

Analytical Data Package Prepared For

CH2M Hill Plateau Remediation

Radiochemical Analysis By

TestAmerica Inc TARL

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

Data Package Contains 55 Pages

Report Nbr: 60454

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W06729	F12-028	B2WLT5	J4E140419-1	M3QL91AA	9M3QL910	4135011
		B2WLV5	J4E140419-10	M3QMK1AA	9M3QMK10	4135055
		B2WLV5	J4E140419-10	M3QMK1AC	9M3QMK10	4135056
		B2WLV5	J4E140419-10	M3QMK1AD	9M3QMK10	4135054
		B2WLT6	J4E140419-11	M3QML1AA	9M3QML10	4135055
		B2WLT6	J4E140419-11	M3QML1AC	9M3QML10	4135056
		B2WLT6	J4E140419-11	M3QML1AD	9M3QML10	4135054
		B2WLR7	J4E140419-12	M3QMM1A	9M3QMM10	4135055
		B2WLR7	J4E140419-12	M3QMM1A	9M3QMM10	4135056
		B2WLR7	J4E140419-12	M3QMM1A	9M3QMM10	4135054
		B2WLR6	J4E140419-2	M3QMA1AA	9M3QMA10	4135011
		B2WLW5	J4E140419-3	M3QMC1AA	9M3QMC10	4135011
		B2WLV4	J4E140419-4	M3QMD1AA	9M3QMD10	4135011
		B2WLW0	J4E140419-5	M3QME1AA	9M3QME10	4135056
		B2WLW2	J4E140419-6	M3QMF1AA	9M3QMF10	4135056

Comments:

Report Nbr: 60454

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W06729	F12-028	B2WLW4	J4E140419-7	M3QMG1AA	9M3QMG10	4135056
		B2WLW3	J4E140419-8	M3QMH1AA	9M3QMH10	4135056
		B2WLW6	J4E140419-9	M3QMJI1A	9M3QMJI0	4135055
		B2WLW6	J4E140419-9	M3QMJI1C	9M3QMJI0	4135056
		B2WLW6	J4E140419-9	M3QMJI1D	9M3QMJI0	4135054

Comments:



Sample B2WLV5 was missing the SAF number.

Certificate of Analysis

CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – R3-60
Richland, WA 99352

May 30, 2014

Attention: Scot Fitzgerald

SAF Number	:	F12-028
Date SDG Closed	:	May 14, 2014
Number of Samples	:	Twelve (12)
Sample Type	:	Water
SDG Number	:	W06729
Data Deliverable	:	15 Day / 15 Day Summary

CASE NARRATIVE

I. Introduction

On May 14, 2014, twelve water samples were received at TestAmerica (TARL). Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the CH2M specific ID:

<u>CH2M ID#</u>	<u>TARL ID#</u>	<u>DATE OF RECEIPT</u>	<u>MATRIX</u>
B2WLT5	M3QL9	5/14/14	WATER
B2WLR6	M3QMA	5/14/14	WATER
B2WLW5	M3QMC	5/14/14	WATER
B2WLV4	M3QMD	5/14/14	WATER
B2WLW0	M3QME	5/14/14	WATER
B2WLW2	M3QMF	5/14/14	WATER
B2WLW4	M3QMG	5/14/14	WATER
B2WLW3	M3QMH	5/14/14	WATER
B2WLW6	M3QMJ	5/14/14	WATER
B2WLV5	M3QMK	5/14/14	WATER
B2WLT6	M3QML	5/14/14	WATER
B2WLR7	M3QMM	5/14/14	WATER

CH2M Hill Plateau Remediation Company
May 30, 2014

II. Sample Receipt

The samples were 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:

Gamma Spectroscopy

Iodine-129 (I.I.) by method RL-GAM-002

Liquid Scintillation Counting

Technetium-99 by method RL-LSC-013

Tritium by method RL-LSC-005

Chemical Analysis

Hexavalent Chromium by EPA method 7196A

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Gamma Spectroscopy

Iodine-129 (I.I.) by method RL-GAM-002:

The LCS, batch blank, samples and sample duplicate (B2WLW6) results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by method RL-LSC-013:

The LCS, batch blank, samples, sample duplicate (B2WLW0), and sample matrix spike (B2WLW0) results are within contractual requirements.

Tritium by method RL-LSC-005:

The LCS, batch blank, samples and sample duplicate (B2WLW6) results are within contractual requirements.

Chemical Analysis

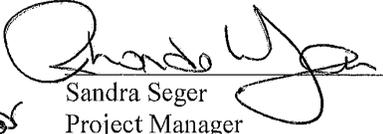
Hexavalent Chromium by EPA method 7196A

Sample B2WLR6 was analyzed past the hold time. For more details refer to the SIR (CHPRC Tracking Number: SDR14-167) which is included in this report. Except as noted, the LCS, batch blank, samples, sample duplicate (B2WLT5), sample matrix spike (B2WLT5), and matrix spike duplicate (B2WLT5) results are within contractual requirements.

CH2M Hill Plateau Remediation Company
May 30, 2014

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:


Sandra Seger
Project Manager

SAMPLE ISSUE RESOLUTION

SIR NUM SDR14-167
REV NUM 0
DATE INITIATED 4/15/2014

SAMPLE EVENT INFORMATION

SAF NUM(S) F12-028
OPERABLE UNIT(S) 200-ZP-1
PROJECT(S) 200W P&T EXTRAC
SAMPLE EVENT TITLE(S) 200W Pump & Treat Extraction Wells
LABORATORY TestAmerica Incorporated, Richland

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B2WLR6
SAMPLE MATRIX WATER
COLLECTION DATE 5/14/2014 - 5/14/2014
SDG NUM W06729

ISSUE BACKGROUND

CLASS Laboratory Issue
TYPE Analysis Holding Time Exceeded
DESCRIPTION Sample B2WLR6 was analyzed past the hold time. This sample was taken on 5/14/14 at 09:18. The analysis was scheduled to be completed prior to the hold time expiration but due to a unforeseen event the analyst was not able to complete the analysis as scheduled.

DISPOSITION

DESCRIPTION PROPOSED DISPOSITION: Initiate SIR, report the hexavalent chromium result within 2x holding time and include comments in the case narrative.

JUSTIFICATION ACCEPTED DISPOSITION: Accept the proposed resolution.

SUBMITTED BY: Sandra Seger/TARL Date: 5/15/14
 ACCEPTED BY: Bob Evans/CHPRC Date: 5/15/14

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, $R = \text{constants} * f(x,y,z,...)$. 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/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

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

Report Definitions

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

TestAmerica Inc Report

5/30/2014 6:00:59 PM

Lab Code: TARL

FormNbr: R FormatType: FEAD Version: 05 Rpt Nbr: 60454 File Name: h:\Reportdb\edd\Fead\W06729.Edd, h:\Reportdb\edd\Fead\W06729.Edd

