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**EDMC**

Analytical Data Package Prepared For

**Fluor Hanford**

Radiochemical Analysis By

**STL Richland**

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

Assigned Laboratory Code: STLRL

Data Package Contains \_\_\_\_\_ Pages

Report No.: 33415

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W05004	R06-013	B1KB53	J6I110179-1	JD35G2AA	9JD35G20	6263405
		B1KB54	J6I110179-2	JD35M2AA	9JD35M20	6263405
		B1KJ40	J6I110179-3	JD35R2AA	9JD35R20	6263405
		B1KJ42	J6I110179-4	JD35V2AA	9JD35V20	6263405
		B1KJ43	J6I110179-5	JD35X2AA	9JD35X20	6263405



STL Richland  
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Richland, WA 99354

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**Certificate of Analysis**

Fluor Hanford  
P.O. Box 1000, T6-03  
Richland, WA 99352

October 3, 2006

Attention: John Trechter

SAF Number : R06-013  
Date SDG Closed : September 11, 2006  
Number of Samples : Five (5)  
Sample Type : Soil  
SDG Number : W05004  
Data Deliverable : 15 / 15-Day Summary



**CASE NARRATIVE**

**I. Introduction**

On September 11, 2006, five other solid samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned to lot J61110179 and assigned the following laboratory ID number to correspond with the Fluor Hanford (FH) specific ID:

<u>FH ID#</u>	<u>STLR ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
B1KB53	JD35G	SOIL	9/11/06
B1KB54	JD35M	SOIL	9/11/06
B1KJ40	JD35R	SOIL	9/11/06
B1KJ42	JD35V	SOIL	9/11/06
B1KJ43	JD35X	SOIL	9/11/06

**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.

Fluor Hanford  
October 3, 2006

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The requested analyses were:

**Liquid Scintillation Counting**  
Selenium-79 by method RICH-RC-5043

**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.

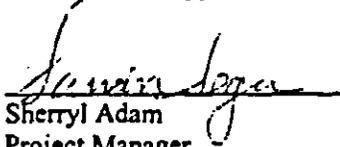
**V. Comments**

**Gas Proportional Counting**  
Selenium-79 by method RICH-RC-5043

The blank failed on the first analysis. The samples were reanalyzed and were acceptable. There is currently not an available standard for Selenium 79 and an LCS was not analyzed. Except as note, the batch blank, sample and sample duplicate (BIKB53) 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:

  
for Sherryl Adam  
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 CRDL (RL)</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.  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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgmdCnt}/\text{BkgmdCntMin}) / \text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$ . 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/JMDA</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 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: 03-Oct-06

**STL Richland STLRL**

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

Report No. : 33415

SDG No: W05004

Client Id	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
6263405 SE79_SEP_IE_LSC								
B1KB53								
JD35G2AA SE-79		1.06E+00 +- 1.04E+00	U	pCi/g	46%	1.92E+00	1.00E+01	
B1KB53 DUP								
JD35G2AC SE-79		3.55E-01 +- 5.95E-01	U	pCi/g	75%	1.12E+00	1.00E+01	100.0
B1KB54								
JD35M2AA SE-79		4.27E-01 +- 5.45E-01	U	pCi/g	82%	1.02E+00	1.00E+01	
B1KJ40								
JD35R2AA SE-79		8.50E-01 +- 5.72E-01	U	pCi/g	80%	1.04E+00	1.00E+01	
B1KJ42								
JD35V2AA SE-79		-2.42E-01 +- 9.41E-01	U	pCi/g	47%	1.84E+00	1.00E+01	
B1KJ43								
JD35X2AA SE-79		5.08E-01 +- 1.17E+00	U	pCi/g	39%	2.23E+00	1.00E+01	
No. of Results: 6								

STL Richland  
rptSTLRchSaSummary2 V5.0.1  
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**  
**STL Richland STLRL**  
 Ordered by Method, Batch No, QC Type,.

