

FEBRUARY 19, 2013

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 32 Pages

Report No.: 54601

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.
W06536	F12-028	B2NN75	J3B050427-1	MX27J1AA	9MX27J10	3037037
		B2NN78	J3B050427-2	MX27K1AA	9MX27K10	3037037
		B2NN81	J3B050427-3	MX27L1AA	9MX27L10	3037037
		B2NN85	J3B050427-4	MX27M1AA	9MX27M10	3037037
		B2NN88	J3B050427-5	MX27N1AA	9MX27N10	3037037
		B2NN91	J3B050427-6	MX27P1AA	9MX27P10	3037037
		B2NN95	J3B050427-7	MX27Q1AA	9MX27Q10	3037037



Certificate of Analysis

TestAmerica Laboratories, Inc.

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

February 19, 2013

Attention: Scot Fitzgerald

SAF Number : F12-028
Date SDG Closed : February 5, 2013
Number of Samples : Seven (7)
Sample Type : Water
SDG Number : W06536
Data Deliverable : 15 Day / 15 Day Summary

CASE NARRATIVE

I. Introduction

On February 5, 2013, seven 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:

Table with 4 columns: CH2M ID#, TARL ID#, MATRIX, DATE OF RECEIPT. Rows include sample IDs B2NN75 through B2NN95, all with MATRIX WATER and DATE OF RECEIPT 2/05/13.

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.

CH2M Hill Plateau Remediation Company  
February 19, 2013

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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**

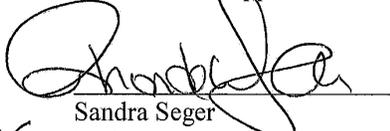
**Gamma Spectroscopy**

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

The LCS, batch blank, samples and sample duplicate (B2NN75) 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

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**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%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol) * IngrFct)$ . 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.
<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%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin} + 2.71 / SCntMin) * (ConvFct / (Eff * Yld * Abn * Vol) * IngrFct)$ . For LSC methods the batch blank is used as a measure of the background variability.
<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</b> Number.
<b>RER</b>	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.
<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.

**Sample Results Summary**

Date: 19-Feb-13

**TestAmerica TARL**

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

Report No. : 54601

SDG No: W06536

Client Id		Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
Batch	Work Order								
3037037	I129LL_SEP_LEPS_GS								
<b>B2NN75</b>									
	MX27J1AA	I129	-5.02E-02 +- 1.3E-01	U	pCi/L	101%	2.17E-01	5.00E-01	
<b>B2NN75 DUP</b>									
	MX27J1AC	I129	1.20E-01 +- 1.0E-01	U	pCi/L	99%	2.01E-01	5.00E-01	489.5
<b>B2NN78</b>									
	MX27K1AA	I129	1.35E-01 +- 1.2E-01	U	pCi/L	98%	2.28E-01	5.00E-01	
<b>B2NN81</b>									
	MX27L1AA	I129	1.36E-01 +- 1.1E-01	U	pCi/L	98%	1.79E-01	5.00E-01	
<b>B2NN85</b>									
	MX27M1AA	I129	2.40E-01 +- 1.8E-01		pCi/L	102%	2.27E-01	5.00E-01	
<b>B2NN88</b>									
	MX27N1AA	I129	2.76E-01 +- 1.4E-01		pCi/L	99%	1.39E-01	5.00E-01	
<b>B2NN91</b>									
	MX27P1AA	I129	2.03E-01 +- 1.3E-01	U	pCi/L	104%	2.44E-01	5.00E-01	
<b>B2NN95</b>									
	MX27Q1AA	I129	1.16E-01 +- 9.7E-02	U	pCi/L	101%	1.91E-01	5.00E-01	
No. of Results:		8							

TestAmerica

RPD - Relative Percent Difference.

rptSTLRchSaSummary2 V5.2.23  
A2002

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.

