

Analytical Data Package Prepared For

Bechtel Hanford

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains 59 Pages

Report No.: 22033

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03990	B01-054	B13XB2	J3B200239-1	FHX5C1AE	9FHX5C10	3052272
		B13XB2	J3B200239-1	FHX5C1AF	9FHX5C10	3052273
		B13XB2	J3B200239-1	FHX5C1AC	9FHX5C10	3052274
		B13XB2	J3B200239-1	FHX5C1AH	9FHX5C10	3052275
		B13XB2	J3B200239-1	FHX5C1AA	9FHX5C10	3052278
		B13XB2	J3B200239-1	FHX5C2AD	9FHX5C20	3065548



CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
3350 George Washington Way
Richland, WA 99352

March 17, 2003

Attention: Joan Kessner

SAF Number	:	B01-054
Date SDG Closed	:	February 20, 2003
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W03990
Data Deliverable	:	21-Day / Summary

I. Introduction

On February 20, 2003, one soil sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
FHX5C	B13XB2	SOIL	2/20/03

II. 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:

Alpha Spectroscopy

Americium-241 by method RICH-RC-5010

Plutonium-238 and 239/240 by method RICH-RC-5010

Uranium-234, 235, 238 by method RICH-RC-5079

Gas Proportional Counting

Total Strontium by method RICH-RC-5006

Gamma Spectroscopy

Gamma Spec by method RICH-RC-5017

Chemical Analyses
Chromium Hex by EPA method 7196A

III. Quality Control

The analytical results for each analysis performed under SDG W03990 include 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.

IV. Comments

Alpha Spectroscopy

Americium-241 by method RICH-RC-5010:

The matrix spike and the LCS had some of the plutonium spike material not separate, therefore, the Am-241 spike results are slightly elevated. This did not occur for the samples. The duplicate tracer recovery is 10% and considered failed. Except as noted, the LCS, batch blank, and sample results are within contractual requirements.

Plutonium-238 and 239/240 by method RICH-RC-5010:

The LCS, batch blank, sample duplicate (B13XB2), and sample results are within contractual requirements.

Uranium-234, 235, 238 by method RICH-RC-5079:

The LCS, batch blank, sample duplicate (B13XB2), and sample results are within contractual requirements.

Gas Proportional Counting

Total Strontium by method RICH-RC-5006:

The LCS, batch blank, sample duplicate (B13XB2), and sample results are within contractual requirements.

Gamma Spectroscopy

Gamma Spec by method RICH-RC-5017:

The MDA for Eu-152 and Eu-154 is greater than the CRDL due to Compton Scattering. Except as noted, the LCS, batch blank, sample duplicate (B13XB2), and sample results are within contractual requirements.

Bechtel Hanford, Inc.
March 17, 2003
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Chemical Analyses

Chromium Hex by EPA method 7196A:

The LCS, batch blank, sample duplicate (B13XB2), matrix spike (B13XB2), color (B13XB2 PbCrO₄) spike, and sample 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:



Barbara M. Gillespie
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

Action Lev	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.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation $(\text{Result}/\text{Expected}) - 1$ as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	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.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	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_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor CRDL (RL)	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)
Lc	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.
Lot-Sample No	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.
MDC MDA	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.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	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.
Rst/MDC	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.
Rst/TotUcert	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.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	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.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	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.
Work Order	The LIMS software assign test specific identifier.
Yield	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: 18-Mar-03

