

DECEMBER 18, 2012

Analytical Data Package Prepared For

## CH2M Hill Plateau Remediation

Radiochemical Analysis By  
**TestAmerica**

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

Assigned Laboratory Code: TARL

*Data Package Contains 34 Pages*

Report No.: 54017

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.
W06502	F12-028	B2N858	J2L050464-3	MXHFP1AA	9MXHFP10	2341034
		B2N862	J2L050464-4	MXHFQ1AA	9MXHFQ10	2341034
		B2N866	J2L050464-5	MXHFR1AA	9MXHFR10	2341034
		B2N870	J2L050464-6	MXHFT1AA	9MXHFT10	2341034
		B2N873	J2L050464-7	MXHFW1AA	9MXHFW10	2341034
		B2N876	J2L050464-8	MXHFM1AA	9MXHFM10	2341034
		B2N882	J2L050464-1	MXHFN1AA	9MXHFN10	2341034
		B2N885	J2L050464-2	MXHFN1AA	9MXHFN10	2341034

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THE LEADER IN ENVIRONMENTAL TESTING

## Certificate of Analysis

TestAmerica Laboratories, Inc.

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

December 18, 2012

Attention: Scot Fitzgerald

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SAF Number	:	F12-028
Date SDG Closed	:	December 5, 2012
Number of Samples	:	Eight (8)
Sample Type	:	Water
SDG Number	:	W06502
Data Deliverable	:	15 Day / 15 Day Summary

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### CASE NARRATIVE

#### I. Introduction

On December 5, 2012, eight 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>MATRIX</u>	<u>DATE OF RECEIPT</u>
B2N882	MXHFM	WATER	12/05/12
B2N885	MXHFN	WATER	12/05/12
B2N858	MXHFP	WATER	12/05/12
B2N862	MXHFQ	WATER	12/05/12
B2N866	MXHFR	WATER	12/05/12
B2N870	MXHFT	WATER	12/05/12
B2N873	MXHFW	WATER	12/05/12
B2N876	MXHFW	WATER	12/05/12

#### II. Sample Receipt

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

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CH2M Hill Plateau Remediation Company  
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### 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 (LL) by method RL-GAM-002

### 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

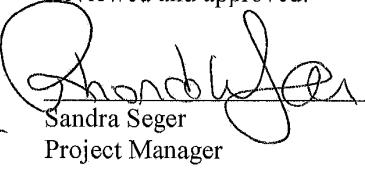
**Gamma Spectroscopy**

Iodine-129 (LL) by method RL-GAM-002:

The LCS, batch blank, samples and sample duplicate (B2N882) 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:



Sandra Seger  
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,  $R = \text{constants} * f(x,y,z,...)$ . 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

<b>Action Lev</b>	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.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or TestAmerica.
<b>Count Error (#s)</b>	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.
<b>Total Uncert (#s) <i>u<sub>c</sub>-Combined Uncertainty.</i></b>	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<sub>c</sub> the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	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)
<b>Lc</b>	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%. $L_c = (1.645 * \text{Sqrt}(2 * (\text{BkgrndCnt} / \text{BkgrndCntMin}) / \text{SCntMin})) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$ . 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.
<b>Lot-Sample No</b>	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.
<b>MDC MDA</b>	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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgrndCnt} / \text{BkgrndCntMin}) / \text{SCntMin}) + 2.71 / \text{SCntMin}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	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.
<b>Rst/MDC</b>	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.
<b>Rst/TotUcert</b>	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.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order Number</b> .
<b>RER</b>	The equation Replicate Error Ratio = $(S-D)/[\sqrt{TPUs^2 + TPUs^2}]$ 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 TPUs is the total uncertainty of the duplicate sample.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	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.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Date: 18-Dec-12

## Sample Results Summary

## TestAmerica TARL

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

Report No.: 54017

SDG No: W06502

Client Id Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
2341034 I129LL_SEP_LEPS_GS									
B2N858	MXHFP1AA	I129	5.88E-02 +/- 9.4E-02	U	pCi/L	94%	1.79E-01	1.00E+00	
B2N862	MXHFQ1AA	I129	3.89E-02 +/- 1.3E-01	U	pCi/L	93%	2.24E-01	1.00E+00	
B2N866	MXHFR1AA	I129	5.49E-01 +/- 1.8E-01		pCi/L	92%	1.55E-01	1.00E+00	
B2N870	MXHFT1AA	I129	3.55E-01 +/- 1.5E-01	U	pCi/L	92%	2.89E-01	1.00E+00	
B2N873	MXHFW1AA	I129	1.03E-01 +/- 1.0E-01	U	pCi/L	94%	1.96E-01	1.00E+00	
B2N876	MXHFW1AA	I129	3.26E-01 +/- 1.9E-01		pCi/L	91%	2.13E-01	1.00E+00	
B2N882	MXHFM1AA	I129	3.08E-01 +/- 1.9E-01		pCi/L	92%	2.22E-01	1.00E+00	
B2N882 DUP	MXHFM1AC	I129	2.43E-01 +/- 1.6E-01		pCi/L	95%	1.72E-01	1.00E+00	23.7
B2N885	MXHFN1AA	I129	3.31E-01 +/- 2.3E-01		pCi/L	69%	2.87E-01	1.00E+00	
No. of Results:	9								

TestAmerica rptSTLRchSaSum mary2 V5.2.22 A2002	RPD - Relative Percent Difference. U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
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**QC Results Summary**

**Date:** 18-Dec-12

**TestAmerica TARL**

Ordered by Method, Batch No, QC Type,.