**QC Results Summary**  
**TestAmerica TARL**  
 Ordered by Method, Batch No, QC Type,.

Date: 19-Feb-13

Report No. : 54601

SDG No.: W06536

Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
I129LL_SEP_LEPS_GS	3037037	BLANK QC,							
	MX3E01AA	1129	-2.38E-02 +/- 1.1E-01	U	pCi/L	95%			1.95E-01
	3037037	LCS,							
	MX3E01AC	1129	1.02E+01 +/- 1.2E+00		pCi/L	101%	97%	0.0	2.05E-01
<b>No. of Results:</b>		<b>2</b>							

TestAmerica  
 rptSLRchQcSummary V5.2.23  
 A2002

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

Date: 19-Feb-13

FORM I  
SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J3B050427-1  
 Client Sample ID: B2NN75  
 SDG: W06536  
 Report No.: 54601  
 COC No.: F12-028-427  
 Collection Date: 2/5/2013 8:32:00 AM  
 Received Date: 2/5/2013 12:40:00 PM  
 Matrix: WATER

Ordered by Client Sample ID, Batch No.

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: 3037037	I129LL_SEP_LEPS_GS											
I129	-5.02E-02	U	1.3E-01	1.3E-01	2.17E-01	pCi/L	101%	-0.23	2/13/13 07:14 a		3.8768	LEP4\$1
							5.00E-01	-0.78			L	

Work Order: MX27J1AA Report DB ID: 9MX27J10

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rptSTLRchSample 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.  
 V5.2.23 A2002

FORM I  
SAMPLE RESULTS

Date: 19-Feb-13

Lab Name: TestAmerica  
 Lot-Sample No.: J3B050427-2  
 Client Sample ID: B2NN78

SDG: W06536  
 Report No.: 54601  
 COC No.: F12-028-430

Collection Date: 2/5/2013 8:32:00 AM  
 Received Date: 2/5/2013 12:40:00 PM  
 Matrix: WATER

Ordered by Client Sample ID, Batch No.

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: 3037037	1129LL_SEP_LEPS_GS											
1129	1.35E-01	U	1.2E-01	1.2E-01	2.28E-01	pCi/L	98%	0.59	2/13/13 10:52 a	3.8476	L	LEP4\$1
						1.12E-01	5.00E-01	(2.2)				

Work Order: MX27K1AA Report DB ID: 9MX27K10

No. of Results: 1 Comments:

TestAmerica  
 rptSTLRchSample  
 V5.2.23 A2002

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

FORM I

Date: 19-Feb-13

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J3B050427-3  
 Client Sample ID: B2NN81

SDG: W06536  
 Report No.: 54601  
 COC No.: F12-028-433

Collection Date: 2/5/2013 9:02:00 AM  
 Received Date: 2/5/2013 12:40:00 PM  
 Matrix: WATER

Ordered by Client Sample ID, Batch No.

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: 3037037	I129LL_SEP_LEPS_GS				Work Order: MX27L1AA	Report DB ID: 9MX27L10						
I129	1.36E-01	U	1.1E-01	1.1E-01	1.79E-01	pCi/L	98%	0.76	2/13/13 10:53 a		3.7712	LEP5\$1
						8.82E-02	5.00E-01	(2.6)			L	

No. of Results: 1    Comments:

TestAmerica    MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rpt\$TLRchSample    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.  
 V5.2.23 A2002

Date: 19-Feb-13

FORM I  
SAMPLE RESULTS

Lab Name: TestAmerica  
Lot-Sample No.: J3B050427-4  
Client Sample ID: B2NN85

SDG: W06536  
Report No.: 54601  
COC No.: F12-028-437

Collection Date: 2/5/2013 9:30:00 AM  
Received Date: 2/5/2013 12:40:00 PM  
Matrix: WATER

Ordered by Client Sample ID, Batch No.

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: 3037037	I129LL_SEP_LEPS_GS				Work Order: MX27M1AA			Report DB ID: 9MX27M10				
I129	2.40E-01		1.8E-01	1.8E-01	2.27E-01 pCi/L	1.14E-01	102%	(1.1)	2/13/13 02:18 p		3.7753	LEP4\$1
						5.00E-01		(2.7)			L	

No. of Results: 1    Comments:

TestAmerica  
rpSTLRchSample  
V5.2.23 A2002

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

FORM I

Date: 19-Feb-13

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J3B050427-5  
 Client Sample ID: B2NN88

SDG: W06536  
 Report No.: 54601  
 COC No.: F12-028-440

Collection Date: 2/5/2013 9:50:00 AM  
 Received Date: 2/5/2013 12:40:00 PM  
 Matrix: WATER

Ordered by Client Sample ID, Batch No.

