

**SAF-RC-030**  
**Remaining Sites Confirmation Sampling -**  
**Other Solid**  
**FINAL DATA PACKAGE**

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21

KW 6/17/08  
INITIAL/DATE

COMMENTS:

**SDG J00177**

**SAF-RC-030**

Rad only

Chem only

Rad & Chem

Complete

Partial

**Waste Site: 100-H-28:5 & 100-H-28:4**

**RECEIVED**  
JUN 23 2008  
**EDMC**

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 23 Pages

Report No.: 39323

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.
J00177	RC-030	J16VH7	J8F030285-1	KPAG11AA	9KPAG110	8155494
		J16VJ0	J8F030285-2	KPAG21AA	9KPAG210	8155494

## Certificate of Analysis

Washington Hanford Closure  
2620 Fermi Avenue  
Richland, WA 99354

June 17, 2008

Attention: Joan Kessner

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SAF Number	:	RC-030
Date SDG Closed	:	June 3, 2008
Number of Samples	:	Two (2)
Sample Type	:	Other Solid
SDG Number	:	J00177
Data Deliverable	:	15 Day / Summary

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### CASE NARRATIVE

#### I. Introduction

On June 3, 2008 two other solid samples were received at STL Richland (STLR) for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Washington Closure Hanford (WCH) specific ID's:

<u>WCH ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
J16VH7	KPAG1	OTHER SOLID	6/03/08
J16VJ0	KPAG2	OTHER SOLID	6/03/08

#### I. Sample Receipt

The sample was 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

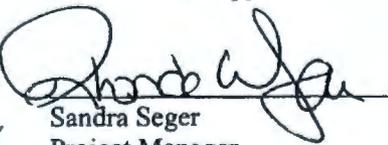
##### Chemical Analysis

##### Hexavalent Chromium by EPA method 7196A:

Sample J16VJ0 was dark in color; a dilution of 10.1 was used so that the optical absorption method could be applied. The aliquant for the color blank on sample J16VH7 was lost. The color blank on the duplicate (J16VH7 DUP) was used for the correction. The MS recovery was low, the insoluble MS recovered within limits at 79.8%. The PDMS recovered at 68.8%, which suggests that the sample acts as a reducing media for the Cr+6. Data will be accepted. Except as noted, the LCS, batch blank, sample and sample duplicate (J16VH7) 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

ts

## 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	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 00-02	Gross Alpha (Coprecipitation)	RICH-RC-5021
EPA 903.0	Total Alpha Radium (Ra-226)	RICH-RC-5027
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr-89/90	RICH-RC-5006
ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007

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

### Uncertainty Estimation

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

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

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

## Report Definitions

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

Sample Results Summary

Date: 17-Jun-08

TestAmerica TARL

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

Report No. : 39323

SDG No: J00177

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RPD
8155494	7196_CR6								
	J16VH7								
	KPAG11AA	HEXCHROME	3.50E-01 +/- 0.00E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	
	KPAG11AE	HEXCHROME	3.50E-01 +/- 0.00E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	0.0
	J16VJ0								
	KPAG21AA	HEXCHROME	3.50E-01 +/- 0.00E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	

No. of Results: 3

TestAmerica

RPD - Relative Percent Difference.

rptSTLRchSaSummary2 V5.1.6  
A2002

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

QC Results Summary

Date: 17-Jun-08

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 39323

SDG No.: J00177

Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
7196_CR6	8155494	MATRIX SPIKE, J16VH7							
	KPAG11AC	HEXCHROME	2.59E+00 +/- 0.00E+00		mg/kg	N/A	24%	-0.8	3.50E-01
	8155494	LCS,							
	KPAJ61AC	HEXCHROME	1.85E+01 +/- 0.00E+00		mg/kg	N/A	93%	-0.1	3.50E-01
	8155494	BLANK QC,							
	KPAJ61AA	HEXCHROME	3.50E-01 +/- 0.00E+00	U	mg/kg	N/A			3.50E-01
No. of Results: 3									

TestAmerica  
rptSTLRchQcSummary V5.1.6 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 or Total Uncert or not identified by gamma scan software.

