



Analytical Data Package Prepared For  
**Washington Closure Hanford**



Radiochemical Analysis By  
**TAL Richland**

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

Assigned Laboratory Code: STLRL  
Data Package Contains 36 Pages

Report No.: 36534

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
J00125	RC-032	J15BW2	J7H140187-1	J4R6G1AD	9J4R6G10	7226277
		J15BW2	J7H140187-1	J4R6G1AC	9J4R6G10	7226278
		J15BW2	J7H140187-1	J4R6G1AE	9J4R6G10	7226279
		J15BW2	J7H140187-1	J4R6G1AA	9J4R6G10	7226280

# Certificate of Analysis

Washington Hanford Closure  
 2620 Fermi Avenue  
 Richland, WA 99354

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August 29, 2007

Attention: Joan Kessner

SAF Number : RC-032  
 Date SDG Closed : August 13, 2007  
 Number of Samples : One (1)  
 Sample Type : Soil  
 SDG Number : J00125  
 Data Deliverable : 15 - Day / Summary

## CASE NARRATIVE

### I. Introduction

On August 13, 2007 one soil sample was received at STL Richland (STLR) for chemical and radiochemical 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>
J15BW2	J4R6G	SOIL	8/13/07

### I. Sample Receipt

The sample was received in good condition. The COC requested a seven day turn around time but the client has instructed TestAmerica to log all RC-032 SAFs as a 15 day turn around time.

### 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:

- Gas Proportional Counting**  
Total Strontium by method RICH-RC-5006
- Gamma Spectroscopy**  
Gamma Spec by method RICH-RC-5017
- Liquid Scintillation Counter**  
Nickel-63 by method RICH-RC-5069
- Chemical Analysis**  
Hexavalent Chromium by EPA method 7196A

Washington Closure Hanford  
August 29, 2007

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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**

**Gas Proportional Counting**

**Total Strontium by method RICH-RC-5006:**

The LCS, batch blank, sample and sample duplicate (J15BW2) results are within contractual requirements.

**Gamma Spectroscopy**

**Gamma Spec by method RICH-RC-5017:**

The LCS, batch blank, sample and sample duplicate (J15BW2) results are within contractual requirements.

**Liquid Scintillation Counter**

**Nickel-63 by method RICH-RC-5069:**

The LCS, batch blank, sample and sample duplicate (J15BW2) results are within contractual requirements.

**Chemical Analysis**

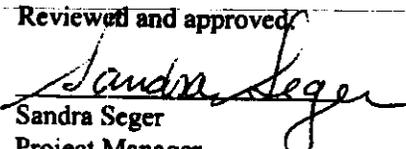
**Hexavalent Chromium by EPA method 7196A:**

The LCS, batch blank, sample, sample duplicate (J15BW2) and sample matrix spike (J15BW2) 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.

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Reviewed and approved

  
Sandra Seger  
Project Manager

### Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

### Uncertainty Estimation

STL 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 STL Richland.
<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 STL Richland "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 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 STL Richland 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: 29-Aug-07