**Report No. :** 54017

**SDG No.:** W06502

Batch Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
<b>I129LL_SEP_LEPS_GS</b>								
2341034	BLANK QC, MXHJ71AA I129	1.66E-01 +- 1.7E-01	U	pCi/L	93%			1.54E-01
2341034	LCS, MXHJ71AC I129	1.06E+01 +- 1.3E+00		pCi/L	91%	105%	0.1	3.12E-01
<b>No. of Results:</b> 2								

TestAmerica      Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
rptSTLRchQcSum      U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or  
mary V5.2.22      not identified by gamma scan software.  
A2002

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J2L050464-3  
**Client Sample ID:** B2N858

**SDG:** W06502

**Report No.:** 54017

**COC No.:** F12-028-357

**Collection Date:** 12/4/2012 9:00:00 AM

**Received Date:** 12/5/2012 12:10:00 PM

**Matrix:** WATER

Parameter	Result	Count	Total	MDL,	Rpt Unit,	Yield	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
		Qual	Error (2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUncrt	Prep Date	Size	Size	Detector
Batch: 2341034	1129LL_SEP_LEPS_GS		Work Order: MXHFP1AA		Report DB ID: 9MXHFP10						
I129	5.88E-02	U	9.4E-02	9.4E-02	1.79E-01 pCi/L	94%	0.33	12/12/12 07:58 p	3.8243	LEP5\$1	L

No. of Results: 1      Comments:

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

**Lab Name:** TestAmerica  
**Lot Sample No.:** J2L050464-4  
**Client Sample ID:** B2N862

**SDG:** W06502  
**Report No. :** 54017  
**COC No. :** F12-028-361

**Collection Date:** 12/4/2012 9:50:00 AM  
**Received Date:** 12/5/2012 12:10:00 PM  
**Matrix:** WATER

Parameter	Result	Count	Total	MDL,	Rpt Unit,	Yield	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
		Qual	Uncert(2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUncrt	Prep Date	Size	Size	Detector
Batch: 2341034	1129 LL SEP LEPS GS		Work Order: MXHFQ1AA		Report DB ID: 9MXHFQ10						
1129	3.89E-02	U	1.3E-01	1.3E-01	2.24E-01 pCi/L	93%	0.17	12/12/12 11:26 p	3.8401	LEP4\$1	L

No. of Results: 1      Comments:

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J2L050464-5  
**Client Sample ID:** B2N866

**SDG:** W06502  
**Report No. :** 54017  
**COC No. :** F12-028-365

**Collection Date:** 12/4/2012 10:55:00 AM  
**Received Date:** 12/5/2012 12:10:00 PM  
**Matrix:** WATER

Parameter	Result	Count	Total	MDL,	Rpt Unit,	Yield	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
		Qual	Error (2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUncert	Prep Date	Size	Size	Detector
Batch: 2341034	112911L_SEP_LEPS_GS		Work Order: MXHFR1AA		Report DB ID: 9MXHFR10						
1129	5.49E-01	1.8E-01	1.8E-01	1.55E-01	pCi/L	92%	(3.5)	12/12/12 11:27 p	3.8706	LEP5\$1	L

No. of Results: 1      Comments:

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**FORM I  
SAMPLE RESULTS**

Date: 18-Dec-12

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J2L050464-6  
**Client Sample ID:** B2N870

**SDG:** W06502  
**Report No. :** 54017  
**COC No. :** F12-028-369

**Collection Date:** 12/4/2012 10:30:00 AM  
**Received Date:** 12/5/2012 12:10:00 PM  
**Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 2341034	112911_SEP_LEPS_GS				Work Order: MXHFT1AA		Report DB ID: 9MXHFT10					
1129	3.55E-01	U	1.5E-01	1.5E-01	2.89E-01	pCi/L	92%	(1.2)	12/13/12 06:49 a	3.8735	LEP4\$1	L

No. of Results: 1      Comments:

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

Lab Name: TestAmerica  
Lot-Sample No.: J2L050464-7  
Client Sample ID: B2N873

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 2341034 1129	I1291L_SEP_LEPS_GS 1.03E-01	J	1.0E-01	1.0E-01	MXHFV1AA 1.96E-01	pCi/L 9.27E-02	94% 1.00E+00	Report DB ID: 9MXHFV10 (2.)	12/13/12 06:51 a LEP5\$1 L	3.8796	LEP5\$1	