FORM I  
SAMPLE RESULTS

Date: 17-Jun-08

Lab Name: TestAmerica  
Lot-Sample No.: J8F030285-1  
Client Sample ID: J16VH7

SDG: J00177  
Report No.: 39323  
COC No.: RC-030-083

Collection Date: 6/3/2008 10:00:00 AM

Received Date: 6/3/2008 2:15:00 PM

Matrix: OTHER SOLI OTHERSOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8155494	7196_CR6				Work Order: KPAG11AA		Report DB ID: 9KPAG110					
HEXCHROME	<b>3.50E-01</b>	U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	6/4/08		2.5	
							3.50E-01	N/A			G	

No. of Results: 1      Comments:

TestAmerica  
rptSTLRchSample  
V5.1.6 A2002

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

## FORM I

Date: 17-Jun-08

## SAMPLE RESULTS

Lab Name: TestAmerica

SDG: J00177

Collection Date: 6/3/2008 12:15:00 PM

Lot-Sample No.: J8F030285-2

Report No.: 39323

Received Date: 6/3/2008 2:15:00 PM

Client Sample ID: J16VJ0

COC No.: RC-030-083

Matrix: OTHER SOLI OTHERSOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8155494	7196_CR6			Work Order: KPAG21AA		Report DB ID: 9KPAG210					
HEXCHROME	<b>3.50E-01</b> U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	6/4/08		2.5	
						3.50E-01	N/A			G	

No. of Results: 1      Comments:

## FORM II

Date: 17-Jun-08

## DUPLICATE RESULTS

Lab Name: TestAmerica

SDG: J00177

Collection Date: 6/3/2008 10:00:00 AM

Lot-Sample No.: J8F030285-1

Report No.: 39323

Received Date: 6/3/2008 2:15:00 PM

Client Sample ID: J16VH7

COC No.: RC-030-083

Matrix: OTHER SOLI OTHERSOLID

Parameter	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8155494	7196_CR6			Work Order: KPAG11AE		Report DB ID: KPAG11ER		Orig Sa DB ID: 9KPAG110				
HEXCHROME	3.50E-01	U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	6/4/08		2.5	
	3.50E-01	U	RPD	0.0		3.50E-01		N/A			G	

No. of Results: 1      Comments:

TestAmerica      RPD - Relative Percent Difference.

rptSTLRchDupV5.1      MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

.8 A2002      U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II  
BLANK RESULTS

Date: 17-Jun-08

Lab Name: TestAmerica  
Matrix: OTHER SOLID

SDG: J00177  
Report No. : 39323

Parameter	Result	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8155494	7196_CR8				Work Order: KPAJ61AA		Report DB ID: KPAJ61AB					
HEXCHROME	3.50E-01	U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	6/4/08		2.5	
						3.50E-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.

rptSTLRchBlank  
V5.1.6 A2002

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

FORM II  
LCS RESULTS

Date: 17-Jun-08

Lab Name: TestAmerica

SDG: J00177

Matrix: OTHER SOLID

Report No. : 39323

Parameter	Result	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 8155494	7196_CR6				Work Order: KPAJ61AC		Report DB ID: KPAJ61AS					
HEXCHROME	1.85E+01		0.0E+00	3.50E-01	mg/kg	N/A	2.00E+01		93%	6/4/08	2.5	
						Rec Limits:	80	120	-0.1		G	
No. of Results: 1	Comments:											

