SAF-RC-231
618-10 & 618-11 Field Remediation – Water
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

No Distribution Required KW 6/1/16
INITIAL/DATE

COMMENTS:

SDG J02197 **SAF-RC-231**

☑ Rad only Chem only Rad & Chem

☑ Complete Partial

Sample Location: Dust suppression water supply valve #401

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 31 *Pages*

Report No.: 68682

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.
J02197	RC-231	J1V8X9	J6E040432-1	M8K9Q1AC	9M8K9Q10	6126041
		J1V8X9	J6E040432-1	M8K9Q1AA	9M8K9Q10	6126042
		J1V8X9	J6E040432-1	M8K9Q1AD	9M8K9Q10	6126043

TestAmerica
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Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

May 31, 2016

Attention: Joan Kessner

SAF Number	:	RC-231
Date SDG Closed	:	May 3, 2016
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	J02197
Data Deliverable	:	21– Day / Summary

CASE NARRATIVE

I. Introduction

On May 3, 2016, one water 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
J1V8X9	M8K9Q	WATER	5/03/16

II. Sample Receipt

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

III. Analytical Results/Methodology

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

The requested analyses were:

Liquid Scintillation Counting
Tritium by method RL-LSC-005
Carbon-14 by method RL-LSC-008
Laser Induced Phosphorimetry
Total Uranium by method RL-KPA-003

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

Liquid Scintillation Counting

Tritium by method RL-LSC-005:
The LCS, batch blank, sample and sample duplicate (J1V8X9) results are within contractual requirements.

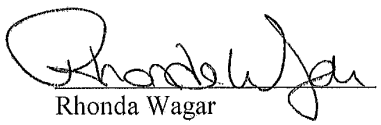
Carbon-14 by method RL-LSC-008:
There was insufficient sample volume to prepare a project specific duplicate. A duplicate LCS was prepared to provide the accuracy and precision measurement for the sample in this batch. Except as noted; the LCS, batch blank and sample results are within contractual requirements.

Total Uranium

Total Uranium by method RL-KPA-003:
The LCS, batch blank, sample, sample duplicate (J1V8X9) and sample matrix spike (J1V8X9) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Rhonda Wagar
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**TestAmerica Richland's SOP No.**
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/? n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
CSU (#s) ***u_c Combined Standard Uncert.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined standard uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 31-May-16

TestAmerica Inc TARL

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

Report No. : 68682 **SDG No:** J02197

Batch	Client Id / Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
6126043 C14_CHEM_LSC									
	J1V8X9								
	M8K9Q1AD	C-14	-1.40E+00 +- 2.6E+00	U	pCi/L	100%	5.40E+00	1.00E+01	
6126041 UTOT_KPA									
	J1V8X9								
	M8K9Q1AC	TOTAL-URANIUM	7.83E-01 +- 8.0E-02		ug/L		8.15E-02	1.40E-01	
	J1V8X9 DUP								
	M8K9Q1AF	TOTAL-URANIUM	8.41E-01 +- 8.6E-02		ug/L		6.94E-02	1.40E-01	7.2
6126042 TRITIUM_DIST_LSC									
	J1V8X9								
	M8K9Q1AA	H-3	9.12E+02 +- 2.1E+02		pCi/L	100%	3.77E+02	4.00E+02	
	J1V8X9 DUP								
	M8K9Q1AG	H-3	9.94E+02 +- 2.2E+02		pCi/L	100%	3.79E+02	4.00E+02	8.6

No. of Results: 5

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rptTALRchSaSummary2 V5.5.1 A2002

RPD - Relative Percent Difference.

