

**SAF-RC-114**  
**Columbia River Component of the**  
**RCBRA – Pore Water – Phase II**  
**FINAL DATA PACKAGE**

**COMPLETE COPY OF DATA PACKAGE TO:**

Kathy Wendt H4-21

KW 10/8/09  
INITIAL/DATE

**COMMENTS:**

**SDG J00591**

**SAF-RC-114**

Rad only

Chem only

Rad & Chem

Complete

Partial

**Waste Site: 100H - J100H38**  
**100H - T100H6J5**

**RECEIVED**  
OCT 21 2009  
**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 19 Pages

Report No.: 42507

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.
J00591	RC-114	J193B0	J9I300316-2	LLREL1AA	9LLREL10	9274198
		J19554	J9I300316-1	LLREN1AA	9LLREN10	9274198

**Certificate of Analysis**

TestAmerica Laboratories, Inc.

Washington Hanford Closure  
2620 Fermi Avenue  
Richland, WA 99354

October 7, 2009

Attention: Joan Kessner

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SAF Number : RC-114  
Date SDG Closed : September 30, 2009  
Number of Samples : Two (2)  
Sample Type : Water  
SDG Number : J00591  
Data Deliverable : 7-Day / Summary

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**CASE NARRATIVE**

**I. Introduction**

On September 30, 2009 two water samples were received at TestAmerica for chemistry 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>
J19554	LLREN	WATER	09/30/09
J193B0	LLREL	WATER	09/30/09

**II. Sample Receipt**

The samples were received in good condition. Both samples were received with limited sample volumes. No anomalies were noted during check-in.

On 9/28/09 the client informed TestAmerica that all RC-114 samples should have a 7 day turn around time. The turn around time on the chain of custody should be disregarded.

**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.

Washington Closure Hanford  
October 7, 2009

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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:

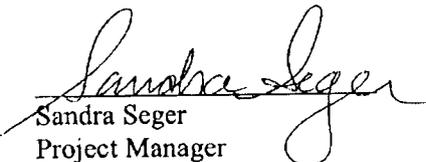
Samples J19554, J193B0, J19554 MS, J19554MSD and J19554 DUP were analyzed with a 50 aliquot due to limited sample volumes.

Sample J193B0 was filtered because it was a light brown color.

Except as noted, the LCS, batch blank, sample, sample duplicate (J19554), sample matrix spike (J19554) and sample matrix spike duplicate (J19554) results are within contractual requirements.

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

Reviewed and approved:

  
Sandra Seger  
Project Manager

### Drinking Water Method Cross References

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

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

### Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship,  $R = \text{constants} * f(x,y,z,...)$ . 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 (Result/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/TotUncert</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: 07-Oct-09

TestAmerica TARL

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

Report No. : 42507

SDG No: J00591

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RPD
9274198	7196_CR6								
	J193B0								
	LLREL1AA	HEXCHROME	3.70E-03 +/- 0.0E+00	U	mg/L	N/A	3.70E-03	3.50E-01	
	J19554								
	LLREN1AA	HEXCHROME	3.70E-03 +/- 0.0E+00	U	mg/L	N/A	3.70E-03	3.50E-01	
	LLREL1AC	HEXCHROME	3.70E-03 +/- 0.0E+00	U	mg/L	N/A	3.70E-03	3.50E-01	
No. of Results:		3							

3.70E-03  
↓  
SKS  
10/7/09

TestAmerica  
rptSTLRchSaSummary2 V5.2.4  
A2002

RPD - Relative Percent Difference.

