

DECEMBER 14, 2011

0100998

Analytical Data Package Prepared For
CH2M Hill Plateau Remediation

Radiochemical Analysis By
TestAmerica

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

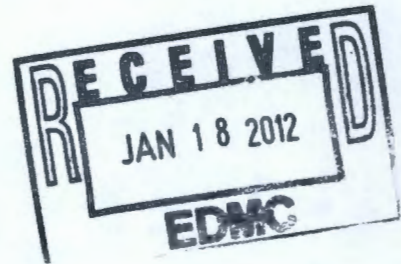
Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 49738

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.
W06368	F11-095	B2H123	J1K150504-1	MN2HJ1AA	9MN2HJ10	1320142
		B2H123	J1K150504-1	MN2HJ1AC	9MN2HJ10	1322165
		B2H123	J1K150504-1	MN2HJ1AD	9MN2HJ10	1322166
		B2H167	J1K150504-2	MN2HM1AA	9MN2HM10	1320142
		B2H167	J1K150504-2	MN2HM1AC	9MN2HM10	1322165
		B2H167	J1K150504-2	MN2HM1AD	9MN2HM10	1322166
		B2H169	J1K150504-3	MN2HQ1AA	9MN2HQ10	1320142
		B2H169	J1K150504-3	MN2HQ1AC	9MN2HQ10	1322165
		B2H169	J1K150504-3	MN2HQ1AD	9MN2HQ10	1322166



DECEMBER 14, 2011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

TestAmerica Laboratories, Inc.

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

December 8, 2011

Attention: Scot Fitzgerald

SAF Number	:	F11-095
Date SDG Closed	:	November 15, 2011
Number of Samples	:	Three (3)
Sample Type	:	Soil
SDG Number	:	W06368
Data Deliverable	:	15 Day Summary

CASE NARRATIVE

I. Introduction

On November 15, 2011 three soil samples were received at TestAmerica (TARL). Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the CH2M specific IDs:

<u>CH2M ID#</u>	<u>TARL ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
B2H123	MN2HJ	SOIL	11/15/11
B2H167	MN2HM	SOIL	11/15/11
B2H169	MN2HQ	SOIL	11/15/11

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.

DECEMBER 14, 2011

CH2M Hill Plateau Remediation Company
December 8, 2011

The requested analyses were:

Gas Proportional Counting

Gross Alpha by method RL-GPC-001

Gross Beta by method RL-GPC-001

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

Gas Proportional Counting

Gross Alpha by method RL-GPC-001:

The LCS, batch blank, samples and sample duplicate (B2H123) results are within contractual requirements.

Gross Beta by method RL-GPC-001:

The LCS, batch blank, samples and sample duplicate (B2H167) results are within contractual requirements.

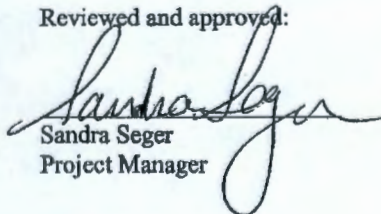
Chemical Analysis

Hexavalent Chromium by EPA method 7196A

The LCS, batch blank, samples, sample duplicate (B2H123) and sample matrix spike (B2H123) results are within contractual requirements.

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

Reviewed and approved:


Sandra Seger
Project Manager

Drinking Water Method Cross References

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

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

Uncertainty Estimation

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

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

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

Report Definitions

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

DECEMBER 14, 2011

Sample Results Summary

Date: 14-Dec-11

TestAmerica TARL

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

Report No. : 49738

SDG No: W06368

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
1322165 9310_ALPHABETA_GPC									
B2H123									
	MN2HJ1AC	ALPHA	2.68E+00 +- 1.9E+01	U	pCi/g	100%	5.39E+00	1.00E+01	
B2H123 DUP									
	MN2HJ1AG	ALPHA	5.33E+00 +- 3.7E+01	U	pCi/g	100%	5.62E+00	1.00E+01	66.3
B2H167									
	MN2HM1AC	ALPHA	5.33E+00 +- 3.7E+01	U	pCi/g	100%	3.83E+00	1.00E+01	
B2H169									
	MN2HQ1AC	ALPHA	3.72E+00 +- 2.6E+01	U	pCi/g	100%	4.10E+00	1.00E+01	
1322166 9310_ALPHABETA_GPC									
B2H123									
	MN2HJ1AD	BETA	1.69E+01 +- 3.0E+01	U	pCi/g	100%	4.71E+00	1.50E+01	
B2H167									
	MN2HM1AD	BETA	1.51E+01 +- 2.6E+01	U	pCi/g	100%	4.53E+00	1.50E+01	
B2H167 DUP									
	MN2HM1AE	BETA	1.78E+01 +- 3.1E+01	U	pCi/g	100%	5.20E+00	1.50E+01	16.0
B2H169									
	MN2HQ1AD	BETA	2.08E+01 +- 3.6E+01	U	pCi/g	100%	4.61E+00	1.50E+01	
1320142 7196_CR6									
B2H123									
	MN2HJ1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	MN2HJ1AF	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	3.50E-01	0.0
B2H167									
	MN2HM1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
B2H169									
	MN2HQ1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
No. of Results: 12									