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:		
9M3QME10 B2WLW0		F12-028	MW6-SBB-A1	F12-028	W06729							
Batch 4135056	Tc-99	14133-76-7	Result 4.44E+02	Unit pCi/L	TotU 2S 1.2E+01	Qual 2.9E+01	MDA 9.32E+00	TrcYield 100.0	Method TC99_SEP_LSC	05/14/2014 11:30		
										Unit L	Analy Date/Time 05/30/2014 04:43	Act I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:		
9M3QMF10 B2WLW2		F12-028	MW6-SBB-A1	F12-028	W06729							
Batch 4135056	Tc-99	14133-76-7	Result 8.48E+01	Unit pCi/L	TotU 2S 6.3E+00	Qual 9.6E+00	MDA 9.40E+00	TrcYield 100.0	Method TC99_SEP_LSC	05/14/2014 11:40		
										Unit L	Analy Date/Time 05/30/2014 07:49	Act I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:		
9M3QMG10 B2WLW4		F12-028	MW6-SBB-A1	F12-028	W06729							
Batch 4135056	Tc-99	14133-76-7	Result 7.51E+01	Unit pCi/L	TotU 2S 6.0E+00	Qual 9.1E+00	MDA 9.39E+00	TrcYield 100.0	Method TC99_SEP_LSC	05/14/2014 11:55		
										Unit L	Analy Date/Time 05/30/2014 08:51	Act I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:		
9M3QMH10 B2WLW3		F12-028	MW6-SBB-A1	F12-028	W06729							
Batch 4135056	Tc-99	14133-76-7	Result 4.43E+02	Unit pCi/L	TotU 2S 1.2E+01	Qual 2.9E+01	MDA 9.37E+00	TrcYield 100.0	Method TC99_SEP_LSC	05/14/2014 11:50		
										Unit L	Analy Date/Time 05/30/2014 09:53	Act I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:		
9M3QMJ10 B2WLW6		F12-028	MW6-SBB-A1	F12-028	W06729							
Batch 4135054	I-129	15046-84-1	Result 2.02E-01	Unit pCi/L	TotU 2S 2.1E-01	Qual 2.1E-01	MDA 4.14E-01	TrcYield 88.9	Method 1129LL_SEP_LEPS	05/14/2014 12:11		
										Unit L	Analy Date/Time 05/27/2014 14:45	Act I
Batch 4135056	Tc-99	14133-76-7	Result 8.53E+00	Unit pCi/L	TotU 2S 4.1E+00	Qual 5.4E+00	MDA 9.26E+00	TrcYield 100.0	Method TC99_SEP_LSC	05/30/2014 10:54		
										Unit L	Analy Date/Time 05/30/2014 10:54	Act I
Batch 4135055	H-3	10028-17-8	Result 6.06E+03	Unit pCi/L	TotU 2S 3.0E+02	Qual 3.6E+02	MDA 3.26E+02	TrcYield 100.0	Method TRITIUM_DIST_LS	05/23/2014 03:58		
										Unit L	Analy Date/Time 05/23/2014 03:58	Act I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:		
9M3QMK10 B2WLW5		F12-028	MW6-SBB-A1	F12-028*	W06729							
Batch 4135054	I-129	15046-84-1	Result -4.01E-02	Unit pCi/L	TotU 2S 2.2E-01	Qual 2.2E-01	MDA 3.78E-01	TrcYield 90.3	Method 1129LL_SEP_LEPS	05/14/2014 11:24		
										Unit L	Analy Date/Time 05/27/2014 16:45	Act I
Batch 4135056	Tc-99	14133-76-7	Result 1.29E+03	Unit pCi/L	TotU 2S 2.0E+01	Qual 7.5E+01	MDA 9.29E+00	TrcYield 100.0	Method TC99_SEP_LSC	05/30/2014 11:56		
										Unit L	Analy Date/Time 05/30/2014 11:56	Act I
Batch 4135055	H-3	10028-17-8	Result 6.66E+03	Unit pCi/L	TotU 2S 3.0E+02	Qual 3.8E+02	MDA 3.23E+02	TrcYield 100.0	Method TRITIUM_DIST_LS	05/23/2014 06:44		
										Unit L	Analy Date/Time 05/23/2014 06:44	Act I

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual - Analyte was found in the associated laboratory blank above the MDC. *SKS 6/5/14

TestAmerica Inc Report

5/30/2014 6:00:59 PM

Lab Code: TARL

FormNbr: R FormatType: FEAD Version: 05 Rpt Nbr: 60454 File Name: h:\Reportdb\ledd\Fead\W06729.Edd, h:\Reportdb\ledd\Fead\W06454.Ed

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr	QC Type	Moisture/Solids%*	Distilled Volume	Sample On Date:	Collection Date:			
9M3QML10	B2WLT6	F12-028	MW6-SBB-A1	F12-028	W06729					05/14/2014 10:43			
Batch	Analyte	CAS#	Result	Unit	CntU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
4135054	I-129	15046-84-1	8.63E-02	pCi/L	1.5E-01	U	2.97E-01	85.9	I129LL_SEP_LEPS	3.6835E+00	L	05/27/2014 16:46	I
4135056	Tc-99	14133-76-7	5.64E+01	pCi/L	5.6E+00	8.0E+00	9.36E+00	100.0	TC99_SEP_LSC	1.255E-01	L	05/30/2014 12:58	I
4135055	H-3	10028-17-8	3.05E+03	pCi/L	2.3E+02	2.6E+02	3.24E+02	100.0	TRITIUM_DIST_LS	5.03E-03	L	05/23/2014 08:07	I

TestAmerica Inc
 rptFeadRadSummaryEdd v3.48
 U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Blank Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\Fead\Rad\W06729.Edd, h:\Reportdb\edd\Fead\Rad\60454.Ed

Lab Sample Id: M3Q3D1AB **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 12:11
Client Id: NA **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** BLK **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType
	MW6-SBB-A19981								AI	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135054	I-129	4.27E-02	pCi/L	1.4E-01	U	2.67E-01	88.9		I129LL_SEP_L	3.5894E+00	05/27/2014				D
BLK	15046-84-1			1.4E-01						L	18:40				

TestAmerica Inc
 rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Blank Report

Lab Code: TARL

FormNbr: R

FormatType: FEAD

VersionNbr: 05

File Name: h:\Reportdb\edd\Feat\VRad\W06729.Edd, h:\Reportdb\edd\Feat\VRad\60454.Ed

Lab Sample Id: M3Q3E1AB
Client Id: NA
Moisture/Solids%*:

Sdg/Rept Nbr: W06729
Matrix: WATER
QC Type: BLK

Collection Date: 05/14/2014 12:11
Sample On Date:
Received Date: 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType			
	MW6-SBB-A19981								AK	H			
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	Typ
4135055 H-3		3.32E+02	pCi/L	3.61E+02	100.0		TRITIUM_DIST	5.02E-03	05/23/2014				D
BLK 10028-17-8		1.7E+02 1.5E+02											

TestAmerica Inc

rptFeatRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

2

Friday, May 30, 2014

TestAmerica Inc QC Blank Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\Fead\VRad\W06729.Edd, h:\Reportdb\edd\Fead\VRad\60454.Ed

Lab Sample Id: M3Q3F1AB
Client Id: NA
Moisture/Solids%*:

Sdg/Rept Nbr: W06729
Matrix: WATER
QC Type: BLK

Collection Date: 05/14/2014 11:30
Sample On Date:
Received Date: 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType	
	MW6-SBB-A19981								AM	H	
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RER/ UCL	LCS LCL/UCL Typ
4135056	Tc-99	1.49E+00	pCi/L	9.27E+00	100.0		TC99_SEP_LS	1.264E-01	05/30/2014	UCL	D
BLK	14133-76-7	5.0E+00 3.9E+00	U					L	15:02		

TestAmerica Inc
rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Control Sample Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\ledd\Fead\W06729.Edd, h:\Reportdb\ledd\Fead\W06729.Edd

Lab Sample Id: M3Q3D1CS **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 12:11
Client Id: NA **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** BS **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType
	MW6-SBB-A19981								AJ	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135054	I-129	1.01E+01	pCi/L	1.4E+00		4.42E-01	84.0	1.04E+01	I129LL_SEP_L	3.7361E+00	05/27/2014	70	70	70	D
BS	15046-84-1			1.4E+00				96.5		L	20:33				130