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

QC Results Summary

Date: 31-May-16

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 68682 **SDG No.:** J02197

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_CHEM_LSC								
6126043 BLANK QC,								
M8LD51AA	C-14	-2.38E+00 +- 2.6E+00	U	pCi/L	100%			5.44E+00
6126043 LCS,								
M8LD51AE	C-14	1.47E+02 +- 9.9E+00		pCi/L	100%	101%	0.0	5.45E+00
M8LD51AC	C-14	1.47E+02 +- 9.9E+00		pCi/L	100%	101%	0.0	5.39E+00
UTOT_KPA								
6126041 BLANK QC,								
M8LD31AA	TOTAL-URANIUM	5.21E-02 +- 5.7E-03	U	ug/L				7.33E-02
6126041 LCS,								
M8LD31AD	TOTAL-URANIUM	3.66E+00 +- 3.7E-01		ug/L		110%	0.1	7.70E-02
M8LD31AC	TOTAL-URANIUM	3.26E+01 +- 3.9E+00		ug/L		100%	0.0	7.54E-02
6126041 MATRIX SPIKE, J1V8X9								
M8K9Q1AE	TOTAL-URANIUM	2.99E+01 +- 3.7E+00		ug/L		103%	0.0	6.70E-02
TRITIUM_DIST_LSC								
6126042 BLANK QC,								
M8LD41AA	H-3	-2.34E+01 +- 1.7E+02	U	pCi/L	100%			3.78E+02
6126042 LCS,								
M8LD41AC	H-3	2.59E+03 +- 2.7E+02		pCi/L	100%	96%	0.0	3.81E+02

No. of Results: 9

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

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

FORM I

SAMPLE RESULTS

Date: 31-May-16

Lab Name: TestAmerica Inc
Lot-Sample No.: J6E040432-1
Client Sample ID: J1V8X9

SDG: J02197
Report No. : 68682
COC No. : RC-231-010

Collection Date: 5/3/2016 8:25:00 AM
Received Date: 5/3/2016 12:30:00 PM
Matrix: WATER

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: 6126041	UTOT_KPA			**Work Order:** M8K9Q1AC		**Report DB ID:** 9M8K9Q10						
TOTAL-URANIUM	**7.83E-01**			8.0E-02	8.15E-02	ug/L		*(9.6)*	5/24/16 01:58 p		25.7	KPAW3
						2.88E-02	1.40E-01	*(19.5)*			ML	
Batch: 6126042	TRITIUM_DIST_LSC			**Work Order:** M8K9Q1AA		**Report DB ID:** 9M8K9Q10						
H-3	**9.12E+02**		1.9E+02	2.1E+02	3.77E+02	pCi/L	100%	*(2.4)*	5/27/16 09:10 p		0.00503	LSC9
						1.79E+02	4.00E+02	*(8.6)*			L	
Batch: 6126043	C14_CHEM_LSC			**Work Order:** M8K9Q1AD		**Report DB ID:** 9M8K9Q10						
C-14	**-1.40E+00**	U	2.2E+00	2.6E+00	5.40E+00	pCi/L	100%	*-0.26*	5/27/16 09:48 p		0.25	LSC4
						2.60E+00	1.00E+01	*-(1.1)*			L	

No. of Results: 3 **Comments:**

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rptSTLRchSample
V5.5.1 A2002

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

FORM II

Date: 31-May-16

DUPLICATE RESULTS

Lab Name: TestAmerica Inc
SDG: J02197
Collection Date: 5/3/2016 8:25:00 AM
Lot-Sample No.: J6E040432-1
Report No. : 68682
Received Date: 5/3/2016 12:30:00 PM
Client Sample ID: J1V8X9 DUP
COC No. : RC-231-010
Matrix: WATER

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: 6126041	UTOT_KPA			**Work Order:** M8K9Q1AF		**Report DB ID:** M8K9Q1FR			**Orig Sa DB ID:** 9M8K9Q10			
TOTAL-URANIUM	8.41E-01			8.6E-02	6.94E-02	ug/L		(12.1)	5/24/16 02:14 p		30.2	KPAW3
	7.83E-01		**RPD**	**7.2**		1.40E-01		(19.5)			ML	
Batch: 6126042	TRITIUM_DIST_LSC			**Work Order:** M8K9Q1AG		**Report DB ID:** M8K9Q1GR			**Orig Sa DB ID:** 9M8K9Q10			
H-3	9.94E+02		1.9E+02	2.2E+02	3.79E+02	pCi/L	100%	(2.6)	5/27/16 10:12 p		0.005	LSC9
	9.12E+02		**RPD**	**8.6**		4.00E+02		(9.2)			L	