TestAmerica
rptSTLRchSaSum
mary2 V5.2.18.1
A2002

RPD - Relative Percent Difference.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

DECEMBER 14, 2011

QC Results Summary

Date: 14-Dec-11

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 49738

SDG No.: W06368

Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
9310_ALPHABETA_GPC									
	1322165	BLANK QC,							
	MN47G1AA	ALPHA	-4.00E-01 +- 2.9E+00	U	pCi/g	100%			2.82E+00
	1322165	LCS,							
	MN47G1AC	ALPHA	9.38E+01 +- 6.5E+02	U	pCi/g	100%	100%	0.0	2.95E+00
9310_ALPHABETA_GPC									
	1322168	BLANK QC,							
	MN47L1AA	BETA	-9.93E-03 +- 1.5E+00	U	pCi/g	100%			3.63E+00
	1322168	LCS,							
	MN47L1AC	BETA	6.57E+01 +- 1.1E+02	U	pCi/g	100%	98%	0.0	3.82E+00
7196_CR6									
	1320142	MATRIX SPIKE, B2H123							
	MN2HJ1AE	HEXCHROME	8.87E+00 +- 0.0E+00		mg/kg	N/A	86%	-0.1	1.55E-01
	1320142	LCS,							
	MN3CM1AC	HEXCHROME	1.97E+01 +- 0.0E+00		mg/kg	N/A	99%	0.0	1.55E-01
	1320142	BLANK QC,							
	MN3CM1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01
No. of Results: 7									

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.2.18.1 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or A2002 not identified by gamma scan software.

FORM I
SAMPLE RESULTS

Date: 14-Dec-11

Lab Name: TestAmerica
Lot-Sample No.: J1K150504-1
Client Sample ID: B2H123

SDG: W06368
Report No.: 49738
COC No.: F11-095-364

Collection Date: 11/8/2011 9:44:00 AM
Received Date: 11/15/2011 2:35:00 PM
Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Comt 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: 1320142	7196_CR6				Work Order: MN2HJ1AA		Report DB ID: 9MN2HJ10					
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	(1.)	11/16/11 02:00 p		25136	
							1.55E-01	N/A			g	
Batch: 1322165	9310_ALPHABETA_GPC				Work Order: MN2HJ1AC		Report DB ID: 9MN2HJ10					
ALPHA	2.88E+00	U	3.0E+00	1.9E+01	5.39E+00	pCi/g	100%	0.5	11/28/11 06:47 a		0.0503	GPC10C
							2.18E+00	1.00E+01			g	
Batch: 1322166	9310_ALPHABETA_GPC				Work Order: MN2HJ1AD		Report DB ID: 9MN2HJ10					
BETA	1.69E+01	U	3.5E+00	3.0E+01	4.71E+00	pCi/g	100%	(3.6)	11/28/11 07:22 a		0.2003	GPC32B
							2.19E+00	1.50E+01			g	

No. of Results: 3 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.
V5.2.18.1 A2002

FORM I
SAMPLE RESULTS

Date: 14-Dec-11

Lab Name: TestAmerica
Lot-Sample No.: J1K150504-2
Client Sample ID: B2H167

SDG: W06368
Report No.: 49738
COC No.: F11-095-372

Collection Date: 11/8/2011 9:44:00 AM
Received Date: 11/15/2011 2:35:00 PM
Matrix: SOIL

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	Alliquot Size	Primary Detector
Batch: 1320142	7196_CR6				Work Order: MN2HM1AA		Report DB ID: 9MN2HM10					
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	(1.)	11/16/11 02:00 p		2.5026	
							1.55E-01	N/A			g	
Batch: 1322165	9310_ALPHABETA_GPC				Work Order: MN2HM1AC		Report DB ID: 9MN2HM10					
ALPHA	5.33E+00	U	3.2E+00	3.7E+01	3.83E+00	pCi/g	100%	(1.4)	11/28/11 08:42 a		0.0505	GPC10A
							1.39E+00	1.00E+01			g	
Batch: 1322166	9310_ALPHABETA_GPC				Work Order: MN2HM1AD		Report DB ID: 9MN2HM10					
BETA	1.51E+01	U	3.3E+00	2.6E+01	4.53E+00	pCi/g	100%	(3.3)	11/28/11 07:22 a		0.2008	GPC32C
							2.10E+00	1.50E+01			g	