Date: 03-Oct-06

Report No. : 33415

SDG No.: W05004

Batch	Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
SE79_SEP_IE_LSC	6263405	BLANK QC							
	JENQP1AA	SE-79	-5.31E-01 +- 1.08E+00	U	pCi/g	41%			2.13E+00
No. of Results: 1									

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTLrchQcSummary V5.0.1 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: 03-Oct-06

Lab Name: STL Richland

SDG: W05004

Collection Date: 9/10/2006 2:15:00 PM

Lot-Sample No.: J61110179-1

Report No.: 33415

Received Date: 9/11/2006 2:10:00 PM

Client Sample ID: B1KB53

COC No.: R06-013-024

Matrix: SOIL SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count Error ( 2 s)	Total Uncert( 2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotalUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6263405	SE79_SEP_IE_LSC			Work Order: JD35G2AA		Report DB ID: 9JD35G20					
SE-79	1.06E+00 U	8.3E-01	1.0E+00	1.92E+00 pCi/g		46%	0.55	9/29/06 08:15 a		2.0	LSC3
				9.24E-01	1.00E+01	(2.1)				G	

No. of Results: 1

Comments:

FORM I  
SAMPLE RESULTS

Date: 03-Oct-06

Lab Name: STL Richland

SDG: W05004

Collection Date: 9/10/2006 2:15:00 PM

Lot-Sample No.: J61110179-2

Report No.: 33415

Received Date: 9/11/2006 2:10:00 PM

Client Sample ID: B1KB54

COC No.: R06-013-024

Matrix: SOIL SOLID

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
Batch: 6283405	SE79_SEP_IE_LSC				Work Order: JD35M2AA		Report DB ID: 9JD35M20					
SE-79	4.27E-01	U	4.4E-01	5.4E-01	1.02E+00	pCi/g	82%	0.42	9/29/06 10:00 a		2.1	LSC3
							4.91E-01	1.00E+01	(1.6)		G	

No. of Results: 1

Comments:

STL Richland

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

rptSTLRchSample  
V5.0.1 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: 03-Oct-06

## SAMPLE RESULTS

Lab Name: STL Richland

SDG: W05004

Collection Date: 9/10/2006 2:15:00 PM

Lot-Sample No.: J61110179-3

Report No.: 33415

Received Date: 9/11/2006 2:10:00 PM

Client Sample ID: B1KJ40

COC No.: R06-013-024

Matrix: SOIL SOLID

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
Batch: 6263405	SE79_SEP_IE_LSC				Work Order: JD35R2AA		Report DB ID: 9JD35R20					
SE-79	8.50E-01	U	4.6E-01	5.7E-01	1.04E+00	pCi/g	80%	0.82	9/29/06 10:53 a		213	LSC3
							4.99E-01	1.00E+01	(3.)		G	

No. of Results: 1      Comments:

FORM I  
SAMPLE RESULTS

Date: 03-Oct-06

Lab Name: STL Richland  
Lot-Sample No.: J6I110179-4  
Client Sample ID: B1KJ42

SDG: W05004  
Report No.: 33415  
COC No.: R06-013-024

Collection Date: 9/10/2006 2:15:00 PM  
Received Date: 9/11/2006 2:10:00 PM  
Matrix: SOIL SOLID

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	Allquot Size	Primary Detector
Batch: 6283405	SE79_SEP_IE_LSC				Work Order: JD35V2AA		Report DB ID: 9JD35V20					
SE-79	-2.42E-01	U	7.5E-01	9.4E-01	1.84E+00	pCi/g	47%	-0.13	9/29/06 11:45 a		2.06	LSC3
							8.84E-01	1.00E+01			G	

No. of Results: 1      Comments:

STL Richland      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.  
V5.0.1 A2002

FORM I  
SAMPLE RESULTS

Date: 03-Oct-06

Lab Name: STL Richland

SDG: W05004

Collection Date: 9/10/2006 2:15:00 PM

Lot-Sample No.: J6I110179-5

Report No.: 33415

Received Date: 9/11/2006 2:10:00 PM

Client Sample ID: B1KJ43

COC No.: R06-013-024

Matrix: SOIL SOLID

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: 6263405	SE79_SEP_IE_LSC				Work Order: JD35X2AA		Report DB ID: 9JD35X20					
SE-79	5.08E-01	U	9.4E-01	1.2E+00	2.23E+00	pCi/g	39%	0.23	9/29/06 12:38 p		2.05	LSC3
							1.07E+00	1.00E+01			G	

No. of Results: 1

Comments:

STL Richland

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

rptSTLRchSample  
V5.0.1 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: 03-Oct-06

## DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W05004

Collection Date: 9/10/2006 2:15:00 PM

Lot-Sample No.: J6I110179-1

Report No.: 33415

Received Date: 9/11/2006 2:10:00 PM

Client Sample ID: B1KB53 DUP

COC No.: R06-013-024

Matrix: SOIL SOLID

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: 6263405	SE79_SEP_IE_LSC			Work Order: JD35G2AC		Report DB ID: JD35G2CR		Orig Sa DB ID: 9JD35G20				
SE-79	3.55E-01	U	4.8E-01	6.0E-01	1.12E+00	pCi/g	75%	0.32	9/29/06 09:08 a		211	LSC3
	1.06E+00	U	RPD 100.0			1.00E+01		(1.2)			G	