No. of Results: 1      Comments:

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J2L050464-8  
**Client Sample ID:** B2N876

Parameter	Result	Count	Total	MDL,	Rpt Unit,	Yield	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
		Qual	Uncert(2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUncert	Prep Date	Size	Size	Detector
Batch: 2341034	1129 LL_SEP_LEPS_GS		Work Order: MXHFW1AA		Report DB ID: 9MXHFW10						
1 29	3.26E-01	1.9E-01	1.9E-01	2.13E-01	pCi/L	91%	(1.5)	12/13/12 10:16 a	3.8683	LEP4\$1	L
				9.74E-02		1.00E+00	(3.4)				

No. of Results: 1      Comments:

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J2L050464-1  
**Client Sample ID:** B2N882

**SDG:** W06502  
**Report No. :** 54017  
**COC No. :** F12-028-381

Parameter	Result	Count	Total	Rpt Unit,	Yield	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
		Qual	Uncert(2 s)	Lc	CRDL(RL)	Rst/TotUncrt	Prep Date	Size	Size	Detector
Batch: 2341034	1129111_SEP_LEPS_GS		Work Order: MXHFM1AA		Report DB ID: 9MXHFM10					
1129	3.08E-01	1.9E-01	1.9E-01	2.22E-01	pCi/L	92%	(1.4)	12/12/12 04:29 p	3.8748	LEP4\$1

No. of Results: 1      Comments:

Ordered by Client Sample ID, Batch No.

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**FORM I**  
**SAMPLE RESULTS**

Date: 18-Dec-12

Lab Name: TestAmerica  
Lot-Sample No.: J21050464-2  
Client Sample ID: B2N885

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUncrt	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2341034 1129	1129LL_SEP_1EPS_GS 3.31E-01	2.3E-01	2.3E-01	2.87E-01	2.87E-01 pCi/L	9.87E-02	69% (1.2)	Report DB ID: 9MXHFN10 9.87E-02	12/12/12 07:56 p (2.9)	3.8965 LEP4\$1 L		

No. of Results: 1      Comments:

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Date: 18-Dec-12

**FORM II**

**DUPLICATE RESULTS**

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J2L050464-1  
**Client Sample ID:** B2N882 DUP

**SDG:** W06502  
**Report No. :** 54017  
**COC No. :** F12-028-381

**Collection Date:** 12/4/2012 11:15:00 AM  
**Received Date:** 12/5/2012 12:10:00 PM  
**Matrix:** WATER

Parameter	Result, Orig Rst	Count	Total Uncert( 2 s)	MDL, Action Lev	Rpt Unit, CRDL	Rst/MDL, Rst/Tot/Cert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2341034	I129LL_SEP_LEPS_GS	Work Order: MXHFM1AC		Report DB ID: MXHFM1CR		Orig Sa DB ID: 9MXHFM10				
I129	2.43E-01	1.6E-01	1.72E-01	pCi/L	95% (1.4)	12/12/12 04:30 p		3.8836	LEP5\$1	L
	3.08E-01	RPD 23.7		1.00E+00	(2.9)					

No. of Results: 1      Comments:

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**FORM II**  
**BLANK RESULTS**

Date: 18-Dec-12

Lab Name: TestAmerica  
Matrix: WATER

Parameter	Result	Qual	Count	Total	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2341034	I129LL_SEP_LEPS_GS			Work Order: MXHJ71AA		Report DB ID: MXHJ71AB						
I129	1.66E-01	U	1.7E-01	1.7E-01	1.54E-01	pCi/L	93%	(1.1)	12/13/12 10:17 a	3.8775	L	LEP5\$1

No. of Results: 1      Comments:

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**FORM II**  
**LCS RESULTS**

Date: 18-Dec-12

Lab Name: **TestAmerica**  
Matrix: WATER

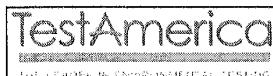
SDG: W06502  
Report No.: 54017

Parameter	Result	Count	Total	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2341034	1129LL_SEP_LEPS_GS		Work Order: MXHJ71AC		Report DB ID: MXHJ71CS						
1129	1.06E+01	1.3E+00	1.3E+00	3.12E-01 pCi/L	91%	1.01E+01	1.09E-01	105%	12/13/12 01:46 p	3.85	LEP4\$1

No. of Results: 1      Comments:

TestAmerica      Bias      - (Result/Expected)-1 as defined by ANSI N13.30.  
rpfSTLRchLcs  
v5.2.22 A2002

# DECEMBER 18, 2012



## Data Review/Verification Checklist RADIOCHEMISTRY, First Level Review

12/14/2012 10:17:20 AM

Lot No., Due Date: J2L050464; 12/20/2012  
 Client, Site: 108302; FLH HANFORD  
 QC Batch No., Method Test: 2341034; RGAMLEPS Gamma by LEPS  
 SDG, Matrix: W06502; WATER