No. of Results: 3 Comments:

DECEMBER 14, 2011

FORM I
SAMPLE RESULTS

Date: 14-Dec-11

Lab Name: TestAmerica
Lot-Sample No.: J1K150504-3
Client Sample ID: B2H169

SDG: W06368
Report No.: 49738
COC No.: F11-095-374

Collection Date: 11/8/2011 8:30:00 AM
Received Date: 11/15/2011 2:35:00 PM
Matrix: SOIL

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	Allquot Size	Primary Detector
Batch: 1320142	7196_CR6				Work Order: MN2HQ1AA		Report DB ID: 9MN2HQ10					
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	(1.)	11/16/11 02:00 p		2.5183	
							1.55E-01	N/A			g	
Batch: 1322165	9310_ALPHABETA_GPC				Work Order: MN2HQ1AC		Report DB ID: 9MN2HQ10					
ALPHA	3.72E+00	U	2.9E+00	2.6E+01	4.10E+00	pCi/g	100%	0.91	11/28/11 08:42 a		0.0505	GPC10B
							1.51E+00	1.00E+01			g	
Batch: 1322166	9310_ALPHABETA_GPC				Work Order: MN2HQ1AD		Report DB ID: 9MN2HQ10					
BETA	2.08E+01	U	3.7E+00	3.6E+01	4.61E+00	pCi/g	100%	(4.5)	11/28/11 08:19 a		0.2	GPC31B
							2.14E+00	1.50E+01			g	

No. of Results: 3 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.
V5.2.18.1 A2002

FORM II

Date: 14-Dec-11

DUPLICATE RESULTS

Lab Name: TestAmerica

SDG: W06368

Collection Date: 11/8/2011 9:44:00 AM

Lot-Sample No.: J1K150504-1

Report No. : 49738

Received Date: 11/15/2011 2:35:00 PM

Client Sample ID: B2H123

COC No. : F11-095-364

Matrix: SOIL

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: 1320142	7196_CR6				Work Order: MN2HJ1AF			Report DB ID: MN2HJ1ER	Orig Sa DB ID: 9MN2HJ10			
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	(1.)	11/16/11 02:00 p		2.5063	
	1.55E-01	U	RPD	0.0		3.50E-01		N/A			g	

No. of Results: 1 Comments:

TestAmerica RPD - Relative Percent Difference.
 rptSTLRchDupV5.2 MDC[MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 .18.1 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: 14-Dec-11

DUPLICATE RESULTS

Lab Name: TestAmerica

SDG: W06368

Collection Date: 11/8/2011 9:44:00 AM

Lot-Sample No.: J1K150504-1

Report No. : 49738

Received Date: 11/15/2011 2:35:00 PM

Client Sample ID: B2H123 DUP

COC No. : F11-095-364

Matrix: SOIL

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: 1322165	9310_ALPHABETA_GPC				Work Order: MN2HJ1AG	Report DB ID: MN2HJ1GR			Orig Sa DB ID: 9MN2HJ10			
ALPHA	5.33E+00	U	3.7E+00	3.7E+01	5.62E+00	pCi/g	100%	0.95	11/28/11 06:47 a		0.0508	GPC10D
	2.68E+00	U		RPD 66.3		1.00E+01		0.29			g	

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.

.18.1 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: 14-Dec-11

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J1K150504-2
 Client Sample ID: B2H167 DUP

SDG: W06368
 Report No.: 49738
 COC No.: F11-095-372

Collection Date: 11/8/2011 9:44:00 AM
 Received Date: 11/15/2011 2:35:00 PM
 Matrix: SOIL

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: 1322166	9310_ALPHABETA_GPC				Work Order: MN2HM1AE	Report DB ID: MN2HM1ER			Orig Sa DB ID: 9MN2HM10			
BETA	1.78E+01	U	3.7E+00	3.1E+01	5.20E+00	pCi/g	100%	(3.4)	11/28/11 07:22 a		0.2004	GPC32D
	1.51E+01	U	RPD	16.0		1.50E+01		(1.1)			g	

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.
 .18.1 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
BLANK RESULTS

Date: 14-Dec-11

Lab Name: TestAmerica
Matrix: SOIL

SDG: W06368
Report No.: 49738

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: 1320142 7196_CR6 Work Order: MN3CM1AA Report DB ID: MN3CM1AB												
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	(1.)	11/16/11 02:00 p		2.5	
						1.55E-01		N/A			g	
Batch: 1322165 9310_ALPHABETA_GPC Work Order: MN47G1AA Report DB ID: MN47G1AB												
ALPHA	-4.00E-01	U	9.8E-01	2.9E+00	2.82E+00	pCl/g	100%	-0.14	11/28/11 08:42 a		0.0501	GPC10C
					1.14E+00	1.00E+01		-0.27			g	
Batch: 1322166 9310_ALPHABETA_GPC Work Order: MN47L1AA Report DB ID: MN47L1AB												
BETA	-9.93E-03	U	1.5E+00	1.5E+00	3.63E+00	pCl/g	100%	0.	11/28/11 08:19 a		0.2064	GPC32A
					1.68E+00	1.50E+01		-0.01			g	
No. of Results: 3			Comments:									