TestAmerica Inc
rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Control Sample Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\Fead\VRad\W06729.Edd, h:\Reportdb\edd\Fead\VRad\60454.Ed

Lab Sample Id: M3Q3E1CS **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 12:11
Client Id: NA **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** BS **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType
	MW6-SBB-A19981								AL	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt	Uncert 2S	Ql- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135055	H-3	2.87E+03	pCi/L	2.7E+02	2.3E+02		3.51E+02	100.0	2.70E+03	TRITIUM_DIST	5.039E-03	05/23/2014			70	D
BS	10028-17-8								106.6		L	12:16			130	

TestAmerica Inc
 rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Control Sample Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\ledd\Fead\VRad\W06729.Edd, h:\Reportdb\ledd\Fead\VRad\60454.Ed

Lab Sample Id: M3Q3F1CS **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 11:30
Client Id: NA **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** BS **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType
	MW6-SBB-A19981								AN	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert.2S	Qu- al	MDC	Tracer Yield	Spk Concl/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135056	TC-99	4.47E+02	pCi/L	2.9E+01		9.34E+00	100.0	5.40E+02	TC99_SEP_LS	1.263E-01	05/30/2014			70	D
BS	14133-76-7			1.2E+01				82.9		L	17:05			130	

TestAmerica Inc
 rpt\FeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Duplicate Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\Fead\VRad\W06729.Edd, h:\Reportdb\edd\Fead\VRad\60454.Ed

Lab Sample Id: M3QME1DR **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 11:30
Client Id: B2WLW0 **Matrix:** WATER **60454** **Sample On Date:**
Moisture/Solids%*: **QC Type:** DUP **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RType
F12-028	MW6-SBB-A19981								AP	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	QI- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135056	Tc-99	4.88E+02	pCi/L	3.1E+01		9.24E+00	100.0		TC99_SEP_LS	1.254E-01	05/30/2014	9.5	2.		D
DUP	14133-76-7	4.44E+02		1.2E+01						L	06:47	20.0	3		

TestAmerica Inc
rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analytic was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc QC Duplicate Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\Fead\Rad\W06729.Edd, h:\Reportdb\edd\Fead\Rad\60454.Ed

Lab Sample Id: M3QMJ1ER **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 12:11
Client Id: B2WLW6 **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** DUP **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Distilled Volume	File Id	FSuffix	RType
F12-028	MW6-SBB-A19981							AQ	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135054	I-129	1.13E-01	pCi/L	1.9E-01	U	2.26E-01	90.3		I129LL_SEP_L	3.6546E+00	05/27/2014 14:46	56.6	0.6		D
DUP	15046-84-1	2.02E-01		1.9E-01						L		20.0	3		

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

TestAmerica Inc
 rptFeadRadEdd v3.68

Friday, May 30, 2014

TestAmerica Inc QC Duplicate Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\ledd\Fead\VRad\W06729.Edd, h:\Reportdb\ledd\Fead\VRad\60454.Ed

Lab Sample Id: M3QMJ1FR **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 12:11
Client Id: B2WLV6 **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** DUP **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	F Suffix	R TTyp			
F12-028	MW6-SBB-A19981								AR	H			
Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Qu- al	MDC	Tracer Yield	Spk Concl/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
4135055 H-3	10028-17-8	6.33E+03 6.06E+03	3.7E+02 3.0E+02	3.25E+02	100.0		TRITIUM_DIST	5.018E-03	05/23/2014	4.4	1.		D
DUP								L	05:21	20.0	3		

TestAmerica Inc
 rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual- Analyte was found in the associated laboratory blank above the MDC.

Friday, May 30, 2014

TestAmerica Inc Qc Matrix Spike Report

Lab Code: TARL

FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\ledd\Fead\VRad\W06729.Edd, h:\Reportdb\ledd\Fead\VRad\60454.Ed

Lab Sample Id: M3QME1CW **Sdg/Rept Nbr:** W06729 **Collection Date:** 05/14/2014 11:30
Client Id: B2WLW0 **Matrix:** WATER **Decant:** 60454 **Sample On Date:**
Moisture/Solids%*: **QC Type:** MS **Received Date:** 05/14/2014

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	F Suffix	R Typ
F12-028	MW6-SBB-A19981								AO	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu- al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	Typ
4135056	Tc-99	2.86E+03	pCi/L	1.9E+02		9.24E+00	100.0	3.58E+03	TC99_SEP_LS	1.26E-01	05/30/2014			40	D
MS	14133-76-7			3.1E+01				79.9		L	05:45			160	

TestAmerica Inc
rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
 J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
 B Qual - Analyte was found in the associated laboratory blank above the MDC.

Analyst: R.Clark		BATCH # 4135011							
Start Date:	5/15/2014 <th>SDG #</th> <td>W D 722 PW06728-5-20-14</td>	SDG #	W D 722 PW06728-5-20-14						
Start Time:	8:50 <th>Matrix</th> <td>Water</td>	Matrix	Water						
End Date:	5/15/2014 <th colspan="2">SOP Information</th>	SOP Information							
End Time:	9:38 <td colspan="2">RL-WC-003 Revision 6</td>	RL-WC-003 Revision 6							
Analyst Signature: <i>R. Clark</i>									
Date:	05/15/14 <th colspan="2">Instrument Information</th>	Instrument Information							
		Instrument:	Hach DR2010						
		Wavelength:	540						
Calibration Curve Information									
Amount (mL)	Conc. (mg/L)	ABS.	IR Squared						
Blank	0.000	0.000	1.0000						
Std. 1	0.100	0.099	0.0162						
Std. 2	0.500	0.482	0.5117						
Std. 3	0.750	0.717	-0.0004						
Std. 4	1.500	1.404	0.0008						
Std. 5	2.000	1.847							
Standard Volume (mL):		100.000							
Date of Curve:		5/15/2014							
$y = 0.0162x^2 + 0.5117x - 0.0004$ $R^2 = 1.0000$									
ICV/CCV Information:									
Dilution ID #	Cr-14-00181	ICV/CCV Information:	LCS Information:						
Prep Date:	05/15/14	Cr-14-00182	Cr-14-00181						
Concentration (mg/L)	50	05/15/14	05/15/14						
Expiration Date:	05/16/14	286	50						
Pipettor(s)	201,282,286	1.000	05/16/14						
Volume Used (mL)		100.000	282						
Final Volume (mL)		0.500	1.50						
Expected Value (mg/L)			100.00						
			0.750						
Matrix Spike Information:									
Sample ID	Client ID	Type	Qualifier						
n/a	n/a	ICV							
n/a	n/a	ICB							
n/a	n/a	CCV							
n/a	n/a	CCB							
M3QVL1AA	n/a	BLK							
M3QVL1AC	n/a	LCS							
M3QL91AA	B2WLT5'	Sample							
M3QL91AC	B2WLT5'	MS*							
M3QL91AD	B2WLT5'	MSD*							
M3QL91AE	B2WLT5'	Duplicate							
M3QMA1AA	B2WLR6'	Sample							
M3QMC1AA	B2WLW5'	Sample							
M3QMD1AA	B2WLV4	Sample							
n/a	n/a	CCV							
n/a	n/a	CCB							
Sample ID	Client ID	Type	Qualifier						
n/a	n/a	ICV							
n/a	n/a	ICB							
n/a	n/a	CCV							
n/a	n/a	CCB							
M3QVL1AA	n/a	BLK							
M3QVL1AC	n/a	LCS							
M3QL91AA	B2WLT5'	Sample							
M3QL91AC	B2WLT5'	MS*							
M3QL91AD	B2WLT5'	MSD*							
M3QL91AE	B2WLT5'	Duplicate							
M3QMA1AA	B2WLR6'	Sample							
M3QMC1AA	B2WLW5'	Sample							
M3QMD1AA	B2WLV4	Sample							
n/a	n/a	CCV							
n/a	n/a	CCB							
Final Volume (mL)	Sample ABS.	Color Blank ABS.	Corrected ABS.	Dilution Factor	Curve Conc. (mg/L)	Expected (mg/L)	% Rec. / RPD	Final Reported Conc. (mg/L)	Qualifier
100.000	0.958		0.958	1	0.5047	0.5000	100.94%	0.505	
100.000	0.000		0.000	1	-0.0004			<MDL	U
100.000	0.955		0.955	1	0.5030	0.5000	100.61%	0.503	
100.000	0.001		0.001	1	0.0001			<MDL	U
100.000	0.001		0.001	1	0.0001			<MDL	U
100.000	0.944		0.944	1	0.4971	0.5000	99.42%	0.497	
100.000	0.012		0.012	1	0.0057	0.7500	103.34%	<MDL	U
100.000	1.449		1.449	1	0.7751	0.7500	102.97%	0.775	
100.000	1.444		1.444	1	0.7723	0.7500		0.772	
100.000	0.013		0.013	1	0.0063			<MDL	U
100.000	0.042		0.042	1	0.0211			0.021	
100.000	0.056		0.056	1	0.0283			0.028	
100.000	0.090		0.090	1	0.0458			0.046	
100.000	0.953		0.953	1	0.5020	0.5000	100.39%	0.502	
100.000	0.001		0.001	1	0.0001			<MDL	U