<b>1.0 COC</b>			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes	No	N/A
<b>2.0 QC Batch</b>			
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
<b>3.0 QC &amp; Samples</b>			
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
<b>4.0 Raw Data</b>			
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
<b>5.0 Other</b>			
5.1 Are all nonconformances included and noted?	Yes	No	N/A
5.2 Are all required forms filled out?	Yes	No	N/A
5.3 Was the correct methodology used?	Yes	No	N/A
5.4 Was transcription checked?	Yes	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A
5.6 Are worksheet entries complete and correct?	Yes	No	N/A
6.0 Comments on any No response:			

First Level

Date

12/14/12

TestAmerica Richland  
QAS\_RADCALCv4.8.44

Page 1

DECEMBER 18, 2012



THE LEADER IN ENVIRONMENTAL TESTING

**Data Review Checklist**  
**RADIOCHEMISTRY**  
**Second Level Review**

Batch Number: 2341034

Review Item	Yes (✓)	No (✗)	NA (✗)
<b>A. Sample Analysis</b>			
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>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result $\leq$ 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 $\leq$ 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?	✓		
<b>C. Other</b>			
1. Are all Non-conformances included and noted?			✓
2. Are all required forms filled out?	✗		
3. Was the correct methodology used?	✗		
4. Was transcription checked?	✗		
5. Were all calculations checked at a minimum frequency?	✗		
6. Were units checked?	✗		

Comments on any "No" response: \_\_\_\_\_

Second Level Review:

Date: 12/17/12

LS-038B, Rev. 10, 9/07

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-028-381	PAGE 1 OF 1
COLLECTOR F. M. Hall	<i>Plummer</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			SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. N/A		FIELD LOGBOOK NO. <i>FINE-N-885762</i>	ACTUAL SAMPLE DEPTH N/A	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* A=Air D=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wine 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 None		
		HOLDING TIME 6 Months	TYPE OF CONTAINER G/P			
		NO. OF CONTAINER(S) 2	VOLUME 4L			
		SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS 1120L_SEP_1E PSGS; COMMON;			
SAMPLE NO. B2N882	MATRIX* WATER	SAMPLE DATE 12-4-12	SAMPLE TIME 1115		<i>mxtfm</i>	
		 <i>J2L050464</i>				
		<i>JALOSOHN</i> <i>WOLFSOHN</i>				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>F. M. Hall</i>	DATE/TIME <i>12-5-12 12:30</i>	RECEIVED BY/STORED IN <i>SSUZI</i>	DATE/TIME <i>12-5-12 12:30</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
RELINQUISHED BY/REMOVED FROM <i>F. M. Hall</i>	DATE/TIME <i>12-5-12 07:00</i>	RECEIVED BY/STORED IN <i>D. Steele</i>	DATE/TIME <i>12-5-12 07:00</i>		
RELINQUISHED BY/REMOVED FROM <i>D. Steele</i>	DATE/TIME <i>12-5-12 12:10</i>	RECEIVED BY/STORED IN <i>S. S. Johnson</i>	DATE/TIME <i>12-5-12 12:10</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		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-028-384	PAGE 1 OF 1
COLLECTOR F. M. Hall	Karen	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
<b>SAMPLING LOCATION</b> 289-TA, Post Resin Tank B2, Valve V03-Y21B2		PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling			SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>
<b>ICE CHEST NO.</b> N/A		FIELD LOGBOOK NO. HNF-N- <i>585-662</i>	ACTUAL SAMPLE DEPTH N/A	COA 30310E510	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
<b>SHIPPED TO</b> TestAmerica Incorporated, Richland		OFFSITE PROPERTY NO. SEE PTR	BILL OF LADING/AIR BILL NO. SEE PTR			<b>ORIGINAL</b>

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	None		
A=Air	**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.**	HOLDING TIME	6 Months		
D=Drum		TYPE OF CONTAINER	G/P		
L=Drum		NO. OF CONTAINER(S)	2		
S=Liquid		VOLUME	4L		
O=Oil		SAMPLE ANALYSIS	112SL-SEP-LE PS-GS; COMMON;		
S=Soil					
T=Tissue					
V=Vegetation					
W=Water					
WI=Wipe					
X=Other					
<b>SPECIAL HANDLING AND/OR STORAGE</b>					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	112SL-SEP-LE PS-GS; COMMON;	
B2N885	WATER	12-4-12	1136	<i>in X-HEN</i>	