STL Richland STLRL

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

Report No. : 22033

SDG No: W03990

Batch	Client Id Work Order	Parameter	Result ± Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3052272 PUIISO_PLATE_AEA									
	B13XB2								
	FHX5C1AE	PU-238	-2.51E-03 +- 3.6E-03	U	pCi/g	49.69%	3.54E-02	1.00E+00	
		PU239/40	1.13E-02 +- 1.8E-02	U	pCi/g	49.69%	3.00E-02	1.00E+00	
	B13XB2 DUP								
	FHX5C1AJ	PU-238	0.00E+00 +- 1.5E-02	U	pCi/g	49.34%	1.63E-02	1.00E+00	-200.0
		PU239/40	5.41E-02 +- 3.7E-02		pCi/g	49.34%	1.63E-02	1.00E+00	131.1
3052273 AMCMISO_EIE_PLT_AEA									
	B13XB2								
	FHX5C1AF	AM-241	3.33E-02 +- 2.6E-02		pCi/g	91.30%	1.29E-02	1.00E+00	
	B13XB2 DUP								
	FHX5C1AK	AM-241	0.00E+00 +- 1.1E-01	U	pCi/g	10.33%	1.17E-01	1.00E+00	200.0
3052274 UIISO_IE_PLATE_AEA									
	B13XB2								
	FHX5C1AC	U-234	4.93E-01 +- 1.3E-01		pCi/g	67.59%	3.77E-02	1.00E+00	
		U-235	1.58E-02 +- 1.8E-02	U	pCi/g	67.59%	2.48E-02	1.00E+00	
		U-238	4.34E-01 +- 1.2E-01		pCi/g	67.59%	3.43E-02	1.00E+00	
	B13XB2 DUP								
	FHX5C1AL	U-234	4.17E-01 +- 1.2E-01		pCi/g	58.47%	2.47E-02	1.00E+00	16.7
		U-235	5.06E-02 +- 3.4E-02		pCi/g	58.47%	2.47E-02	1.00E+00	104.9
		U-238	4.99E-01 +- 1.4E-01		pCi/g	58.47%	2.92E-02	1.00E+00	14.0
3052275 GAMMA_GS									
	B13XB2								
	FHX5C1AH	AM-241	1.92E-02 +- 2.5E-02	U	pCi/g		3.95E-02		
		CO-60	3.49E-02 +- 2.5E-02	U	pCi/g		4.45E-02	5.00E-02	
		CS-137	1.90E+00 +- 2.4E-01		pCi/g		3.43E-02	1.00E-01	
		EU-152	5.02E-01 +- 1.3E-01	U	pCi/g		1.26E-01	1.00E-01	
		EU-154	4.57E-02 +- 6.9E-02	U	pCi/g		1.22E-01	1.00E-01	
		EU-155	7.44E-02 +- 4.0E-02	U	pCi/g		6.71E-02	1.00E-01	
		U-238DHP	3.96E-01 +- 4.0E-01	U	pCi/g		3.62E-01		
	B13XB2 DUP								
	FHX5C1AM	AM-241	1.24E-02 +- 4.4E-02	U	pCi/g		7.55E-02		
		CO-60	2.61E-02 +- 2.2E-02	U	pCi/g		4.08E-02	5.00E-02	
		CS-137	1.78E+00 +- 2.2E-01		pCi/g		3.42E-02	1.00E-01	
		EU-152	4.29E-01 +- 1.1E-01	U	pCi/g		1.15E-01	1.00E-01	
		EU-154	3.11E-02 +- 6.7E-02	U	pCi/g		1.17E-01	1.00E-01	
		EU-155	4.60E-02 +- 3.9E-02	U	pCi/g		6.55E-02	1.00E-01	
		RA-224	6.05E-01 +- 1.1E-01		pCi/g		4.53E-02		
		RA-226	3.50E-01 +- 9.2E-02		pCi/g		6.23E-02		

STL Richland

RPD - Relative Percent Difference.

rptSTLRchSaSummary2 V3.99 A97

U Qual - Analyzed for, but the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

Date: 18-Mar-03

STL Richland STLR

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

Report No. : 22033

SDG No: W03990

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3052275 GAMMA_GS									
	B13XB2 DUP								
	FHX5C1AM	U-238DHP	2.58E-01 +- 5.9E-01	U	pCi/g		6.34E-01		
3065548 SRTOT_SEP_PRECIP_GPC									
	B13XB2								
	FHX5C2AD	STRONTIUM	1.03E+00 +- 3.2E-01		pCi/g	46.50%	2.04E-01		
	B13XB2 DUP								
	FHX5C1AT	STRONTIUM	1.23E+00 +- 3.6E-01		pCi/g	68.50%	1.45E-01		18.2
3052278 EPA7196									
	B13XB2								
	FHX5C1AA	HEXCHROME	4.53E-01 +- 0.0E+00		mg/kg	N/A	8.00E-02	3.50E-01	
	B13XB2 DUP								
	FHX5C1AQ	HEXCHROME	7.36E-01 +- 0.0E+00		mg/kg	N/A	8.00E-02	3.50E-01	47.5
No. of Results: 32									

STL Richland

RPD - Relative Percent Difference.

rptSTLRchSaSummary2 V3.99 A97

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary

Date: 18-Mar-03

STL Richland STLRL

Ordered by Method, Batch No, QC Type,.

