:51 AM

Sample Preparation/Analysis

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

Balance Id:1120373922,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: WoodT

AnalyDueDate: 09/22/2015

Batch: 5264026 **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: M7LP1-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

M7K0N1AL-DUP Constituent List:

M7LP11AA-BLK:

M7LP11AC-LCS:

M7K0N1AL-DUP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LP11AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M7LP11AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/24/2015 8:27:15 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/24/2014, 9/29/2015, Batch: '5264026', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting		SOPs,Reagents,Comments
5264026						
AC		**Rev1C**	**WoodT**	9/21/2015 10:16:10		
SC			WoodT	Prep1C	9/21/2015 10:16:10 AM	RL-PRP-003 REVISION 6
SC			woodt	IsBatched	9/21/2015 12:25:59 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	9/22/2015 6:47:55 AM	RL-PRP-003 REVISION 6
SC			NeyensA	Prep2C	9/22/2015 10:20:28 AM	RL-ALP-001 REVISION 6
SC			DawkinsO	InCnt1	9/23/2015 4:29:07 PM	RL-GPC-008 REVISION 6
SC			antonsonl	Rev1C	9/24/2015 8:26:49 AM	RL-DR-001 Rev 7
AC			**WoodT**	9/22/2015 6:47:55		
AC			**NeyensA**	9/22/2015 10:20:28		
AC			**DawkinsO**	9/23/2015 4:29:07 PM		
AC			**antonsonl**	9/24/2015 8:26:49		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 5

ICOCFractions

9/28/2015 8:59:17 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: 09/22/2015

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Batch: 5268042 **OTHER** **pCi/g** **PM, Quote: RW2, 27038**

SEQ Batch, Test: None All Tests: 5258031 AXTA, 5258032 6ASO, 5258033 7SSR, 5261053 7SSR, 5264026 6ASO, 5266055 AYS7, 5268042 7SSR,

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 M7K0N-1-AQ-X J5I150412-1-DUP 09/14/2015 09:25			0.0016g,in AmtRec: 1X500MLP	0.0016g	UITC33239 07/27/15,pd 06/15/01,r #Containers: 1				Scr:	6	ANAL 1819	9/29/1500	Alpha: Beta:
2 M7K0N-3-AC J5I150412-1-SAMP 09/14/2015 09:25			0.0016g,in AmtRec: 1X500MLP	0.0016g	UITC33240 07/27/15,pd 06/15/01,r #Containers: 1				Scr:	8	ANAL		Alpha: Beta:
3 M7MQD-1-AA-B J5I250000-42-BLK 09/28/2015 08:53 pd			0.99g,in AmtRec:	0.99g	UITC33241 07/27/15,pd 06/15/01,r #Containers: 1				Scr:	9			Alpha: Beta:
4 M7MQD-1-AC-C J5I250000-42-LCS 09/28/2015 08:55 pd			1.01g,in AmtRec:	1.01g	UISH2001 09/15/15,pd 06/15/01,r #Containers: 1				Scr:	12			Alpha: Beta:

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: 09/22/2015

Sep1 DT/Tm Tech:

Batch: 5268042 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

M7K0N1AQ-DUP 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:

M7MQD1AA-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:

M7MQD1AC-LCS:

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

M7K0N1AQ-DUP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M7MQD1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M7MQD1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/30/2015 9:54:22 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/30/2014, 10/5/2015, Batch: '5268042', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5268042						
AC		**Rev1C**	**FentonS**	9/29/2015 3:22:41 PM		
SC			Mcginnist	IsBatched	9/25/2015 4:04:40 PM	ICOC_RADCALC v4.9.0
SC			FentonS	Sep1C	9/29/2015 3:22:41 PM	RL-ALP-004 REVISION 7
SC			NeyensA	Sep1C	9/29/2015 3:22:47 PM	RL-ALP-004 REVISION 7
SC			FentonS	Sep2C	9/29/2015 3:23:44 PM	RL-ALP-015 REVISION 8
SC			DawkinsO	InCnt1	9/29/2015 3:43:05 PM	RL-GPC-008 REVISION 6
SC			DawkinsO	CalcC	9/30/2015 12:00:30 AM	RL-GPC-008 REVISION 6
SC			antonsonl	Rev1C	9/30/2015 9:54:10 AM	RL-DR-001 Rev 7
AC			**NeyensA**	9/29/2015 3:22:47 PM		
AC			**FentonS**	9/29/2015 3:23:44 PM		
AC			**DawkinsO**	9/29/2015 3:43:05 PM		
AC			**DawkinsO**	9/30/2015 12:00:30		
AC			**antonsonl**	9/30/2015 9:54:10		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 6

ICOCFractions

9/16/2015 6:47:26 AM

Sample Preparation/Analysis

Balance Id:1120421763,,

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

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

Pipet #: _____

AnalyDueDate: 09/22/2015

Sep1 DT/Tm Tech:

Batch: 5258031 OTHER pCi/g PM, Quote: RW2, 27038

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:
1 M7K0N-1-AA J5I150412-1-SAMP 09/14/2015 09:25			56.20g,in	56.20g	AmtRec: 1X500MLP	#Containers: 1		525	200	G16	1091	9/16/15	Scr: Alpha: Beta:
2 M7K0N-1-AE-X J5I150412-1-DUP 09/14/2015 09:25			ISV		AmtRec: 1X500MLP	#Containers: 1				G18	1412	9/16/15	Scr: Alpha: Beta:
3 M7K0P-1-AA-B J5I150000-31-BLK 09/15/2015 16:25 pd			52.00g,in	52.00g	OSBK AmtRec:	#Containers: 1		526	200	G18	1041	9/16/15	Scr: Alpha: Beta:
4 M7K0P-1-AC-C J5I150000-31-LCS 09/15/2015 16:25 pd			54.51g,in	54.51g	CAL5446 05/19/05,pd 06/08/05,r AmtRec:	#Containers: 1				G19			Scr: Alpha: Beta:

9/16/2015 6:47:27 AM

Sample Preparation/Analysis

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

Balance Id:1120421763,,

Pipet #: _____

AnalyDueDate: 09/22/2015

Sep1 DT/Tm Tech:

Batch: 5258031 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: M7K0P-BLK "Comments Not enough sample for a duplicate, please recount on a separate detector. 9/16/2015 tgw"

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

M7K0N1AA-SAMP Constituent List:

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

M7K0P1AA-BLK:

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

M7K0P1AC-LCS:

Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	Cs-137DA	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35	Ra-226	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35						

M7K0N1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M7K0P1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M7K0P1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

9/17/2015 1:40:33 PM

ICOC Fraction Transfer/Status Report

ByDate: 9/17/2014, 9/22/2015, Batch: '5258031', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting		SOPs,Reagents,Comments
5258031						
AC		**Rev1C**	**WoodT**	9/16/2015 3:35:32		
SC			woodt	IsBatched	9/16/2015 3:29:49 AM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	9/16/2015 3:35:32 AM	RL-PRP-003 REVISION 6
SC			WoodT	Prep2C	9/16/2015 3:35:45 AM	RL-GAM-001 REVISION 6
SC			BullJ	InCnt1	9/16/2015 6:50:35 AM	RL-CI-008 REVISION 4
SC			BullJ	CalcC	9/16/2015 2:34:58 PM	RL-CI-007 REVISION 5
SC			carnesj	Rev1C	9/17/2015 1:40:15 PM	RL-DR-001 Rev 7
AC			**WoodT**	9/16/2015 3:35:45		
AC			**BullJ**	9/16/2015 6:50:35		
AC			**BullJ**	9/16/2015 2:34:58 PM		
AC			**carnesj**	9/17/2015 1:40:15 PM		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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ICOCFractions