*Saloson*  
*WOLSOON*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>F. M. Hall</i>	DATE/TIME <i>12-4-12</i>	RECEIVED BY/STORED IN <i>354 #1</i>	DATE/TIME <i>12-4-12</i>	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this S&AF.	
RELINQUISHED BY/REMOVED FROM <i>Richland Laboratory</i>	DATE/TIME <i>12-5-12 0700</i>	RECEIVED BY/STORED IN <i>D. Lebelle</i>	DATE/TIME <i>12-5-12 0700</i>		
RELINQUISHED BY/REMOVED FROM <i>D. Lebelle</i>	DATE/TIME <i>12-5-12</i>	RECEIVED BY/STORED IN <i>S. Beck</i>	DATE/TIME <i>12-5-12 1200</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		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-028-357		PAGE 1 OF 1	
COLLECTOR <b>F. M. Hall</b>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C	AIR QUALITY <input type="checkbox"/>	DATA TURNAROUND 15 Days / 15 Days		
SAMPLING LOCATION 288-T, Influent Tank, Valve V05-Y30	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. HNF-N-585-5/62	ACTUAL SAMPLE DEPTH N/A	SAF NO. F12-028	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE		
ICE CHEST NO.	N/A	OFFSITE PROPERTY NO. SEE PTR	SEE PTR	BILL OF LADING/AIR BILL NO.				
SHIPPED TO TestAmerica Incorporated, Richland	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.**  S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wine X=Other	PRESERVATION None	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 2	VOLUME 4L	T128L_SEP_1E PS_GSS COMMON;	
SPECIAL HANDLING AND/OR STORAGE Radioactive Sample to B221022 KMW 11/27/12		SAMPLE ANALYSIS						
SAMPLE NO. B2N858	MATRIX# WATER	SAMPLE DATE 12-4-12	SAMPLE TIME 0500	W X H F P				
JALOSO/Hall WOLSO/Hall		SIGN/ PRINT NAMES F. M. Hall	RECEIVED BY/STORED IN 55C	DATE/TIME 12-4-12 12:30	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 0700	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 0100
RELINQUISHED BY/REMOVED FROM <b>F. M. Hall</b>		RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 0700	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	
RELINQUISHED BY/REMOVED FROM <b>J. Lubell</b>		RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	
RELINQUISHED BY/REMOVED FROM RELINQUISHED BY/REMOVED FROM RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	RECEIVED BY/STORED IN J. Lubell	DATE/TIME 12-5-12 12:10	
LABORATORY SECTION FINAL SAMPLE DISPOSITION	RECEIVED BY DISPOSED BY	TITLE		DATE/TIME		DATE/TIME		

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		
COLLECTOR F. M. Hall	Karen	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80	D*	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling		SAF NO. F12-028
ICE CHEST NO.	N/A	FIELD LOGBOOK NO. HNF-N-58566/6c	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*	POSSIBLE SAMPLE HAZARDS/ REMARKS		PRESERVATION	None
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Waste X=Other	<p>**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.**</p>		HOLDING TIME 6 Months	
			TYPE OF CONTAINER G/P	
			NO. OF CONTAINER(S) 2	
			VOLUME 4L	
			SAMPLE ANALYSIS T28L_SEP_1E PS-ESS; COMMON;	
SPECIAL HANDLING AND/OR STORAGE				
SAMPLE NO.	MATRIX*	SAMPLE DATE 12-4-12	SAMPLE TIME 0950	✓ MAFFQ
B2N862	WATER			

SALOON  
 WOLES

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <b>F. M. Hall</b>	DATE/TIME 12-4-12 1230	RECEIVED BY/STORED IN <b>SSU</b> ✓	DATE/TIME 12-4-12 1230	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKT applies to this SAF.	
RELINQUISHED BY/REMOVED FROM <b>S. J. Hall</b>	DATE/TIME 12-5-12 0700	RECEIVED BY/STORED IN <b>D. Webb, D. Webb</b>	DATE/TIME 12-5-12 0700		
RELINQUISHED BY/REMOVED FROM <b>J. Smith</b>	DATE/TIME 12-5-12 1210	RECEIVED BY/STORED IN <b>J. Smith</b> ✓	DATE/TIME 12-5-12 1210		
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		DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DISPOSED BY	TITLE	

PRINTED ON 11/26/2012

A-6003-618 (REV 2)

DECEMBER 18, 2012

CH2MHII Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-028-365	PAGE 1 OF 1
COLLECTOR <i>F.M. Hall</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 Tank A1, Valve V25-Y21A1	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. <i>HNF-N-5857-662</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. <i>N/A</i>	OFFSITE PROPERTY NO. <i>SEE PTR</i>	COA 303110ES10	BILL OF LADING/AIR BILL NO. <i>SEE PTR</i>	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland						

POSSIBLE SAMPLE HAZARDS/ REMARKS		PRESERVATION		None	
A=Air	**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.*	HOLDING TIME	6 Months		
D=Drum		TYPE OF CONTAINER	G/P		
DS=Drum Solids		NO. OF CONTAINER(S)	2		
L=Liquid		VOLUME	4L		
O=Oil					
S=Soil					
SE=Sediment					
T=Tissue					
V=Vegetation					
W=Water					
WT=Water					
X=Other					
<b>SPECIAL HANDLING AND/OR STORAGE</b>		<b>SAMPLE ANALYSIS</b>		129L SEP_14 PS-LESS COMMON;	
RADIOACTIVE TIE TO: B2M018					