No. of Results: 1    Comments:

STL Richland

RPD - Relative Percent Difference.

rptSTLRchDupV5.0  
.1 A2002

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

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

FORM II  
BLANK RESULTS

Date: 03-Oct-06

Lab Name: STL Richland

SDG: W05004

Matrix: SOIL

Report No. : 33415

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: 6263405	SE79_SEP_IE_LSC				Work Order: JENQP1AA		Report DB ID: JENQP1AB					
SE-79	-5.31E-01	U	8.6E-01	1.1E+00	2.13E+00	pCi/g	41%	-0.25	9/29/06 01:30 p		2.0	LSC3
					1.03E+00	1.00E+01		-0.98			G	
No. of Results: 1	Comments:											

STL Richland  
rptSTLRchBlank  
V5.0.1 A2002

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

Lot No., Due Date: J61110179; 09/26/2006  
 Client, Site: 108302; RUS TEDF HANFORD  
 QC Batch No., Method Test: 6263405; RSE79 Se-79 by LSC  
 SDG, Matrix: W05004; SOIL

- |                             |   |     |        |
|-----------------------------|---|-----|--------|
| <b>1.0 COC</b>              |   |     |        |
| 1.1                         | Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?           | Yes | No N/A |
| <b>2.0 QC Batch</b>         |   |     |        |
| 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 |
| <b>3.0 QC &amp; Samples</b> |   |     |        |
| 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 |
| <b>4.0 Raw Data</b>         |   |     |        |
| 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 |
| <b>5.0 Other</b>            |   |     |        |
| 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:  |     |        |

10-08769

First Level Review Pam Anderson Date 10-1-06

**SEVERN**  
**TRENT**

**STL**

Data Review Checklist  
RADIOCHEMISTRY  
Second Level Review

QC Batch Number: 6265405  
W05004

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: See NCM

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Second Level Review: Sheryl A. Adams Date: 10-2-06

# Clouseau Nonconformance Memo

**SEVERN**  
**TRENT**  
**SERVICES**

NCM #: <b>10-08769</b> NCM Initiated By: Pam Anderson Date Opened: 10/02/2006 Date Closed:	Classification: <b>Anomaly</b> Status: <b>GLREVIEW</b> Production Area: Environmental - Sep Tests: Se-79 by LSC Lot #'s (Sample #'s): J61110179 (1,2,3,4,5), J61200000 (405), QC Batches: 6263405
Nonconformance: Other (describe in detail) Subcategory: Other (explanation required)	

**Problem Description / Root Cause**

<u>Name</u>	<u>Date</u>	<u>Description</u>
Pam Anderson	10/02/2006	On the first analysis of this soil sample for Se-79 the blank yield failed. The batch was reanalyzed. Reanalysis is good.

**Corrective Action**

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Pam Anderson	10/02/2006	The tech has had further training.

**Client Notification Summary**

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

**Quality Assurance Verification**

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

**Approval History**

<u>Date Approved</u>	<u>Approved By</u>	<u>Position</u>
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STL RICHLAND

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

R06-013-024

PAGE 1 OF 1

COLLECTOR  
HOGAN, JG

*JL I110179  
W05004*

COMPANY CONTACT  
TRECHTER, JE

TELEPHONE NO.  
373-7046

PROJECT COORDINATOR  
TRECHTER, JE

PRICE CODE 8C

DATA  
TURNAROUND

SAMPLING LOCATION  
200-W-42

*Due 9-26-06*

PROJECT DESIGNATION  
200-UW-1 Operable Unit, Soil from Trench between 216-U-8 and 216-U-12

SAP NO.  
R06-013

AIR QUALITY

15 Days /  
15 Days

ICE CHEST NO.

*SML 595*

FIELD LOGBOOK NO.  
DTS-SAWS-H112

COA  
121600ES20

METHOD OF SHIPMENT  
GOVERNMENT VEHICLE

SHIPPED TO

Severn Trent Incorporated, Richland

OFFSITE PROPERTY NO.

N/A

BILL OF LADING/AIR BILL NO.

