

Analytical Data Package Prepared For
CH2M Hill Plateau Remediation

Radiochemical Analysis By
TestAmerica

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

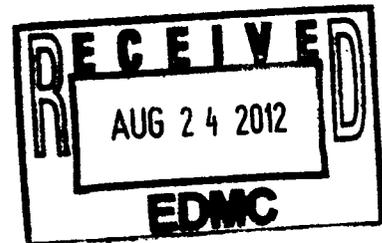
Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 50112

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.
W06392		B2JD91	J1K250477-1	MPAAA1AA	9MPAAA10	1332241
	F11-004	B2JD92	J1K280477-2	MPAAF1AA	9MPAAF10	1333173
		B2JD92	J1K280477-2	MPAAF1AD	9MPAAF10	1333174



JANUARY 10, 2012



Certificate of Analysis

TestAmerica Laboratories, Inc.

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

January 10, 2012

Attention: Scot Fitzgerald

SAF Number	:	F11-004
Date SDG Closed	:	November 28, 2011
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W06392
Data Deliverable	:	30 Day Summary

CASE NARRATIVE

I. Introduction

On November 28, 2011, two 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>
B2JD92	MPAAF	WATER	11/28/11
B2JD91	MPAAA	WATER	11/28/11

II. Sample Receipt

The samples were received in good condition. The samples were received at 7°C. For more details refer to the SIR (CHPRC Tracking Number: SDR12-112) that is included in this report. No other 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.

JANUARY 10, 2012

CH2M Hill Plateau Remediation Company
January 10, 2012

The requested analyses were:

Gamma Spectroscopy

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

Liquid Scintillation Counting

Tritium by method RL-LSC-005

Chemical Analysis

Hexavalent Chromium by EPA method 7196A

IV. Quality Control

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

QC and sample results are reported in the same units.

V. Comments

Gamma Spectroscopy

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

The LCS, batch blank, samples and sample duplicate (B2JD92) results are within contractual requirements.

Liquid Scintillation Counting

Tritium by method RL-LSC-005:

The LCS was recounted to verify activity. The LCS, batch blank, samples and sample duplicate (B2JD92) results are within contractual requirements.

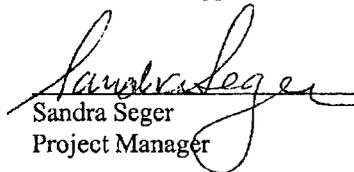
Chemical Analysis

Hexavalent Chromium by EPA method 7196A

The LCS, batch blank, samples, sample duplicate (B2JD91), sample matrix spike (B2JD91), and matrix spike duplicate (B2JD91) 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

JANUARY 10, 2012

SAMPLE ISSUE RESOLUTION

SIR NUM SDR12-112
REV NUM 0
DATE INITIATED 12/16/2011

SAMPLE EVENT INFORMATION

SAF NUM(S) F11-004
OPERABLE UNIT(S) 200-ZP-1
PROJECT(S) 200 AREA SGRP
SAMPLE EVENT TITLE(S) 200-ZP-1 Remedial Action Wells
LABORATORY TestAmerica Incorporated, Richland

SAMPLING INFORMATION

NUMBER OF SAMPLES 1
SAMPLE NUMBERS B2JD91
SAMPLE MATRIX WATER
COLLECTION DATE 11/28/2011 - 11/28/2011
SDG NUM W06392

ISSUE BACKGROUND

CLASS Field Sampling Issue
TYPE Incorrect Sample Preservation
DESCRIPTION The listed sample was received at a temperature of 7°C. The chain of custody for this sample indicates the correct preservation temperature is ~4°C. The sample was submitted for hexavalent chromium determination.

DISPOSITION

DESCRIPTION Proposed Disposition: Report data for sample and note incorrect temperature preservation in the case narrative.

JUSTIFICATION Accepted Disposition: Accept Proposed Disposition

Submitted by: Sandra Seger / TARL Date: 12/16/2011
Accepted by: Sally Simmons / CHPRC Date: 12/16/2011

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, $R = \text{constants} * f(x,y,z, \dots)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_j) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

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

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

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Blas	Defined by the equation $(\text{Result}/\text{Expected})-1$ as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty.</i> The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $L_c = (1.645 * \sqrt{2 * (\text{BkgrndCnt}/\text{BkgrndCntMin}) / \text{SCntMin}}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. 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.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{((\text{BkgrndCnt}/\text{BkgrndCntMin}) / \text{SCntMin}) + 2.71 / \text{SCntMin}}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/[\sqrt{(\text{TPUs}^2 + \text{TPUd}^2)}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 10-Jan-12