No. of Results: 2 **Comments:**

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

FORM II

BLANK RESULTS

Date: 31-May-16

Lab Name: TestAmerica Inc
SDG: J02197
Matrix: WATER
Report No. : 68682

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: 6126043	C14_CHEM_LSC			**Work Order:** M8LD51AA		**Report DB ID:** M8LD51AB						
C-14	-2.38E+00	U	2.2E+00	2.6E+00	5.44E+00	pCi/L	100%	-0.44	5/27/16 10:51 p		0.25	LSC4
					2.62E+00	1.00E+01		-(1.8)			L	
Batch: 6126042	TRITIUM_DIST_LSC			**Work Order:** M8LD41AA		**Report DB ID:** M8LD41AB						
H-3	-2.34E+01	U	1.5E+02	1.7E+02	3.78E+02	pCi/L	100%	-0.06	5/27/16 11:14 p		0.00501	LSC9
					1.79E+02	4.00E+02		-0.27			L	
Batch: 6126041	UTOT_KPA			**Work Order:** M8LD31AA		**Report DB ID:** M8LD31AB						
TOTAL-URANIUM	5.21E-02	U		5.7E-03	7.33E-02	ug/L		0.71	5/24/16 02:17 p		28.6	KPAW3
					2.59E-02	1.40E-01		(18.3)			ML	

No. of Results: 3 **Comments:**

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: 31-May-16

Lab Name: TestAmerica Inc **SDG:** J02197

Matrix: WATER **Report No. :** 68682

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: 6126043	C14_CHEM_LSC			**Work Order:**	M8LD51AC		**Report DB ID:**	M8LD51CS					
C-14	1.47E+02		5.1E+00	9.9E+00	5.39E+00	pCi/L	100%	1.46E+02	2.9E+00	101%	5/27/16 11:55 p	0.25	LSC4
							Rec Limits:	70	130	0.0		L	
Batch: 6126043	C14_CHEM_LSC			**Work Order:**	M8LD51AE		**Report DB ID:**	M8LD51ES					
C-14	1.47E+02		5.1E+00	9.9E+00	5.45E+00	pCi/L	100%	1.46E+02	2.9E+00	101%	5/28/16 12:58 a	0.25	LSC4
							Rec Limits:	70	130	0.0		L	
Batch: 6126042	TRITIUM_DIST_LSC			**Work Order:**	M8LD41AC		**Report DB ID:**	M8LD41CS					
H-3	2.59E+03		2.5E+02	2.7E+02	3.81E+02	pCi/L	100%	2.71E+03	8.1E+01	96%	5/28/16 12:16 a	0.00503	LSC9
							Rec Limits:	70	130	0.0		L	
Batch: 6126041	UTOT_KPA			**Work Order:**	M8LD31AC		**Report DB ID:**	M8LD31CS					
TOTAL-URANIUM	3.26E+01			3.9E+00	7.54E-02	ug/L		3.27E+01	1.8E-01	100%	5/24/16 02:37 p	27.8	KPAW3
							Rec Limits:	70	130	0.0		ML	
Batch: 6126041	UTOT_KPA			**Work Order:**	M8LD31AD		**Report DB ID:**	M8LD31DS					
TOTAL-URANIUM	3.66E+00			3.7E-01	7.70E-02	ug/L		3.34E+00	1.9E-02	110%	5/24/16 02:40 p	27.2	KPAW3
							Rec Limits:	70	130	0.1		ML	

No. of Results: 5 **Comments:**

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

rptSTLRchLcs
V5.5.1 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 31-May-16