DECEMBER 14, 2011

FORM II
LCS RESULTS

Date: 14-Dec-11

Lab Name: TestAmerica
Matrix: SOIL

SDG: W06368
Report No. : 49738

Parameter	Result	Count Qual	Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Alliquot Size	Primary Detector
Batch: 1320142	7196_CR6												
HEXCHROME	1.97E+01			0.0E+00	1.55E-01	mg/kg	N/A	2.00E+01		99%	11/16/11 02:00 p	2.5	
							Rec Limits:	80	120	0.0		g	
Batch: 1322165	9310_ALPHABETA_GPC												
ALPHA	9.38E+01	U	8.9E+00	6.5E+02	2.95E+00	pCi/g	100%	9.38E+01	9.48E-01	100%	11/28/11 08:42 a	0.0503	GPC10D
							Rec Limits:	70	130	0.0		g	
Batch: 1322166	9310_ALPHABETA_GPC												
BETA	6.57E+01	U	5.4E+00	1.1E+02	3.82E+00	pCi/g	100%	6.73E+01	2.59E+00	98%	11/28/11 08:19 a	0.2012	GPC32B
							Rec Limits:	70	130	0.0		g	
No. of Results: 3		Comments:											

FORM II
MATRIX SPIKE RESULTS

Date: 14-Dec-11

Lab Name: TestAmerica

SDG: W06368

Lot-Sample No.: J1K150504-1, B2H123

Report No. : 49738

Matrix: SOIL

Parameter	SpikeResult, Orig Rst	Count Qual Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1320142	Work Order: MN2HJ1AE	Report DB ID: MN2HJ1CW	Orig Sa DB ID: 9MN2HJ10								
HEXCHROME	8.87E+00	0.0E+00	1.55E-01	mg/kg	N/A	85.57%	1.04E+01	11/16/11 02:00 p	2.5113	7196_CR6	
	1.55E-01								g		

Number of Results: 1

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.
 V5.2.18.1 A2002

DECEMBER 14, 2011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

11/29/2011 10:31:52 AM

Lot No., Due Date: J1K150504; 12/02/2011
Client, Site: 108302; FLUOR- SOILS Hanford Site
QC Batch No., Method Test: 1322165; RALPHA-A Alpha by GPC-Am
SDG, Matrix: W06368; SOIL

1.0 COC

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

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

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

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

3.0 QC & Samples

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

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

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

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

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

4.0 Raw Data

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

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

4.3 Were Yields entered correctly? Yes No N/A
 Yes No N/A

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

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

5.0 Other

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

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

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

5.4 Was transcription checked? Yes No N/A
 Yes No N/A

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

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

6.0 Comments on any No response:

Thomas AME
First Level _____ Date 11/29/11

DECEMBER 14, 2011



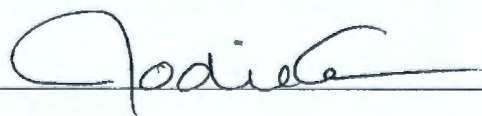
THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 1322165

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: 12/6/11

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

DECEMBER 14, 2011



Data Review/Verification Checklist
RADIOCHEMISTRY, First Level Review

11/29/2011 10:33:04 AM

Lot No., Due Date: J1K150504; 12/02/2011
Client, Site: 108302; FLUOR- SOILS Hanford Site
QC Batch No., Method Test: 1322166; RBETA-SR Beta by GPC-Sr/Y
SDG, Matrix: W06368; SOIL

1.0: QC

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

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

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

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

3.0: QC & Samples

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

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

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

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

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

4.0: Raw Data

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

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

4.3 Were Yields entered correctly? Yes No N/A
 Yes No N/A

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

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

5.0: Other

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

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

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

5.4 Was transcription checked? Yes No N/A
 Yes No N/A

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

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

6.0 Comments on any No response:

Thomas DME
First Level _____ Date 11/29/11

DECEMBER 14, 2011



THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 1322166

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: Jodie G Date: 12/6/11

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

DECEMBER 14, 2011



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

Batch Number(s): 1320142				
Lab Sample Numbers or SDG: W06368				
Method/Test/Parameter: Cr+6 in SOLID / RL-WC-004				
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?			✓	✓

DECEMBER 14, 2011

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: H. Rahavi

Date: 11/17/11

Second-Level Review: [Signature]