TestAmerica TARL

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

Report No. : 50112

SDG No: W06392

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
1333174	I129_SEP_LEPS_GS								
	B2JD92								
	MPAAF1AD	I129	-3.95E-04 +- 9.5E-02	U	pCi/L	100%	1.72E-01	1.00E+00	
	B2JD92 DUP								
	MPAAF1AF	I129	-2.01E-02 +- 1.2E-01	U	pCi/L	105%	2.04E-01	1.00E+00	-192.3
1332241	7196_CR6								
	B2JD91								
	MPAAA1AA	HEXCHROME	3.70E-03 +- 0.0E+00	U	mg/L	N/A	3.70E-03	3.50E-01	
	MPAAA1AE	HEXCHROME	3.70E-03 +- 0.0E+00	U	mg/L	N/A	3.70E-03	3.50E-01	0.0
1333173	906.0_H3_LSC								
	B2JD92								
	MPAAF1AA	H-3	1.19E+02 +- 1.6E+02	U	pCi/L	100%	3.60E+02	4.00E+02	
	B2JD92 DUP								
	MPAAF1AE	H-3	1.26E+01 +- 1.6E+02	U	pCi/L	100%	3.60E+02	4.00E+02	161.8
No. of Results: 6									

QC Results Summary

Date: 10-Jan-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. :50112

SDG No.: W06392

Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
H29_SEP_LEPS_GS									
1333174 BLANK QC,									
	MPA4L1AA	I129	-5.15E-02 +- 1.1E-01	U	pCi/L	99%			1.54E-01
1333174 LCS,									
	MPA4L1AC	I129	1.22E+01 +- 1.4E+00		pCi/L	99%	107%	0.1	2.73E-01
7196_CR6									
1332241 MATRIX SPIKE, B2JD91									
	MPAAA1AC	HEXCHROME	2.70E-01 +- 0.0E+00		mg/L	N/A	103%	0.0	3.70E-03
	MPAAA1AD	HEXCHROME	2.69E-01 +- 0.0E+00		mg/L	N/A	102%	0.0	3.70E-03
1332241 LCS,									
	MPAAR1AC	HEXCHROME	5.12E-01 +- 0.0E+00		mg/L	N/A	102%	0.0	3.70E-03
1332241 BLANK QC,									
	MPAAR1AA	HEXCHROME	3.70E-03 +- 0.0E+00	U	mg/L	N/A			3.70E-03
906.0_H3_LSC									
1333173 BLANK QC,									
	MPA4K1AA	H-3	8.57E+01 +- 1.6E+02	U	pCi/L	100%			3.63E+02
	MPA4K1AD	H-3	7.44E+00 +- 1.6E+02	U	pCi/L	100%			3.63E+02
1333173 LCS,									
	MPA4K1AE	H-3	2.68E+03 +- 2.5E+02		pCi/L	100%	99%	0.0	3.63E+02
No. of Results: 9									

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.2.18.2 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.
 A2002

Date: 10-Jan-12

FORM I
SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J1K250477-1
 Client Sample ID: B2JD91
 SDG: W06392
 Report No.: 50112
 COC No.: F11-004-208
 Matrix: WATER
 Collection Date: 11/28/2011 12:26:00 PM
 Received Date: 11/28/2011 3:00:00 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: 1332241	7196_CR6											
Work Order: MPAAA1AA	Report DB ID: 9MPAAA10											
HEXCHROME	3.70E-03	U		0.0E+00	3.70E-03 mg/L		N/A	1.	11/28/11 10:10 P		100.0	ML
							3.50E-01	N/A				

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|STL|RchSample 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.
 V5.2.16.2 A2002

FORM I
SAMPLE RESULTS

Date: 10-Jan-12

Lab Name: TestAmerica
 Lot-Sample No.: J1K280477-2
 Client Sample ID: B2JD92
 SDG: W06392
 Report No.: 50112
 COC No.: F11-004-209
 Collection Date: 11/28/2011 12:26:00 PM
 Received Date: 11/28/2011 3:00:00 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: 1333173	906.0_H3_LSC											
H-3	1.19E+02	U	1.5E+02	1.6E+02	3.60E+02 pCi/L	1.72E+02	100% 4.00E+02	0.33 (1.5)	12/20/11 11:13 p	0.005	L	LSC3
Batch: 1333174	1129_SEP_LEPS_GS											
1129	-3.95E-04	U	9.5E-02	9.5E-02	1.72E-01 pCi/L	8.65E-02	100% 1.00E+00	0. -0.01	1/6/12 05:25 p	3.4542	L	LEP5\$1

No. of Results: 2 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/Mdi, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.16.2 A2002

FORM II

Date: 10-Jan-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J1K250477-1
 Client Sample ID: B2JD91
 SDG: W06392
 Report No.: 50112
 COC No.: F11-004-208
 Matrix: WATER
 Collection Date: 11/28/2011 12:26:00 PM
 Received Date: 11/28/2011 3:00:00 PM

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 1332241	7196_CR6				MPAAA1AE	Report DB ID: MPAAA1ER			Orig Sa DB ID: 9MPAAA10			
HEXCHROME	3.70E-03	U		0.0E+00	3.70E-03	mg/L	N/A	1.	11/28/11 10:10 p		100.0	
	3.70E-03	U		RPD 0.0		3.50E-01	N/A	N/A			ML	

No. of Results: 1 Comments:

TestAmerica RPD - Relative Percent Difference.
 rptSTLRchDupV5.2 MDC(MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 .18.2 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.