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: 3037037	1129LL_SEP_LEPS_GS											
1129	2.76E-01		1.4E-01	1.4E-01	1.39E-01	pCi/L	99%	(2.)	2/13/13 02:20 p		3.8039	LEP5\$1
						6.92E-02	5.00E-01	(4.)			L	

Work Order: MX27N1AA Report DB ID: 9MX27N10

No. of Results: 1 Comments:

TestAmerica  
 rptSTLRchSample  
 V5.2.23 A2002

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

Date: 19-Feb-13

FORM I  
SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J3B050427-6  
 Client Sample ID: B2NN91  
 SDG: W06536  
 Report No.: 54601  
 COC No.: F12-028-443  
 Matrix: WATER  
 Collection Date: 2/5/2013 10:02:00 AM  
 Received Date: 2/5/2013 12:40:00 PM

Ordered by Client Sample ID, Batch No.

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: 3037037	I129LL_SEP_LEPS_GS											
I129	2.03E-01	U	1.3E-01	1.3E-01	2.44E-01	pCi/L	104%	0.83	2/13/13 05:47 p		3.7957	LEP4\$1
							5.00E-01	(3.2)			L	

Work Order: MX27P1AA Report DB ID: 9MX27P10

No. of Results: 1 Comments:

TestAmerica  
 rptS\_TLRchSample  
 V5:2.23 A2002

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

Date: 19-Feb-13

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

Lab Name: TestAmerica  
 Lot-Sample No.: J3B050427-7  
 Client Sample ID: B2NN95  
 SDG: W06536  
 Report No.: 54601  
 COC No.: F12-028-447  
 Collection Date: 2/5/2013 10:14:00 AM  
 Received Date: 2/5/2013 12:40:00 PM  
 Matrix: WATER

Ordered by Client Sample ID, Batch No.

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: 3037037	I129LL_SEP_LEPS_GS											
I129	1.16E-01	U	9.7E-02	9.7E-02	1.91E-01	pCi/L	101%	0.61	2/13/13 05:49 p		3.7654	LEP5\$1
						9.58E-02	5.00E-01	(2.4)			L	

Work Order: MX27Q1AA Report DB ID: 9MX27Q10

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rpt\$TLRchSample 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.  
 V5.2.23 A2002

FORM II

Date: 19-Feb-13

DUPLICATE RESULTS

Lab Name: TestAmerica      SDG: W06536      Collection Date: 2/5/2013 8:32:00 AM  
 Lot-Sample No.: J3B050427-1      Report No.: 54601      Received Date: 2/5/2013 12:40:00 PM  
 Client Sample ID: B2NN75 DUP      COC No.: F12-028-427      Matrix: WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3037037	I129LL_SEP_LEPS_GS				MX27J1AC	Report DB ID: MX27J1CR			Orig Sa DB ID: 9MX27J10			
1129	1.20E-01	U	1.0E-01	1.0E-01	2.01E-01	pCi/L	99%	0.6	2/13/13 07:15 a		3.843	LEP5\$1
	-5.02E-02	U	RPD	489.5		5.00E-01	(2.3)				L	

No. of Results: 1      Comments:

TestAmerica      RPD - Relative Percent Difference.  
 rpt\$TLRchDupV5.      MDC[MDA],Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 2.23 A2002      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.

