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 6/5/12
INITIAL/DATE

COMMENTS:

SDG J01531 SAF-RC-207

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sample Location: 100-C-7:1 (ACL Stockpile 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 20 *Pages*

Report No.: 51885

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.
J01531	RC-207	J1PPK5	J2E310420-1	MTWL91AA	9MTWL910	2152104
		J1PPK6	J2E310420-2	MTWMD1AA	9MTWMD10	2152104

TestAmerica
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Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

TestAmerica Laboratories, Inc.

June 1, 2012

Attention: Joan Kessner

SAF Number	:	RC-207
Date SDG Closed	:	May 31, 2012
Number of Samples	:	Two (2)
Sample Type	:	Soil
SDG Number	:	J01531
Data Deliverable	:	24–Hour / Summary

CASE NARRATIVE

I. Introduction

On May 31, 2012, two soil samples were received at TestAmerica for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1PPK5	MTWL9	SOIL	5/31/12
J1PPK6	MTWMD	SOIL	5/31/12

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

Sample J1PPK5 and the sample duplicate (J1PPK5) agreement is outside the acceptance limits. This maybe attributed to the inhomogeniety of the matrix. All other QC acceptance requirements are within limits, data is accepted. Except as noted; the LCS, batch blank, samples, sample duplicate (J1PPK5) and sample matrix spike (J1PPK5) 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 = 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/?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) ***u_c - 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, ***u_c 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*(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: 01-Jun-12

TestAmerica TARL

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

Report No. : 51885 **SDG No:** J01531

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
2152104	7196_CR6								
	J1PPK5								
	MTWL91AA	HEXCHROME	2.86E+00 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	MTWL91AD	HEXCHROME	1.89E+00 +- 0.0E+00		mg/kg	N/A	1.55E-01	3.50E-01	40.9
	J1PPK6								
	MTWMD1A	HEXCHROME	2.48E+00 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 3

TestAmerica **RPD** - **Relative Percent Difference.**

rptSTLRchSaSum mary2 V5.2.20 A2002

QC Results Summary

Date: 01-Jun-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 51885 **SDG No.:** J01531

Batch / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
7196_CR6								
2152104 MATRIX SPIKE, J1PPK5								
MTWL91AC	HEXCHROME	9.66E+00 +- 0.0E+00		mg/kg	N/A	92%	-0.1	1.55E-01
2152104 LCS,								
MTWNE1AC	HEXCHROME	1.89E+01 +- 0.0E+00		mg/kg	N/A	94%	-0.1	1.55E-01
2152104 BLANK QC,								
MTWNE1AA	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

SAMPLE RESULTS

Date: 01-Jun-12

Lab Name:	**TestAmerica**	**SDG:**	J01531	**Collection Date:**	5/31/2012 7:58:00 AM
Lot-Sample No.:	**J2E310420-1**	**Report No. :**	51885	**Received Date:**	5/31/2012 2:45:00 PM
Client Sample ID:	**J1PPK5**	**COC No. :**	RC-207-077	**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: 2152104	7196_CR6			**Work Order:**	MTWL91AA		**Report DB ID:**	9MTWL910				
HEXCHROME	**2.86E+00**			0.0E+00	1.55E-01	mg/kg	N/A	*(18.5)*	5/31/12 12:00 p		2.5028	
							1.55E-01	*N/A*			g	

No. of Results: 1 **Comments:**

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

FORM I

SAMPLE RESULTS

Date: 01-Jun-12

Lab Name:	TestAmerica	**SDG:**	J01531	**Collection Date:**	5/31/2012 8:11:00 AM
Lot-Sample No.:	J2E310420-2	**Report No. :**	51885	**Received Date:**	5/31/2012 2:45:00 PM
Client Sample ID:	J1PPK6	**COC No. :**	RC-207-077	**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: 2152104	7196_CR6			**Work Order:**	MTWMD1AA		**Report DB ID:**	9MTWMD10				
HEXCHROME	**2.48E+00**			0.0E+00	1.55E-01	mg/kg	N/A	*(16.)*	5/31/12 12:00 p		2.5041	
							1.55E-01	*N/A*			g	

No. of Results: 1 **Comments:**

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

FORM II

Date: 01-Jun-12

DUPLICATE RESULTS

Lab Name:	TestAmerica	**SDG:**	J01531	**Collection Date:**	5/31/2012 7:58:00 AM
Lot-Sample No.:	J2E310420-1	**Report No. :**	51885	**Received Date:**	5/31/2012 2:45:00 PM
Client Sample ID:	J1PPK5	**COC No. :**	RC-207-077	**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: 2152104	7196_CR6			**Work Order:** MTWL91AD		**Report DB ID:** MTWL91ER			**Orig Sa DB ID:** 9MTWL910			
HEXCHROME	1.89E+00			0.0E+00	1.55E-01	mg/kg	N/A	(12.2)	5/31/12 12:00 p		2.5049	
	2.86E+00		**RPD**	**40.9**		3.50E-01		N/A			g	

No. of Results: 1 **Comments:**

RPD - Relative Percent Difference.