FORM II

Date: 10-Jan-12

DUPLICATE RESULTS

Lab Name: TestAmerica SDG: W06392 Collection Date: 11/28/2011 12:26:00 PM
 Lot-Sample No.: J1K280477-2 Report No.: 50112 Received Date: 11/28/2011 3:00:00 PM
 Client Sample ID: B2JD92 DUP COC No.: F11-004-209 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/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 1333173	906.0_H3_LSC								Orig Sa DB ID: 9MPAAF10			
H-3	1.26E+01	U	1.5E+02	1.6E+02	3.60E+02	pCi/L	100%	0.04	12/2/11 12:38 a	0.00503	L	LSC3
	1.19E+02	U	RPD	161.8		4.00E+02		0.16				
Batch: 1333174	I129_SEP_LEPS_GS								Orig Sa DB ID: 9MPAAF10			
I129	-2.01E-02	U	1.2E-01	1.2E-01	2.04E-01	pCi/L	105%	-0.1	1/9/12 06:20 a	3.4572	L	LEP4\$1
	-3.95E-04	U	RPD	-192.3		1.00E+00		-0.34				

No. of Results: 2 Comments:

TestAmerica RPD - Relative Percent Difference.
 rptSTLRchDupV5.2 MDC\MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 .18.2 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mdz/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II
BLANK RESULTS

Date: 10-Jan-12

Lab Name: TestAmerica
Matrix: WATER

SDG: W06392
Report No.: 50112

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 1332241												
7196_CR6	3.70E-03	U		0.0E+00	3.70E-03	mg/L	N/A	1.	11/28/11 10:10 p		100.0 ML	
Work Order: MPAAR1AA Report DB ID: MPAAR1AB												
Batch: 1333173												
906.0_H3_LSC	8.57E+01	U	1.5E+02	1.6E+02	3.63E+02	pCi/L	100%	0.24	12/21/11 01:59 a		0.00502 L	LSC3
Work Order: MPA4K1AA Report DB ID: MPA4K1AB												
Batch: 1333173												
906.0_H3_LSC	7.44E+00	U	1.5E+02	1.6E+02	3.63E+02	pCi/L	100%	0.02	12/21/11 04:46 a		0.00503 L	LSC3
Work Order: MPA4K1AD Report DB ID: MPA4K1DX												
Batch: 1333174												
1129_SEP_LEPS_GS	-5.15E-02	U	1.1E-01	1.1E-01	1.54E-01	pCi/L	99%	-0.33	1/9/12 06:21 a		3.5231 L	LEP5\$1
Work Order: MPA4L1AA Report DB ID: MPA4L1AB												

No. of Results: 4 Comments:

TestAmerica MDC|MDA.Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rpi|STLRch|Blank U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdi, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.16.2 A2002

Date: 10-Jan-12

FORM II
LCS RESULTS

Lab Name: TestAmerica SDG: W06392 Report No.: 50112
 Matrix: WATER

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: 1332241 7196_CR6 Work Order: MPAAR1AC Report DB ID: MPAAR1AS													
HEXCHROME	5.12E-01			0.0E+00	3.70E-03	mg/L	N/A	5.00E-01		102%	11/28/11 10:10 p	100.0	
Rec Limits: 70 130 0.0													
Batch: 1333173 906.0_H3_LSC Work Order: MPA4K1AE Report DB ID: MPA4K1EM													
H-3	2.68E+03		2.3E+02	2.5E+02	3.63E+02	pCi/L	100%	2.70E+03	8.09E+01	99%	12/21/11 06:09 a	0.00503	LSC3
Rec Limits: 70 130 0.0													
Batch: 1333174 I129_SEP_LEPS_GS Work Order: MPA4L1AC Report DB ID: MPA4L1CS													
I129	1.22E+01		1.4E+00	1.4E+00	2.73E-01	pCi/L	99%	1.14E+01	3.68E-01	107%	1/9/12 09:46 a	3.4144	LEP4\$1
Rec Limits: 70 130 0.1													

No. of Results: 3 Comments:

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

rp\STLRchLcs
V5.2.18.2 A2002

Date: 10-Jan-12

FORM II
MATRIX SPIKE RESULTS

Lab Name: TestAmerica SDG: W06392 Matrix: WATER
 Lot-Sample No.: J1K250477-1, B2JD91 Report No.: 50112

