

0077973

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

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21

KW 6/18/08  
INITIAL/DATE

COMMENTS:

**SDG J00179**

**SAF-RC-030**

Rad only

Chem only

Rad & Chem

Complete

Partial

Waste Site: **100-H-28:2**

**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 20 Pages

Report No.: 39324

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.
J00179	RC-030	J16WC1	JBF040283-1	KPC701AA	9KPC7010	8156434

## 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 4, 2008
Number of Samples	:	One (1)
Sample Type	:	Other Solid
SDG Number	:	J00179
Data Deliverable	:	15 -Day / Summary

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### CASE NARRATIVE

#### I. Introduction

On June 4, 2008 one other solid sample was received at TestAmerica for chemistry analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

<u>WCH ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
J16WC1	KPC70	OTHER SOLID	6/4/08

#### II. 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

Washington Closure Hanford  
June 17, 2008

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#### 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

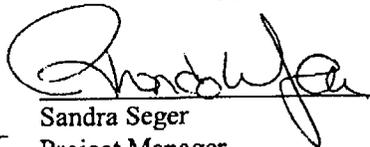
##### Chemical Analysis

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

The matrix spike and insoluble matrix spike recovered low. A post-digestion matrix spike was analyzed and it also recovered low. Suspected cause is a reducing matrix in the sample. Data will be accepted. Except as noted, the LCS, batch blank, sample and sample duplicate (J16WC1) 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

for

## 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,  $R = \text{constants} * f(x,y,z,\dots)$ . 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

<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) <math>u_c</math> - Combined Uncertainty.</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, $u_c$ , the combined uncertainty. 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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgmdCnt}/\text{BkgmdCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . 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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgmdCnt}/\text{BkgmdCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . 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 Work Order 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. : 39324

SDG No: J00179

Batch	Client Id Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RPD
8156434	7196_CR6								
	J16WC1								
	KPC701AA	HEXCHROME	3.50E-01 +- 0.00E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	
	KPC701AE	HEXCHROME	3.50E-01 +- 0.00E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	0.0

No. of Results: 2

TestAmerica

RPD - Relative Percent Difference.

rptSTLRchSaSum  
mary2 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. : 39324

SDG No.: J00179

Batch	Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
7196_CR6	8156434	MATRIX SPIKE, J16WC1							
	KPC701AC	HEXCHROME	3.50E-01 +- 0.00E+00	U	mg/kg	N/A	2%	-1.0	3.50E-01
	8156434	LCS,							
	KPDTK1AC	HEXCHROME	1.72E+01 +- 0.00E+00		mg/kg	N/A	86%	-0.1	3.50E-01
	8156434	BLANK QC,							
	KPDTK1AA	HEXCHROME	3.50E-01 +- 0.00E+00	U	mg/kg	N/A			3.50E-01
No. of Results: 3									

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

rptSTLRchQcSummary 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 I

Date: 17-Jun-08

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J8F040283-1  
 Client Sample ID: J16WC1

SDG: J00179  
 Report No.: 39324  
 COC No.: RC-030-085

Collection Date: 6/4/2008 10:30:00 AM  
 Received Date: 6/4/2008 12:30:00 PM  
 Matrix: OTHER SOLI OTHERSOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count	Total	MDC MDA,	Rpt Unit,	Yield	Rst/MDC,	Analysis,	Total Sa	Aliquot	Primary
	Qual	Error (2 s)	Uncert(2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUcert	Prep Date	Size	Size	Detector
Batch: 8156434	7196_CR6						Report DB ID: 9KPC7010				
HEXCHROME	3.50E-01 U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	6/4/08		2.5	G
						3.50E-01	N/A				

No. of Results: 1      Comments:

TestAmerica      MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rptSTLRchSample      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.  
 V5.1.6 A2002

FORM II

Date: 17-Jun-08

DUPLICATE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J8F040283-1  
 Client Sample ID: J16WC1  
 SDG: J00179  
 Report No.: 39324  
 COC No.: RC-030-085  
 Matrix: OTHER SOLI OTHERSOLID  
 Collection Date: 6/4/2008 10:30:00 AM  
 Received Date: 6/4/2008 12:30:00 PM