*If the parent sample is above the MDL, the Final Reported Conc. (mg/L) for the MS and MSD is corrected for the parent sample.
CG-223 Rev. 7/12/2013



Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/29/2014 12:10:34 PM

Lot No., Due Date: J4E140419; 05/30/2014
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 4135054; RGAMLEPS Gamma by LEPS
SDG, Matrix: W06729; WATER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:

First Level *[Signature]* Date *5/29/14*



Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 4135054

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

Comments on any "No" response: _____

Second Level Review: Landra Seger Date: 5-29-14



Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/30/2014 5:53:17 PM

Lot No., Due Date: J4E140419; 05/30/2014
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 4135056; RTC99 Tc-99 by LSC
SDG, Matrix: W06729; WATER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:

First Level *[Signature]* Date *5/30/14*



Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 4135056

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: CLDL = 15 pCi/l

Second Level Review: *[Signature]* Date: 5/30/14



Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

5/29/2014 11:49:41 AM

Lot No., Due Date: J4E140419; 05/30/2014
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 4135055; RTRITIUM H-3 by LSC
SDG, Matrix: W06729; WATER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:

First Level *[Signature]* Date *5/29/14*



Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 4135055

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

Comments on any "No" response: _____

Second Level Review: *Lanaha Degeer* Date: 5-29-14



**Richland Laboratory
Data Review Check List
Hexavalent Chromium**

Batch Number(s):	4135011	Lab Sample Numbers or SDG:	W06729	
Method/Test/Parameter: Cr+6 <input checked="" type="checkbox"/> RL-WC-003(Aqueous) <input type="checkbox"/> RL-WC-004(Solid)				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient greater than 0.97?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?		✓		✓
D. QC Samples				
1. All results for the preparation blank below limits?	✓			✓
2. LCS percent recovery within 85-115%	✓			✓
3. PbCrO ₄ percent recovery within 75-125%?			✓	✓
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?	✓			✓
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓
6. On MS failure, PDMS within 85-115%?			✓	✓
E. Other				
1. Are all nonconformances included and noted?	✓			✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response or list NCM number: 10-26979

Analyst *[Signature]* Date 5/15/14 2nd Review *[Signature]* Date 5/15/2014

Clouseau Nonconformance Memo



NCM #: 10-26979 NCM Initiated By: Robert Clark Date Opened: 05/15/2014 Date Closed: 05/15/2014	Classification: Deficiency Status: CLOSED Production Area: Classical Chemistry Tests: None Lot #'s (Sample #'s): J4E140419 (2), QC Batches: 4135011,
Nonconformance: Holding time violation Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Robert Clark	05/15/2014	Sample was analyzed outside of the 24 hour hold time.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Robert Clark	05/15/2014	N/A. Report data to client.

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Notified</u>	<u>Response</u>	<u>How Notified</u>	<u>Note</u>
			<u>Response</u>		<u>Response Note</u>

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
NAGELS		Verified/completed	Sample M3QMA (B2WLR6) was sampled 5/14/14 at 9:18, sample was analysed 5/15/14 at 9:34 which is 16 minutes past hold time. Data reported for client review.

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
5/15/14	BBN	QA Manager

CH2MHIII Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-740	PAGE 1 OF 1
COLLECTOR <i>KASER</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. HNF-N-491-9/109	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	ACTUAL SAMPLE DEPTH N/A	OFFSITE PROPERTY NO. SEE PTR	COA 303110ES10	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX*	PRESERVATION	Cool-4C
DI=Drum	HOLDING TIME	24 Hours
DS=Drum	TYPE OF CONTAINER	ag
L=Liquid	NO. OF CONTAINER(S)	1
O=Oil	VOLUME	500mL
S=Soil	SAMPLE ANALYSIS	7196 CR6: COMMON
SE=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
WI=Wipe		
X=Other		

JHE140419
W06729
Due 5-30-14
m3229



SIGN / PRINT NAMES		RECEIVED BY / STORED IN	DATE / TIME
RECEIVED BY / STORED IN		CHPRC	5-14-14 1115
RECEIVED BY / STORED IN		3-14-14	1643
RECEIVED BY / STORED IN			
RECEIVED BY / STORED IN			
RECEIVED BY / STORED IN			
RECEIVED BY / STORED IN			
RECEIVED BY / STORED IN			

TRVL-14-088

SPECIAL INSTRUCTIONS
 ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-732	PAGE 1 OF 1
COLLECTOR <i>Kate Brodbeck</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-T, Influent Tank, Valve V04-Y30	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. HNF-N-491-9/109	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	ACTUAL SAMPLE DEPTH N/A	OFFSITE PROPERTY NO. SEE PTR	COA 303110ES10	BILL OF LADING/AIR BILL NO. SEE PTR	
<p>SHIPPED TO TestAmerica Incorporated, Richland</p> <p>MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other</p> <p>POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.</p> <p>SPECIAL HANDLING AND/OR STORAGE</p>					

PRESCRIPTION	COOL-4C
HOLDING TIME	24 Hours
TYPE OF CONTAINER	ag
NO. OF CONTAINER(S)	1
VOLUME	500ml
SAMPLE ANALYSIS	7196.CRE: COMMON;

34E140419
W06729
m3qma

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B2WL6	WATER	5-14-14	0918

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Elkann Ed...</i>	DATE/TIME 5-14-14 1115	RECEIVED BY/STORAGE IN <i>CHPRC</i>	DATE/TIME 5-14-14 1115	SPECIAL INSTRUCTIONS ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088 TRVL-14-088	
RELINQUISHED BY/REMOVED FROM <i>JCFusion</i>	DATE/TIME 1400	RECEIVED BY/STORAGE IN <i>3.00k Beck TAC</i>	DATE/TIME MAY 14 2014 1400		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORAGE IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORAGE IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