Lab Name: TestAmerica Inc **SDG:** J02197

Lot-Sample No.: J6E040432-1, J1V8X9 **Report No. :** 68682 **Matrix:** WATER

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: 6126041	**Work Order:** M8K9Q1AE			**Report DB ID:** M8K9Q1EW			**Orig Sa DB ID:** 9M8K9Q10					
TOTAL-URANIUM	2.99E+01			3.7E+00	6.70E-02	ug/L		103.07%	2.90E+01	5/24/16 02:11 p	31.3	UTOT_KPA
	7.83E-01								1.6E-01		ML	KPAW3

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.5.1 A2002

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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

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Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

5/31/2016 8:41:30 AM

Lot No., Due Date: J6E040432; 05/24/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6126043; RI131GPC C-14 Digestion
SDG, Matrix: J02197; WATER

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

6.0 Comments on any No response:

First Level [signature] **Date** 5/31/16

TestAmerica
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Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 612043

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

Comments on any "No" response:
CRDL = 10.0 pCi/L
See NCM # 10-32870

Second Level Review: [signature] Date: 5/31/16

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

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-32870**
NCM Initiated By: Lisa Antonson
Date Opened: 05/31/2016
Date Closed:

Classification: **Anomaly**
Status: **QAREVIEW**
Production Area: Environmental - Prep
Tests: C-14 Digestion
Lot #'s (Sample #'s): J6E040432 (1), J6E050000 (43),
QC Batches: 6126043,

Nonconformance: Insufficient sample volume for QC
Subcategory: Insufficient sample volume to prepare MS/MSD or duplicate

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	05/31/2016	There was insufficient sample volume provided to prepare a project-specific duplicate. A duplicate LCS has been prepared to provide accuracy and precision measurement for the samples in this project.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	05/31/2016	None

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

Date Printed: 5/31/2016

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/31/2016 8:55:58 AM

Lot No., Due Date: J6E040432; 05/24/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6126042; RTRITIUM H-3 by LSC
SDG, Matrix: J02197; WATER

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

6.0 Comments on any No response:

First Level [signature] **Date** 5/31/16

TestAmerica Richland
QAS_RADCALCv4.9.4

Page 1

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 0126042

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 = 400pCi/L

Second Level Review: [signature] Date: 5/31/16

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

5/25/2016 10:42:49 AM

Lot No., Due Date: J6E040432; 05/24/2016
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 6126041; RUNAT UNat by KPA
SDG, Matrix: J02197; WATER

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

6.0 Comments on any No response:

First Level [signature] **Date** 5/25/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: C9126041

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/L

Second Level Review: [signature] Date: 5/25/16

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

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-231-010

Collector D. BECKER	**Company Contact** Joan Kessner	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Project Designation 618-10 & 618-11 Remediation	**Sampling Location** Dust suppresion water supply valve #401		**SAF No.** RC-231
Ice Chest No. ERC-02-404	**Field Logbook No.** EL-1648-02	**COA** R618108100	**Method of Shipment** Local Delivery
Shipped To TestAmerica Richland	**Offsite Property No.** N/A		**Bill of Lading/Air Bill No.** N/A

Price Code 7L **Data Turnaround** 21 Days

Other Labs Shipped To N/A TRE 5-3-16

POSSIBLE SAMPLE HAZARDS/REMARKS

None, from non-regulated water supply.