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: 8156434	7196_CR6				Work Order: KPC701AE	Report DB ID: KPC701ER			Orig Sa DB ID: 9KPC7010			
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.  
 .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  
BLANK RESULTS

Date: 17-Jun-08

Lab Name: TestAmerica      SDG: J00179  
 Matrix: OTHER SOLID      Report No.: 39324

Parameter	Result	Qual	Count Error (2 s)	Total Uncert( 2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 8156434	7196_CR6						Report DB ID: KPDTK1AB					
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      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.  
 V5.1.6 A2002

FORM II  
LCS RESULTS

Date: 17-Jun-08

Lab Name: TestAmerica      SDG: J00179  
 Matrix: OTHER SOLID      Report No.: 39324

Parameter	Result	Qual	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: 8156434	7196_CR6												
HEXCHROME	1.72E+01			0.0E+00	3.50E-01	mg/kg	N/A	2.00E+01	120	86%	6/4/08	2.5	
Work Order: KPDTK1AC							Report DB ID: KPDTK1AS						
No. of Results: 1							Rec Limits: 80 120 -0.1						
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: J00179      Matrix: OTHER SOLI OTHERSOLID  
 Lot-Sample No.: J8F040283-1, J16WC1      Report No.: 39324

Parameter	SpikeResult, Orig Rst	Count Error (2 s)	Total Uncert( 2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Recovery	Expected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 8156434	Work Order: KPC701AC	Report DB ID: KPC701CW	Orig Sa DB ID: 9KPC7010									
HEXCHROME	3.50E-01 U	0.0E+00	3.50E-01	mg/kg	N/A	1.79%	1.96E+01	6/4/08	2.5	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.

V5.1.6 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.

Batch Number(s): 8156434				
Lab Sample Numbers or SDG: <del>W05414</del> WJ00179 / J8F040283				
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:

The matrix spike and insoluble matrix spike recovered low. Then a post-digestion matrix spike was analyzed and it also recovered low. Suspect that there were reducing agents in the sample and possibly to the unique matrix of the sample. Everything else recovered within limits. -See NCM

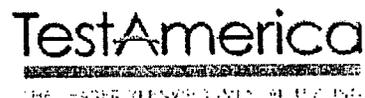
Analyst: \_\_\_\_\_

Date: 6/5/08

Second-Level Review: [Signature]

Date: 6/16/08

# Clouseau Nonconformance Memo



NCM #: <b>10-12482</b>	Classification: <b>Anomaly</b>
NCM Initiated By: <b>LIEM DINH</b>	Status: <b>GLREVIEW</b>
Date Opened: <b>06/05/2008</b>	Production Area: <b>Classical Chemistry</b>
Date Closed:	Tests: <b>7196A</b>
	Lot #'s (Sample #'s): <b>J8F040000 (434), J8F040283 (1),</b>
	QC Batches: <b>8156434,</b>
Nonconformance: <b>Other (describe in detail)</b>	
Subcategory: <b>Other (explanation required)</b>	

### Problem Description / Root Cause

Name	Date	Description
LIEM DINH	06/05/2008	The matrix spike and insoluble matrix spike recovered low. Then a post-digestion matrix spike was analyzed and it also recovered low. Suspect that there were some reducing agents in the sample and possibly due to the unique matrix of the sample. Everything else recovered within limits.
Liem Dinh	06/05/2008	The matrix spike and insoluble matrix spike recovered low. Then a post-digestion matrix spike was analyzed and it also recovered low. Suspect that there were some reducing agents in the sample and possibly due to the unique matrix of the sample. Everything else recovered within limits.