TAL Richland STLRL

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

Report No. : 36534

SDG No: J00125

Client Id	Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RPD
7226279	GAMMA_GS									
	J15BW2									
	J4R6G1AE	AG-108M		-2.80E-03 +/- 6.44E-03	U	pCi/g		1.07E-02		
		BA-133		-4.31E-03 +/- 9.77E-03	U	pCi/g		1.39E-02		
		CO-60		8.11E-03 +/- 8.76E-03	U	pCi/g		1.62E-02	5.00E-02	
		CS-137		8.07E-02 +/- 1.98E-02		pCi/g		1.55E-02	1.00E-01	
		EU-152		1.16E-02 +/- 2.04E-02	U	pCi/g		3.55E-02	1.00E-01	
		EU-154		9.89E-03 +/- 2.94E-02	U	pCi/g		5.19E-02	1.00E-01	
		EU-155		1.35E-02 +/- 2.32E-02	U	pCi/g		3.89E-02	1.00E-01	
	J15BW2 DUP									
	J4R6G1AH	AG-108M		-5.24E-03 +/- 7.56E-03	U	pCi/g		1.24E-02		
		BA-133		-3.09E-04 +/- 1.22E-02	U	pCi/g		1.71E-02		
		CO-60		6.89E-04 +/- 1.12E-02	U	pCi/g		1.94E-02	5.00E-02	
		CS-137		8.25E-02 +/- 1.81E-02		pCi/g		1.72E-02	1.00E-01	
		EU-152		-4.09E-03 +/- 2.47E-02	U	pCi/g		4.10E-02	1.00E-01	
		EU-154		-3.60E-02 +/- 3.85E-02	U	pCi/g		6.27E-02	1.00E-01	
		EU-155		2.73E-02 +/- 2.70E-02	U	pCi/g		4.52E-02	1.00E-01	
7226278	SRTOT_SEP_PRECIP_GPC									
	J15BW2									
	J4R6G1AC	STRONTIUM		-2.06E-02 +/- 6.21E-02	U	pCi/g	83%	1.54E-01		
	J15BW2 DUP									
	J4R6G1AG	STRONTIUM		-4.13E-04 +/- 6.65E-02	U	pCi/g	84%	1.59E-01		-192.1
7226277	NI63_LSC									
	J15BW2									
	J4R6G1AD	NI-63		-2.93E-01 +/- 4.62E+00	U	pCi/g	88%	6.28E+00	3.00E+01	
	J15BW2 DUP									
	J4R6G1AF	NI-63		1.82E+00 +/- 4.47E+00	U	pCi/g	93%	5.92E+00	3.00E+01	277.0
7226280	7196_CR6									
	J15BW2									
	J4R6G1AA	HEXCHROME		3.50E-01 +/- 7.00E-01	U	mg/kg	N/A	3.50E-01	3.50E-01	
	J15BW2 DUP									
	J4R6G1AK	HEXCHROME		3.50E-01 +/- 7.00E-01	U	mg/kg	N/A	3.50E-01	3.50E-01	0.0
No. of Results:		20								

TAL Richland

RPD - Relative Percent Difference.

rptSTLRchSaSummary2 V5.1.3  
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**  
**TAL Richland STLRL**  
 Ordered by Method, Batch No, QC Type,.

Date: 29-Aug-07

Report No. : 36534

SDG No.: J00125

Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC MDA
<b>GAMMA_GS</b>									
7226279 BLANK QC,									
	J4TE41AA	AG-108M	-1.10E-03 +- 2.96E-03	U	pCi/g				5.07E-03
		BA-133	9.75E-04 +- 5.12E-03	U	pCi/g				7.34E-03
		CO-60	2.05E-03 +- 3.58E-03	U	pCi/g				7.33E-03
		CS-137	-5.50E-04 +- 3.83E-03	U	pCi/g				6.39E-03
		EU-152	9.12E-03 +- 1.05E-02	U	pCi/g				1.90E-02
		EU-154	4.93E-03 +- 1.08E-02	U	pCi/g				2.15E-02
		EU-155	-9.86E-03 +- 1.07E-02	U	pCi/g				1.69E-02
7226279 LCS,									
	J4TE41AC	CS-137	2.53E-01 +- 4.84E-02		pCi/g		98%	0.0	2.93E-02
		K-40	1.87E+01 +- 2.45E+00		pCi/g		96%	0.0	2.27E-01
		RA-226	9.05E-01 +- 1.35E-01		pCi/g		79%	-0.2	4.83E-02
		RA-228	1.99E+00 +- 2.93E-01		pCi/g		106%	0.1	9.46E-02
		U-238	1.06E+00 +- 1.52E-01		pCi/g		101%	0.0	4.76E-02
<b>SRTOT_SEP_PRECIP_GPC</b>									
7226278 BLANK QC,									
	J4TE31AA	STRONTIUM	4.87E-02 +- 6.95E-02	U	pCi/g	86%			1.49E-01
7226278 LCS,									
	J4TE31AC	STRONTIUM	1.14E+00 +- 3.32E-01		pCi/g	88%	101%	0.0	1.54E-01
<b>NI63_LSC</b>									
7226277 BLANK QC,									
	J4TE21AA	NI-63	-1.07E+00 +- 4.18E+00	U	pCi/g	96%			5.75E+00
7226277 LCS,									
	J4TE21AC	NI-63	4.78E+02 +- 4.84E+01		pCi/g	94%	78%	-0.2	5.87E+00
<b>7198_CR6</b>									
7226280 MATRIX SPIKE, J15BW2 MS									
	J4R6G1AJ	HEXCHROME	8.23E+00 +- 7.00E-01		mg/kg	N/A	82%	-0.2	3.50E-01
7226280 LCS,									
	J4TE81AC	HEXCHROME	1.58E+01 +- 7.00E-01		mg/kg	N/A	79%	-0.2	3.50E-01
7226280 BLANK QC,									
	J4TE81AA	HEXCHROME	3.50E-01 +- 7.00E-01	U	mg/kg	N/A			3.50E-01