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

rptSTLRchLcs  
V5.1.6 A2002

## FORM II

Date: 17-Jun-08

## MATRIX SPIKE RESULTS

Lab Name: TestAmerica

SDG: J00177

Lot-Sample No.: J8F030285-1, J16VH7

Report No. : 39323

Matrix: OTHER SOLI OTHERSOLID

Parameter	SpikeResult, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 8155494	Work Order: KPAG11AC			Report DB ID: KPAG11CW		Orig Sa DB ID: 9KPAG110							
HEXCHROME	2.59E+00			0.0E+00	3.50E-01	mg/kg	N/A	24.21%	1.07E+01		6/4/08	2.5	7196_CR6
	3.50E-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.  
 V5.1.6 A2002

Batch Number(s): 8155494 <i>WJW/KS</i>				
Lab Sample Numbers or SDG: <del>W05411</del> J80177 / J8F030285				
Method/Test/Parameter: Cr+6 in SOLID / RICH-WC-5005, Rev 8				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 <sup>nd</sup> Level Review (✓)
<b>A. Initial Calibration</b>				
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>B. Continuing Calibration</b>				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
<b>C. Sample Analysis</b>				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?	✓			✓
2. Were all sample holding times met?	✓			✓
<b>D. QC Samples</b>				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?		✓		✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

Review Item	Yes (✓)	No (✓)	N/A (✓)	2 <sup>nd</sup> Level Review (✓)
<b>E. Other</b>	✓			✓
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:

MS recovered low at 24.1%. -See  
NCM

Analyst: \_\_\_\_\_

Date: 6/4/08

Second-Level Review: \_\_\_\_\_

Date: 6/11/08

# Clouseau Nonconformance Memo



NCM #: <b>10-12464</b> NCM Initiated By: <b>Diana Petty</b> Date Opened: <b>06/04/2008</b> Date Closed:	Classification: <b>Anomaly</b> Status: <b>GLREVIEW</b> Production Area: <b>Classical Chemistry</b> Tests: <b>None</b> Lot #'s (Sample #'s): <b>,</b> QC Batches: <b>None.,</b>
Nonconformance: <b>Other (describe in detail)</b> Subcategory: <b>Other (explanation required)</b>	

### Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Diana Petty	06/04/2008	Batch #8155494 Sample J16VJ0 was very dark colored. Used 10:1 dilution in order to be able to use optical absorption method. The aliquant for the color blank on sample J16VH7 was lost. Used the color blank of the duplicate to correct the sample's readings. MS recovered low at 24.1%. The insoluble metric spike recovered within limits at 79.8%. PDMS recovered at 68.8%, which suggests that the sample acts as a reducing media for Cr6.

### Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Diana Petty	06/04/2008	report data

### Client Notification Summary

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

### Quality Assurance Verification

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

### Approval History

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
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<b>Washington Closure Hanford</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				RC-030-083	Page 1 of 2														
Collector <b>D RIOS</b>	Company Contact Matt Perrott	Telephone No. 372-9088	Project Coordinator KESSNER, JH		Price Code <b>9C</b>	Data Turnaround <b>15 Days</b>															
Project Designation Remaining Sites Confirmation Sampling - Other Solid		Sampling Location <b>100-H-28:5</b>		SAF No. RC-030																	
Ice Chest No. <b>GFR-07-001</b>	Field Logbook No. EL-1601-2	COA <b>COOH28A000</b>	Method of Shipment <b>Gov't Vehicle</b>																		
Shipped To TestAmerica Incorporated, Richland		Offsite Property No. <b>NA</b>		Bill of Lading/Air Bill No. <b>NA</b>																	
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>  <b>Special Handling and/or Storage</b>				Preservation	Cool 4C																
				Type of Container	G/P																
				No. of Container(s)	1																
				Volume	60mL																
<b>SAMPLE ANALYSIS</b>				Chromium Hex - 7196																	
Sample No.	Matrix *	Sample Date	Sample Time																		
<del>J16VH6</del>	<del>OTHER SOLID</del>	<del>BH 6/3/08</del>																			
<del>J16VH0</del>	<del>OTHER SOLID</del>																				
J16VH7	KPAG1	6/3/08	1000	X																	
<del>J16VH8</del>	<del>OTHER SOLID</del>																				
<del>J16VH0</del>	<del>OTHER SOLID</del>	<del>BH 6/3/08</del>																			
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>						<b>Matrix *</b>							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		J8F030285 J00177 AH Due 6-21-08 RWJ13108 19 Due: 6-18-08						S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other							
<del>WCH</del>		6-3-08 1235		<del>MSTANBOKUR</del>		6/3/08															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
<del>WCH</del>		1415		<del>MSTANBOKUR</del>		6/3/08															
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															
<b>LABORATORY SECTION</b>		Received By				Title				Date/Time											
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method				Disposed By				Date/Time											