Date: 19-Feb-13

FORM II  
BLANK RESULTS

Lab Name: TestAmerica SDG: W06536  
Matrix: WATER Report No.: 54601

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3037037	1129LL_SEP_LEPS_GS				Work Order: MX3E01AA							
1129	-2.38E-02	U	1.1E-01	1.1E-01	1.95E-01	pCi/L	95%	-0.12	2/13/13 09:17 p		3.9356	LEP4\$1
					9.32E-02	5.00E-01		-0.42			L	

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rpt\$TLRchBlank 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.  
 V5.2.23 A2002

FORM II

Date: 19-Feb-13

LCS RESULTS

Lab Name: TestAmerica      SDG: W06536  
 Matrix: WATER              Report No.: 54601

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3037037	I129LL_SEP_LEPS_GS      Work Order: MX3E01AC      Report DB ID: MX3E01CS												
I129	1.02E+01		1.2E+00	1.2E+00	2.05E-01	pCi/L	101%	1.05E+01	1.74E-01	97%	2/13/13 09:19 p	3.849	LEP5\$1
							Rec Limits:	70	130	0.0			

No. of Results: 1      Comments:

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

rpt\$TLRchLcs  
 V5.2.23 AZ002

Lot No., Due Date: J3B050427; 02/20/2013  
 Client, Site: 108302; FLH HANFORD  
 QC Batch No., Method Test: 3037037; RGAMLEPS Gamma by LEPS  
 SDG, Matrix: W06536; 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 *Tracy Antonson* Date *2/18/13*



THE LEADER IN ENVIRONMENTAL TESTING

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

Batch Number: 3037007

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 ≤ 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?	✓		
<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: CRDL = 0.5 pCi/L

Second Level Review: [Signature] Date: 2/19/13

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-427	PAGE 1 OF 1
COLLECTOR <i>Fulton Campbell</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 V05-Y30	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. <i>HNF-N-491-9/64</i>	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	ACTUAL SAMPLE DEPTH <i>N/A</i>	OFFSITE PROPERTY NO. SEE PTR	COA 303110ES10	BILL OF LADING/AIR BILL NO. SEE PTR	
<p><b>MATRIX*</b></p> <p>A=Air DL=Drum L=Liquid O=Oil S=Soil SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other</p>		<p><b>PRESERVATION</b> None</p> <p><b>HOLDING TIME</b> 6 Months</p> <p><b>TYPE OF CONTAINER</b> G/P</p> <p><b>NO. OF CONTAINER(S)</b> 2</p> <p><b>VOLUME</b> 4L</p>		<p><b>SPECIAL HANDLING AND/OR STORAGE</b> RADIOACTIVE TIE TO: B2M02</p>	
<p><b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **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>		<p><b>SAMPLE ANALYSIS</b> I129LL SEP-LE PS, GS, ILL COMMON</p>		<p><b>SHIP TO</b> TestAmerica Incorporated, Richland</p>	
SAMPLE NO. B2NN75	MATRIX* WATER	SAMPLE DATE <i>2.5.13</i>	SAMPLE TIME <i>0837</i>	<p><b>INITIALS</b> <i>mxans</i></p>	

*33805040*  
*w06536*  
*Due 2.20.13*



CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
<i>K. Campbell / K. Campbell</i>	<i>2.5.13 1240</i>	<i>J. B. ...</i>	<i>2.5.13 1240</i>	<p><b>TRV-13: 010</b></p>	
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		
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		F12-028-430	PAGE 1 OF 1
COLLECTOR <i>Kayla Fulton</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 V05-Y30 DUP	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling		SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. <i>INF-N-491-9/64</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>
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 WL=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 None	HOLDING TIME 6 Months	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 2	VOLUME 4L	SAMPLE ANALYSIS I29UL_SEP_LE PS_GS_ILC COMMON;
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE NO. B2NN78	MATRIX* WATER	SAMPLE DATE 2-5-13	SAMPLE TIME 0832	<input checked="" type="checkbox"/> <i>m tank</i>			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Kayla Fulton</i>	DATE/TIME 2-5-13	DATE/TIME 1840	DATE/TIME 2-5-13	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	DATE/TIME	DATE/TIME	TRVL 13- 010	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	DATE/TIME	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	DATE/TIME	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	DATE/TIME	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	DATE/TIME	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		F12-028-433	PAGE 1 OF 1
COLLECTOR <i>Fulton Campbell</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 C *	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling	FIELD LOGBOOK NO. HNF-N-491-9/164	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	None
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	IL29LL_SRP_LE PS_GS_IL: COMMON
L=Liquid		
O=Oil		
S=Soil		
SE=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
WI=Wipe		
X=Other		