No. of Results: 19

TAL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTL.RchQcSummary V5.1.3 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  
SAMPLE RESULTS

Date: 29-Aug-07

Lab Name: TA Richland  
Lot-Sample No.: J7H140187-1  
Client Sample ID: J15BW2

SDG: J00125  
Report No.: 36534  
COC No.: RC-032-142

Collection Date: 8/9/2007 7:45:00 AM  
Received Date: 8/13/2007 10:20:00 AM  
Matrix: SOIL

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: 7226277 NI-63	NI63_LSC -2.93E-01	U	2.6E+00	4.6E+00	6.28E+00	pCi/g	88%	-0.05	8/18/07 05:34 a		0.25	LSC4
				Work Order: J4R6G1AD	Report DB ID: 9J4R6G10		3.05E+00	3.00E+01	-0.13			
Batch: 7226278 STRONTIUM	SRTOT_SEP_PRECIP_GPC -2.06E-02	U	6.2E-02	6.2E-02	1.54E-01	pCi/g	83%	-0.13	8/17/07 07:38 p		6.05	GPC28A
				Work Order: J4R6G1AC	Report DB ID: 9J4R6G10		7.16E-02	-0.66				
Batch: 7226279 AG-108M	GAMMA_GS -2.80E-03	U	6.4E-03	6.4E-03	1.07E-02	pCi/g		-0.26	8/18/07 09:24 a		885.5	GER5\$1
				Work Order: J4R6G1AE	Report DB ID: 9J4R6G10			-0.87				
BA-133	-4.31E-03	U	9.8E-03	9.8E-03	1.39E-02	pCi/g		-0.31	8/18/07 09:24 a		885.5	GER5\$1
								-0.88				
CO-60	8.11E-03	U	8.8E-03	8.8E-03	1.62E-02	pCi/g		0.5	8/18/07 09:24 a		885.5	GER5\$1
							5.00E-02	(1.9)				
CS-137	8.07E-02		2.0E-02	2.0E-02	1.55E-02	pCi/g		(5.2)	8/18/07 09:24 a		885.5	GER5\$1
							1.00E-01	(8.2)				
EU-152	1.16E-02	U	2.0E-02	2.0E-02	3.55E-02	pCi/g		0.33	8/18/07 09:24 a		885.5	GER5\$1
							1.00E-01	(1.1)				
EU-154	9.89E-03	U	2.9E-02	2.9E-02	5.19E-02	pCi/g		0.19	8/18/07 09:24 a		885.5	GER5\$1
							1.00E-01	0.67				
EU-155	1.35E-02	U	2.3E-02	2.3E-02	3.89E-02	pCi/g		0.35	8/18/07 09:24 a		885.5	GER5\$1
							1.00E-01	(1.2)				
Batch: 7226280 7196_CR6												
				Work Order: J4R6G1AA	Report DB ID: 9J4R6G10							

FORM I  
SAMPLE RESULTS

Date: 29-Aug-07

Lab Name: TA Richland  
Lot-Sample No.: J7H140187-1  
Client Sample ID: J15BW2

SDG: J00125  
Report No.: 36534  
COC No.: RC-032-142

Collection Date: 8/9/2007 7:45:00 AM  
Received Date: 8/13/2007 10:20:00 AM  
Matrix: SOIL

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/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
HEXCHROME	3.50E-01	U		7.0E-01	3.50E-01	mg/kg	N/A	(1.)	8/16/07		2.5	
							3.50E-01	1.			G	

No. of Results: 10      Comments:

FORM II

Date: 29-Aug-07

DUPLICATE RESULTS

Lab Name: TA Richland  
 Lot-Sample No.: J7H140187-1  
 Client Sample ID: J15BW2 DUP