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

FORM II

BLANK RESULTS

Date: 01-Jun-12

Lab Name: TestAmerica **SDG:** J01531

Matrix: SOIL **Report No. :** 51885

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: 2152104	7196_CR6			**Work Order:**	MTWNE1AA		**Report DB ID:**	MTWNE1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	5/31/12 12:00 p		2.5	
						1.55E-01		N/A			g	

No. of Results: 1 **Comments:**

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

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

FORM II

LCS RESULTS

Date: 01-Jun-12

Lab Name: TestAmerica **SDG:** J01531

Matrix: SOIL **Report No. :** 51885

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: 2152104	7196_CR6			**Work Order:**	MTWNE1AC		**Report DB ID:**	MTWNE1AS					
HEXCHROME	1.89E+01			0.0E+00	1.55E-01	mg/kg	N/A	2.00E+01		94%	5/31/12 12:00 p	2.5	
							Rec Limits:	80	120	-0.1		g	

No. of Results: 1 **Comments:**

FORM II

MATRIX SPIKE RESULTS

Date: 01-Jun-12

Lab Name: TestAmerica **SDG:** J01531

Lot-Sample No.: J2E310420-1, J1PPK5 **Report No. :** 51885 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count 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: 2152104	**Work Order:** MTWL91AC			**Report DB ID:** MTWL91CW			**Orig Sa DB ID:** 9MTWL910					
HEXCHROME	9.66E+00			0.0E+00	1.55E-01	mg/kg	N/A	92.48%	1.05E+01	5/31/12 12:00 p	2.5024	7196_CR6
	2.86E+00										g	

Number of Results: 1

Comments:

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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

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Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	2152104	Lab Sample Numbers or SDG:	J01531

Method/Test/Parameter: Cr+6 ☐ RL-WC-003(Aqueous) ☒ RL-WC-004(Solid)

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Performed at required frequency with required number of levels?	✓			X
2. Correlation coefficient greater than 0.97?	✓			X
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			X
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			X
B. Continuing Calibration 1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			X
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			X
C. Sample Analysis 1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	X
2. Were all sample holding times met?	✓			X
D. QC Samples 1. All results for the preparation blank below limits?	✓			X
2. LCS percent recovery within 85-115%	✓			X
3. $PbCrO_4$ percent recovery within 85-115%?	✓			X
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?		✓		X
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			X
6. On MS failure, PDMS within 85-115%?			✓	X
E. Other 1. Are all nonconformances included and noted?	✓			X
2. Is the correct date and time of analysis shown?	✓			X
3. Did the analyst sign and date the front page of the analytical run?	✓			X
4. Correct methodology used?	✓			X
5. Transcriptions checked?	✓			X
6. Calculations checked at minimum frequency?	✓			X
7. Units checked?	✓			X

Comments on any "No" response or list NCM number: 21127

Analyst H. Rahavi Date 6/1/12 2nd Review [signature] Date 6/1/12

CG-231 Rev 0, 2/12

Clouseau
Nonconformance Memo

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NCM #: **10-21127**
NCM Initiated By: Hooshang Rahavi
Date Opened: 06/01/2012
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Classical Chemistry
Tests: 7196A
Lot #'s (Sample #'s): J2E310000 (104), J2E310420 (1,2),
QC Batches: 2152104,

Nonconformance: Dups not within acceptance limits
Subcategory: Inhomogenity of the Sample

Problem Description / Root Cause

Name	Date	Description
Hooshang Rahavi	06/01/2012	Duplicate not within acceptance criteria.

Corrective Action

Name	Date	Corrective Action
Hooshang Rahavi	06/01/2012	possibly do to inhomogeneity of sample.Report data as is.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note
	Response	Response Note			

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

Date Printed: 6/1/2012

TestAmerica Laboratories, Inc.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-207-077	Page 1 of 1
Collector A. Dunnum	**Company Contact** Joan Kessner	**Telephone No.** 509-375-4688	**Project Coordinator** KESSNER, JH	~~Price Code 8L~~ **Data Turnaround** Quick Turn ~~21 Days~~ BF 5.31.12
Project Designation Remedial Action of the 100-C-7 & 100-C-7:1 Waste Sites - I	**Sampling Location** 100-C-7:1(ACL Stockpile Footprints)		**SAF No.** RC-207	
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

J2E310420

J2E310420

J01531

Due 6-1-12.