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Recovery	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1332241 HEXCHROME	2.70E-01 3.70E-03	MPAAA1AC	Report DB ID: MPAAA1AC	0.0E+00	3.70E-03	MPAAA1CW	mg/L	102.60%	2.63E-01	11/28/11 10:10 p	100.0 ML	7196_CR6
Batch: 1332241 HEXCHROME	2.69E-01 2.70E-01	MPAAA1AD	Report DB ID: MPAAA1DW	0.0E+00	3.70E-03	MPAAA1CW	mg/L	102.22%	2.63E-01	11/28/11 10:10 p	100.0 ML	7196_CR6

Number of Results: 2
 Comments:

TestAmerica RER - Replicate Error Ratio = $(S-D)/[\sqrt{(sq(TPUs)+sq(TPUd))}]$ as defined by ICPT BOA
 rptSTLRchMs Bias - (Result/Expected)-1 as defined by ANSI N13.30
 V5.2.18.2 A2002

Date: 10-Jan-12

FORM II
MATRIX SPIKE DUPLICATE RESULTS

Lab Name: TestAmerica SDG: W06392 Matrix: WATER
 Lot-Sample No.: J1K250477-1, B2JD91 Report No.: 50112

Parameter	Spike Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Recovery	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 1332241 7196_CR6 Work Order: MPAAA1AC Report DB ID: MPAAA1CW Orig Sa DB ID: MPAAA1DW												
HEXCHROME	2.70E-01			0.0E+00	3.70E-03	mg/L	N/A	102.60%	2.63E-01	11/28/11 10:10 p	100.0	ML
	2.69E-01	RPD	0.4									
Batch: 1332241 7196_CR6 Work Order: MPAAA1AD Report DB ID: MPAAA1DW Orig Sa DB ID: MPAAA1CW												
HEXCHROME	2.69E-01			0.0E+00	3.70E-03	mg/L	N/A	102.22%	2.63E-01	11/28/11 10:10 p	100.0	ML
	2.70E-01	RPD	0.4									

No. of Results: 2 Comments:

TestAmerica RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA
 rptSTLRchMsDup2 Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 V5.2.18.2 A2002

Lot No., Due Date: J1K280477; 12/29/2011
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 1333174; RGAMLEPS Gamma by LEPS
SDG, Matrix: W06392; 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 *John North* Date 1-10-12



Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 1333174

Review Item	Yes (✓)	No (✓)	NA (✓)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all 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: 1/10/12

Lot No., Due Date: J1K280477; 12/29/2011
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 1333173; RTRITIUM H-3 by LSC
SDG, Matrix: W06392; WATER

- 1.0 **QC**
 - 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:
Please see NCM #10-20119

First Level *John Horton* Date 12-27-11

Lot No., Due Date: ; J1K280477
Client, Site:
QC Batch No., Method Test: 1356143; TRITIUM
SDG, Matrix: W06392 SCS 1/10/12

- 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:
Please see NCM #10-20119

First Level *John Norton* Date ~~12-24~~ 12-27-11



THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
 Second Level Review

Batch Number: 1333173 & 1356143

Review Item	Yes (✓)	No (✓)	NA (✓)
A. Sample Analysis			✓
1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other			
1. Are all 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: 12/28/11

**Clouseau
Nonconformance Memo**



NCM #: 10-20119	Classification: Anomaly
NCM Initiated By: John Norton	Status: PMREVIEW
Date Opened: 12/27/2011	Production Area: Counting
Date Closed:	Tests: H-3 by LSC
	Lot #'s (Sample #'s): J1K280477 (2), J1K290000 (173),
	QC Batches: 1333173,
Nonconformance: LCS result out of limits	
Subcategory: Analyte was recovered high in the LCS	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
John Norton	12/27/2011	The LCS yield was high at 250%. Probable static discharges.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
John Norton	12/27/2011	The LCS was re-counted in batch 1356143 for an acceptable result.

Client Notification Summary

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

Quality Assurance Verification

<u>Verified By</u>	<u>Due Date</u>	<u>Status</u>	<u>Notes</u>
			This section not yet completed by QA.

Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>



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

Batch Number(s): 1332241				
Lab Sample Numbers or SDG: W06392				
Method/Test/Parameter: Cr+6 in Water / RL-WC-003				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration	✓			✓
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration	✓			✓
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis			✓	✓
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples	✓			✓
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?	✓			✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
E. Other			✓	✓
1. Are all nonconformances included and noted?				
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response:

Analyst: *Jamal* *Ant*

Date: 11/28/11

Second-Level Review: *H. Rahavi*

Date: 11/29/11

CH2MHIII Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-004-209	PAGE 1 OF 1
COLLECTOR <i>Kara Smith</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C8069-009 (699-42-67)	PROJECT DESIGNATION FY2011 200-ZP-1 Remedial Action Wells Sampling and Analysis - Water	FIELD LOGBOOK NO. <i>93 92</i>	SAF NO. F11-004	AIR QUALITY	
ICE CHEST NO.	FIELD LOGBOOK NO. <i>507-11</i>	ACTUAL SAMPLE DEPTH <i>574.5 FC</i>	COA 300194ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	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 5400.5 (1990/1993)	PRESERVATION None	None
		HOLDING TIME 6 Months	6 Months
		TYPE OF CONTAINER G/P	P
		NO. OF CONTAINER(S) 2	1
		VOLUME 4L	250mL
		SAMPLE ANALYSIS 1-129 Low Level (Iodine-129);	Tritium- H3 (Tritium);
SPECIAL HANDLING AND/OR STORAGE		SAMPLE DATE 11-28-11	SAMPLE TIME 1226
SAMPLE NO. B2JD92	MATRIX* WATER		



w0439a
SIN250411
Due: 12/28/11
M P A A F

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Elissa Clark</i>	11-28-11 1300	<i>John</i>	11-28-11 1300
<i>John</i>	11-28-11 1500	<i>John</i>	11-28-11 1500
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

SPECIAL INSTRUCTIONS
** Cr VI holding times MUST BE MET. Sample Management Project Coordinator must be contacted immediately if there is a problem.

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		F11-004-208	PAGE 1 OF 1
COLLECTOR <i>Karen Smith</i>	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C8069-009 (699-42-67)	PROJECT DESIGNATION F72011 200-ZP-1 Remedial Action Wells Sampling and Analysis - Water	FIELD LOGBOOK NO. <i>PS 90</i>	SAF NO. F11-004	AIR QUALITY <input type="checkbox"/>	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO.	FIELD LOGBOOK NO. <i>PS 90</i>	ACTUAL SAMPLE DEPTH <i>5 / 4.5 / 5</i>	COA 300194ES10	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	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 5400.5 (1990/1993)	PRESERVATION Cool-d/c	HOLDING TIME 24 Hours	TYPE OF CONTAINER ag	NO. OF CONTAINER(S) 1	VOLUME 500ml	SAMPLE ANALYSIS Chromium Hex - 7196
SAMPLE NO. B2JD91	MATRIX* WATER	SAMPLE DATE <i>11-28-11</i>	SAMPLE TIME <i>1226</i>				

w04392
J. Lasoun mptaa
Dec: 12/29/11

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** Cr VI holding times MUST BE MET. Sample Management Project Coordinator must be contacted immediately if there is a problem.	
<i>Ed K... 11-28-11 1300</i>	<i>11-28-11 1300</i>	<i>[Signature]</i>	<i>11-28-11 1300</i>		
<i>[Signature] 11-28-11 1500</i>	<i>11-28-11 1500</i>	<i>[Signature]</i>	<i>11/28/11 1500</i>		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

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

JANUARY 10, 2012

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 1/12/11 @ 1500 Container GM Screen Result: (Airlock) .06 Initials [LV]
Sample GM Screen Result (Sample Receiving) .07 Initials [W]

Client: FLH SDG #: W06392 NA [] SAF #: F11-004 NA []

Lot Number: J1K250477

Chain of Custody # F 11-004-2089209

Shipping Container ID: Hand Delivery NA [W] Air Bill Number: NA [W]

Samples received inside shipping container/cooler/box Yes [W] 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 [W]
2. Custody Seals dated and signed? Yes [] No [] No Custody Seal [W]
3. Cooler temperature: 7 °C NA []
4. Vermiculite/packing materials is NA [] Wet [] Dry [W]

Item 5 through 16 for samples. Initial appropriate response.

- 5. Chain of Custody record present? Yes [W] No []
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 2x4LP; 1x250mlP; 500agx1

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

9. Samples have: tape hazard labels
[W] custody seals [W] appropriate sample labels

10. Matrix: A (FLT, Wipe, Solid, Soil) [W] I (Water)
S (Air, Niosh 7400) T (Biological, Ni-63)

11. Samples: [W] are in good condition are leaking
are broken have air bubbles (Only for samples requiring no head space)
Other N/A

12. Sample pH appropriate for analysis requested Yes [W] 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 [W]

14. Description of anomalies (include sample numbers): N/A



15. Sample Location, Sample Collector Listed on COC? * Yes No
*For documentation only. No corrective action needed.

16. Additional Information: NIA

Client/Courier denied temperature check. Client/Courier unpack cooler.