Report No. : 22033

SDG No.: W03990

Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
PUISO_PLATE_AEA									
3052272 BLANK QC									
	FH1Q01AA	PU-238	0.00E+00 +- 1.9E-02	U	pCi/g	39.51%			2.14E-02
		PU239/40	7.91E-03 +- 1.6E-02	U	pCi/g	39.51%			2.14E-02
3052272 LCS									
	FH1Q01AC	PU239/40	3.44E+00 +- 6.2E-01		pCi/g	61.64%	99.93%	0.0	2.43E-02
AMCMISO_EIE_PLT_AEA									
3052273 BLANK QC									
	FH1Q31AA	AM-241	4.64E-03 +- 9.3E-03	U	pCi/g	89.98%			1.26E-02
	FH1Q31AD	AM-241	4.46E-03 +- 1.1E-02	U	pCi/g	76.70%			2.67E-02
3052273 LCS									
	FH1Q31AE	AM-241	3.65E+00 +- 6.5E-01		pCi/g	119.16%	80.94%	-0.2	1.71E-02
	FH1Q31AC	AM-241	3.43E+00 +- 6.1E-01		pCi/g	119.56%	76.11%	-0.2	9.40E-03
UIISO_IE_PLATE_AEA									
3052274 BLANK QC									
	FH1Q41AA	U-234	8.27E-03 +- 1.6E-02	U	pCi/g	76.79%			3.36E-02
		U-235	7.52E-03 +- 1.1E-02	U	pCi/g	76.79%			1.02E-02
		U-238	8.27E-03 +- 1.6E-02	U	pCi/g	76.79%			3.36E-02
3052274 LCS									
	FH1Q41AC	U-234	1.56E+00 +- 3.3E-01		pCi/g	88.23%	93.18%	-0.1	3.33E-02
		U-238	1.45E+00 +- 3.1E-01		pCi/g	88.23%	83.06%	-0.2	2.62E-02
GAMMA_GS									
3052275 BLANK QC									
	FH1Q61AA	AM-241	2.25E-02 +- 1.7E-02	U	pCi/g				2.63E-02
		CO-60	7.56E-03 +- 1.6E-02	U	pCi/g				2.98E-02
		CS-137	-6.34E-04 +- 1.5E-02	U	pCi/g				2.56E-02
		EU-152	6.28E-04 +- 3.7E-02	U	pCi/g				6.34E-02
		EU-154	1.93E-02 +- 4.3E-02	U	pCi/g				7.79E-02
		EU-155	-1.00E-02 +- 2.4E-02	U	pCi/g				4.06E-02
		U-238DHP	5.49E-02 +- 2.9E-01	U	pCi/g				2.37E-01
3052275 LCS									
	FH1Q61AC	CS-137	9.05E-01 +- 1.5E-01		pCi/g		98.07%	0.0	7.95E-02
		RA-226	1.76E+00 +- 3.0E-01		pCi/g		82.24%	-0.2	1.26E-01
SRTOT_SEP_PRECIP_GPC									
3065548 BLANK QC									
	FJP741AA	STRONTIUM	4.45E-02 +- 5.8E-02	U	pCi/g	87.90%			1.23E-01
3065548 LCS									
	FJP741AC	STRONTIUM	1.11E+00 +- 3.2E-01		pCi/g	89.40%	97.16%	0.0	1.20E-01
EPA7196									
3052278 MATRIX SPIKE									
	FHX5C1AP	HEXCHROME	3.30E+01 +- 0.0E+00		mg/kg	N/A	77.37%	-0.2	8.00E-02
3052278 LCS									

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

rptSTLrchQcSummary V3.99 A97 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary

Date: 18-Mar-03

STL Richland STLRL

Ordered by Method, Batch No, QC Type,.

Report No. : 22033

SDG No.: W03990

Batch	Work Order	Parameter	Result +- Uncertainty (2σ)	Qual	Units	Yield	Recovery	Bias	MDC MDA
	FH1RC1AC	HEXCHROME	3.85E+01 +- 0.0E+00		mg/kg	N/A	96.16%	0.0	8.00E-02
3052278 BLANK QC									
	FH1RC1AA	HEXCHROME	3.50E-01 +- 0.0E+00	U	mg/kg	N/A			8.00E-02
No. of Results: 26									