N/A

MATRIX\*  
OL = OTHER LIQUID  
OS = OTHER SOLID  
S = SOIL  
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS

Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B1KB53		S	<i>9-10-06</i>	<i>1415</i>	4X60mL G/P Selenium-79 (Se-79)	<i>JD35G</i>	None
B1KB54		S			4X60mL G/P Selenium-79 (Se-79)	<i>JD35M</i>	None
B1KJ40		S			4X60mL G/P Selenium-79 (Se-79)	<i>JD35R</i>	None
B1KJ42		S			4X60mL G/P Selenium-79 (Se-79)	<i>JD35V</i>	None
B1KJ43		S			4X60mL G/P Selenium-79 (Se-79)	<i>JD35X</i>	None

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM  
**OURATEK**  
**J. G. HOGAN**  
RELINQUISHED BY/REMOVED FROM  
**D.P. Brewster**  
RELINQUISHED BY/REMOVED FROM

1300 SIGN/ PRINT NAMES

DATE/TIME RECEIVED BY/STORED IN  
*SEP 11 2006* **D.P. Brewster**  
DATE/TIME RECEIVED BY/STORED IN  
*9-11-06* **S.S. Uh**  
DATE/TIME RECEIVED BY/STORED IN

1300 SPECIAL INSTRUCTIONS

Reporting format the same as GPP, including QC. All samples, except VOAs, have been taken using the multiple-increment sampling program. This requires the entire sample provided in each bottle to be used in analysis. VOAs will be analyzed as usual.

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



# STL

### Sample Check-in List

Date/Time Received: 9-11-06 14:10

Client: TEDF SDG #: W05D04 NA  SAF #: R06-013 NA

Work Order Number: J6I110179 Chain of Custody #: R06-013-024

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

- Custody Seals on shipping container intact? NA  Yes  No
- Custody Seals dated and signed? NA  Yes  No
- Chain of Custody record present? Yes  No
- Cooler temperature: \_\_\_\_\_ NA  S: Vermiculite/packing materials is NA  Wet  Dry
- Number of samples in shipping container: 5
- Sample holding times exceeded? NA  Yes  No
- Samples have:
 

<input type="checkbox"/> tape	<input type="checkbox"/> hazard labels
<input type="checkbox"/> custody seals	<input checked="" type="checkbox"/> appropriate samples labels
- Samples are:
 

<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking
<input type="checkbox"/> broken	<input type="checkbox"/> have air bubbles

 (Only for samples requiring head space)
- Sample pH taken? Soil NA  pH < 2  pH > 2  adjusted pH
- Sample Location, Sample Collector Listed? \* Yes  No   
\*For documentation only. No corrective action needed.
- Were any anomalies identified in sample receipt? Yes  No
- Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian: S. Smith Date: 9-11-06 14:10

Client Sample ID	Analysis Requested	Condition	Comments/Action

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

No action necessary; process as is.

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

\*\*\* RE-ANALYSIS REQUEST \*\*\*

DUE DATE 9.26.06

CUSTOMER <sup>Part</sup> P Fluor

ANALYSIS Sr - 79

MATRIX soil

LOT NUMBER J6I 110 179

SAMPLE DELIVERY GROUP 4.05009

OLD BATCH NUMBER 6255192

NEW BATCH NUMBER 63 1256405

LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) <u>All</u>	<u>blank fails - 3 samples fail</u>
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
LAB QC ID	Assigned with new batch.

STL RICHLAND

9/21/2006 11:12:03 AM **Sample Preparation/Analysis** Balance Id:1120373922  
 108302, Fluor Hanford Inc , Waste CW Se-79 PrpRC5013, SepRC5043 Pipet #: \_\_\_\_\_  
 Management Federal Servi TM Selenium-79 by Liquid Scint Sep1 DT/Tm Tech: \_\_\_\_\_  
**AnalyDueDate: 09/26/2006** **SI CLIENT: HANFORD** Sep2 DT/Tm Tech: \_\_\_\_\_  
 Batch: 6263405 SOIL pCi/g PM, Quote: SA, 27045 Prep Tech: ,HansenM  
 SEQ Batch, Test: None All Tests: 6255192 CWTM, 6263405 CWTM,

