

SAF-RC-207
Remedial Action of the 100-C-7 &
100-C-7:1 Waste Sites – In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt

H4-21

KW 5/7/12
INITIAL/DATE

COMMENTS:

SDG J01492

SAF-RC-207

Rad only

Chem only

Rad & Chem

Complete

Partial

Sample Location: 100-C-7:1 (ACL Footprints)

Analytical Data Package Prepared For
Washington Closure Hanford

Radiochemical Analysis By

TestAmerica

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

Assigned Laboratory Code: TARL

Data Package Contains 24 Pages

Report No.: 51563

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.
J01492	RC-207	J1NMX3	J2E020476-1	MTCN11AA	9MTCN110	2123146
		J1NMX4	J2E020476-2	MTCN21AA	9MTCN210	2123146
		J1NMX5	J2E020476-3	MTCN31AA	9MTCN310	2123146
		J1NMX6	J2E020476-4	MTCN41AA	9MTCN410	2123146
		J1NMX7	J2E020476-5	MTCN51AA	9MTCN510	2123146

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

TestAmerica Laboratories, Inc.

May 4, 2012

Attention: Joan Kessner

SAF Number	:	RC-207
Date SDG Closed	:	May 2, 2012
Number of Samples	:	Five (5)
Sample Type	:	Soil
SDG Number	:	J01492
Data Deliverable	:	24- Hour / Summary

CASE NARRATIVE

I. Introduction

On May 2, 2012, five soil samples were received at TestAmerica for radiochemical and chemical analysis. Upon receipt, the samples were assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

<u>WCH ID#</u>	<u>TARL ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
J1NMX3	MTCN1	SOIL	5/02/12
J1NMX4	MTCN2	SOIL	5/02/12
J1NMX5	MTCN3	SOIL	5/02/12
J1NMX6	MTCN4	SOIL	5/02/12
J1NMX7	MTCN5	SOIL	5/02/12

II. Sample Receipt

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

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

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

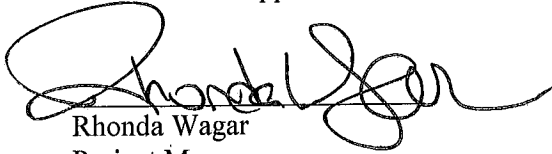
Chemical Analysis

Hexavalent Chromium by EPA method 7196A

The LCS, batch blank, samples, sample duplicate (J1NMX3) and sample matrix spike (J1NMX3) 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:


Rhonda Wagar
Project Manager

Drinking Water Method Cross References

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

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

Uncertainty Estimation

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

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

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

Report Definitions

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_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%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{((BkgrndCnt / BkgrndCntMin) / SCntMin) + 2.71 / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUd^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 04-May-12

TestAmerica TARL

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

Report No. : 51563

SDG No: J01492

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
2123146	7196_CR6								
	J1NMX3								
	MTCN11AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	MTCN11AE	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	3.50E-01	0.0
	J1NMX4								
	MTCN21AA	HEXCHROME	1.69E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	J1NMX5								
	MTCN31AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1NMX6								
	MTCN41AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	J1NMX7								
	MTCN51AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
No. of Results: 6									

QC Results Summary

Date: 04-May-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 51563

SDG No.: J01492

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
7196_CR6									
2123146	MATRIX SPIKE, J1NMX3								
	MTCN11AC	HEXCHROME	8.67E+00 +/- 0.0E+00		mg/kg	N/A	85%	-0.2	1.55E-01
2123146	LCS,								
	MTCX41AC	HEXCHROME	1.91E+01 +/- 0.0E+00		mg/kg	N/A	96%	0.0	1.55E-01
2123146	BLANK QC,								
	MTCX41AA	HEXCHROME	1.55E-01 +/- 0.0E+00	U	mg/kg	N/A			1.55E-01
No. of Results: 3									

TestAmerica
rptSTLRchQcSummary V5.2.20
A2002

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

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

FORM I

Date: 04-May-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2E020476-1
 Client Sample ID: J1NIMX3