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: 07-Oct-09

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 42507

SDG No.: J00591

Batch	Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
7196_CR6									
9274198	MATRIX SPIKE, J19554								
	LLREL1AC	HEXCHROME	5.20E-01 +- 0.0E+00		mg/L	N/A	104%	0.0	3.70E-03
	LLREL1AD	HEXCHROME	5.16E-01 +- 0.0E+00		mg/L	N/A	103%	0.0	3.70E-03
9274198	LCS,								
	LLRT81AC	HEXCHROME	5.07E-01 +- 0.0E+00		mg/L	N/A	101%	0.0	3.70E-03
9274198	BLANK QC,								
	LLRT81AA	HEXCHROME	3.70E-03 +- 0.0E+00	U	mg/L	N/A			3.70E-03
No. of Results: 4									

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTLRchQcSummary V5.2.4 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: 07-Oct-09

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J91300316-2  
 Client Sample ID: J193B0  
 SDG: J00591  
 Report No.: 42507  
 COC No.: RC-114-48  
 Matrix: WATER  
 Collection Date: 9/30/2009 11:59:00 AM  
 Received Date: 9/30/2009 4:15:00 PM  
 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	Allquot Size	Primary Detector
Batch: 9274198	7196_CR6				LLREL1AA			Report DB ID: 9LLREL10				
HEXCHROME	<b>3.70E-03</b>	U		0.0E+00	3.70E-03	mg/L	N/A	1.	9/30/09		50.0	ML
							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.  
 V5.2.4 A2002

FORM I

Date: 07-Oct-09

SAMPLE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J9I300316-1  
 Client Sample ID: J19554  
 SDG: J00591  
 Report No.: 42507  
 COC No.: RC-114-190  
 Matrix: WATER  
 Collection Date: 9/30/2009 12:21:00 PM  
 Received Date: 9/30/2009 4:15:00 PM  
 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/TotUcert	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 9274198	7196_CR6												
HEXCHROME	<b>3.70E-03</b>	U		0.0E+00	3.70E-03	mg/L	N/A	1.	N/A	9/30/09	50.0	ML	
Work Order: LLREN1AA      Report DB ID: 9LLREN10 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.  
 V5.2.4 A2002

FORM II  
BLANK RESULTS

Date: 07-Oct-09

Lab Name: TestAmerica      SDG: J00591  
 Matrix: WATER              Report No.: 42507

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: 9274198	7196_CR6				Work Order: LLRT81AA		Report DB ID: LLRT81AB					
HEXCHROME	3.70E-03	U		0.0E+00	3.70E-03	mg/L	N/A	1.	9/30/09		100.0	
						3.50E-01		N/A			ML	

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.  
 V5.2.4 A2002

FORM II  
LCS RESULTS

Date: 07-Oct-09

Lab Name: TestAmerica

SDG: J00591

Matrix: WATER

Report No.: 42507

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: 9274198	7196_CR6					LLRT81AC		LLRT81AS					
HEXCHROME	5.07E-01			0.0E+00	3.70E-03	mg/L	N/A	5.00E-01		101%	9/30/09	100.0	ML
							Rec Limits:	70	130	0.0			

No. of Results: 1      Comments:

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

rptSLRchLcs  
V5.2.4 A2002

FORM II

Date: 07-Oct-09

MATRIX SPIKE RESULTS

Lab Name: TestAmerica      SDG: J00591      Matrix: WATER  
 Lot-Sample No.: J9J300316-1, J19554      Report No.: 42507

Parameter	Spike Result, 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: 9274198 HEXCHROME	5.20E-01 3.70E-03	LLREL1AC	Report DB ID: 0.0E+00	LLREN1CW 3.70E-03 mg/L	mg/L	N/A	9LLREN10 104.00%	5.00E-01	9/30/09	50.0 ML	7196_CR6
Batch: 9274198 HEXCHROME	5.16E-01 5.20E-01	LLREL1AD	Report DB ID: 0.0E+00	LLREN1DW 3.70E-03 mg/L	mg/L	N/A	LLREN1CW 103.20%	5.00E-01	9/30/09	50.0 ML	7196_CR6

Number of Results: 2

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.  
 V5.2.4 A2002

Batch Number(s): 9274198				
Lab Sample Numbers or SDG: J00591				
Method/Test/Parameter: Cr+6 in Water / RL-WC-003				
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:

Both samples only had enough volume for 50mL analyses. Sample LLREL was filtered because it had a light brown color.