Date: 11/17/11

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F11-095-364	PAGE 1 OF 1
COLLECTOR K.J. Young CHPRC		COMPANY CONTACT TRENT, SJ		TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8C AIR QUALITY <input type="checkbox"/>
SAMPLING LOCATION 183.7KE Soil Sample 1		PROJECT DESIGNATION 183 KE/KW Water Treatment Plant - Soil			SAF NO. F11-095		DATA TURNAROUND 15 Days / 15 Days
ICE CHEST NO. GWS-107		FIELD LOGBOOK NO. HNF-N-607-24-1	ACTUAL SAMPLE DEPTH 0-1'		COA 302548ES10	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 L=Liquids DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION		Cool-4C	None	
			HOLDING TIME		30 Days	6 Months	
			TYPE OF CONTAINER		G/P	G/P	
			NO. OF CONTAINER(S)		1	1	
			VOLUME		60mL	120mL	
			SPECIAL HANDLING AND/OR STORAGE		Chromium Hex - 7196;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2H123	SOIL MN2HTJ	NOV 08 2011	0944	✓	✓		

SDG# W04308
 LOT # J1K150504
 Report: 12/20/11 12/2/11
 PW/1/8/11



J1K150504

DECEMBER 14, 2011

TestAmerica

Page 23 of 35

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS		
RELINQUISHED BY/REMOVED FROM K.J. Young		DATE/TIME NOV 08 2011 / 1043	RECEIVED BY/STORED IN MG1109SSU #1	DATE/TIME NOV 08 2011 / 1043	(1) Gross Alpha {Gross alpha}; Gross Beta {Gross beta};	
RELINQUISHED BY/REMOVED FROM MG1109SSU*		DATE/TIME NOV 15 2011 / 1100	RECEIVED BY/STORED IN K.J. Young	DATE/TIME NOV 15 2011 / 1100		
RELINQUISHED BY/REMOVED FROM K.J. Young		DATE/TIME NOV 15 2011 / 1435	RECEIVED BY/STORED IN LAVAS/10/22/11	DATE/TIME NOV 15 2011 / 1435		
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				F11-095-372	PAGE 1 OF 1
COLLECTOR K.J. Young CHPRC		COMPANY CONTACT TRENT, SJ		TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8C DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 183.7KE Soil Sample 5		PROJECT DESIGNATION 183 KE/KW Water Treatment Plant - Soil			SAF NO. F11-095		AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. GWS-107		FIELD LOGBOOK NO. HNF-N507-24.1	ACTUAL SAMPLE DEPTH 0-1'		COA 302548E10	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	Cool-4C	None		SDG W06368 LOT JIK15050U
			HOLDING TIME	30 Days	6 Months		
			TYPE OF CONTAINER	G/P	G/P		
			NO. OF CONTAINER(S)	1	1		
			VOLUME	60mL	120mL		
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		Chromium Hex - 7196;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2H167	MWJHM SOIL	NOV 08 2011	0944	✓	✓		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) Gross Alpha {Gross alpha}; Gross Beta {Gross beta};	
K.J. Young	NOV 08 2011 / 1045	M01109 SSO #1	NOV 08 2011 / 1045		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
CHPRC	NOV 15 2011 / 1100	K.J. Young	NOV 15 2011 / 1100		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
K.J. Young	NOV 15 2011 / 1435	Lucas Velazquez	NOV 15 2011 / 1435		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

DECEMBER 14, 2011

TestAmerica

Page 24 of 35

TestAmerica

Page 25 of 35

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F11-095-374	PAGE 1 OF 1	
COLLECTOR K.J. Young CHPRC		COMPANY CONTACT TRENT, SJ		TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8C	DATA TURNAROUND 15 Days / 15 Days	
SAMPLING LOCATION 183.7KE Soil Sample 6		PROJECT DESIGNATION 183 KE/KW Water Treatment Plant - Soil			SAF NO. F11-095	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. GWS-107		FIELD LOGBOOK NO. HNF-N-507-24.1	ACTUAL SAMPLE DEPTH 0-1'	COA 302548ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE		ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland		OFFSITE PROPERTY NO. N/A			BILL OF LADING/AIR BILL NO. N/A			
MATRX* A=Air DL=Drum L=Liquid DS=Drum 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-4C	None	SDG W06368 LOT JK2H JK150504		
		HOLDING TIME	30 Days	6 Months				
		TYPE OF CONTAINER	G/P	G/P				
		NO. OF CONTAINER(S)	1	1				
		VOLUME	60mL	120mL				
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		Chromium Hex - 7196;	SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B2H169	SOIL MN2HQ	NOV 08 2011	0830	✓	✓			