SDG: J01492
 Report No.: 51563
 COC No.: RC-207-072

Collection Date: 5/2/2012 8:15:00 AM
 Received Date: 5/2/2012 4:20:00 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	Aliquot Size	Primary Detector
Batch: 2123146	7196_CR6											
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/3/12 08:00 a		2.5038	
							1.55E-01	N/A			g	

Work Order: MTCN11AA Report DB ID: 9MTCN110

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rpt\$TLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.20 A2002

FORM I
SAMPLE RESULTS

Date: 04-May-12

Lab Name: TestAmerica **SDG:** J01492 **Collection Date:** 5/2/2012 8:20:00 AM
Lot-Sample No.: J2E020476-2 **Report No.:** 51563 **Received Date:** 5/2/2012 4:20:00 PM
Client Sample ID: J1NMX4 **COC No.:** RC-207-072 **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/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2123146	7196_CR6											
HEXCHROME	1.69E-01			0.0E+00	1.55E-01	mg/kg	N/A	(1.1)	5/3/12 08:00 a		2.5044	
							1.55E-01	N/A			g	

Work Order: MTCN21AA Report DB ID: 9MTCN210

No. of Results: 1 Comments:

**FORM I
SAMPLE RESULTS**

Date: 04-May-12

Lab Name: TestAmerica
 Lot-Sample No.: J2E020476-3
 Client Sample ID: J1NMX5

SDG: J01492
 Report No.: 51563
 COC No.: RC-207-072

Collection Date: 5/2/2012 8:40:00 AM
 Received Date: 5/2/2012 4:20:00 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	Aliquot Size	Primary Detector
Batch: 2123146	7196_CR6											
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/3/12 08:00 a		2.5067	
							1.55E-01	N/A			g	

Work Order: MTCN31AA Report DB ID: 9MTCN310

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.20 A2002

FORM I

Date: 04-May-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lab Sample No.: J2E020476-4
Client Sample ID: J1NMX6
SDG: J01492
Report No.: 51563
COC No.: RC-207-072
Collection Date: 5/2/2012 8:45:00 AM
Received Date: 5/2/2012 4:20:00 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/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2123146	7196_CR6											
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/3/12 08:00 a		2.5012	
							1.55E-01	N/A			g	

Work Order: MTCN41AA Report DB ID: 9MTCN410

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rpt\$TLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V5.2.20 A2002

**FORM I
SAMPLE RESULTS**

Date: 04-May-12

Lab Name: TestAmerica
 Lot-Sample No.: J2E020476-5
 Client Sample ID: J1NMX7

SDG: J01492
 Report No.: 51563
 COC No.: RC-207-072

Collection Date: 5/2/2012 8:50:00 AM
 Received Date: 5/2/2012 4:20:00 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	Aliquot Size	Primary Detector
Batch: 2123146	7196_CR6											
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/3/12 08:00 a		2.5011	
							1.55E-01	N/A			g	

Work Order: MTCN51AA Report DB ID: 9MTCN510

No. of Results: 1 Comments:

FORM II

Date: 04-May-12

DUPLICATE RESULTS

Lab Name: TestAmerica **SDG:** J01492 **Collection Date:** 5/2/2012 8:15:00 AM
Lot-Sample No.: J2E020476-1 **Report No.:** 51563 **Received Date:** 5/2/2012 4:20:00 PM
Client Sample ID: J1NMX3 **COC No.:** RC-207-072 **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: 2123146	7196_CR6									Orig Sa DB ID: 9MTCN110		
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/3/12 08:00 a		2.5024	
	1.55E-01	U	RPD 0.0			3.50E-01	N/A	N/A			g	

No. of Results: 1 Comments:

TestAmerica RPD - Relative Percent Difference.
rptSTLRchDupV5. MDC(MDA),Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
2.20 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: 04-May-12

BLANK RESULTS

Lab Name: TestAmerica
Matrix: SOIL

SDG: J01492
Report No.: 51563

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2123146	7196_CR6				MTCX41AA			MTCX41AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/3/12 08:00 a		2.5	
						1.55E-01		N/A			g	

No. of Results: 1 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rpt\$TLRchBlank U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5-2.20 A2002