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-030-083		Page 2 of 2	
Collector <b>D. Rios</b>		Company Contact Matt Perrott		Telephone No. 372-9088		Project Coordinator KESSNER, JH		Price Code <b>9C</b> Data Turnaround <b>15 Days</b>	
Project Designation Remaining Sites Confirmation Sampling - Other Solid		Sampling Location <b>100-H-28:4</b>			SAF No. RC-030				
Ice Chest No. <b>GPR-07-001</b>		Field Logbook No. EL-1601-2		COA <del>CPH28A</del>		Method of Shipment <b>Boat Vehicle</b>			
Shipped To TestAmerica Incorporated, Richland		Offsite Property No. <b>NA</b>			Bill of Lading/Air Bill No. <b>NA</b>				
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation Cool 4C					
Special Handling and/or Storage				Type of Container G/P					
				No. of Container(s) 1					
				Volume 60mL					
SAMPLE ANALYSIS				Chromium Hex - 7196					
Sample No.	Matrix *	Sample Date	Sample Time						
J16VJ0	KPAG2	6-3-08	1215	X					
J16VJ1	OTHER SOLID								
J16VJ2	OTHER SOLID								
J16VJ3	OTHER SOLID								
J16VJ4	OTHER SOLID	6/3/08							
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS			
Relinquished By/Removed From <i>[Signature]</i>		Date/Time 6/3/08 1235		Received By/Stored In <i>[Signature]</i> MStankovich		Date/Time 6/3/08		J8F030285 J00177 PRE 6-24-08 R. C. Rios 19 Due: 6-18-08	
Relinquished By/Removed From <i>[Signature]</i> MStankovich		Date/Time 6/3/08		Received By/Stored In <i>[Signature]</i> TAL C 308		Date/Time 1415			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By			Title			Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method			Disposed By			Date/Time	



### Sample Check-in List

Date/Time Received: 6308 1415 GM Screen Result 0.1K

Client: WCH SDG #: J00177 NA [ ] SAF #: RC-030 NA [ ]

Work Order Number: J8F030285 Chain of Custody # RC-030-083

Shipping Container ID: N/A Air Bill # N/A

- 1. Custody Seals on shipping container intact? NA [ ] Yes  No [ ]
- 2. Custody Seals dated and signed? NA [ ] Yes  No [ ]
- 3. Chain of Custody record present? NA [ ] Yes  No [ ]
- 4. Cooler Temperature: \_\_\_\_\_ NA  5. Vermiculite/packing materials is NA  Wet [ ] Dry [ ]

6. Number of samples in shipping container: 2

7. Sample holding times exceeded? NA  Yes [ ] No [ ]

8. Samples have:

Tape  Hazard Labels

Custody Seals  Appropriate Sample Labels

9. Samples are:

In Good Condition  Leaking

Broken  Have Air Bubbles

(Only for samples requiring no head space.)

10. Sample pH taken? NA  pH < 2 [ ] pH > 2 [ ] pH > 9 [ ] Amount HNO<sub>3</sub> Added \_\_\_\_\_

11. Sample Location, Sample Collector Listed? \*  
\*For documentation only. No corrective action needed.

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

13. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian: [Signature] Date: 6308

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person Contacted \_\_\_\_\_

[ ] No action necessary; process as is.