Special Handling and/or Storage

Acid preservative (To be added at TARL)

Preservation	None	HNO_3 to pH <2										
Type of Container	G/P	G/P										
No. of Container(s)	1	1										
Volume	250mL	250mL										
Sample Analysis	Carbon-14 Low Level; Tritium - H3	Total Uranium *See Note TRE 5-3-16										

Sample No.	Matrix	Sample Date	Sample Time									
J1V8X9 - M8K9Q	WATER	5-3-16	0825	X	X							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
DAVID BECKER	5/3/16 0837	RT COFFMAN/RT Coffman	0837 5-3-16
RT COFFMAN/RT Coffman	0940 5/3/16	T.R. Edmundson	5-3-16 0940
T.R. Edmundson WCH	5-3-16 1230	J. Bock, TARL	5-3-16 1230

Sign/Print Names

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

SPECIAL INSTRUCTIONS

*Note: Total Uranium to be preserved with acid at the lab. TRE 5-3-16

J6E040432

SDG-J02197

Due 5-24-16

J6E040432

REVIEWED BY JKpeztel DATE 5-3-16

WCH-EE-011

TestAmerica Laboratories, Inc.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 5-3-14 / 1230 Container GM Screen Result: (Airlock) 0 cpm Initials [ ]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials [ ]

Client: WCH SDG #: J02197 SAF #: RC-231 NA [ ]

Lot Number: J6E040432

Chain of Custody # RC-231-010

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: 12.0°C Ice NA [ ]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 2x250mL
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: 5-3-14

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

[ ] No action necessary; process as is

Project Manager Date 5/4/14

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Lot Number: JL6E040432 SDG #: J02197

17. RPL ID # of preservative used : 5-15-00328

SAMPLE ID	DATE & TIME SAMPLED	DATE & TIME PRESERVED	< 5 DAYS? Y or N	Initial pH	Acid Amt	Final pH
JLV8X9 #1	5-3-16/0825	5-3-16/1615	Y	5.0	.5mL	<2

Sample Custodian: J Bosch Date: 5-4-16

5/24/2016 3:02:07 PM

Sample Preparation/Analysis

Balance Id:,,

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

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

Pipet #: _____

AnalyDueDate: 05/24/2016

Sep1 DT/Tm Tech:

Batch: 6126043 **WATER** **pCi/L** **PM, Quote: RW2, 27023**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 5STC, 6126041 DHSS, 6126042 ARS6, 6126043 5STC,

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 M8K9Q-1-AD	≈250								120				
J6E040432-1-SAMP													
05/03/2016 08:25			AmtRec: 2X250MLP		#Containers: 2				Scr:	Alpha: 0.00E+00 uCi/Sa		Beta: 0.00E+00 uCi/Sa	
2 M8LD5-1-AA-B													
J6E050000-43-BLK													
05/05/2016 16:20 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	
3 M8LD5-1-AC-C													
J6E050000-43-LCS													
05/05/2016 16:20 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	
4 M8LD5-1-AD-BN													
J6E050000-43-IBLK													
05/05/2016 16:20 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	
5 M8LD5-1-AE-C													
J6E050000-43-LCS													
05/24/2016 15:02 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	

Sample Preparation/Analysis

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

Balance Id:,,

Pipet #: _____

AnalyDueDate: 05/24/2016

Sep1 DT/Tm Tech:

Batch: 6126043 **pCi/L**

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech:

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

Comments:

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27023

M8K9Q1AD-SAMP Constituent List:
C-14 RDL:2.00E+02 pCi/L LCL: UCL: RPD:
M8LD51AA-BLK Constituent List:
C-14 RDL:2.00E+02 pCi/L LCL: UCL: RPD:
M8LD51AC-LCS:

M8LD51AD-IBLK:
C-14 RDL:2.00E+02 pCi/L LCL: UCL: RPD:
M8LD51AE-LCS:

M8K9Q1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD51AA-BLK Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD51AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD51AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD51AE-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/31/2016 8:40:41 AM