**FORM II
LCS RESULTS**

Date: 04-May-12

Lab Name: TestAmerica SDG: J01492
 Matrix: SOIL Report No.: 51563

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: 2123146	7196_CR6												
HEXCHROME	1.91E+01			0.0E+00	1.55E-01	mg/kg	N/A	2.00E+01	120	96%	5/3/12 08:00 a	2.5	
Work Order: MTCX41AC							Report DB ID: MTCX41AS						
Rec Limits:							80 120 0.0						

No. of Results: 1 Comments:

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

rptSTLRchLcs
V5.2.20 A2002

FORM II

Date: 04-May-12

MATRIX SPIKE RESULTS

Lab Name: TestAmerica SDG: J01492 Matrix: SOIL
 Lot-Sample No.: J2E020476-1, J1NMX3 Report No.: 51563

Parameter	SpikeResult, Orig Rst	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: 2123146	Work Order: MTCN11AC	Report DB ID: MTCN11CW	Report Sa DB ID: 9MTCN110								
HEXCHROME	8.67E+00	1.55E-01	0.0E+00	1.55E-01	mg/kg	N/A	84.95%	1.02E+01	5/3/12 08:00 a	2.5045	7196_CR6
										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.
 V5.2.20 A2002

Richland Laboratory Data Review Check List Hexavalent Chromium

Batch Number(s): 2123146	Lab Sample Numbers or SDG: J01492			
Method/Test/Parameter: Cr+6 <input type="checkbox"/> RL-WC-003(Aqueous) <input checked="" type="checkbox"/> RL-WC-004(Solid)				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient greater than 0.97?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples				
1. All results for the preparation blank below limits?	✓			✓
2. LCS percent recovery within 85-115%	✓			✓
3. PbCrO ₄ percent recovery within 85-115%?	✓			✓
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?	✓			✓
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓
6. On MS failure, PDMS within 85-115%?			✓	✓
E. Other				
1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response or list NCM number:

Analyst H. Rahavi Date 5/3/12 2nd Review [Signature] Date 5/3/12

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-207-072		Page 1 of 2	
Collector A. Dunning	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, JH	Price Code 81	Data Turnaround 21 Days				
Project Designation Remedial Action of the 100-C-7 & 100-C-7.1 Waste Sites - I	Sampling Location 100-C-7.1 (ACL Footprints)		SAF No. RC-207	Quick Turn					
Ice Chest No. N/A	Field Logbook No. EL-1655-05	COA R00C712600	Method of Shipment Hand deliver						
Shipped To TestAmerica Incorporated, Richland	Offsite Property No. N/A	Bill of Lading/Air Bill No. N/A							
POSSIBLE SAMPLE HAZARDS/REMARKS None									
Special Handling and/or Storage Cool, 4 degrees Centigrade									
SAMPLE ANALYSIS									
Sample No.	Matrix *	Sample Date	Sample Time	Preservation	Cool 4C				
J11NMX2	SOIL	05/02/12	0815						
J11NMX3	SOIL	05/02/12	0820						
J11NMX4	SOIL	05/02/12	0840						
J11NMX5	SOIL	05/02/12	0845						
J11NMX6	SOIL	05/02/12		Chromium Hex - 7196 - Quick Turn					
CHAIN OF POSSESSION									
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
<i>[Signature]</i>	5-2-12 0900	B. Fahler	5-2-12 0900						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
B. Fahler	5-2-12 1600	<i>[Signature]</i>	5-2-12 1600						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
<i>[Signature]</i>	5-2-12 1600	<i>[Signature]</i>	5-2-12 1600						
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	Date/Time		Date/Time					

SPECIAL INSTRUCTIONS

SDGH J01492
LO# J2E02076
Dve 5.3.12

REVIEWED
OK BY
DATE
5.2.12

Sample Check-in List

Date/Time Received: 5-2-12 @ 1620 Container GM Screen Result: (Airlock) 03 Initials CK
 Sample GM Screen Result (Sample Receiving) 07 Initials CK

Client: WCH SDG #: J01492 NA [] SAF #: RC-207 NA []

Lot Number: J2E020476

Chain of Custody # RC-207-072

Shipping Container ID: hand delivery NA CK Air Bill Number: _____ NA []

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

Item 5 through 16 for samples. Initial appropriate response.