SDG: J00125  
 Report No.: 36534  
 COC No.: RC-032-142

Collection Date: 8/9/2007 7:45:00 AM  
 Received Date: 8/13/2007 10:20:00 AM  
 Matrix: SOIL

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: 7226277	NI63_LSC											
	NI-63	U	2.5E+00	4.5E+00	5.92E+00	pCi/g	93%	0.31	8/18/07 07:17 a		0.25	LSC4
		U		RPD 277.0		3.00E+01		0.81			G	
Batch: 7226278	SRTOT_SEP_PRECIP_GPC											
	STRONTIUM	U	6.6E-02	6.6E-02	1.59E-01	pCi/g	84%	0.	8/17/07 07:38 p		6.03	GPC28B
		U		RPD -192.1				-0.01			G	
Batch: 7226279	GAMMA_GS											
	AG-108M	U	7.6E-03	7.8E-03	1.24E-02	pCi/g		-0.42	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD -60.6				-(1.4)			G	
	BA-133	U	1.2E-02	1.2E-02	1.71E-02	pCi/g		-0.02	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD -173.2				-0.05			G	
	CO-60	U	1.1E-02	1.1E-02	1.94E-02	pCi/g		0.04	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD 168.7		5.00E-02		0.12			G	
	CS-137	U	1.8E-02	1.8E-02	1.72E-02	pCi/g		(4.8)	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD 2.2		1.00E-01		(9.1)			G	
	EU-152	U	2.5E-02	2.5E-02	4.10E-02	pCi/g		-0.1	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD 417.0		1.00E-01		-0.33			G	
	EU-154	U	3.9E-02	3.9E-02	6.27E-02	pCi/g		-0.57	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD -351.7		1.00E-01		-(1.9)			G	
	EU-155	U	2.7E-02	2.7E-02	4.52E-02	pCi/g		0.6	8/20/07 05:24 a		885.5	GER6\$1
		U		RPD 67.3		1.00E-01		(2.)			G	

TAL Richland RPD - Relative Percent Difference.  
 rptSTLRchDupV5.1 MDC|MDA,Le - Detection, Decision Level based on Instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 .3 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

Date: 29-Aug-07

DUPLICATE RESULTS

Lab Name: TA Richland  
 Lot-Sample No.: J7H140187-1  
 Client Sample ID: J15BW2 DUP

SDG: J00125  
 Report No. : 36534  
 COC No. : RC-032-142

Collection Date: 8/9/2007 7:45:00 AM  
 Received Date: 8/13/2007 10:20:00 AM  
 Matrix: SOIL

Parameter	Result, Orig Rst	Qual	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Allquot Size	Primary Detector
Batch: 7226280	7196_CR6											
HEXCHROME	3.50E-01	U		7.0E-01	3.50E-01	mg/kg	N/A	(1.)	8/16/07		25	
	3.50E-01	U		RPD 0.0		3.50E-01		1.			G	

No. of Results: 10    Comments:

TAL Richland    RPD - Relative Percent Difference.