ICOC Fraction Transfer/Status Report

ByDate: 6/1/2015, 6/5/2016, Batch: '6126043', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6126043						
AC		**Rev1C**	**NortonP**	5/26/2016 1:51:19 PM		
SC			wagarr	IsBatched	5/5/2016 4:21:41 PM	ICOC_RADCALC v4.9.0
SC			NortonP	Sep1C	5/26/2016 1:51:19 PM	RL-LSC-008 REVISION 5
SC			LedesmaA	Sep1C	5/26/2016 1:51:32 PM	RL-LSC-008 REVISION 5
SC			ManisD	InCnt1	5/26/2016 2:58:56 PM	RL-CI-005 REVISION 5
SC			DawkinsO	InCnt1	5/26/2016 7:21:34 PM	RL-CI-005 REVISION 5
SC			BullJ	CalcC	5/30/2016 8:51:59 AM	RL-CI-005 REVISION 5
SC			antonsonl	Rev1C	5/31/2016 8:40:32 AM	RL-DR-001 Rev 7
AC			**LedesmaA**	5/26/2016 1:51:32 PM		
AC			**ManisD**	5/26/2016 2:58:56 PM		
AC			**DawkinsO**	5/26/2016 7:21:34 PM		
AC			**BullJ**	5/30/2016 8:51:59		
AC			**antonsonl**	5/31/2016 8:40:32		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 6

ICOCFractions v4.9.4

(11) 4

5/5/2016 4:20:46 PM

Sample Preparation/Analysis

Balance Id:,,

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

AR H-3 Prp/Sep LSC005
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Pipet #: 297

AnalyDueDate: 05/24/2016 J92197

Sep1 DT/Tm Tech:

Batch: 6126042 **WATER** **pCi/L**

PM, Quote: RW2, 27023

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 M8K9Q-1-AA													
J6E040432-1-SAMP													
05/03/2016 08:25			AmtRec: 2X250MLP	#Containers: 2					Scr:	Alpha:		Beta:	
2 M8K9Q-1-AG-X													
J6E040432-1-DUP													
05/03/2016 08:25			AmtRec: 2X250MLP	#Containers: 2					Scr:	Alpha:		Beta:	
3 M8LD4-1-AA-B													
J6E050000-42-BLK													
05/05/2016 16:20 pd			AmtRec:	#Containers: 1					Scr:	Alpha:		Beta:	
4 M8LD4-1-AC-C													
J6E050000-42-LCS													
05/05/2016 16:20 pd			AmtRec:	#Containers: 1					Scr:	Alpha:		Beta:	
5 M8LD4-1-AD-BN													
J6E050000-42-IBLK													
05/05/2016 16:20 pd			AmtRec:	#Containers: 1					Scr:	Alpha:		Beta:	

TestAmerica Laboratories, Inc.

26

Sample Preparation/Analysis

AR H-3 Prp/Sep LSC005
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id:,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 05/24/2016

Batch: 6126042 **pCi/L**
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, 27023

M8K9Q1AA-SAMP Constituent List:
H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
M8LD41AA-BLK:

M8LD41AC-LCS:

M8LD41AD-IBLK:

M8K9Q1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD41AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD41AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD41AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Laboratories, Inc.

5/31/2016 8:52:35 AM

ICOC Fraction Transfer/Status Report

ByDate: 6/1/2015, 6/5/2016, Batch: '6126042', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6126042							
AC			**Rev1C**	**NortonP**	5/25/2016 2:43:43 PM		
SC				wagarr	IsBatched	5/5/2016 4:21:41 PM	ICOC_RADCALC v4.9.0
SC				NortonP	Sep1C	5/25/2016 2:43:43 PM	RL-LSC-005 REVISION 5
SC				DawkinsO	InCnt1	5/25/2016 5:14:28 PM	RL-CI-005 REVISION 5
SC				BullJ	CalcC	5/30/2016 8:51:32 AM	RL-CI-005 REVISION 5
SC				antonsonl	Rev1C	5/31/2016 8:52:25 AM	RL-DR-001 Rev 7
AC				**DawkinsO**	5/25/2016 5:14:28 PM		
AC				**BullJ**	5/30/2016 8:51:32		
AC				**antonsonl**	5/31/2016 8:52:25		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 4

ICOCFractions v4.9.4

5/13/2016 11:32:30 AM

Sample Preparation/Analysis

Balance Id:1120482733,,

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

DH UNat_Laser Prp KPA001
SS Total Uranium by KPA
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 05/24/2016