### Corrective Action

Name	Date	Corrective Action
LIEM DINH	06/05/2008	Report Data
Liem Dinh	06/05/2008	Report Data

### Client Notification Summary

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

### Quality Assurance Verification

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

### Approval History

Date Approved	Approved By	Position
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<b>Washington Closure Hanford</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>		Page 1 of 1	RC-030-085	Price Code 9C	Data Turnaround <b>15 Days</b>
Collector D. Rios	Company Contact Matt Perrot	Telephone No. 372-9088	Project Coordinator KESSNER, JH				
Protect Designation Remaining Sites Confirmation Sampling - Other Solid	Sampling Location 100-H-28-2	COA c00n28a000	SAF No. RC-030	Method of Shipment			
Ice Chest No.	Field Logbook No. EL-1601-2	Offsite Property No.	Bill of Lading/Air Bill No.				
Shipped To TestAmerica Incorporated, Richland							
POSSIBLE SAMPLE HAZARDS/REMARKS							
Special Handling and/or Storage							
SAMPLE ANALYSIS							
Sample No.	Matrix *	Sample Date	Sample Time	Preservation	Com 4C		
J16WC1	OTHER SOLID	6/4/08	1030	G/P			
J16WC2	OTHER SOLID	6/4/08		No. of Container(s)	1		
				Volume	60mL		
				Chromium Hex - 7196			
				SPECIAL INSTRUCTIONS			
				J8F040283 J00179 DUE 6-20-08 KPC70			
CHAIN OF POSSESSION		Sign/Print Names					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
<i>[Signature]</i>	6-4-08	BIRDSON	6/4/08				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time				
<i>[Signature]</i>	6/4/08	RYAN LANE	TAL 6408				
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			

WCH-EE-011



## Sample Check-in List

Date/Time Received: 6408 1230 GM Screen Result 0.2K  
 Client: WCH SDG #: 100179 NA [ ] SAF #: RC-030 NA [ ]  
 Work Order Number: J8F040283 Chain of Custody # RC-030-085  
 Shipping Container ID: NIA Air Bill # NIA

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: 1
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 \_\_\_\_\_  
*OTHER SOLID*
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:  Date: 6408

Client Sample ID	Analysis Requested	Condition	Comments/Action

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

[ ] No action necessary; process as is.

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

6/5/2008 1:44:53 PM  
127642, Washington Closure Hanford  
Bechtel Hanford, Inc.

### Sample Preparation/Analysis

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

Analyte Due Date: 06/19/2008

Batch: 8156434 OTHER SOLID mg/kg  
SEO Batch, Test: None All Tests: 8156434 DWEA.

PM, Quote: SS, 27038

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:
<b>1 KPC70-1-AA</b>										
J8F040283-1-SAMP										
06/04/2008 10:30										
AmfRec: 60G #Containers: 1										
2.6783 g										
<b>2 KPC70-1-AC-S</b>										
J8F040283-1-MS										
06/04/2008 10:30										
AmfRec: 60G #Containers: 1										
2.5386 g										
<b>3 KPC70-1-AD-D</b>										
J8F040283-1-MSD										
06/04/2008 10:30										
AmfRec: 60G #Containers: 1										
10.7 mg										
<b>4 KPC70-1-AE-X</b>										
J8F040283-1-DUP										
06/04/2008 10:30										
AmfRec: 60G #Containers: 1										
2.5229										
<b>5 KPDTK-1-AA-B</b>										
J8F040000-434-BLK										
06/04/2008 10:30										
AmfRec: #Containers: 1										
<b>6 KPDTK-1-AC-C</b>										
J8F040000-434-LCS										
06/04/2008 10:30										
AmfRec: #Containers: 1										

6/5/2008 1:44:54 PM

### Sample Preparation/Analysis

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

Balance Id:  
Pipet #:  
Sep1 DT/Tm Tech:  
Sep2 DT/Tm Tech:

AnalyDueDate: 06/19/2008  
Batch: 8156434  
SEQ Batch, Test: None

mg/kg

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:
										

Comments:

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

KPC701AA-SAMP Constituent List:										
HEXCHROME RDL:0.35	mg/kg	LCL:80	UCL:120	RPD:20						
KPC701AC-MS Constituent List:										
HEXCHROME RDL:0.35	mg/kg	LCL:75	UCL:125	RPD:20						
KPC701AD-MSD:										
HEXCHROME RDL:0.35	mg/kg	LCL:75	UCL:125	RPD:20						
KPDTK1AA-BLK:										
HEXCHROME RDL:0.35	mg/kg	LCL:	UCL:	RPD:						
KPDTK1AC-LCS:										
HEXCHROME RDL:0.35	mg/kg	LCL:80	UCL:120	RPD:20						
KPC701AA-SAMP Calc Info:										
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci. Not.: Y	ODRs: B						
KPC701AC-MS Calc Info:										
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci. Not.: Y	ODRs: B						
KPC701AD-MSD:										
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci. Not.: Y	ODRs: B						
KPDTK1AA-BLK:										
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci. Not.: Y	ODRs: B						
KPDTK1AC-LCS:										
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci. Not.: Y	ODRs: B						