rp1STLRchDupV5.1    MDC|MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

.3 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: 29-Aug-07

Lab Name: TA Richland  
Matrix: SOIL

SDG: J00125  
Report No.: 36534

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: 7226280 HEXCHROME	7196_CR6 3.50E-01	U										
				Work Order: J4TE81AA	Report DB ID: J4TE81AB							
				7.0E-01	3.50E-01	mg/kg	N/A	(1.)	8/16/07		2.5	
						3.50E-01		1.			G	
Batch: 7226277 NI-63	NI63_LSC -1.07E+00	U	2.4E+00	4.2E+00	5.75E+00 2.79E+00	pCi/g 3.00E+01	96%	-0.19 -0.51	8/18/07 08:59 a		0.25	LSC4
				Work Order: J4TE21AA	Report DB ID: J4TE21AB							
											G	
Batch: 7226279 AG-108M	GAMMA_GS -1.10E-03	U	3.0E-03	3.0E-03	5.07E-03	pCi/g		-0.22	8/21/07 05:13 a		859.27	GER7\$1
				Work Order: J4TE41AA	Report DB ID: J4TE41AB							
								-0.74			G	
12 BA-133	9.75E-04	U	5.1E-03	5.1E-03	7.34E-03	pCi/g		0.13	8/21/07 05:13 a		859.27	GER7\$1
								0.38			G	
CO-60	2.05E-03	U	3.6E-03	3.6E-03	7.33E-03	pCi/g		0.28	8/21/07 05:13 a		859.27	GER7\$1
								(1.1)			G	
CS-137	-5.50E-04	U	3.6E-03	3.6E-03	6.39E-03	pCi/g		-0.09	8/21/07 05:13 a		859.27	GER7\$1
								1.00E-01			G	
EU-152	9.12E-03	U	1.1E-02	1.1E-02	1.90E-02	pCi/g		0.48	8/21/07 05:13 a		859.27	GER7\$1
								(1.7)			G	
EU-154	4.93E-03	U	1.1E-02	1.1E-02	2.15E-02	pCi/g		0.23	8/21/07 05:13 a		859.27	GER7\$1
								1.00E-01			G	
EU-155	-9.86E-03	U	1.1E-02	1.1E-02	1.69E-02	pCi/g		-0.58	8/21/07 05:13 a		859.27	GER7\$1
								1.00E-01			G	
								-(1.8)			G	
Batch: 7226278 STRONTIUM	SRTOT_SEP_PRECIP_GPC 4.87E-02	U	6.8E-02	7.0E-02	1.49E-01 6.93E-02	pCi/g	86%	0.33	8/17/07 07:38 p		6.0	GPC28C
				Work Order: J4TE31AA	Report DB ID: J4TE31AB							
											G	

FORM II  
BLANK RESULTS

Date: 29-Aug-07

Lab Name: TA Richland  
Matrix: SOIL

SDG: J00125

Report No. : 36534

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
No. of Results: 10	Comments:											

FORM II  
LCS RESULTS

Date: 29-Aug-07

Lab Name: TA Richland  
Matrix: SOIL

SDG: J00125  
Report No.: 36534

Parameter	Result	Count Qual	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: 7226280 HEXCHROME	7196_CR6 1.58E+01			7.0E-01	3.50E-01	mg/kg		2.00E+01		79%	8/16/07	2.5	
				Work Order: J4TE81AC		Report DB ID: J4TE81AS		N/A					
						Rec Limits: 80		120		-0.2		G	
Batch: 7226277 NI-63	NI63_LSC 4.78E+02		8.0E+00	4.8E+01	5.87E+00	pCi/g		6.11E+02	1.7E+00	78%	8/18/07 10:42 a	0.25	LSC4
				Work Order: J4TE21AC		Report DB ID: J4TE21CS		94%					
						Rec Limits: 70		130		-0.2		G	
Batch: 7226279 CS-137	GAMMA_GS 2.53E-01		4.6E-02	4.6E-02	2.93E-02	pCi/g		2.58E-01	1.2E-02	98%	8/21/07 05:14 a	457.79	GER4\$1
				Work Order: J4TE41AC		Report DB ID: J4TE41CS		2.58E-01					
						Rec Limits: 70		130		0.0		G	
14 K-40	1.87E+01		2.5E+00	2.5E+00	2.27E-01	pCi/g		1.95E+01	1.9E+00	96%	8/21/07 05:14 a	457.79	GER4\$1
						Rec Limits: 70		130		0.0		G	
RA-226	9.05E-01		1.4E-01	1.4E-01	4.83E-02	pCi/g		1.15E+00	5.2E-02	79%	8/21/07 05:14 a	457.79	GER4\$1
						Rec Limits: 70		130		-0.2		G	
RA-228	1.99E+00		2.9E-01	2.9E-01	9.46E-02	pCi/g		1.87E+00	9.6E-02	106%	8/21/07 05:14 a	457.79	GER4\$1
						Rec Limits: 70		130		0.1		G	
U-238	1.06E+00		1.5E-01	1.5E-01	4.76E-02	pCi/g		1.05E+00	5.4E-02	101%	8/21/07 05:14 a	457.79	GER4\$1
						Rec Limits: 70		130		0.0		G	
Batch: 7226278 STRONTIUM	SRTOT_SEP_PRECIP_GPC 1.14E+00		1.5E-01	3.3E-01	1.54E-01	pCi/g		1.13E+00	2.2E-02	101%	8/17/07 07:38 p	6.0	GPC28D
				Work Order: J4TE31AC		Report DB ID: J4TE31CS		88%					
						Rec Limits: 70		130		0.0		G	
No. of Results: 8	Comments:												