DECEMBER 14, 2011

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM K.J. Young CHPRC	DATE/TIME NOV 08 2011 / 1045	RECEIVED BY/STORED IN Molloy SSU #1	DATE/TIME NOV 08 2011 / 1045	(1) Gross Alpha {Gross alpha}; Gross Beta {Gross beta};	
RELINQUISHED BY/REMOVED FROM Molloy SSU #1	DATE/TIME NOV 15 2011 / 1100	RECEIVED BY/STORED IN K.J. Young	DATE/TIME NOV 15 2011 / 1100		
RELINQUISHED BY/REMOVED FROM K.J. Young CHPRC	DATE/TIME NOV 15 2011 / 1435	RECEIVED BY/STORED IN Lynn Williams	DATE/TIME NOV 15 2011 / 1435		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY		TITLE		DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DISPOSED BY		DATE/TIME

DECEMBER 14, 2011



Sample Check-in List

Date/Time Received: 11/15/11 @ 1435 Container GM Screen Result: (Airlock) .06 Initials [LV]
Sample GM Screen Result (Sample Receiving) r08 Initials [LV]

Client: FLH SDG #: W06368 NA [] SAF #: F11-095 NA []

Lot Number: JIK150504

Chain of Custody # F11-095-364; 372 & 374

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

Samples received inside shipping container/cooler/box Yes [LV] 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: 4.5 °C NA [W]
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 [LV] No [] LV 11/15/11
6. Number of samples received (Each sample may contain multiple bottles): 7 3
7. Containers received: 7 11 x 60ml bag 3 x 120ml bag 3 x 60ml bag; 3 x 120ml bag

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

9. Samples have: tape hazard labels
LV custody seals LV appropriate sample labels

10. Matrix: WA (FLT, Wipe, Solid, Soil) 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 NIA

12. Sample pH appropriate for analysis requested Yes [] No [] NA [LV]
(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: NIA

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

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

DECEMBER 14, 2011

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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: buging Date: 11/15/11

Client Informed on NIA by NIA Person contacted NIA

No action necessary, process as is

Project Manager Shondra Date 11/18/11


SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH
TABLE							

JIK150504

PW 11/18/11

TestAmerica

Page 28 of 35

Work Ord, Lot, Sample Date		Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
<p>11/23/2011 1:39:39 PM Sample Preparation/Analysis Balance Id:1120482733</p> <p>108302, CH2M Hill Plateau Remediation DOE RL, Flour Hanford Inc AY Gross Alpha Prp PRP003/GPC007 Pipet #: _____</p> <p>AnalyDueDate: 12/02/2011 S7 Gross Alpha by GPC using Am-241 curve Sep1 DT/Tm Tech: _____</p> <p>Batch: 1322165 SOIL pCl/g PM, Quote: SS, 50639 Sep2 DT/Tm Tech: _____</p> <p>SEQ Batch, Test: None Prep Tech: BouslaughP</p>														
														
1	MN2HJ-1-AC			0.0503g,in	0.0503g				50.3mg/100		10C	0778	11/28/11	
<p>J1K150504-1-SAMP</p> <p>11/08/2011 09:44 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:</p>														
2	MN2HJ-1-AG-X			0.0508g,in	0.0508g				50.8mg/		100			
<p>J1K150504-1-DUP</p> <p>11/08/2011 09:44 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:</p>														
3	MN2HM-1-AC			0.0505g,in	0.0505g				50.5mg/		10A	0933	11/28/11	
<p>J1K150504-2-SAMP</p> <p>11/08/2011 09:44 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:</p>														
4	MN2HQ-1-AC			0.0505g,in	0.0505g				50.5mg/		10B			
<p>J1K150504-3-SAMP</p> <p>11/08/2011 08:30 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:</p>														
5	MN47G-1-AA-B			0.0501g,in	0.0501g				1.4107g 1.4097g		10C			
<p>J1K180000-165-BLK</p> <p>11/18/2011 14:50 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:</p>														
6	MN47G-1-AC-C			0.0503g,in	0.0503g	ASD5249			1.4108g 1.4100g		10D			
<p>J1K180000-165-LCS</p> <p>11/18/2011 14:50 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:</p>														

DECEMBER 14, 2011

11/23/2011 1:39:40 PM

Sample Preparation/Analysis

Balance Id:1120482733

AY Gross Alpha Prp PRP003/GPC007
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 12/02/2011

Sep1 DT/Tm Tech:

Batch: 1322165

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BouslaughP



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

Comments:

All Clients for Batch:

108302, CH2M Hill Plateau Remediation DOE RL Flour Hanford Inc , SS , 50639

MN2HJLAC-SAMP Constituent List:

ALPHA	RDL:1.00E+01	pCi/g	LCL:	UCL:	RPD:
MN47GLAA-BLK:					
ALPHA	RDL:1.00E+01	pCi/g	LCL:	UCL:	RPD:
MN47GLAC-LCS:					
Am-241	RDL:	pCi/g	LCL:70	UCL:130	RPD:35
MN2HJLAC-SAMP Calc Info:					
Uncert Level (#s):	2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
MN47GLAA-BLK:					
Uncert Level (#s):	2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
MN47GLAC-LCS:					
Uncert Level (#s):	2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

DECEMBER 14, 2011

11/29/2011 10:30:47 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/29/2010, 12/4/2011, Batch: '1322165', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
1322165				
AC		Rev1C	BouslaughP 11/23/2011 1:39:09	
SC			MauceriS IsBatched 11/18/2011 2:50:39 PM	ICOC_RADCALC v4.8.49
SC			BouslaughP InPrep 11/23/2011 1:39:09 PM	RL-GPC-007 Rev. 2
SC			BouslaughP Prep1C 11/23/2011 1:48:14 PM	RL-GPC-007 REV. 2
SC			DawkinsO InCnt1 11/23/2011 2:10:00 PM	RL-CI-006 REVISION 1
SC			HiattC CalcC 11/28/2011 2:19:05 PM	RL-CI-006 REV. 2
SC			mcginnist Rev1C 11/29/2011 10:30:42 AM	RL-DR-001 Rev 2
AC			BouslaughP 11/23/2011 1:48:14	
AC			DawkinsO 11/23/2011 2:10:00	
AC			HiattC 11/28/2011 2:19:05	
AC			mcginnist 11/29/2011 10:30:42	

AC: Accepting Entry; SC: Status Change


TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 5

ICOCFractions v4.8.44

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:
11/23/2011 1:43:06 PM Balance Id:1120482733 108302, CH2M Hill Plateau Remediation DOE RL, Flour Hanford Inc BB Gross Beta Prp PRP003/GPC007 , Flour Hanford Inc S8 Gross Beta by GPC using Sr/Y-90 curve AnalyDueDate: 12/02/2011 5I CLIENT: HANFORD Batch: 1322166 SOIL pCi/g PM, Quote: SS, 50639 Sep1 DT/Tm Tech: SEQ Batch, Test: None Sep2 DT/Tm Tech: Prep Tech: BouslaughP														
														
1	MN2HJ-1-AD			0.2003g,in	0.2003g				20.3mg	50	728	0747	11/23/11	
J1K150504-1-SAMP 11/08/2011 09:44 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:														
2	MN2HM-1-AD			0.2008g,in	0.2008g				20.8mg		720			
J1K150504-2-SAMP 11/08/2011 09:44 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:														
3	MN2HM-1-AE-X			0.2004g,in	0.2004g				20.4mg		720			
J1K150504-2-DUP 11/08/2011 09:44 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:														
4	MN2HQ-1-AD			0.20g,in	0.20g				20.0mg		718	0844	11/23/11	
J1K150504-3-SAMP 11/08/2011 08:30 AmtRec: 1X60MLAG;1X120MLAG #Containers: 2 Scr: Alpha: Beta:														
5	MN47L-1-AA-B			0.2064g,in	0.2064g				1.3982g		72A			
J1K180000-166-BLK 11/18/2011 14:50 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:														
6	MN47L-1-AC-C			0.2012g,in	0.2012g	BESD2058			1.4028g		728			
J1K180000-166-LCS 11/18/2011 14:50 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:														
TestAmerica Key: In - Initial Amt, fl - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1 ISV - Insufficient Volume for Analysis WO Cnt: 6 Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added Prep_SamplePrep v4.8.58														

DECEMBER 14, 2011

11/23/2011 1:43:07 PM

Sample Preparation/Analysis

Balance Id:1120482733

BB Gross Beta Prp PRP003/GPC007
S8 Gross Beta by GPC using Sr/Y-90 curve
51 CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 12/02/2011

Sep1 DT/Tm Tech:

Batch: 1322166

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,BouslaughP



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

Comments:

All Clients for Batch:
108302, CH2M Hill Plateau Remediation DOE RL Flour Hanford Inc , SS , 50639

MN2HJ1AD-SAMP Constituent List:

BETA	RDL:1.50E+01	pCi/g	LCL:	UCL:	RPD:								
MN47L1AA-BLK:													
BETA	RDL:1.50E+01	pCi/g	LCL:	UCL:	RPD:								
MN47L1AC-LCS:													
Sr-90	RDL:	pCi/g	LCL:70	UCL:130	RPD:35								
MN2HJ1AD-SAMP Calc Info:													
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B				
MN47L1AA-BLK:													
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B				
MN47L1AC-LCS:													
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B				

TestAmerica

Page 32 of 35

DECEMBER 14, 2011

DECEMBER 14, 2011

11/29/2011 10:32:37 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/29/2010, 12/4/2011, Batch: '1322166', User: *ALL Order By DateTimeAccepting