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B2N866	WATER	12-4-12	10535

*Salosky*  
*WD5002*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>F.M. Hall</i>	DATE/TIME 12-4-12 1230	RECEIVED BY/STORED IN <i>Salty</i>	DATE/TIME 12-4-12 1230	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKT applies to this SAF.	
RELINQUISHED BY/REMOVED FROM <i>Salty</i>	DATE/TIME 12-5-12 0720	RECEIVED BY/STORED IN <i>Vehicle of Work</i>	DATE/TIME 12-5-12 0720		
RELINQUISHED BY/REMOVED FROM <i>Vehicle of Work</i>	DATE/TIME 12-5-12 1210	RECEIVED BY/STORED IN <i>Rocky Soil Tank</i>	DATE/TIME 12-5-12 1210		
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	DATE/TIME	DISPOSED BY	DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD				

PRINTED ON 11/26/2012

A-603-618 (REV 2)

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		
COLLECTOR F.M. Hall	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C
SAMPLING LOCATION 289-TA, Post Resin Tank A1, Valve V03-Y21A1	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling		SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. N/A	FIELD LOGBOOK NO. LINE-N-585-6162	ACTUAL SAMPLE DEPTH NA	COA 303110E510	METHOD OF SHIPMENT GOVERNMENT VEHICLE
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR			BILL OF LADING/AIR BILL NO. SEE PTR
<b>MATRIX*</b> A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wine X=Other				
<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> **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.** <b>SPECIAL HANDLING AND/OR STORAGE</b> <i>DO NOT DRINK THE WATER</i> <i>Know 112712</i>				

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	MAXHFT
B2N870	WATER	12-4-12	1630	<i>✓</i>

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>F. M. Hall</i>	DATE/TIME 12-4-12 1230	RECEIVED BY/STORED IN <i>✓</i>	DATE/TIME 12-4-12 1230	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
RELINQUISHED BY/REMOVED FROM <i>SS#-1</i>	DATE/TIME 12-5-12 0700	RECEIVED BY/STORED IN <i>✓</i>	DATE/TIME 12-5-12 0700		
RELINQUISHED BY/REMOVED FROM <i>D. Leibell</i>	DATE/TIME 12-5-12 0700	RECEIVED BY/STORED IN <i>✓</i>	DATE/TIME 12-5-12 0700		
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		

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		
COLLECTOR F.M. Hall	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7C
SAMPLING LOCATION 289-TA, Post Resin Tank A2, Valve V03-Y21A2	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling		SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. N/A	FIELD LOGBOOK NO. HNF-N- <u>5855-666</u>	ACTUAL SAMPLE DEPTH N/A	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*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION		None
		HOLDING TIME	TYPE OF CONTAINER	
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wine X=Other	**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.**	6 Months	G/P	
		2		
	SPECIAL HANDLING AND/OR STORAGE -RADIATION SOURCE- KAW 11271/2	4L		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2N873	WATER	12-4-12	1045	<i>in tank</i>

*JALOSUA*  
*WDOSO2*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>F.M. Hall</i>	DATE/TIME 12-4-12 12:30	RECEIVED BY/STORED IN <i>SSU-1</i>	DATE/TIME 12-4-12 12:30	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKT applies to this SAF.	
RELINQUISHED BY/REMOVED FROM <i>SSU-1</i>	DATE/TIME 12-5-12 07:00	RECEIVED BY/STORED IN <i>D. Leibelle</i>	DATE/TIME 12-5-12 07:00		
RELINQUISHED BY/REMOVED FROM <i>D. Leibelle</i>	DATE/TIME 12-5-12 12:10	RECEIVED BY/STORED IN <i>5855-666</i>	DATE/TIME 12-5-12 12:10		
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	

DECEMBER 18, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-028-375	PAGE 1 OF 1
COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	DATA	TURNAROUND
F. M. Hall <i>F. M. Hall</i>	EVANS, RT	373-7924	EVANS, RT	7C	<input type="checkbox"/>	15 Days / 15 Days
SAMPLING LOCATION	PROJECT DESIGNATION		SAF NO.	AIR QUALITY		
289-TA, Pre-Resin Tank B1, Valve V25-Y21B1	200W Pump & Treat - Treatment Plant Water Sampling		F12-028			
ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	COA	METHOD OF SHIPMENT		
N/A	LINE-N- <i>585-662</i>	N/A	303110ES10	GOVERNMENT VEHICLE		
OFFSITE PROPERTY NO.			BILL OF LADING/AIR BILL NO.			
			SEE PTR			

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		PRESERVATION	None
	**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.**			
A=Air		HOLDING TIME	6 Months	
DL=Drum		TYPE OF CONTAINER	G/P	
Liquids		NO. OF CONTAINER(S)	2	
DS=Drum		VOLUME	4L	
Solids		SAMPLE ANALYSIS	T12GUL-SEP-LE PS-GS; COMMON;	
L=Liquid				
O=Oil				
S=Soil				
SE=Sediment				
T=Tissue				
V=Vegetation				
W=Water				
WI=Wine				
X=Other				