## FORM II

Date: 29-Aug-07

## MATRIX SPIKE RESULTS

Lab Name: TA Richland

SDG: J00125

Lot-Sample No.: J7H140187-1, J15BW2 MS

Report No. : 36534

Matrix: SOIL

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: 7226280	Work Order: J4R6G1AJ			Report DB ID: J4R6G1JW		Orig Sa DB ID: 9J4R6G10							
HEXCHROME	8.23E+00			7.0E-01	3.50E-01	mg/kg	N/A	82.14%	1.00E+01		8/16/07	2.5	7196_CR6
	3.50E-01											G	

Number of Results: 1

Comments:

Lot No., Due Date: J7H140187; 08/29/2007  
Client, Site: 127642; HANFORD  
QC Batch No., Method Test: 7226278; RSRTOT SrTot by GPC  
SDG, Matrix: J00125; SOIL

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?  Yes  No  N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?  Yes  No  N/A

2.2 Are the QC appropriate for the analysis included in the batch?  Yes  No  N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?  Yes  No  N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample?  Yes  No  N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits?  Yes  No  N/A

3.2 Is the LCS result, yield, and MDA within contract limits?  Yes  No  N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits?  Yes  No  N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits?  Yes  No  N/A

3.5 Are the sample yields and MDAs within contract limits?  Yes  No  N/A

4.0 Raw Data

4.1 Were results calculated in the correct units?  Yes  No  N/A

4.2 Were analysis volumes entered correctly?  Yes  No  N/A

4.3 Were Yields entered correctly?  Yes  No  N/A

4.4 Were spectra reviewed/meet contractual requirements?  Yes  No  N/A

4.5 Were raw counts reviewed for anomalies?  Yes  No  N/A

5.0 Other

5.1 Are all nonconformances included and noted?  Yes  No  N/A

5.2 Are all required forms filled out?  Yes  No  N/A

5.3 Was the correct methodology used?  Yes  No  N/A

5.4 Was transcription checked?  Yes  No  N/A

5.5 Were all calculations checked at a minimum frequency?  Yes  No  N/A

5.6 Are worksheet entries complete and correct?  Yes  No  N/A

5.7 Comments on any No response:  Yes  No  N/A

First Level Review *Olga Gustafson*

Date 8/19/07



# STL

## Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 7226278

Review Item	Yes (✓)	No (✓)	N/A (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
<b>C. Other</b>			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Second Level Review:  Date: 8/20/07

Lot No., Due Date: J7H140187; 08/28/2007  
 Client, Site: 127642; HANFORD  
 QC Batch No., Method Test: 7226279; RGAMMA Gamma by GER  
 SDG, Matrix: J00125; SOIL

**1.0 COC**

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?  Yes  No  N/A

**2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?  Yes  No  N/A

2.2 Are the QC appropriate for the analysis included in the batch?  Yes  No  N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?  Yes  No  N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample?  Yes  No  N/A

**3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits?  Yes  No  N/A

3.2 Is the LCS result, yield, and MDA within contract limits?  Yes  No  N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits?  Yes  No  N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits?  Yes  No  N/A

3.5 Are the sample yields and MDAs within contract limits?  Yes  No  N/A

**4.0 Raw Data**

4.1 Were results calculated in the correct units?  Yes  No  N/A

4.2 Were analysis volumes entered correctly?  Yes  No  N/A

4.3 Were Yields entered correctly?  Yes  No  N/A

4.4 Were spectra reviewed/meet contractual requirements?  Yes  No  N/A

4.5 Were raw counts reviewed for anomalies?  Yes  No  N/A

**5.0 Other**

5.1 Are all nonconformances included and noted?  Yes  No  N/A

5.2 Are all required forms filled out?  Yes  No  N/A

5.3 Was the correct methodology used?  Yes  No  N/A

5.4 Was transcription checked?  Yes  No  N/A

5.5 Were all calculations checked at a minimum frequency?  Yes  No  N/A

5.6 Are worksheet entries complete and correct?  Yes  No  N/A

6.0 Comments on any No response:  Yes  No  N/A

First Level Review *Lisa Antchison*

Date 8/28/07

**SEVERN  
TRENT**

**STL**

Data Review Checklist  
**RADIOCHEMISTRY**  
 Second Level Review

QC Batch Number: 7226279

Review Item	Yes (✓)	No (✓)	N/A (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
<b>C. Other</b>			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Second Level Review: Eihsa Jada