Project Manager \_\_\_\_\_ Date \_\_\_\_\_

TESTAMERICA

6/4/2008 8:06:47 AM

**Sample Preparation/Analysis**

Balance Id:

127642, Washington Closure Hanford  
Bechtel Hanford, Inc.

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

Pipet #:

**Analysis Due Date: 06/18/2008**

5I CLIENT: HANFORD

Sep1 DT/Tm Tech:

**Batch: 8155494 OTHER SOLID mg/kg**

**PM, Quote: SS , 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 8155494 DWEA,

Prep Tech:



Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments
1 KPAG1-1-AA J8F030285-1-SAMP 06/03/2008 10:00		2.5236								
2 KPAG1-1-AC-S J8F030285-1-MS 06/03/2008 10:00		2.5087 <sup>DP</sup>								
3 KPAG1-1-AD-D J8F030285-1-MSD 06/03/2008 10:00		2.5130			11.6					
4 KPAG1-1-AE-X J8F030285-1-DUP 06/03/2008 10:00		2.5177								
5 KPAG2-1-AA J8F030285-2-SAMP 06/03/2008 12:15		2.5058								
6 KPAJ6-1-AA-B J8F030000-494-BLK 06/03/2008 10:00										
7 KPAJ6-1-AC-C J8F030000-494-LCS 06/03/2008 10:00										

TESTAMERICA

6/4/2008 8:06:48 AM

**Sample Preparation/Analysis**

Balance Id:

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

Pipet #:

AnalyDueDate: 06/18/2008

Sep1 DT/Tm Tech:

Batch: 8155494

mg/kg

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:



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

All Clients for Batch:

127642, Washington Closure Hanford

Bechtel Hanford, Inc.

, SS , 27038

KPAG11AA-SAMP Constituent List:

KPAG11AC-MS Constituent List:

KPAG11AD-MSD:

KPAJ61AA-BLK:

KPAJ61AC-LCS:

KPAG11AA-SAMP Calc Info:

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

KPAG11AC-MS Calc Info:

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

KPAG11AD-MSD:

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

KPAJ61AA-BLK:

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

KPAJ61AC-LCS:

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

Approved By

Date:

<b>Analyst:</b>	D. Petty	<b>Calibration Curve Information</b>			<b>SOP Information</b>	<b>BATCH #</b>	8155494
<b>Start Date:</b>	6/4/2008		<b>Amount</b>	<b>Conc.(mg/L)</b>	<b>ABS.</b>	<b>RICH-WC-5005</b>	<b>SDG #</b>
<b>Start Time:</b>		<b>Blank</b>	0.000	0.000	0.000	<b>Revision 7</b>	<b>Matrix</b>
<b>End Date:</b>	6/4/2008	<b>Std. 1</b>	0.100	0.050	0.087		<b>Soil</b>
<b>End Time:</b>		<b>Std. 2</b>	0.500	0.250	0.482	<b>Instrument Information</b>	
		<b>Std. 3</b>	0.750	0.375	0.724	<b>MDL (mg/kg)</b>	0.35
<b>Analyst Signature:</b>		<b>Std. 4</b>	1.500	0.750	1.422	<b>Instrument:</b>	Hach DR2010
		<b>Std 5</b>	2.000	1.000	1.876	<b>Wavelength:</b>	540
<b>Date:</b>	6/5/08	<b>Standard Volume (mL):</b>			100.000	<b>R Squared</b>	0.99981
		<b>Date of Curve:</b>			6/4/2008	<b>Slope:</b>	1.88234
						<b>Intercept:</b>	0.00439