Sample Custodian: [Signature] Date: 11/28/11

Client Informed on NIA by NIA Person contacted NIA

No action necessary; process as is
Project Manager [Signature] Date 11/29/11

SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH																																																																																																								
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JTK 280477 RW 11/29/11

FLH

12/22/2011 10:13:41 AM		Balance Id: 1120482733											
108302, CH2M Hill Plateau Remediation DOE RL Waste Management Federal Servi		Pipet #:											
BN I-129 P/p/Sep GAM002 TB Gamma by LEPD 5I CLIENT: HANFORD		Sep1 DT/Tm Tech: Sep2 DT/Tm Tech:											
Analyte Due Date: 12/29/2011		Prep Tech: Nyem											
Batch: 1333174 WATER pCi/L		PM, Quote: SS, 29754											
SEQ Batch, Test: None													
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MPAAF-1-AD			3454.20g,in	3454.20g	ITA11340					LS	2045		1/6/12/2012
J1K280477-2-SAMP					10/31/11								
11/28/2011 12:26													
2 MPAAF-1-AF-X			3457.20g,in	3457.20g	ITA11341								
J1K280477-2-DUP					10/31/11								
11/28/2011 12:26													
3 MPA4L-1-AA-B			3523.10g,in	3523.10g	ITA11342								
J1K290000-174-BLK					10/31/11								
11/29/2011 14:07 pd													
4 MPA4L-1-AC-C			3414.40g,in	3414.40g	ISD1342								
J1K290000-174-LCS					11/30/11								
11/29/2011 14:07 pd													
Comments:													
All Clients for Batch:													
108302, CH2M Hill Plateau Remediation DOE RL Waste Management Federal Servi, SS, 29754													
MPAAF1AD-SAMP Constituent List:													
I-129	RDL:5.00E-01	pCi/L	LCL:	UCL:	RPD:								
MPA4L1AA-BLK:													
I-129	RDL:5.00E-01	pCi/L	LCL:	UCL:	RPD:								
MPA4L1AC-LCS:													
I-129	RDL:5	pCi/L	LCL:70	UCL:130	RPD:20								
MPAAF1AD-SAMP	Calc Info:												
TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1													
Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added													
ISV - Insufficient Volume for Analysis													
WO Cnt: 4													
Prep_SamplePrep v4.8.59													

Balance Id:120482733

Sample Preparation/Analysis

BN I-129 Prp/Sep GAM002
 TB Gamma by LEPD
 5I CLIENT: HANFORD

AnalyDueDate: 12/29/2011

Batch: 1333174
 SEQ Batch, Test: None

PCI/L

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: NyeM

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Ur-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On (24hr) Circle	Off	CR Analyst, In/Date	Comments:
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Uncert Level (#s): 2 Decay to sAdt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

MPA4L1AA-BLK: Uncert Level (#s): 2 Decay to sAdt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

MPA4L1AC-LCS: Uncert Level (#s): 2 Decay to sAdt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

JANUARY 10, 2012

1/10/2012 9:56:36 AM

ICOC Fraction Transfer/Status Report

ByDate: 1/10/2011, 1/15/2012, Batch: '1333174', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
1333174				
AC	Rev1C	NyeM	12/22/2011 9:59:05	
SC		MaucieriS	IsBatched	11/29/2011 2:09:10 PM ICOC_RADCALC v4.8.49
SC		NyeM	InPrep	12/22/2011 9:59:05 AM RL-PRP-004 REV. 2
SC		NyeM	Prep1C	12/22/2011 10:49:51 AM RL-PRP-004 REV. 2
SC		NyeM	Prep2C	12/29/2011 2:29:28 PM RL-GAM-002 REV. 2
SC		HiattC	InCnt1	12/29/2011 2:33:46 PM RL-CI-007 REV. 2
SC		DawkinsO	CalcC	1/9/2012 11:35:53 PM RL-CI-007 REV. 2
SC		nortonj	Rev1C	1/10/2012 7:41:39 AM RL-DR-001 Rev 2
AC		NyeM	12/22/2011 10:49:51	
AC		NyeM	12/29/2011 2:29:28	
AC		HiattC	12/29/2011 2:33:46	
AC		DawkinsO	1/9/2012 11:35:53 PM	
AC		nortonj	1/10/2012 7:41:39	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 6