PRINTED ON 5/6/2014

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-759	PAGE 1 OF 1
COLLECTOR <i>Kauer</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Post-Resin Tanks, Valve V06-Y22	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. <i>HNF-N-491.9/105</i>	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR	BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soil O=Oil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Cool-4C	HOLDING TIME 24 Hours	TYPE OF CONTAINER ag	NO. OF CONTAINER(S) 1	VOLUME 500mL	SAMPLE ANALYSIS 7196.CRB: COMMON;
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B2WLW5	MATRIX* WATER	SAMPLE DATE 5-14-14	SAMPLE TIME 1211				<input checked="" type="checkbox"/>

54E140419
W00729
m30me

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Silvia E. ...</i>	DATE/TIME 5-14-14 1230	RECEIVED BY/STORED IN PM Hall	DATE/TIME 5-14-14 1230	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
RELINQUISHED BY/REMOVED FROM CHPRC	DATE/TIME MAY 14 2014 1400	RECEIVED BY/STORED IN <i>S. ...</i>	DATE/TIME MAY 14 2014 1400	TRVL-14-088	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-748	PAGE 1 OF 1
COLLECTOR <i>Kawa</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Pre-Resin Tanks, Valve V05-Y20	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	SAF NO. F12-028		AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO. INF-N-491-9/109	FIELD LOGBOOK NO. N/A	ACTUAL SAMPLE DEPTH N/A	COA 303110ES10		
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR	BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION Cool--4C	HOLDING TIME 24 Hours	TYPE OF CONTAINER aG	NO. OF CONTAINER(S) 1	VOLUME 500mL	SAMPLE ANALYSIS 7195.CRC: COMMON;
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B2WL V4	MATRIX* WATER	SAMPLE DATE 5-14-14	SAMPLE TIME 1124				

SHENOHIA
WOLNAG
m32mD

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Ed Kawa</i>	DATE/TIME 5-14-14 1230	RECEIVED BY/STORED IN <i>CHPRC</i>	DATE/TIME 5-14-14 1230	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088.	
RELINQUISHED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME MAY 17 2014 1400	RECEIVED BY/STORED IN <i>J. Bobb Beck</i>	DATE/TIME MAY 17 2014 1400	TRVL-14-088	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

PRINTED ON 5/6/2014 A-6003-G18 (REV 2)

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-754	PAGE 1 OF 1
COLLECTOR <i>Kover</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Post Resin Tank A1, Valve V03-Y21A1	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. <i>HNF-N-591-9/109</i>	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	ACTUAL SAMPLE DEPTH <i>NA</i>	OFFSITE PROPERTY NO. SEE PTR	COA 303110ES10	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX* A=Air D1=Drum L=Liquids DS=Drum S=Solids O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION HI to pH <2	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 3	VOLUME 1L	SAMPLE ANALYSIS TC99 SEP. LSC; COMMON;
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B2M0K0		SAMPLE DATE <i>5-14-14</i>	SAMPLE TIME <i>1130</i>				
SAMPLE NO. B2WLW0	MATRIX* WATER						

JUEIHOVIA
WONONAG
M3QME

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Edell</i>	DATE/TIME <i>5-14-14 1230</i>	RECEIVED BY/STORED IN <i>FM Hall</i>	DATE/TIME <i>5-14-14 1230</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
RELINQUISHED BY/REMOVED FROM <i>CH2M</i>	DATE/TIME <i>MAY 14 2014 1400</i>	RECEIVED BY/STORED IN <i>Stack</i>	DATE/TIME <i>1400</i>	TRVL-14-088	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME
PRINTED ON 5/6/2014			

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-756	PAGE 1 OF 1
COLLECTOR <i>Kavac</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Post Resin Tank A2, Valve V03-Y21A2	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	SAF NO. F12-028	COA 303110ES10	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO. <i>HNF-N-491-9/109</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	BILL OF LADING/AIR BILL NO. SEE PTR	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland					

MATRIX* A=Air D1=Drum L=Liquids DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/DATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION HI to pH <2	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 3	VOLUME 1L	SAMPLE ANALYSIS TC99_SEP_LSC COMMON;
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B2M0K2							
SAMPLE NO. B2WLW2	MATRIX* WATER	SAMPLE DATE <i>5/14/14</i>	SAMPLE TIME <i>1140</i>	<p style="text-align: center;"><i>JUE140419</i> <i>W06299</i> <i>m3qm5</i></p>			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>El Kavac</i>	DATE/TIME <i>5/14/14</i>	RECEIVED BY/STORED IN <i>FM Hall</i>	DATE/TIME <i>5/14/14</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
RELINQUISHED BY/REMOVED FROM <i>FM Hall</i>	DATE/TIME <i>MAY 14 2014</i>	RECEIVED BY/STORED IN <i>CHPRC</i>	DATE/TIME <i>MAY 14 2014</i>	TRVL-14-088	
RELINQUISHED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME <i>MAY 14 2014</i>	RECEIVED BY/STORED IN <i>J. Beck</i>	DATE/TIME <i>1400</i>		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-758	PAGE 1 OF 1
COLLECTOR <i>Kay</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Post-Resin Tank B2, Valve V03-Y21B2	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	SAF NO. F12-028	COA 303110ES10	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-491-9/108	ACTUAL SAMPLE DEPTH N/A	BILL OF LADING/AIR BILL NO. SEE PTR	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR				

MATRIX*	PRESERVATION	HC to pH <2
A=Air	HOLDING TIME	6 Months
DI=Drum	TYPE OF CONTAINER	GP
Liquids	NO. OF CONTAINER(S)	3
DS=Drum	VOLUME	1L
Solids	SAMPLE ANALYSIS	TD99_SEP_LSC; COMMON;
L=Liquid	SAMPLE DATE	5-14-14
O=Oil	SAMPLE TIME	1155
S=Soil		
SE=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
WI=Wipe		
X=Other		

SPECIAL HANDLING AND/OR STORAGE

34E140419
W060729
m32mb

SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RECEIVED BY/REMOVED FROM <i>Elkay</i>	DATE/TIME 5-14-14 1230	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
RECEIVED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME MAY 14 2014 1400	TRVL-14-088	
RECEIVED BY/REMOVED FROM	DATE/TIME		
RECEIVED BY/REMOVED FROM	DATE/TIME		
RECEIVED BY/REMOVED FROM	DATE/TIME		
RECEIVED BY/REMOVED FROM	DATE/TIME		
RECEIVED BY	TITLE		
DISPOSAL METHOD	DISPOSED BY		
LABORATORY SECTION	DATE/TIME		
FINAL SAMPLE DISPOSITION	DATE/TIME		

PRINTED ON 5/6/2014

A-6003-618 (REV 2)

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-757	PAGE 1 OF 1
COLLECTOR <i>Kauc</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Post-Resin Tank B1, Valve V03-Y21B1	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. HNF-N- Y91-905	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	ACTUAL SAMPLE DEPTH N/A	OFFSITE PROPERTY NO. SEE PTR	COA 303110ES10	ORIGINAL	

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION HCl to pH <2	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 3	VOLUME 1L	SAMPLE ANALYSIS TC99_SEP_LSC: COMMON;
SPECIAL HANDLING AND/OR STORAGE		<p style="text-align: center;">SUE140419 WDB29 M3QMH</p>					
SAMPLE NO. B2WLW3	MATRIX* WATER	SAMPLE DATE 5-14-14	SAMPLE TIME 1150				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Ed Kavner</i>	DATE/TIME 5-14-14	RECEIVED BY/STORED IN <i>CHPRC</i>	DATE/TIME 5-14-14	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
RELINQUISHED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME MAY 14 2014	RECEIVED BY/STORED IN <i>back talk</i>	DATE/TIME MAY 17 2014	TRVL-14-088	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-760	PAGE 1 OF 1
COLLECTOR KAVKA	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Post-Resin Tanks, Valve V06-Y22	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling		SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-491-9/109	ACTUAL SAMPLE DEPTH N/A	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX* A=Air DL=Drum L=Liquid S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	PRESERVATION HCl to pH <2 None	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 3	VOLUME 1L	SAMPLE ANALYSIS TC99_SEP_LSC: COMMON; TRITIUM_DIST LSC: COMMON; II291L_SEP_LE PS.GS.LL: COMMON;
POSSIBLE SAMPLE HAZARDS/REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.						
SPECIAL HANDLING AND/OR STORAGE						