Sep1 DT/Tm Tech:

Batch: 6126041 **WATER** **ug/L**

PM, Quote: RW2, 27023

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: PeoplesK

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 M8K9Q-1-AC			25.70g,in	25.70g									
J6E040432-1-SAMP													
05/03/2016 08:25			AmtRec: 2X250MLP		#Containers: 2				Scr:	Alpha: 0.00E+00 uCi/Sa		Beta: 0.00E+00 uCi/Sa	
2 M8K9Q-1-AE-S			31.30g,in	31.30g	UNSM0693 04/19/16,pd 02/01/86,r								
J6E040432-1-MS													
05/03/2016 08:25			AmtRec: 2X250MLP		#Containers: 2				Scr:	Alpha: 0.00E+00 uCi/Sa		Beta: 0.00E+00 uCi/Sa	
3 M8K9Q-1-AF-X			30.20g,in	30.20g									
J6E040432-1-DUP													
05/03/2016 08:25			AmtRec: 2X250MLP		#Containers: 2				Scr:	Alpha: 0.00E+00 uCi/Sa		Beta: 0.00E+00 uCi/Sa	
4 M8LD3-1-AA-B			28.60g,in	28.60g									
J6E050000-41-BLK													
05/13/2016 11:31 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	
5 M8LD3-1-AC-C			27.80g,in	27.80g	UNSM0694 04/19/16,pd 02/01/86,r								
J6E050000-41-LCS													
05/13/2016 11:31 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	
6 M8LD3-1-AD-C			27.20g,in	27.20g	UNSL0340 04/19/16,pd 02/01/86,r								
J6E050000-41-LCS													
05/13/2016 11:32 pd			AmtRec:		#Containers: 1				Scr:	Alpha:		Beta:	

Sample Preparation/Analysis

DH UNat_Laser Prp KPA001
SS Total Uranium by KPA
5I CLIENT: HANFORD

Balance Id:1120482733,,

Pipet #: _____

AnalyDueDate: 05/24/2016

Sep1 DT/Tm Tech:

Batch: 6126041 ug/L

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: PeoplesK

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: M8LD3-BLK "Comments S-15-00102",P-16-00114

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27023

M8K9Q1AC-SAMP Constituent List:
Uranium RDL:1.00E+00 ug/L LCL: UCL: RPD:
M8K9Q1AE-MS Constituent List:

M8LD31AA-BLK:
Uranium RDL:1.00E+00 ug/L LCL: UCL: RPD:
M8LD31AC-LCS:
Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20
M8LD31AD-LCS:
Uranium RDL:0.144343 ug/L LCL:70 UCL:130 RPD:20

M8K9Q1AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8K9Q1AE-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD31AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD31AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M8LD31AD-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/25/2016 10:42:03 AM

ICOC Fraction Transfer/Status Report

ByDate: 5/26/2015, 5/30/2016, Batch: '6126041', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
6126041							
AC			**Rev1C**	**PeoplesK**	5/13/2016 11:30:09		
SC				wagarr	IsBatched	5/5/2016 4:21:41 PM	ICOC_RADCALC v4.9.0
SC				PeoplesK	InPrep	5/13/2016 11:30:09 AM	RL-PRP-004 REVISION 4
SC				CarnesM	Prep2C	5/18/2016 4:08:48 PM	RL-KPA-001 REVISION 6
SC				BourneD	Cnt1C	5/24/2016 3:10:47 PM	RL-KPA-003 REVISION 5
SC				antonsonl	Rev1C	5/25/2016 10:41:03 AM	RL-DR-001 Rev 7
AC				**CarnesM**	5/18/2016 4:08:48 PM		
AC				**BourneD**	5/24/2016 3:10:47 PM		
AC				**antonsonl**	5/25/2016 10:41:03		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Grp Rec Cnt: 4

ICOCFractions v4.9.4