ICOCFractions v4.8.44

Sample Preparation/Analysis													
11/29/2011 2:07:27 PM			Balance Id:										
108302, CH2M Hill Plateau Remediation DOE RL Waste Management Federal Serv			AR H-3 Prp/Sep LSC005 S6 Tritium by Liquid Scint			Pipet #:							
AnalytDueDate: 12/29/2011			51 CLIENT: HANFORD			Sep1 DT/Tm Tech:							
Batch: 1333173 WATER pC/L			PM, Quote: SS, 29754			Sep2 DT/Tm Tech:							
SEQ Batch, Test: None										Prep Tech:			
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MPA4F-1-AA													
J1K280477-2-SAMP													
11/28/2011 12:26													Beta:
			AmtRec: 1X250MLAG;2X4LP			#Containers: 3			Scr:		Alpha:		
2 MPA4F-1-AE-X													
J1K280477-2-DUP													
11/28/2011 12:26													Beta:
			AmtRec: 1X250MLAG;2X4LP			#Containers: 3			Scr:		Alpha:		
3 MPA4K-1-AA-B													
J1K290000-173-BLK													
11/29/2011 14:07 pd													Beta:
			AmtRec:			#Containers: 1			Scr:		Alpha:		
4 MPA4K-1-AC-C													
J1K290000-173-LCS													
11/29/2011 14:07 pd													Beta:
			AmtRec:			#Containers: 1			Scr:		Alpha:		
5 MPA4K-1-AD-BX													
J1K290000-173-MBLK													
11/29/2011 14:07 pd													Beta:
			AmtRec:			#Containers: 1			Scr:		Alpha:		
6 MPA4K-1-AE-CM													
J1K290000-173-MLCS													
11/29/2011 14:07 pd													Beta:
			AmtRec:			#Containers: 1			Scr:		Alpha:		
7 MPA4K-1-AF-BN													
J1K290000-173-BLK													
11/29/2011 14:07 pd													Beta:
			AmtRec:			#Containers: 1			Scr:		Alpha:		

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

11/29/2011 2:07:28 PM **Sample Preparation/Analysis** Balance Id: _____ Pipet #: _____

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

AnalytDueDate: 12/29/2011
Batch: 1333173
SEQ Batch, Test: None

pcil/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:
8 MPA4K-1-AG-BN													

J1K290000-173-IBLK
11/29/2011 14:07 pd
AmfRec: _____
#Containers: 1
Scr: _____ Alpha: _____ Beta: _____

Comments:

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

MPAAFLAA-SAMP Constituent List:
H-3 RDL: 400 pCi/L LCL: 70 UCL: 130 RPD: 20
MPAAK1AA-BLK:
MPAAK1AC-LCS:
MPAAK1AD-MBLK:
MPAAK1AE-MLCS:
MPAAK1AF-IBLK:
MPAAK1AG-IBLK:

MPAAFLAA-SAMP Calc Info:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B
MPAAK1AA-BLK:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B
MPAAK1AC-LCS:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B
MPAAK1AD-MBLK:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B
MPAAK1AE-MLCS:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B
MPAAK1AF-IBLK:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B
MPAAK1AG-IBLK:
Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci. Not.: Y ODRs: B

TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2
Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktalled Added

ISV - Insufficient Volume for Analysis
WO Cnt: 8
ICOC v4.8.49

11/29/2011 2:07:28 PM		Sample Preparation/Analysis										Balance Id:	
		AR H-3 Prp/Sep LSC005 S6 Tritium by Liquid Scint 5I CLIENT: HANFORD										Pipet #:	
AnalyDueDate: 12/29/2011		pCi/L										Sep1 DT/Tm Tech:	
Batch: 1333173 SEQ Batch, Test: None												Sep2 DT/Tm Tech:	
												Prep Tech:	
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
MPA4KLAG-IBLK:													
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: 8 Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktalled Added ISV - Insufficient Volume for Analysis ICOC v4-8.49													

12/27/2011 10:33:07 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/27/2010, 1/1/2012, Batch: '1333173', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
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1333173

AC	Rev1C	DefordP	12/20/2011 8:02:25	
SC		MaucierS	IsBatched	11/29/2011 2:09:10 PM ICOC_RADCALC v4.8.49
SC		DefordP	Sep1C	12/20/2011 8:02:25 AM RL-LSC-005 REV. 2
SC		HiattC	InCnt1	12/20/2011 10:25:49 AM RL-CI-005 REV. 2
SC		HiattC	CalcC	12/21/2011 5:24:05 PM RL-CI-005 REV. 2
SC		nortonj	Rev1C	12/27/2011 10:32:57 AM RL-DR-001 Rev 2
AC		HiattC	12/20/2011 10:25:49	
AC		HiattC	12/21/2011 5:24:05	
AC		nortonj	12/27/2011 10:32:57	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland
Richland Wa.