SPECIAL HANDLING AND/OR STORAGE  
SAMPLE NO. MATRIX\* SAMPLE DATE SAMPLE TIME

B2N876	WATER	12-4-12	1105	<i>mTHfw</i>
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*WD6502*  
*JALOSOH4*

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.	
<i>F. M. Hall</i>	12-4-12 12-3-0	<i>350 24</i>	12-4-12 12-3-0		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>SEH-1</i>	12-5-12 07:00	<i>D. Webb</i>	12-5-12 07:00		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>D. Webb</i>	12-5-12	<i>350 black tank</i>	12-5-12 17:00		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>TRT</i>	12-5-12		12-5-12		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>TRT</i>	12-5-12		12-5-12		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<i>TRT</i>	12-5-12		12-5-12		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

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Sample Check-in List

Date/Time Received: 12-5-12 / 1210 Container GM Screen Result: (Airlock) .06 Initials B ]  
12-5-12 Sample GM Screen Result (Sample Receiving) .04 Initials B ]

Client: PBW (FLH) SDG #: WD6502 NA [ ] SAF #: F12-028 NA [ ]

Lot Number: JAL050464

Chain of Custody # F12-028-381, 384, 357, 361, 365, 369, 372, 375

Shipping Container ID: hand deliv. NA B Air Bill Number: \_\_\_\_\_ 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: \_\_\_\_\_ °C NA B ]
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): 8
7. Containers received: 16 x 4LP
8. Sample holding times exceeded? NA [ ] Yes [ ] No B ]
9. Samples have:  
B tape hazard labels  
B custody seals appropriate sample labels
10. Matrix:  
B A (FLT, Wipe, Solid, Soil)  
B S (Air, Niosh 7400) I (Water)  
T (Biological, Ni-63)
11. Samples:  
B are in good condition \_\_\_\_\_ are leaking  
B are broken \_\_\_\_\_ have air bubbles (Only for samples requiring no head space)  
B Other N/A
12. Sample pH appropriate for analysis requested Yes B ] No [ ] NA [ ]  
(If acidification is necessary, then document sample ID, initial pH, amount of HNO<sub>3</sub> added and pH after addition on table overleaf)
13. RPL ID # of preservative used: N/A
14. Were any anomalies identified in sample receipt? Yes [ ] No B ]
15. Description of anomalies (include sample numbers): NA B



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Sample Preparation/Analysis										Balance Id:1120482733
Priority										Pipet #: _____
										Sep1 DT/Tm Tech:
										Sep2 DT/Tm 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	Dish Yield	Ppt or Geometry	Count Time Min	Detector Id	CR Analyst, InitDate
1 MXHFM-1-AA J2L050464-1-SAMP 12/04/2012 11:15	3874.80g,in	3874.80g	ITA12443 09/18/12	34.2mg	/	200	/	14	1949	/2/12/LA
2 MXHFM-1-AC-X J2L050464-1-DUP 12/04/2012 11:15	3883.60g,in	3883.60g	ITA12444 09/18/12	35.2mg	/	200	/	14	1950	/
3 MXHFN-1-AA J2L050464-2-SAMP 12/04/2012 11:36	3896.50g,in	3896.50g	ITA12445 09/18/12	25.4mg	/	200	/	14	2316	12/12/2012
4 MXHFP-1-AA J2L050464-3-SAMP 12/04/2012 09:00	3824.30g,in	3824.30g	ITA12446 09/18/12	34.9mg	/	200	/	15	2318	Beta: 2.02E-03 uCi/Sa
5 MXHFPQ-1-AA J2L050464-4-SAMP 12/04/2012 09:50	3840.10g,in	3840.10g	ITA12447 09/18/12	34.4mg	/	200	/	14	0246	Beta: 5.63E-05 uCi/Sa
6 MXHFR-1-AA J2L050464-5-SAMP 12/04/2012 10:55	3870.60g,in	3870.60g	ITA12448 09/18/12	34.0mg	/	200	/	15	0247	Beta: 2.31E-04 uCi/Sa
7 MXHFT-1-AA J2L050464-6-SAMP 12/04/2012 10:30	3873.50g,in	3873.50g	ITA12449 09/18/12	34.2mg	/	200	/	14	1009	12/13/12 C/JT
TestAmerica Richland Wa.	Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added									
	ISV - Insufficient Volume for Analysis									
	WO Cnt: 7 Prep_SamplePrep v4.8.60									