SPECIAL HANDLING AND/OR STORAGE

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	DATE/TIME
B2NN81	WATER	2-5-13	0900	

*B2bosohan*  
*w06534*  
*Due 2-20-13*

*mxenl*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>R. Campbell</i>	DATE/TIME 2-5-13 1240	RECEIVED BY/STORED IN <i>S. Bock</i>	DATE/TIME 2-5-13 1240	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  <b>TRVL-13-010</b>	
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		
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		F12-028-437	PAGE 1 OF 1
COLLECTOR <i>Fulton Campbell</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. HNF-N-491-9/64	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	None
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	1129LL, SEP, LE PS, GS, LI, COMMON
L=Liquid	SAMPLE DATE	2-5-13
O=Oil	SAMPLE TIME	0930
S=Soil		✓
SF=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
X=Other		

B2N185  
 338050427  
 W06536  
 Due 2-20-13  
 m x a m

CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
<i>F. Campbell</i>	2-5-13 1240	<i>J. Beck</i>	2-5-13 1240	TRA-13-010	
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		
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		
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		F12-028-440	PAGE 1 OF 1
COLLECTOR <i>Tulster Campbell</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	SAF NO. F12-028		AIR QUALITY	<input type="checkbox"/>
ICE CHEST NO.	FIELD LOGBOOK NO. <i>HNF-N-4919/64</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 303110ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	<b>ORIGINAL</b>
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR	BILL OF LADING/AIR BILL NO. SEE PTR			

MATRIX*	PRESERVATION	None
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	11294L SEP_LE PS_GS_LL COMMON
L=Liquid	SAMPLE DATE	25/13
O=Oil	SAMPLE TIME	0950
S=Soil		<i>✓</i>
SF=Sediment		
T=Tissue		
V=Vegetation		
W=Water		
WI=Wipe		
X=Other		

*B2B505042N*  
*W04536*  
*Due 2-20-13*  
*m x a n n*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
<i>K Campbell</i>	<i>25/13 1240</i>	<i>J. Soul</i>	<i>125-13 1240</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		
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		
RECEIVED BY	TITLE	<b>TRV-13-010</b>			
LABORATORY SECTION	DISPOSAL METHOD	DISPOSED BY			
FINAL SAMPLE DISPOSITION		DATE/TIME			

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F12-028-443	PAGE 1 OF 1
COLLECTOR <i>Fulton Campbell</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. <i>HNF-N-4919/164</i>	SAF NO. F12-028	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 303110ES10	BILL OF LADING/AIR BILL NO. SEE PTR		
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. SEE PTR				

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SF=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.**	None	None
		6 Months	
		G/P	
		2	
		4L	
		H28LL_SEP_LE PS_GS_ILI COMMON	

SPECIAL HANDLING AND/OR STORAGE	SAMPLE DATE	SAMPLE TIME	
	<i>2-5-13</i>	<i>1008</i>	<i>~ m x a n p</i>

*338050127  
W04534  
Dne 2-20-13*

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.	
<i>F. Campbell</i>	<i>2-5-13 1240</i>	<i>J. Bell</i>	<i>2-5-13 1240</i>	TRVL-13-010	
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		
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		F12-028-447	PAGE 1 OF 1
COLLECTOR <i>Fulton Campbell</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	SAF NO. F12-028	COA 3031.10ES10	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-491-9/64	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	None
A=Air DI=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SF=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	HOLDING TIME	6 Months
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.**	TYPE OF CONTAINER	G/P
SPECIAL HANDLING AND/OR STORAGE	NO. OF CONTAINER(S)	2
	VOLUME	4L
	SAMPLE ANALYSIS	1129LL_SRP_LE PS_GS_LL: COMMON
SAMPLE NO. B2NN95	SAMPLE DATE 2-5-13	SAMPLE TIME 1014