- 5. Chain of Custody record present? Yes CK No [] 5
- 6. Number of samples received (Each sample may contain multiple bottles): _____
- 7. Containers received: 5 x 125P

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

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

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

11. Samples:
CK are in good condition _____ are leaking
 _____ are broken _____ have air bubbles (Only for samples requiring no head space)
 _____ Other _____

12. Sample pH appropriate for analysis requested Yes [] No [] NA CK
 (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 CK

14. Description of anomalies (include sample numbers): NA CK

Sample Preparation/Analysis

5/2/2012 11:13:48 PM
 127642, Washington Closure Hanford LLC
 Bechtel Hanford, Inc.

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

AnalyteDate: 05/03/2012

Batch: 2123146 SOIL mg/kg
 SEQ Batch, Test: None All Tests: 2123146 DWEA,

PM, Quote: RW2, 27038

Balance Id:
 Pipet #:
 Sep1 DT/Tm Tech:
 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:
1 MTCN1-1-AA													
J2E020476-1-SAMP													
05/02/2012 08:15													
AmtRec: 1X125P #Containers: 1													
2 MTCN1-1-AC-S													
J2E020476-1-MS													
05/02/2012 08:15													
AmtRec: 1X125P #Containers: 1													
3 MTCN1-1-AD-D													
J2E020476-1-MSD													
05/02/2012 08:15													
AmtRec: 1X125P #Containers: 1													
4 MTCN1-1-AE-X													
J2E020476-1-DUP													
05/02/2012 08:15													
AmtRec: 1X125P #Containers: 1													
5 MTCN2-1-AA													
J2E020476-2-SAMP													
05/02/2012 08:20													
AmtRec: 1X125P #Containers: 1													
6 MTCN3-1-AA													
J2E020476-3-SAMP													
05/02/2012 08:40													
AmtRec: 1X125P #Containers: 1													
7 MTCN4-1-AA													
J2E020476-4-SAMP													
05/02/2012 08:45													
AmtRec: 1X125P #Containers: 1													

Sample Preparation/Analysis

5/2/2012 11:13:49 PM Balance Id: _____
 127642, Washington Closure Hanford LLC , DW Alkaline Digestion by method 3060A Pipet #: _____
 Bechtel Hanford, Inc. EA Chromium, Hexavalent (7196A)
 AnalyteDueDate: 05/03/2012 5I CLIENT: HANFORD

Batch: 2123146 SOIL mg/kg PM, Quote: RW2, 27038
 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:
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8 MTCN5-1-AA
 J2E020476-5-SAMP
 05/02/2012 08:50
 AmtRec: 1X125P #Containers: 1
 Scr: Alpha: Beta:

9 MTCX4-1-AA-B
 J2E020000-146-BLK
 05/02/2012 23:13 pd
 AmtRec: #Containers: 1
 Scr: Alpha: Beta:

10 MTCX4-1-AC-C
 J2E020000-146-LCS
 05/02/2012 23:13 pd
 AmtRec: #Containers: 1
 Scr: Alpha: Beta:

Comments:

All Clients for Batch:
 127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

MTCN11AA-SAMP Constituent List:

MTCN11AC-MS Constituent List:	MTCN11AD-MSD:	MTCX41AA-BLK:	MTCX41AC-LCS:
MTCN11AA-SAMP Calc Info:			
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y
Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2	pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added		

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

ISV - Insufficient Volume for Analysis WO Cnt: 10 ICOC v4.8.49

5/2/2012 11:13:49 PM

Sample Preparation/Analysis

Balance Id:

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)

Pipet #:

Analyte/Date: 05/03/2012

Sep1 DT/Tm Tech:

mg/kg

Sep2 DT/Tm Tech:

Batch: 2123146

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:
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MTCM11AD-MSD:

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

MTCX41AA-BLK:

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

MTCX41AC-LCS:

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