SAMPLE ANALYSIS

Preservation	Cool 4C											
Type of Container	G/P											
No. of Container(s)	1											
Volume	125mL											
	Chromium Hex - 7196 - Quick Turn											
Sample No.	Matrix *	Sample Date	Sample Time									
J1PPK5 MTWD	SOIL	5-31-12	7:58	X								
J1PPK6 MTWMD	SOIL	5-31-12	8:11	X								
J1PPK7	SOIL											
J1PPK8	SOIL	B.F. 5.31-12										
J1PPK9	SOIL											

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From / Date/Time	Received By/Stored In / Date/Time	
~~Relinquished By~~ Alan Dunnum 5-31-12 8:45	B. Fahlberg B.Fahlberg 5.31.12	0845
B. Fahlberg B.Fahlberg 5.31-12	A. Freier A. Freier 5-31-12	1010
A. Freier A. Freier WCH 5-31-12	J. Back J. Back TALS 5-31-12	1045

SPECIAL INSTRUCTIONS

REVIEWED BY CMB DATE 5-31-12

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

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Sample Check-in List

Date/Time Received: 5-31-12 | 1045 Container GM Screen Result: (Airlock) .04 Initials [ ]
Sample GM Screen Result (Sample Receiving) .03 Initials [ ]

Client: WCH SDG #: J015531 NA [ ] SAF #: RC-207 NA [ ]

Lot Number: J2E3104 20

Chain of Custody # RC-207-007

Shipping Container ID: hand delv. NA [ ] Air Bill Number: _____ NA [ ]

Samples received inside shipping container/cooler/box Yes [ ] 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 [ ]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [ ]
3. Cooler temperature: 9 °C on ice NA [ ]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 2 x 125mlp

8. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
9. Samples have:
   ____ tape
   ____ custody seals
   ____ hazard labels
   ____ appropriate sample labels
10. Matrix:
    ____ A (FLT, Wipe, Solid, Soil)
    ____ S (Air, Niosh 7400)
    ____ I (Water)
    ____ T (Biological, Ni-63)
11. Samples:
    ____ are in good condition
    ____ are broken
    ____ are leaking
    ____ have air bubbles (Only for samples requiring no head space)
    ____ Other _____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [ ]
    (If acidification is necessary, then document sample ID, initial pH, amount of HNO_3 added and pH after addition on table overleaf)
    RPL ID # of preservative used : _____
13. Were any anomalies identified in sample receipt? Yes [ ] No [ ]
14. Description of anomalies (include sample numbers): NA [ ]

LS-023, Rev. 15, 07/11 See over for additional information.

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

16. Additional Information: _____

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

Sample Custodian: _____ Date: 5-31-12

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is

Project Manager _____ Date 5/31/12

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

JZE 310420 RW 5/31/12

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC ,
Bechtel Hanford, Inc.

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

AnalyDueDate: 06/01/2012

Batch: 2152104 **SOIL** **mg/kg**
SEQ Batch, Test: None All Tests: 2152104 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 MTWL9-1-AA

J2E310420-1-SAMP

05/31/2012 07:58 AmtRec: 1X125MLP #Containers: 1 Scr: Alpha: Beta:

2 MTWL9-1-AC-S

J2E310420-1-MS

05/31/2012 07:58 AmtRec: 1X125MLP #Containers: 1 Scr: Alpha: Beta:

3 MTWL9-1-AD-X

J2E310420-1-DUP

05/31/2012 07:58 AmtRec: 1X125MLP #Containers: 1 Scr: Alpha: Beta:

4 MTWMD-1-AA

J2E310420-2-SAMP

05/31/2012 08:11 AmtRec: 1X125MLP #Containers: 1 Scr: Alpha: Beta:

5 MTWNE-1-AA-B

J2E310000-104-BLK

05/31/2012 12:07 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

6 MTWNE-1-AC-C

J2E310000-104-LCS

05/31/2012 12:07 pd AmtRec: #Containers: 1 Scr: Alpha: Beta:

TestAmerica Laboratories, Inc.

Sample Preparation/Analysis

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

AnalyDueDate: 06/01/2012

Batch: 2152104 **mg/kg**
SEQ Batch, Test: None

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:

Comments:

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

MTWL91AA-SAMP Constituent List:

MTWL91AC-MS Constituent List:

MTWNE1AA-BLK:

MTWNE1AC-LCS:

MTWL91AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MTWL91AC-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MTWNE1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
MTWNE1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

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