336050428  
W06536  
Due 2-20-13  
mxarq

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	DATE/TIME	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>R. Campbell</i>	RECEIVED BY/STORED IN <i>Fulton Campbell</i>	DATE/TIME 2-5-13 12:40	DATE/TIME 2-5-13 12:40	<input type="checkbox"/> ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  <b>TRU-13- 010</b>
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME	

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



Sample Check-in List

Date/Time Received: 2-5-13 / 1240 Container GM Screen Result: (Airlock) .6 Initials [B]
Sample GM Screen Result (Sample Receiving) .4 Initials [B]

Client: B 2-5-13 FLH SDG #: WDL536 NA [] SAF #: F12-028 NA []

Lot Number: J3B050427

Chain of Custody # F12-028-427; 430; 433; 437; 440; 443; 447

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): 7
7. Containers received: 14 x 4LP

8. Sample holding times exceeded? NA [ ] Yes [ ] No [B]

9. Samples have: [B] tape 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 NIA

12. Sample pH appropriate for analysis requested Yes [B] No [ ] NA [ ]
(If acidification is necessary, then document sample ID, initial pH, amount of HNO3 added and pH after addition on table overleaf)
RPL ID # of preservative used: N/A

13. Were any anomalies identified in sample receipt? Yes [ ] No [B]

14. Description of anomalies (include sample numbers): NA [B]



FLH I-129

Sample Preparation/Analysis

Balance Id: 1120482733

BN I-129 Pp/SEP GAM002  
TB Gamma by LEPD  
51 CLIENT: HANFORD

**PRIORITY**

Sep1 DT/Tm Tech:  
Sep2 DT/Tm Tech:

Pipet #:

PM, Quote: SS, 29754

Prep Tech: Norton, Nye P

CR Analyst, Init/Date

Count On | Off  
(24hr) Circle

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 MX27J-1-AA	3876.80g.in	3876.80g	ITA12645	3876.80g	01/29/13		37.2mg	200	L4	1034	2/13/13	QJH	
J3B050427-1-SAMP													
02/05/2013 08:32													Beta: 2.86E-03 uCi/Sa
2 MX27J-1-AC-X	3843.00g.in	3843.00g	ITA12646	3843.00g	01/29/13		36.6mg	200	L5	1035			
J3B050427-1-DUP													
02/05/2013 08:32													Beta: 2.86E-03 uCi/Sa
3 MX27K-1-AA	3847.60g.in	3847.60g	ITA12647	3847.60g	01/29/13		36.2mg	200	L4	1412			
J3B050427-2-SAMP													
02/05/2013 08:32													Beta: 2.86E-03 uCi/Sa
4 MX27L-1-AA	3771.20g.in	3771.20g	ITA12648	3771.20g	01/29/13		36.2mg	200	L5	1413			
J3B050427-3-SAMP													
02/05/2013 09:02													Beta: 1.41E-03 uCi/Sa
5 MX27M-1-AA	3775.30g.in	3775.30g	ITA12649	3775.30g	01/29/13		37.6mg	200	L4	1738			
J3B050427-4-SAMP													
02/05/2013 09:30													Beta: -6.40E-04 uCi/Sa
6 MX27N-1-AA	3803.90g.in	3803.90g	ITA12650	3803.90g	01/29/13		36.7mg	200	L5	1740			
J3B050427-5-SAMP													
02/05/2013 09:50													Beta: 1.32E-03 uCi/Sa
7 MX27P-1-AA	3795.70g.in	3795.70g	ITA12651	3795.70g	01/29/13		38.5mg	200	L4	2107	2/13/2013		
J3B050427-6-SAMP													
02/05/2013 10:02													Beta: 2.60E-03 uCi/Sa
													Beta: 1.58E-03 uCi/Sa