Q Batch	Work Ord	CurStatus	Accepting	Comments
1322166				
AC	Rev1C	BouslaughP	11/23/2011 1:41:56	
SC		MaucierS	IsBatched 11/18/2011 2:50:39 PM	ICOC_RADCALC v4.8.49
SC		BouslaughP	InPrep 11/23/2011 1:41:56 PM	RL-GPC-007 Rev. 2
SC		BouslaughP	Prep1C 11/23/2011 1:48:23 PM	RL-GPC-007 REV. 2
SC		DawkinsO	InCnt1 11/23/2011 2:10:46 PM	RL-CI-006 REVISION 1
SC		HiattC	CalcC 11/28/2011 1:59:41 PM	RL-CI-006 REV. 2
SC		mcginnist	Rev1C 11/29/2011 10:32:32 AM	RL-DR-001 Rev 2
AC		BouslaughP	11/23/2011 1:48:23	
AC		DawkinsO	11/23/2011 2:10:46	
AC		HiattC	11/28/2011 1:59:41	
AC		mcginnist	11/29/2011 10:32:32	

AC: Accepting Entry; SC: Status Change

TestAmerica Richland
Richland Wa.

Page 1

Grp Rec Cnt: 5
ICOCFractions v4.8.44

11/16/2011 1:58:39 PM		Sample Preparation/Analysis				Balance Id:							
108302, CH2M Hill Plateau Remediation DOE RL Flour Hanford Inc		DW Alkaline Digestion by method 3060A EA Chromium, Hexavalent (7196A) 5I CLIENT: HANFORD				Pipet #:							
AnalytDueDate: 11/30/2011						Sep1 DT/Tm Tech:							
Batch: 1320142 SOIL mg/kg		PM, Quote: SS , 50639				Sep2 DT/Tm Tech:							
SEQ Batch, Test: None All Tests: AYS7, BBS8, 1320142 DWEA,						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 MN2HJ-1-AA													
J1K150504-1-SAMP													
2.5136													
													
11/08/2011 09:44					AmtRec: 1X60MLAG;1X120MLAG	#Containers: 2				Scr:	Alpha:	Beta:	
2 MN2HJ-1-AE-S													
J1K150504-1-MS													
2.5113													
													
11/08/2011 09:44					AmtRec: 1X60MLAG;1X120MLAG	#Containers: 2				Scr:	Alpha:	Beta:	
3 MN2HJ-1-AF-X													
J1K150504-1-DUP													
2.5063 / phenyl: 2.5034													
													
11/08/2011 09:44					AmtRec: 1X60MLAG;1X120MLAG	#Containers: 2				Scr:	Alpha:	Beta:	
4 MN2HM-1-AA													
J1K150504-2-SAMP													
2.5026													
													
11/08/2011 09:44					AmtRec: 1X60MLAG;1X120MLAG	#Containers: 2				Scr:	Alpha:	Beta:	
5 MN2HQ-1-AA													
J1K150504-3-SAMP													
2.5183													
													
11/08/2011 08:30					AmtRec: 1X60MLAG;1X120MLAG	#Containers: 2				Scr:	Alpha:	Beta:	
6 MN3CM-1-AA-B													
J1K160000-142-BLK													
													
11/16/2011 13:58 pd					AmtRec:	#Containers: 1				Scr:	Alpha:	Beta:	
7 MN3CM-1-AC-C													
J1K160000-142-LCS													
													
11/16/2011 13:58 pd					AmtRec:	#Containers: 1				Scr:	Alpha:	Beta:	
TestAmerica Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1 ISV - Insufficient Volume for Analysis WO Cnt: 7 Richland Wa. pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktalled Added ICOC v4.8.49													

DECEMBER 14, 2011

11/16/2011 1:58:40 PM

Sample Preparation/Analysis

Balance Id: _____

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 11/30/2011

Sep1 DT/Tm Tech: _____

Batch: 1320142

mg/kg

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:
----------------------------	----------------	----------------------	--------------------------	-----------------------------	---------------------	--------------	-----------	-----------------	----------------	-------------	------------------------------	-----------------------	-----------

Comments:

All Clients for Batch:

108302, CH2M Hill Plateau Remediation DOE RL Flour Hanford Inc , SS , 50639

MN2HJ1AA-SAMP Constituent List:

HEXCHROME RDL:0.1548 mg/kg LCL:80 UCL:120 RPD:20

MN2HJ1AE-MS Constituent List:

MN3CMLAA-BLK:

MN3CMLAC-LCS:

MN2HJ1AA-SAMP Calc Info:

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

MN2HJ1AE-MS Calc Info:

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

MN3CMLAA-BLK:

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

MN3CMLAC-LCS:

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

TestAmerica

Page 35 of 35

DECEMBER 14, 2011