JHE140419
W06029
M309M5

SAMPLE NO. B2WLW6	MATRIX* WATER	SAMPLE DATE 5-14-14	SAMPLE TIME 1211
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CHAIN OF POSSESSION		SIGN/PRINT NAMES	
RELINQUISHED BY/REMOVED FROM KAVKA	DATE/TIME 5-14-14 1230	RECEIVED BY/STORED IN CH2M Hill	DATE/TIME 5-14-14 1230
RELINQUISHED BY/REMOVED FROM KAVKA	DATE/TIME 5-14-14 1400	RECEIVED BY/STORED IN J. Beck	DATE/TIME MAY 14 2014 1400
RELINQUISHED BY/REMOVED FROM KAVKA	DATE/TIME MAY 14 2014 1400	RECEIVED BY/STORED IN J. Beck	DATE/TIME MAY 14 2014 1400
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

TRVL-14-088

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-749	PAGE 1 OF 1
COLLECTOR <i>Kava</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-TA, Pre-Resin Tanks, Valve V05-Y20	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	SAF NO. F12-028	COA 303110ES10	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO. <i>FINE-N-491-9/105</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	BILL OF LADING/AIR BILL NO. SEE PTR	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland					

MATRIX*	PRESERVATION	HCl to pH <2	None	None
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	HOLDING TIME	6 Months	6 Months	6 Months
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	TYPE OF CONTAINER	G/P	P	G/P
SPECIAL HANDLING AND/OR STORAGE	NO. OF CONTAINER(S)	3	1	2
	VOLUME	1L	1L	4L
	SAMPLE ANALYSIS	TO39, SEP, LSC: COMMON;	TNTXUM, DIST LSC: LIL: COMMON;	129LL, SEP, LE LSC: LIL: COMMON;
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2MLV5	WATER	5-14-14	1124	

J46140419
W06729
MSQMK

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
<i>Kava Ed Allen</i>	5-14-14 1230	<i>[Signature]</i>	5-14-14 1230		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>CHPRC</i>	MAY 14 2014 1400	<i>[Signature]</i>	MAY 14 2014 1400		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

TRVL-14-088

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		FLI-028-741	PAGE 1 OF 1
COLLECTOR <i>KAJ</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	SAF NO. FLI-028		AIR QUALITY	<input type="checkbox"/>
ICE CHEST NO.	FIELD LOGBOOK NO. <i>INF-N-491-8/109</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR	BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX*	PRESERVATION	HCl to pH <2	None	None
A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	HOLDING TIME	6 Months	6 Months	6 Months
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/1ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	TYPE OF CONTAINER	G/P	P	G/P
SPECIAL HANDLING AND/OR STORAGE	NO. OF CONTAINER(S)	3	1	2
	VOLUME	1L	1L	4L
	SAMPLE ANALYSIS	TC99 - SEP - LSC; COMMON;	TITANIUM DIST - LSC; COMMON;	TRIBU-L SEP - LE PS; GS; LL; COMMON;
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2WL T6	WATER	5-14-14	1043	

JUE140419
w06299
m32mL

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088	
<i>SKL</i>	5-14-14 1115	<i>CHIPPIC</i>	5-14-14 1400	TRVL-14-088	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-733	PAGE 1 OF 1
COLLECTOR <i>J. K. ...</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289-T, Influent Tank, Valve V04-Y30	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	SAF NO. F12-028		AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-491-9/105	ACTUAL SAMPLE DEPTH N/A	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR	BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX*	PRESERVATION	HCI to pH <2	None	None
AS-Air				
DI-Drum				
L-Liquids		6 Months	6 Months	6 Months
DS-Drum				
S-Solids		G/P	P	G/P
L-Liquid				
O-Oil				
S=Soil		3	1	2
SE=Sediment				
T=Tissue		1L	1L	4L
V=Vegetation				
W=Water				
WT=Wipe				
X-Other				

546140419
 2006729
 m3cm

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B2WLR7	WATER	5-14-14	0918

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM <i>Sikha...</i>	DATE/TIME 5-14-14 1115	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 5-14-14 1115
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME MAY 14 2014	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME MAY 14 2014
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

TRVL-14-088

SPECIAL INSTRUCTIONS
 ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-088

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 5/6/2014 A-6003-618 (REV 2)



Sample Check-in List

THE LEADER IN ENVIRONMENTAL TESTING

Date/Time Received: 5-15-14 11:1400 Container GM Screen Result: (Airlock) 40 cpm Initials [B]
5.14.14 Sample GM Screen Result (Sample Receiving) 60 cpm Initials [B]

Client: FLH SDG #: WD6729 SAF #: FLA-028 NA []

Lot Number: J4E140419

Chain of Custody # FLA-028-740; 732; 759; 748; 754; 756; 758; 757; 760; 749; 741, 733

Shipping Container ID or Air Bill Number: hand deliv. NA [B]

Samples received inside shipping container/cooler/box Yes [B] 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 [B]
- 2. Custody Seals dated and signed? Yes [] No [] No Custody Seal [B]
- 3. Cooler temperature: 4.2 °C Ice NA []
- 4. Vermiculite/packing materials is NA [B] Wet [] Dry []

Item 5 through 16 for samples. Initial appropriate response.

- 5. Chain of Custody record present? Yes [B] No []
- 6. Number of samples received (Each sample may contain multiple bottles): 12
- 7. Containers received: 4x 500 mL AB; 2x 4LP; 8x 4LP

- 8. Sample holding times exceeded? NA [] Yes [] No [B]
- 9. Samples have: [B] tape [B] hazard labels [B] custody seals [B] appropriate sample labels
- 10. Matrix: [B] A (FLT, Wipe, Solid, Soil) [B] I (Water) [] S (Air, Niosh 7400) [] T (Biological, Ni-63)

11. Samples: [B] 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 [B] No [] NA []
(If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO₃ added and pH after addition on table)
- 13. Were any anomalies identified in sample receipt? Yes [] No [B]
- 14. Description of anomalies (include sample numbers): NA [B]

- 15. Sample Location, Sample Collector Listed on COC? * Yes [B] No []
*For documentation only. No corrective action needed.
- 16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: [Signature] Date: 5-14-14