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

WO Cnt: 7  
Prep\_SamplePrep v4.8.61

2/12/2013 1:06:39 PM		<b>Sample Preparation/Analysis</b>		Balance Id:1120482733									
108302, CH2M Hill Plateau Remediation DOE RL , Waste Management Federal Servi		BN I-129 Prp/Sep GAM002 TB Gamma by LEPD 51 CLIENT: HANFORD		Pipet #:									
Analyte: 202/20/2013		PM, Quote: SS, 29754		Sep1 DT/Tm Tech:									
Batch: 3037037 WATER pCi/L		Prep Tech: NyeP		Sep2 DT/Tm Tech:									
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 MX27Q-1-AA J3B050427-7-SAMP 02/05/2013 10:14	3765.40g.in	3765.40g	3765.40g.in	3765.40g	ITA12652 01/29/13		37.4mg	200	LS	2109	2/13/13-MS		Beta: 1.41E-08 uCi/Sa
9 MX3E0-1-AA-B J3B060000-37-BLK 02/06/2013 12:40 pd	3935.60g.in	3935.60g	3935.60g.in	3935.60g	ITA12653 01/29/13		35.2mg	200	LS	0037			Beta:
10 MX3E0-1-AC-C J3B060000-37-LCS 02/06/2013 12:40 pd	3849.00g.in	3849.00g	3849.00g.in	3849.00g	ISD1520 01/17/13		38.0mg	200	LS	0039			Beta:
AmiRec: 2X4LP #Containers: 2		AmiRec: 1 #Containers: 1		AmiRec: 1 #Containers: 1		Alpha:		Alpha:		Alpha:		Beta:	

2/12/2013 1:06:40 PM Balance Id: 1120482733

**Sample Preparation/Analysis**

BN I-129 Prp/Sep GAM002 Pipet #:  
 TB Gamma by LEPD  
 51 CLIENT: HANFORD Sep1 DT/Tm Tech:

Batch: 3037037 Sep2 DT/Tm Tech:  
 SEQ Batch, Test: None Prep Tech: NortonJ,NyeP

pCi/L

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:
<b>Comments:</b> MX3E0-BLK Comments S-12-00228, S-12-00193, P-12-00571, P-12-00872, S-12-00228, P-12-00548, S-12-000119, S-12-00141													
<b>All Clients for Batch:</b> 108302, CH2M Hill Plateau Remediation DOE RL Waste Management Federal Servi, SS, 29754													
<b>MX27J1AA-SAMP Constituent List:</b>													
I-129	RDL:5.00E-01	pCi/L	LCL:	UCL:	RPD:								
MX3E01AA-BLK:													
I-129	RDL:5.00E-01	pCi/L	LCL:	UCL:	RPD:								
MX3E01AC-LCS:													
I-129	RDL:5	pCi/L	LCL:70	UCL:130	RPD:20								
MX27J1AA-SAMP Calc Info:													
Uncert Level (#s):	2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B								
MX3E01AA-BLK:													
Uncert Level (#s):	2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B								
MX3E01AC-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 3 WO Cnt: 10  
 Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep\_SamplePrep v4.8.61

2/18/2013 11:06:36 AM

## ICOC Fraction Transfer/Status Report

ByDate: 2/19/2012, 2/23/2013, Batch: '3037037', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
<b>3037037</b>				
AC	Rev1C	NyeP	2/7/2013 9:21:04 AM	
SC		DavilaN	IsBatched	2/6/2013 12:42:13 PM ICOC_RADCALC v4.8.49
SC		NyeP	InPrep	2/7/2013 9:21:04 AM RL-GAM-002 REVISION 3
SC		NyeP	Prep1C	2/11/2013 9:50:08 AM RL-GAM-002 REVISION 3
SC		NortonJ	InSep1	2/11/2013 2:29:21 PM RL-GAM-002 REVISION 3
SC		HiattC	InCnt1	2/12/2013 1:26:48 PM RL-CI-007 REV. 2
SC		DawkinsO	CalcC	2/15/2013 10:39:09 PM RL-CI-007 REV. 2
SC		antonsonl	Rev1C	2/18/2013 11:06:27 AM RL-DR-001 Rev 2
AC		NyeP	2/11/2013 9:50:08	
AC		NortonJ	2/11/2013 2:29:21 PM	
AC		HiattC	2/12/2013 1:26:48 PM	
AC		DawkinsO	2/15/2013 10:39:09	
AC		antonsonl	2/18/2013 11:06:27	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland  
Richland Wa.