RE-COUNT REQUEST

DUE DATE 12-29

CUSTOMER CH2M HILL

ANALYSIS TRITIUM

MATRIX WATER

LOT NUMBER J1K280477

SAMPLE DELIVERY GROUP _____

OLD BATCH NUMBER 1333173

NEW BATCH NUMBER 1356143

LAB SAMPLE ID	CLIENT ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) MPA4K inc G		HIGH LCS
2) MPA4K inc N		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		
16)		
17)		
18)		
19)		
20)		

12/23/2011 7:23:37 AM

Sample Preparation/Analysis

Balance Id: _____
 Pipet #: _____

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

Batch: 1356143
 SEQ Batch, Test: None

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	Pot or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 MPA4K-2-AC-C													
J1K290000-173-LCS													
12/23/2011 07:23 pd													
AmtRec: _____ #Containers: 1 Scr: _____ Alpha: _____ Beta: _____													
2 MPA4K-2-AF-B													
J1K290000-173-BLK													
12/23/2011 07:23 pd													
AmtRec: _____ #Containers: 1 Scr: _____ Alpha: _____ Beta: _____													

Comments:

All Clients for Batch:

MPA4K2AC-LCS Constituent List:
 H-3 RDL:400 pCi/L LCL:70 UCL:130 RPD:20
 MPA4K2AF-BLK Constituent List:
 H-3 RDL:400 pCi/L LCL: UCL: RPD:

MPA4K2AC-LCS Calc Info:
 Uncert Level (#s): 4 Decay to Sabt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
 MPA4K2AF-BLK Calc Info:
 Uncert Level (#s): 4 Decay to Sabt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

12/27/2011 10:37:31 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/27/2010, 1/1/2012, Batch: '1356143', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
1356143				
AC	Rev1C	ClarkR	12/23/2011 8:10:23	
SC		nortonj	IsBatched 12/23/2011 7:23:36 AM	ICOC_RADCALC v4.8.49
SC		ClarkR	InCnt1 12/23/2011 8:10:23 AM	RL-CI-005 REV. 2
SC		DawkinsO	CalcC 12/26/2011 4:11:24 PM	RL-CI-005 REV. 2
SC		nortonj	Rev1C 12/27/2011 10:37:20 AM	RL-DR-001 Rev 2
AC		DawkinsO	12/26/2011 4:11:24	
AC		nortonj	12/27/2011 10:37:20	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Sample Preparation/Analysis									
11/28/2011 9:28:43 PM		Balance Id:		Pipet #:		CR Analyst, Init/Date		Comments:	
108302, CH2M Hill Plateau Remediation DOE RL, Waste Management Federal Servi		88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION		Sep1 DT/Tm Tech:		Sep2 DT/Tm Tech:		Prep Tech:	
EA Chromium, Hexavalent (7196A)		01 STANDARD TEST SET		Count On Off (24hr) Circle		Detector Id		Count Time Min	
AnalyteDueDate: 12/28/2011		PM, Quote: SS, 29754		QC Tracer Prep Date		Initial Aliquot Amt/Unit		#Containers: 1	
Batch: 1332241 WATER		ug/L		ARS6, BNTB, 1332241 88EA,		Total Amt/Unit		AmfRec: 1X500MLAG	
SEQ Batch, Test: None		All Tests:		AmfRec: 1X500MLAG		AmfRec: 1X500MLAG		AmfRec: 1X500MLAG	
Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date		
1 MPAAA-1-AA									
J1K280477-1-SAMP								Alpha:	Beta:
11/28/2011 12:26								Scr:	
2 MPAAA-1-AC-S									
J1K280477-1-MS								Alpha:	Beta:
11/28/2011 12:26								Scr:	
3 MPAAA-1-AD-D									
J1K280477-1-MSD								Alpha:	Beta:
11/28/2011 12:26								Scr:	
4 MPAAA-1-AE-X									
J1K280477-1-DUP								Alpha:	Beta:
11/28/2011 12:26								Scr:	
5 MPAAAR-1-AA-B									
J1K280000-241-BLK								Alpha:	Beta:
11/28/2011 21:28 pd								Scr:	
6 MPAAAR-1-AC-C									
J1K280000-241-LCS								Alpha:	Beta:
11/28/2011 21:28 pd								Scr:	

11/28/2011 9:28:43 PM		Sample Preparation/Analysis		Balance Id:					
88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION		EA Chromium, Hexavalent (7196A)		Pipet #:					
01 STANDARD TEST SET		01 STANDARD TEST SET		Sep1 DT/Tm Tech:					
Batch: 1332241		ug/L		Sep2 DT/Tm Tech:					
SEQ Batch, Test None				Prep Tech:					
Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On/Off (24hr) Circle	CR Analyst, Init/Date	Comments:	
Comments:									
All Clients for Batch: 108302, CHEM Hill Plateau Remediation DOE RL Waste Management Federal Servi, SS , 29754									
MPAAA1AA-SAMP Constituent List:									
MPAAA1AC-MS Constituent List:									
MPAAA1AD-MSD:									
MPAAAR1AA-BLK:									
MPAAAR1AC-LCS:									
MPAAA1AA-SAMP Calc Info:									
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B
MPAAA1AC-MS Calc Info:									
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B
MPAAA1AD-MSD:									
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B
MPAAAR1AA-BLK:									
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B
MPAAAR1AC-LCS:									
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B