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Tracer Yield	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, In/Date	Comments:
1 JD35G-2-AA J6I110179-1-SAMP [REDACTED] 09/10/2006 14:15		2.00g,ln	SETA0175 09/21/06						
		AmtRec: 4X60ML	#Containers: 4				Scr: Alpha: Beta:		
2 JD35G-2-AC-X J6I110179-1-DUP [REDACTED] 09/10/2006 14:15		2.11g,ln	SETA0176 09/21/06						
		AmtRec: 4X60ML	#Containers: 4				Scr: Alpha: Beta:		
3 JD35M-2-AA J6I110179-2-SAMP [REDACTED] 09/10/2006 14:15		2.10g,ln	SETA0177 09/21/06						
		AmtRec: 4X60ML	#Containers: 4				Scr: Alpha: Beta:		
4 JD35R-2-AA J6I110179-3-SAMP [REDACTED] 09/10/2006 14:15		2.13g,ln	SETA0178 09/21/06						
		AmtRec: 4X60ML	#Containers: 4				Scr: Alpha: Beta:		
5 JD35V-2-AA J6I110179-4-SAMP [REDACTED] 09/10/2006 14:15		2.06g,ln	SETA0179 09/21/06						
		AmtRec: 4X60ML	#Containers: 4				Scr: Alpha: Beta:		
6 JD35X-2-AA J6I110179-5-SAMP [REDACTED] 09/10/2006 14:15		2.05g,ln	SETA0180 09/21/06						
		AmtRec: 4X60ML	#Containers: 4				Scr: Alpha: Beta:		
7 JENOP-1-AA-B J6I200000-405-BLK [REDACTED] 09/10/2006 14:15		2.00g,ln	SETA0181 09/21/06						
		AmtRec:	#Containers: 1				Scr: Alpha: Beta:		

STL RICHLAND

9/21/2006 11:12:05 AM **Sample Preparation/Analysis** Balance Id: \_\_\_\_\_

CW Se-79 PrpRC5013, SepRC5043  
TM Selenium-79 by Liquid Scint  
SI CLIENT: HANFORD

AnalyDueDate: 09/26/2006 pCVg Pipet #: \_\_\_\_\_

Batch: 6263405 [REDACTED] Sep1 DT/Tm Tech: \_\_\_\_\_

SEQ Batch, Test: None Sep2 DT/Tm Tech: \_\_\_\_\_

Prep Tech: \_\_\_\_\_

Work Order, Lot, Sample Date/Time	Total Am/UUnit	Initial Aliquot Am/UUnit	OC Tracer Prep Date	Tracer Yield	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, In/Date	Comments:
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8 JENQP-1-AC-BN									
J61200000-405-IBLK									
[REDACTED]									
09/10/2006 14:15 <span style="margin-left: 100px;">Am/Rec:</span> <span style="margin-left: 100px;">#Containers: 1</span> <span style="margin-left: 100px;">Scr:</span> <span style="margin-left: 100px;">Alpha:</span> <span style="margin-left: 100px;">Beta:</span>									

**Comments:**

All Clients for Batch: 108302, Fluor Hanford Inc Waste Management Federal Servi, SA , 27045

JD35Q2AA-SAMP Constituent List:						
Se-79	RDL:10	pCi/g	LCL:	UCL:	RPD:	
JENQP1AA-BLK:						
Se-79	RDL:10	pCi/g	LCL:	UCL:	RPD:	
JENQP1AC-IBLK:						
Se-79	RDL:10	pCi/g	LCL:	UCL:	RPD:	
JD35Q2AA-SAMP Calc Info:						
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:
ODRs:	B					
JENQP1AA-BLK:						
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:
ODRs:	B					
JENQP1AC-IBLK:						
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:
ODRs:	B					

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

22

9/30/2006 11:00:25 AM

# ICOC Fraction Transfer/Status Report

ByDate: 9/30/2005, 10/5/2006, Batch: '6263405', User: \*ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
6263405				
AC	CalcC	HansenM	9/21/2006 11:47:24	
SC		andersonp	IsBatched	9/20/2006 2:14:55 PM
SC		HansenM	InPrep2	9/21/2006 11:47:24 AM
SC		HansenM	Prep2C	9/22/2006 8:55:33 AM
SC		ManisD	Sep1C	9/28/2006 3:19:30 PM
SC		DAWKINSO	InCnt1	9/28/2006 3:39:18 PM
SC		BlackCL	CalcC	9/30/2006 7:07:32 AM
AC		HansenM		9/22/2006 8:55:33
AC		ManisD		9/28/2006 3:19:30 PM
AC		DAWKINSO		9/28/2006 3:39:18 PM
AC		BlackCL		9/30/2006 7:07:32

AC: Accepting Entry, SC: Status Change

STL Richland  
Richland Wa.