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Sample Preparation/Analysis						Balance Id:1120482733							
Work Ord. Lot,	Total Amt/Unit	Total Acidified/Unit	Initial Amt/Unit	Adj. Amt/(Un-Acidified)	QC Tracer Prep Date	Pot or Yield	Dish Size	Geometry	Count Time Min	Detector Id	Count On (24hr) Circle	CR Analyst, InitDate	Comments:
8 MXHFW-1-AA	3879.60g,in	3879.60g,in	3879.60g,in	3879.60g,in	ITA12450 09/18/12				34.9mg	L 5	/D 11	12/13/12 GJH	
J2L050464-7-SAMP													
12/04/2012 10:45													
9 MXHFW-1-AA	3868.30g,in	3868.30g,in	3868.30g,in	3868.30g,in	ITA12451 09/18/12				33.7mg	Scr: Alpha: -1.91E-03 uCi/Sa		Beta: 2.99E-03 uCi/Sa	
J2L050464-8-SAMP													
12/04/2012 11:05													
10 MXHJ7-1-AA-B	3877.50g,in	3877.50g,in	3877.50g,in	3877.50g,in	ITA12452 09/18/12				34.3mg	Scr: Alpha: 4.36E-04 uCi/Sa		Beta: 1.87E-03 uCi/Sa	
J2L060000-34-BLK													
12/06/2012 13:16 pd													
11 MXHJ7-1-AC-C	3850.00g,in	3850.00g,in	3850.00g,in	3850.00g,in	ISD1490 10/08/12				34.6mg	Scr: Alpha: 1.706 1337		Beta: 1.216 1337	
J2L060000-34-LCS													
12/06/2012 13:16 pd													
<b>Comments:</b> MXHJ7-BLK P-12-00228,S-12-00193,P-12-00237,P-12-00570,S-12-00139,S-12-00188,S-12-00141,P-12-00540,P-12-00540,S-12-00228,P-12-00540,"h 12/12/12"													
<b>All Clients for Batch:</b> 108302, CHEM Hill Plateau Remediation DOE RL													
Waste Management Federal Servi, SS , 29754													
MXERMLAA-SAMP Constituent List:													
I-129 ERL:5.00E-01	pCi/L	LCL:	UCL:	RPD:									
MXERJ71AA-BLK:													
I-129 ERL:5.00E-01	pCi/L	LCL:	UCL:	RPD:									
MXERJ71AC-LCS:													
I-129 ERL:5	pCi/L	LCL:7.0	UCL:13.0	RPD:2.0									
MXERMLAA-SAMP Calc Info:													
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: 11													Prep_SamplePrep v4.8.60

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<b>Sample Preparation/Analysis</b>										Balance Id:1120482733			
										Pipet #: _____			
										Sep1 DT/Tm Tech: _____			
										Sep2 DT/Tm Tech: _____			
AnlyDueDate: 12/20/2012		Batch: 2341034		pCi/L		Prep Tech: HoganH							
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	Pptor Geometry	Count Time Min	Detector Id	Count On (24hr) Circle	CR Analyst, InitDate	Comments:
Uncert Level (#s) ..:: 2	Decay to Sadt: Y	Blk Subt.: N	Sci.Not..: Y									ODRS: B	
MXH071AA-BLK:													
Uncert Level (#s) ..:: 2	Decay to Sadt: Y	Blk Subt.: N	Sci.Not..: Y									ODRS: B	
MXH071AC-TCS:													
Uncert Level (#s) ..:: 2	Decay to Sadt: Y	Blk Subt.: N	Sci.Not..: Y									ODRS: B	

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ICOC Fraction Transfer/Status Report					
By Date: 12/15/2011, 12/19/2012, Batch: '2341034', User: *ALL Order By DateTimeAccepting					
Q	Batch	Work Ord	CurStatus	Accepting	Comments
	2341034				
AC		Rev1C	HoganH	12/7/2012 7:12:13	
SC			davilan	IsBatched	12/6/2012 1:12:47 PM ICOC_RADCALC v4.8.49
SC			HoganH	InPrep	12/7/2012 7:12:13 AM RL-PRP-004 REVISION 2
SC			HoganH	Prep1C	12/7/2012 7:46:42 AM RL-PRP-004 REVISION 2
SC			HoganH	InPrep2	12/11/2012 10:15:34 AM RL-GAM-002 REVISION 3
SC			HoganH	Prep2C	12/11/2012 12:56:18 PM RL-GAM-002 REVISION 3
SC			HoganH	Sep2C	12/12/2012 8:47:16 AM RL-GAM-002 REVISION 3
SC			HiattC	InCnt1	12/12/2012 9:17:12 AM RL-CI-007 REV. 2
SC			DawkinsO	CalcC	12/13/2012 9:32:00 PM RL-CI-007 REV. 2
SC			antonsonl	Rev1C	12/14/2012 10:11:08 AM RL-DR-001 Rev 2
AC			HoganH		12/7/2012 7:46:42
AC			HoganH		12/11/2012 10:15:34
AC			HoganH		12/11/2012 12:56:18
AC			HoganH		12/12/2012 8:47:16
AC			HiattC		12/12/2012 9:17:12
AC			DawkinsO		12/13/2012 9:32:00
AC			antonsonl		12/14/2012 10:11:08

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt:8

ICOCFractions v4.8.44