	<b>Calibration Information:</b>	<b>ICV Information:</b>	<b>LCS Information:</b>	<b>Matrix Spike Information:</b>	<b>PbCrO4 Information</b>	
<b>Dilution ID #</b>	Cr-08-00117	Cr-08-00118	Cr-08-00117	Cr-08-00117	<b>Weight PbCrO4</b>	11.6
<b>Prep Date:</b>	06/04/08	06/04/08	06/04/08	06/04/08	<b>PDMS Information</b>	
<b>Concentration (mg/L)</b>	50	50	50	50	<b>Dilution ID</b>	Cr-08-00109
<b>Expiration Date:</b>	06/05/08	06/05/08	06/05/08	06/05/08	<b>Concentration</b>	1000
<b>Pipettor(s)</b>	70, 190	190	190	190	<b>Pipettor</b>	90
<b>Volume Used (mL)</b>		1.000	1.00	0.50	<b>Volume</b>	0.05
<b>Expected Value (mg)</b>		0.500	0.50	0.25	<b>Extract Volume</b>	100

Sample ID	Client ID	Type	Sample Weight (g)	Blank ABS.	Sample ABS.	PDMS ABS.	Dilution Factor	Volume (L)	Percent Solids	Wet Sample (mg/g)	Final Dry Sample (mg/kg)	%Recoveries Spike PDMS	MDL
n/a	n/a	ICV	2.5		0.965		1	0.1	100.000%	0.020413161	20.41316079	102.07%	
				Abs-Blank	0.965					Expected	20		
n/a	n/a	ICB	2.5		0		1	0.1	100.000%	-9.3262E-05	<MDL		
				Abs-Blank	0								
KPAJ61AA	n/a	PB	2.5		0		1	0.1	100.000%	-9.3262E-05	<MDL		0.35
				Abs-Blank	0								
KPAJ61AC	n/a	LCS	2.5		0.877		1	0.1	100.000%	0.018543145	18.54314503	92.72%	0.35
				Abs-Blank	0.877					Expected	20		
KPAG11AA	J16VH7	Sample	2.5236		0.232	1.116	1	0.1	92.900%	-0.001797558	<MDL	68.81%	0.346727
				Abs-Blank	-0.081	0.652							
KPAG11AC-S	J16VH7-MS	MS	2.5071		0.179		1	0.1	92.900%	0.002407422	2.591412304	24.14%	0.349009
				Abs-Blank	0.118					Expected	10.73377872		
KPAG11AD-D	J16VH7-MSD	MSD					1	0.1	92.900%				
				Abs-Blank						Expected			
KPAG11AE-X	J16VH7-DUPE	Duplicate	2.5177		0.232	0.454	1	0.1	92.900%	-0.000303614	<MDL		0.347539
				Abs-Blank	-0.01								
KPAG11API-CrO4	J16VH7-PbCrO4	PbCrO4	2.513		1.384		20	0.1	92.900%	0.583306522	627.8864612	79.76%	6.963788
				Abs-Blank	1.384					Expected	787.2535367		
KPAG21AA	J16VJ0'	Sample	2.5058		0.579	0.811	10	0.1	65.400%	-0.074497906	<MDL		3.491899
				Abs-Blank	-0.347								
				Abs-Blank			1	0.1	100.000%				
n/a	n/a	CCV	2.5		0.957		1	0.1	100.000%	0.020243159	20.24315935	101.22%	0.35
				Abs-Blank	0.957					Expected	20		
n/a	n/a	CCB	2.5		-0.001		1	0.1	100.000%	-0.000114512	<MDL		0.35
				Abs-Blank	-0.001								
				Abs-Blank			1	0.1	100.000%				

				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
				Abs-Blank		1	0.1	100.000%				
n/a	n/a	CCV	2.5	Abs-Blank		1	0.1	100.000%	Expected			
n/a	n/a	CCB	2.5	Abs-Blank		1	0.1	100.000%				

Comments: Sample J16VJ0 was very dark. Diluted 10:1 to be able to apply optical absorption method. The aliquant for the color blank on sample J16VH7 was lost. Used the color blank of the duplicate for correction of the sample's readings. MS recovered low at 68.8%. The insoluble metric spike recovered within limits at 79.8%. PDMS recovered at 68.8%, which suggests that the sample acts as a reducing media for Cr6.