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

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

*Linda Dil...*  
*Seeger*

Date: 10/1/09

Date: 10/1/09





Sample Check-in List

Date/Time Received: 09/30/09 4:15 pm GM Screen Results .03  
 Client: WCH SDG #: J00591 NA [ ] SAF #: RC-114 NA [ ]  
 Work Order Number: JTI 300316 Chain of Custody # RC-114 - 48; 190  
 Shipping Container ID: N/A Air Bill # N/A

1. Custody Seals on shipping container intact? Yes  No
2. Custody Seals dated and signed? Yes  No [ ]
3. Chain of Custody record present? Yes  No [ ]
4. Cooler temperature: 92 NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet  Dry [ ]
6. Number of samples in shipping container: 2 @ 2 Containers
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 head space)  
(Cr+6)
10. Sample pH taken? NA  pH < 2 [ ] pH > 2 [ ] pH > 9 [ ] Amount of HNO3 Added \_\_\_\_\_
11. Sample Location, Sample Collector Listed? \* Yes  No [ ]  
 \*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 ID #  
519350 Very little water.

Sample Custodian: \_\_\_\_\_ Date: \_\_\_\_\_

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person contacted \_\_\_\_\_

[ ] No action necessary; process as is.

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

Sample Preparation/Analysis									
10/1/2009 8:44:38 AM	88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				Balance Id:				
127642, Washington Closure Hanford LLC	EA Chromium, Hexavalent (7196A)				Pipet #:				
Bechtel Hanford, Inc.	51 CLIENT: HANFORD				Sep1 DT/Tm Tech:				
AnalytDueDate: 10/07/2009	PM, Quote: SS, 27023				Sep2 DT/Tm Tech:				
Batch: 9274198	WATER				Prep Tech:				
SEQ Batch, Test: None	mg/L								
Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	OC Tracer Prep Date	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:	
1 LLREL-1-AA									
J91300316-1-SAMP									
09/30/2009 11:59								Alpha:	Beta:
2 LLREN-1-AA									
J91300316-2-SAMP									
09/30/2009 12:21								Alpha:	Beta:
3 LLREN-1-AC-S									
J91300316-2-MS									
09/30/2009 12:21								Alpha:	Beta:
4 LLREN-1-AD-D									
J91300316-2-MSD									
09/30/2009 12:21								Alpha:	Beta:
5 LLREN-1-AE-X									
J91300316-2-DUP									
09/30/2009 12:21								Alpha:	Beta:
6 LLRT8-1-AA-B									
J9J010000-198-BLK									
10/01/2009 08:46 pd								Alpha:	Beta:
7 LLRT8-1-AC-C									
J9J010000-198-LCS									
10/01/2009 08:46 pd								Alpha:	Beta:

10/1/2009 8:44:39 AM  
**Sample Preparation/Analysis**  
 Balance Id: \_\_\_\_\_ Pipet #: \_\_\_\_\_  
 88 NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION  
 EA Chromium, Hexavalent (7196A)  
 51 CLIENT: HANFORD  
 Sep1 DT/Tm Tech: \_\_\_\_\_  
 Sep2 DT/Tm Tech: \_\_\_\_\_  
 Prep Tech: \_\_\_\_\_  
 Batch: 9274198  
 SEQ Batch, Test: None

Work Order Lot Sample Date Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	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. , SS , 27023

mg/L  
 L1RE1LAA-SAMP Constituent List:  
 HEXCHROME RDL:0.0037 mg/L LCL:85 UCL:115 RPD:20  
 L1REN1LAC-MS:

L1REN1LAD-MSD:  
 L1RT81LAA-BLK:  
 L1RT81LAC-LCS:

L1RE1LAA-SAMP Calc Info:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B  
 L1REN1LAC-MS:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B  
 L1REN1LAD-MSD:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B  
 L1RT81LAA-BLK:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B  
 L1RT81LAC-LCS:  
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

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