Approved By \_\_\_\_\_ Date: \_\_\_\_\_

Analyst: L. Dinh		SOP Information		BATCH #	8156434
Start Date:	6/4/2008	RICH-WC-5005		SDG #	J00179
Start Time:		Revision 7		Matrix	Soil
End Date:	6/4/2008			Instrument Information	
End Time:				Hach DR2010	
Analyst Signature:	<i>[Signature]</i>	MDL (mg/kg)		0.35	
Date:	6/5/08	Wavelength		540	
		R Squared		0.9981	
		Slope:		1.88234	
		Intercept:		0.00439	

Calibration Curve Information		ICV Information:		LCS Information:		Matrix Spike Information:		PbCrO4 Information:	
Amount	Conc. (mg/L)	ABS.	Cr-08-00117	Cr-08-00117	Cr-08-00117	Cr-08-00117	Cr-08-00117	Weight PbCrO4	10.7
Blank	0.000	0.000	06/04/08	06/04/08	06/04/08	06/04/08	06/04/08	PDMS Information	
Std. 1	0.100	0.050	50	50	50	50	50	Dilution ID	Cr-08-00109
Std. 2	0.500	0.250	190	190	190	190	190	Concentration	1000
Std. 3	0.750	0.375	1.000	1.000	1.000	1.000	1.000	Pipettor	90
Std. 4	1.500	0.750	0.500	0.500	0.500	0.500	0.500	Volume	0.05
Std. 5	2.000	1.000						Extract Volume	50
Standard Volume (mL):									
Date of Curve:	6/4/2008								

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	MDL
n/a	n/a	ICV	2.5	Abs-Blank	0.931		1	0.1	100.000%	0.019690655	19.6906547	98.45%	
n/a	n/a	ICB	2.5	Abs-Blank	0		1	0.1	100.000%	-9.3262E-05	<MDL		
KPDTK1AA	n/a	PB	2.5	Abs-Blank	0		1	0.1	100.000%	-9.3262E-05	<MDL		0.35
KPDTK1AC	n/a	LCS	2.5	Abs-Blank	0.816		1	0.1	100.000%	0.017246884	17.2468841	86.23%	0.35
KPC701AA	J16WC1'	Sample	2.6783	Abs-Blank	0.089	1.206	1	0.1	50.300%	-0.000642448	<MDL		0.3267
KPC701AC-S	J16WC1'-MS	MS	2.5386	Abs-Blank	0.249	1.028	1	0.1	50.300%	-0.001200978	<MDL		0.344678
KPC701AD-D	J16WC1'-MSD	MSD		Abs-Blank	-0.053		1	0.1	50.300%	Expected	19.57842483		
KPC701AE-X	J16WC1'-DUPE	Duplicate	2.5229	Abs-Blank	0.164		1	0.1	50.300%	Expected	<MDL		0.346823
KPC701APbCrO4	J16WC1'-PbCrO4	PbCrO4	2.5732	Abs-Blank	0.702		20	0.1	50.300%	0.28805308	572.6701384	43.72%	6.800871
				Abs-Blank	0.702		1	0.1	100.000%	Expected	1309.806326		
				Abs-Blank			1	0.1	100.000%				
				Abs-Blank			1	0.1	100.000%				
n/a	n/a	CCV	2.5	Abs-Blank	0.93		1	0.1	100.000%	0.019669405	19.66940452	98.35%	0.35
n/a	n/a	CCB	2.5	Abs-Blank	-0.001		1	0.1	100.000%	Expected	<MDL		0.35
				Abs-Blank	-0.001		1	0.1	100.000%	-0.000114512	<MDL		