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

[B] No action necessary; process as is
Project Manager [Signature] Date 5-15-14

Sample Preparation/Analysis													
5/27/2014 2:11:32 PM		Balance Id: 1120482733, B145441330		Pipet #:		Sep1 DT/Tm Tech:		Sep2 DT/Tm Tech:					
108302, CH2M Hill Plateau Remediation DOE RL, Waste Management Federal Servi		BN I-129 Prp/Sep GAM002		TB Gamma by LEPD		51 CLIENT: HANFORD		Prep Tech: ,Norton,J					
Analyte: WATER		pCi/L		PM, Quote: SS, 29754									
Batch: 4135054		WATER		All Tests: 4135011 88EA, 4135054 BNTB, 4135055 ARS6, 4135056 AMS5,									
Work Ord. 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 M3QMJ-1-AD	3619.70g	3619.70g	3619.70g	3619.70g	ITA14006	05/15/14		32.90mg	100min	L4	16:25	5-27-14	
J4E140419-9-SAMP													
05/14/2014 12:11													Beta: 6.76E-03 uCi/Sa 1.6E-01L
2 M3QMJ-1-AE-X	3654.60g	3654.60g	3654.60g	3654.60g	ITA14007	05/15/14		33.40mg		L5			
J4E140419-9-DUP													
05/14/2014 12:11													Beta: 6.76E-03 uCi/Sa 1.6E-01L
3 M3QMK-1-AD	3509.80g	3509.80g	3509.80g	3509.80g	ITA14008	05/15/14		33.40mg		L4	1825	5/27/14	
J4E140419-10-SAMP													
05/14/2014 11:24													Beta: 5.23E-03 uCi/Sa
4 M3QML-1-AD	3683.50g	3683.50g	3683.50g	3683.50g	ITA14009	05/15/14		31.80mg		L5	1826		
J4E140419-11-SAMP													
05/14/2014 10:43													Beta: 7.89E-04 uCi/Sa
5 M3QMM-1-AD	3587.80g	3587.80g	3587.80g	3587.80g	ITA14010	05/15/14		33.50mg		L4	2018		
J4E140419-12-SAMP													
05/14/2014 09:18													Beta: 6.90E-03 uCi/Sa 1.7E-01L
6 M3Q3D-1-AA-B	3589.40g	3589.40g	3589.40g	3589.40g	ITA14011	05/15/14		32.90mg		L5	2020		
J4E150000-54-BLK													
05/21/2014 08:09 pd													Beta:
7 M3Q3D-1-AC-C	3736.10g	3736.10g	3736.10g	3736.10g	ISD1683	05/15/14		31.60mg		L4	2213		
J4E150000-54-LCS													
05/21/2014 08:12 pd													Beta:

Sample Preparation/Analysis												
5/15/2014 2:03:29 PM						Balance Id:						
BN I-129 Prp/Sep GAM002						Pipet #:						
TB Gamma by LEPD						Sep1 DT/Tm Tech:						
51 CLIENT: HANFORD						Sep2 DT/Tm Tech:						
Batch: 4135054						Prep Tech:						
SEQ Batch, Test: None						pCi/L						
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	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: 108302, CH2M Hill Plateau Remediation DOE RL Waste Management Federal Servi, SS , 29754 M3QMJIAD-SAMP Constituent List: I-129 RDL:5.00E-01 pCi/L LCL: UCL: RPD: M3Q3D1AA-BLK: M3Q3D1AC-LCS: M3QMJIAD-SAMP Calc Info: Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B M3Q3D1AA-BLK: Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B M3Q3D1AC-LCS: Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B												
TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2						ISV - Insufficient Volume for Analysis						WO Cnt: 7
Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added												ICOC v4.8.49

5/29/2014 12:05:08 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/29/2013, 6/3/2014, Batch: '4135054', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	SOPs,Reagents,Comments
4135054				
AC	Rev1C	NortonJ	5/21/2014 7:44:46	
SC		CampbellSC	IsBatched 5/15/2014 2:09:41 PM	ICOC_RADCALC v4.8.49
SC		NortonJ	InPrep 5/21/2014 7:44:46 AM	RL-GAM-002 REVISION 4
SC		NortonJ	InCnt1 5/27/2014 2:41:12 PM	RL-CI-007 REVISION 3
SC		DawkinsO	CalcC 5/27/2014 11:15:37 PM	RL-CI-007 REVISION 3
SC		AntonsonL	Rev1C 5/29/2014 12:04:56 PM	RL-DR-001 Rev 5
AC		NortonJ	5/27/2014 2:41:12 PM	
AC		DawkinsO	5/27/2014 11:15:37	
AC		AntonsonL	5/29/2014 12:04:56	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland
Richland Wa.

Balance Id:1120482733

Sample Preparation/Analysis

PRIORITY

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

5/20/2014 9:24:29 AM
108302, CH2M Hill Plateau Remediation DOE RL
, Waste Management Federal Servi

AnalytDueDate: 05/30/2014

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,ManuelC

PM, Quote: SS , 29754

Batch: 4135056 WATER pCi/L
SEQ Batch, Test: None All Tests: 4135011 88EA, 4135054 BNTB, 4135055 ARS6, 4135056 AMS5,

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	CR Analyst, Init/Date	Comments:
1 M3QME-1-AA	126.00g.in		126.00g.in	126.00g					60			
J4E140419-5-SAMP												
05/14/2014 11:30										Alpha: 4.15E-04 uCi/Sa		Beta: 6.99E-04 uCi/Sa
2 M3QME-1-AC-S	126.00g.in		126.00g.in	126.00g								
J4E140419-5-MS												
05/14/2014 11:30										Alpha: 4.15E-04 uCi/Sa		Beta: 6.99E-04 uCi/Sa
3 M3QME-1-AD-X	125.40g.in		125.40g.in	125.40g								
J4E140419-5-DUP												
05/14/2014 11:30										Alpha: 4.15E-04 uCi/Sa		Beta: 6.99E-04 uCi/Sa
4 M3QMF-1-AA	125.40g.in		125.40g.in	125.40g								
J4E140419-6-SAMP												
05/14/2014 11:40										Alpha: 2.31E-04 uCi/Sa		Beta: 1.23E-04 uCi/Sa
5 M3QMG-1-AA	125.10g.in		125.10g.in	125.10g								
J4E140419-7-SAMP												
05/14/2014 11:55										Alpha: -2.16E-04 uCi/Sa		Beta: 8.27E-04 uCi/Sa
6 M3QMH-1-AA	125.30g.in		125.30g.in	125.30g								
J4E140419-8-SAMP												
05/14/2014 11:50										Alpha: -1.15E-04 uCi/Sa		Beta: 4.42E-04 uCi/Sa
7 M3QMJ-1-AC	125.20g.in		125.20g.in	125.20g								
J4E140419-9-SAMP												
05/14/2014 12:11										Alpha: -5.31E-04 uCi/Sa		Beta: 6.76E-03 uCi/Sa 1.6E-01L

TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1
 Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added
 ISV - Insufficient Volume for Analysis WO Cnt: 7
 ICOC v4.8.49

Sample Preparation/Analysis													
5/20/2014 9:24:30 AM					Balance Id:1120482733								
108302, CH2M Hill Plateau Remediation DOE RL , Waste Management Federal Servi					Pipet #:								
AM Tc-99 Prp/Sep LSC013					Sep1 DT/Tm Tech:								
S5 Technetium-99 by Liquid Scint					Sep2 DT/Tm Tech:								
5I CLIENT: HANFORD					Prep Tech: ,ManuelIC								
AnalytDueDate: 05/30/2014					PM, Quote: SS , 29754								
Batch: 4135056 WATER 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:
8 M3QMK-1-AC	125.10g.in		125.10g.in	125.10g									
J4E140419-10-SAMP													
05/14/2014 11:24													Beta: 5.23E-03 uCi/Sa
9 M3QML-1-AC	125.50g.in		125.50g.in	125.50g									
J4E140419-11-SAMP													
05/14/2014 10:43													Beta: 7.89E-04 uCi/Sa
10 M3QMM-1-AC	125.10g.in		125.10g.in	125.10g									
J4E140419-12-SAMP													
05/14/2014 09:18													Beta: 6.50E-03 uCi/Sa 1.7E-01L
11 M3Q3F-1-AA-B	126.40g.in		126.40g.in	126.40g									
J4E150000-56-BLK													
05/20/2014 09:20 pd													
12 M3Q3F-1-AC-C	126.30g.in		126.30g.in	126.30g									
J4E150000-56-LCS													
05/20/2014 09:21 pd													
13 M3Q3F-1-AD-BN													
J4E150000-56-IBLK													
05/15/2014 14:00 pd													
14 M3Q3F-1-AE-BN													
J4E150000-56-IBLK													
05/15/2014 14:00 pd													

TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2 ISV - Insufficient Volume for Analysis WO Cnt: 14
 Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added ICOC v4.8.49

Sample Preparation/Analysis		Balance Id:												
AM Tc-99 Prp/Sep LSC013 S5 Technetium-99 by Liquid Scint 5I CLIENT: HANFORD		Pipet #:												
Analyte Due Date: 05/30/2014		Sep1 DT/Tm Tech:												
Batch: 4135056 SEQ Batch, Test: None		Sep2 DT/Tm Tech:												
pCi/L		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:	
<p>Comments: M3Q3F-BLK "Comments P-14-00192", S-14-00059</p> <p>All Clients for Batch: 108302, CHE2M Hill Plateau Remediation DOE RL Waste Management Federal Servi, SS , 29754</p>														
<p>M3QME1AA-SAMP Constituent List: Tc-99 RDL:15 pCi/L LCL: UCL: RPD:</p> <p>M3QME1AC-MS Constituent List: Tc-99 RDL:15 pCi/L LCL: UCL: RPD:</p> <p>M3Q3F1AA-BLK: Tc-99 RDL:15 pCi/L LCL: UCL: RPD:</p> <p>M3Q3F1AC-ICS: Tc-99 RDL:15 pCi/L LCL:70 UCL:130 RPD:20</p> <p>M3Q3F1AD-IBLK: Tc-99 RDL:15 pCi/L LCL: UCL: RPD:</p> <p>M3Q3F1AE-IBLK: Tc-99 RDL:15 pCi/L LCL: UCL: RPD:</p> <p>M3QME1AA-SAMP Calc Info: Uncert Level (#): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B</p> <p>M3QME1AC-MS Calc Info: Uncert Level (#): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B</p> <p>M3Q3F1AA-BLK: Uncert Level (#): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B</p> <p>M3Q3F1AC-ICS: Uncert Level (#): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B</p> <p>M3Q3F1AD-IBLK: Uncert Level (#): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B</p> <p>M3Q3F1AE-IBLK: Uncert Level (#): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B</p>														
TestAmerica Richland Wa.	Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2	Page 3	ISV - Insufficient Volume for Analysis								WO Cnt: 14	ICOC v4.8.49		

5/30/2014 5:52:23 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/30/2013, 6/4/2014, Batch: '4135056', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	SOPs,Reagents,Comments	
	4135056					
	AC		Rev1C	ManuelC	5/20/2014 9:23:46	
	SC			CampbellSC	IsBatched 5/15/2014 2:09:47 PM	ICOC_RADCALC v4.8.49
	SC			ManuelC	Prep1C 5/20/2014 9:23:46 AM	RL-PRP-004 REVISION 3
	SC			JorgensonD	Sep2C 5/29/2014 2:38:24 PM	RL-LSC-013 REVISION 2
	SC			NortonJ	InCnt1 5/29/2014 2:51:15 PM	RL-CI-005 REVISION 3
	SC			DawkinsO	CalcC 5/30/2014 5:41:32 PM	RL-CI-005 REVISION 3
	SC			AntonsonL	Rev1C 5/30/2014 5:52:08 PM	RL-DR-001 Rev 5
	AC			JorgensonD	5/29/2014 2:38:24 PM	
	AC			NortonJ	5/29/2014 2:51:15 PM	
	AC			DawkinsO	5/30/2014 5:41:32 PM	
	AC			AntonsonL	5/30/2014 5:52:08 PM	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland
Richland Wa.

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

Balance Id: _____ Pipet #: 280
 Sep1 DT/Tm Tech: _____ Sep2 DT/Tm Tech: _____
 Prep Tech: _____

PM, Quote: SS, 29754

108302, CH2M Hill Plateau Remediation DOE RL
 , Waste Management Federal Servi
 AnalytDueDate: 05/30/2014

Batch: 4135055 WATER 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:
1 M3QMJ-1-AA													
J4E140419-9-SAMP													
05/14/2014 12:11													Beta:
AmtRec: 2X4LP,4XLP #Containers: 6													
2 M3QMJ-1-AF-X													
J4E140419-9-DUP													
05/14/2014 12:11													Beta:
AmtRec: 2X4LP,4XLP #Containers: 6													
3 M3QMK-1-AA													
J4E140419-10-SAMP													
05/14/2014 11:24													Beta:
AmtRec: 2X4LP,4XLP #Containers: 6													
4 M3QML-1-AA													
J4E140419-11-SAMP													
05/14/2014 10:43													Beta:
AmtRec: 2X4LP,4XLP #Containers: 6													
5 M3QMM-1-AA													
J4E140419-12-SAMP													
05/14/2014 09:18													Beta:
AmtRec: 2X4LP,4XLP #Containers: 6													
6 M3Q3E-1-AA-B													
J4E150000-55-BLK													
05/15/2014 14:00 pd													Beta:
AmtRec: #Containers: 1													
7 M3Q3E-1-AC-C													
J4E150000-55-LCS													
05/15/2014 14:00 pd													Beta:
AmtRec: #Containers: 1													

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

TestAmerica Richland Wa. WO Cnt: 7 ICOC v4.8.49

5/15/2014 2:03:29 PM **Sample Preparation/Analysis** Balance Id: _____ Pipet #: _____

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

AnalayDueDate: 05/30/2014
Batch: 4135055
SEQ Batch, Test: None

pCi/L

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	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:
8 M3Q3E-1-AD-BN												
J4E150000-55-IBLK												
05/15/2014 14:00 pd												

8 M3Q3E-1-AD-BN
J4E150000-55-IBLK
05/15/2014 14:00 pd
AmtRec: _____
#Containers: 1
Scr: _____ Alpha: _____ Beta: _____

Comments:

All Clients for Batch:
108302, CH2M Hill Plateau Remediation DOE RL Waste Management Federal Servi, SS , 29754

M3Q3E1AA-SAMP Constituent List:
H-3 RDL:400 pCi/L LCL:70 UCL:130 REP:20
M3Q3E1AA-BLK:
M3Q3E1AC-LCS:
M3Q3E1AD-IBLK:

M3Q3E1AA-SAMP Calc Info:
Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
Uncert Level (#s) : 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2
Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added
ISV - Insufficient Volume for Analysis
WO Cnt: 8
ICOC v4.8.49

5/29/2014 11:49:07 AM

ICOC Fraction Transfer/Status Report

ByDate: 5/29/2013, 6/3/2014, Batch: '4135055', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	SOPs,Reagents,Comments
4135055				
AC	Rev1C	NortonP	5/22/2014 11:49:38	
SC		CampbellSC	IsBatched 5/15/2014 2:09:44 PM	ICOC_RADCALC v4.8.49
SC		NortonP	Sep1C 5/22/2014 11:49:38 AM	RL-LSC-005 REVISION 4
SC		NortonJ	InCnt1 5/22/2014 12:10:34 PM	RL-CI-005 REVISION 3
SC		BullJ	CalcC 5/24/2014 4:41:23 PM	RL-CI-005 REVISION 3
SC		AntonsonL	Rev1C 5/29/2014 11:48:59 AM	RL-DR-001 Rev 5
AC		NortonJ	5/22/2014 12:10:34	
AC		BullJ	5/24/2014 4:41:23 PM	
AC		AntonsonL	5/29/2014 11:48:59	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland
Richland Wa.