Date: 8/29/17

Lot No., Due Date: J7H140187; 08/28/2007  
 Client, Site: 127642; HANFORD  
 QC Batch No., Method Test: 7226277; RNI63 NI-63 by LSC  
 SDG, Matrix: J00125; SOIL

**1.0 COC**

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? Yes No N/A

Yes  No  N/A

**2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

Yes  No  N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

Yes  No  N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

Yes  No  N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

Yes  No  N/A

**3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

Yes  No  N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

Yes  No  N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

Yes  No  N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

Yes  No  N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

Yes  No  N/A

**4.0 Raw Data**

4.1 Were results calculated in the correct units? Yes No N/A

Yes  No  N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

Yes  No  N/A

4.3 Were Yields entered correctly? Yes No N/A

Yes  No  N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

Yes  No  N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

Yes  No  N/A

**5.0 Other**

5.1 Are all nonconformances included and noted? Yes No N/A

Yes  No  N/A

5.2 Are all required forms filled out? Yes No N/A

Yes  No  N/A

5.3 Was the correct methodology used? Yes No N/A

Yes  No  N/A

5.4 Was transcription checked? Yes No N/A

Yes  No  N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

Yes  No  N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

Yes  No  N/A

6.0 Comments on any No response:

First Level Review *Lisa Antonson*

Date 8/28/07

**SEVERN  
TRENT**

**STL**

Data Review Checklist  
**RADIOCHEMISTRY**  
Second Level Review

QC Batch Number: 72710277

Review Item	Yes (✓)	No (✓)	N/A (✓)
<b>A. Sample Analysis</b>			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
<b>B. QC Samples</b>			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
<b>C. Other</b>			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?			✓
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Second Level Review: Enche Jorde

Date: 8/19/17



**STL**

**Richland Laboratory  
Data Review Check List  
Hexavalent Chromium**

Batch Number(s): 7226280				
Lab Sample Numbers or SDG: J00125				
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: \_\_\_\_\_

Analyst: J. D. Wecki

Date: 8/20/07

Second-Level Review: Jodie C

Date: 8/24/07

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-032-142	Page 1 of 1	
Collector <b>TONI WERTH KOELLING</b>		Company Contact R.T. Coffman		Telephone No. 528-6409		Project Coordinator KESSNER, JH	Price Code 88	Data Turnaround 7DAY
Project Designation 100-F Remaining Sites Burial Grounds - Soil Full Protocol		Sampling Location 100-F-26:14 Shallow Zone/Verification		SAF No. RC-032				
Ice Chest No. PNUC 116		Field Labbook No. EFL-1174-3		COA R10F262000		Method of Shipment FED EX		
Shipped To Severn Trent Incorporated, Richland		Offsite Property No. NA		Bill of Lading/Air Bill No. NA				
POSSIBLE SAMPLE HAZARDS/REMARKS NA J7H140187 J00125 Special Handling and/or Storage NA Due 08/29/07 EW 3/14/07				Preservation	None	Cool 4C	None	None
				Type of Container	P	P	P	P
				No. of Container(s)	1	1	1	1
				Volume	125mL	125mL	500mL	125mL
SAMPLE ANALYSIS				See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Nickel-63; Strontium-89,90 - Total Sr	
Sample No.	Matrix *	Sample Date	Sample Time					
J15BW2	SOIL	8-9-07	0745		X	X	X	S
	J4R66							
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From Toni Werth Koelling		Date/Time 8-9-07 10:00		Received By/Stored In J.P. D'Amico		Date/Time 8-9-07 10:00		(1) ICP Metals - 6010 (Client List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) (2) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133, Silver-108 metastable)  Samples unavailable to remove sample from refer 3A. Sample removed from refer 3A 8/28/07 by KM Singleton on 8-15-07
Relinquished By/Removed From J.P. D'Amico		Date/Time 8-9-07 1330		Received By/Stored In 3728/3A		Date/Time 8-9-07 1330		
Relinquished By/Removed From 3728/3A		Date/Time 8-13-07 0900		Received By/Stored In KM Singleton		Date/Time 8-13-07 0900		
Relinquished By/Removed From KM Singleton		Date/Time 8-13-07 1000		Received By/Stored In L. Lane		Date/Time 8-13-07 1000		
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: 8-15-07 1020

Client: WCH SDG#: 100125 NA  SAF#: RC-032 NA

Work Order Number: J7H140187 Chain of Custody # RC-032-142

Shipping Container ID: \_\_\_\_\_ Air Bill # \_\_\_\_\_

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? Yes  No
4. Cooler temperature: \_\_\_\_\_ NA  5. Vermiculite/packing materials is NA  Wet  Dry
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? NA  Yes  No
8. Samples have:
  - \_\_\_\_\_ tape
  - custody seals
  - \_\_\_\_\_ hazard labels
  - appropriate samples labels
9. Samples are:
  - in good condition
  - \_\_\_\_\_ broken
  - \_\_\_\_\_ leaking
  - \_\_\_\_\_ have air bubbles

(Only for samples requiring head space)
10. Sample pH taken? SOIL NA  pH<2  pH>2  pH>9
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 Custodian: [Signature] Date: 8-13-07

Client Sample ID	Analysis Requested	Condition	Comments/Action

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

No action necessary; process as is.

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

TESTAMERICA RICHLAND

8/17/2007 3:08:12 PM

127642, Washington Closure Hanford  
Bechtel Hanford, Inc.

**Sample Preparation/Analysis**

CH Sr-Total PrpRC5013, SepRC5006  
TH Total Strontium by GPC  
SI CLIENT: HANFORD

Balance Id:1120373922

Pipet #:

AnalyDueDate: 08/28/2007

Sep1 DT/Tm Tech: 08/17/2007 13:55,ManisD

Batch: 7226278 SOIL pCi/g PM, Quote: SS, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 7226277 AFS4, 7226278 CHTH, 7226279 AXTA, 7226280 DWEA, 7226291 88OV,

Prep Tech: ManisD,WoodT

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, Inlt/Date	Comments:
1 J4R6G-1-AC J7H140187-1-SAMP 08/09/2007 07:45	6.05g,in		SRTA17079 08/14/07.pd 05/22/07.r	1.5	82.8	50	28A	2003	S/17/07 ML	
AmfRec: 2X120ML,500MLP #Containers: 3 08/17/2007 13:55,s1 Scr: Alpha: Beta:										
2 J4R6G-1-AG-X J7H140187-1-DUP 08/09/2007 07:45	6.03g,in		SRTA17080 08/14/07.pd 05/22/07.r	1.5	83.6	50	28B			
AmfRec: 2X120ML,500MLP #Containers: 3 08/17/2007 13:55,s1 Scr: Alpha: Beta:										
3 J4TE3-1-AA-B J7H140000-278-BLK 08/09/2007 07:45	6.00g,in		SRTA17081 08/14/07.pd 05/22/07.r	1.5	86.2	50	28C			
AmfRec: #Containers: 1 08/17/2007 13:55,s1 Scr: Alpha: Beta:										
4 J4TE3-1-AC-C J7H140000-278-LCS 08/09/2007 07:45	6.00g,in		STSB1244 08/14/07.pd 05/22/07.r	1.5	88.4	50	28D			
AmfRec: #Containers: 1 08/17/2007 13:55,s1 Scr: Alpha: Beta:										

Comments: J4R6G-SAMP \*Comments Sr-Sample darker in color than the Dup drn 8/16/07\*

All Clients for Batch:  
127642, Washington Closure Hanford

Bechtel Hanford, Inc. , 88 , 27038

J4R6G1AC-SAMP Constituent List:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
J4TE31AA-BLK:					
Sr-90	RDL:1	pCi/g	LCL:	UCL:	RPD:
J4TE31AC-LCS:					
Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 1  
Richland Wa. pd - Prep Dt, r - Reference Dt, ec - Enrichment Cell, ct - Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 4  
Prep\_SamplePrep v4.8.26