FORM I

Date: 18-Mar-03

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03990

Collection Date: 2/19/2003 9:22:00 AM

Lot-Sample No.: J3B200239-1

Report No.: 22033

Received Date: 2/20/2003 10:50:00 AM

Client Sample ID: B13XB2

COC No.: B01-054-012

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	Alliquot Size	Primary Detector
Batch: 3052272	PUISO_PLATE_AEA			Work Order: FHX5C1AE			Report DB ID: 9FHX5C10					
PU-238	-2.51E-03	U	3.5E-03	3.6E-03	3.54E-02	pCi/g	49.69%	-0.07	3/13/03 09:39 a		2.0	ALP37
							9.22E-03	1.00E+00			G	
PU239/40	1.13E-02	U	1.8E-02	1.8E-02	3.00E-02	pCi/g	49.69%	0.38	3/13/03 09:39 a		2.0	ALP37
							6.51E-03	1.00E+00			G	
Batch: 3052273	AMCMISO_EIE_PLT_AEA			Work Order: FHX5C1AF			Report DB ID: 9FHX5C10					
AM-241	3.33E-02		2.5E-02	2.6E-02	1.29E-02	pCi/g	91.30%	(2.6)	3/13/03 11:03 a		2.0	ALP127
							1.00E+00	(2.6)			G	
Batch: 3052274	UIISO_IE_PLATE_AEA			Work Order: FHX5C1AC			Report DB ID: 9FHX5C10					
U-234	4.93E-01		9.4E-02	1.3E-01	3.77E-02	pCi/g	67.59%	(13.1)	3/12/03 06:54 a		1.99	ALP1
							1.29E-02	1.00E+00			G	
U-235	1.58E-02	U	1.8E-02	1.8E-02	2.48E-02	pCi/g	67.59%	0.64	3/12/03 06:54 a		1.99	ALP1
							6.46E-03	1.00E+00			G	
U-238	4.34E-01		8.8E-02	1.2E-01	3.43E-02	pCi/g	67.59%	(12.7)	3/12/03 06:54 a		1.99	ALP1
							1.12E-02	1.00E+00			G	
Ratio U-234/238 = 1.1												
Batch: 3052275	GAMMA_GS			Work Order: FHX5C1AH			Report DB ID: 9FHX5C10					
AM-241	1.92E-02	U	2.5E-02	2.5E-02	3.95E-02	pCi/g		0.49	2/25/03 07:41 a		57.3	GER5\$1
								(1.6)			g	
CO-60	3.49E-02	U	2.5E-02	2.5E-02	4.45E-02	pCi/g		0.78	2/25/03 07:41 a		57.3	GER5\$1
							5.00E-02	(2.8)			g	

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FORM I

Date: 18-Mar-03

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03990

Collection Date: 2/19/2003 9:22:00 AM

Lot-Sample No.: J3B200239-1

Report No.: 22033

Received Date: 2/20/2003 10:50:00 AM

Client Sample ID: B13XB2

COC No.: B01-054-012

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
CS-137	1.90E+00		2.4E-01	2.4E-01	3.43E-02	pCi/g		(55.4)	2/25/03 07:41 a		57.3	GER5\$1
							1.00E-01	(15.6)			g	
EU-152	5.02E-01	U	1.3E-01	1.3E-01	1.26E-01	pCi/g		(4.)	2/25/03 07:41 a		57.3	GER5\$1
							1.00E-01	(7.7)			g	
EU-154	4.57E-02	U	6.9E-02	6.9E-02	1.22E-01	pCi/g		0.37	2/25/03 07:41 a		57.3	GER5\$1
							1.00E-01	(1.3)			g	
EU-155	7.44E-02	U	4.0E-02	4.0E-02	6.71E-02	pCi/g		(1.1)	2/25/03 07:41 a		57.3	GER5\$1
							1.00E-01	(3.7)			g	
U-238DHP	3.96E-01	U	4.0E-01	4.0E-01	3.62E-01	pCi/g		(1.1)	2/25/03 07:41 a		57.3	GER5\$1
								(2.)			g	
Batch: 3052278	EPA7196				Work Order: FHX5C1AA			Report DB ID: 9FHX5C10				
HEXCHROME	4.53E-01				0.0E+00	8.00E-02 mg/kg		N/A (5.7)	3/5/03		2.5	
							3.50E-01	N/A			G	
Batch: 3065548	SRTOT_SEP_PRECIP_GPC				Work Order: FHX5C2AD			Report DB ID: 9FHX5C20				
STRONTIUM	1.03E+00		1.7E-01	3.2E-01	2.04E-01	pCi/g	46.50%	(5.)	3/8/03 11:10 a		6.02	GPC32A
						9.46E-02		(6.4)			G	

No. of Results: 15 Comments:

12

FORM II

Date: 18-Mar-03

DUPLICATE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J3B200239-1
 Client Sample ID: B13XB2 DUP

SDG: W03990
 Report No. : 22033
 COC No. : B01-054-012

Collection Date: 2/19/2003 9:22:00 AM
 Received Date: 2/20/2003 10:50:00 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/TotUcerf	Analysis, Prep Date	Total Sa Size	Allquot Size	Primary Detector
Batch: 3052272	PUIISO_PLATE_AEA		Work Order: FHX5C1AJ		Report DB ID: FHX5C1JR		Orig Sa DB ID: 9FHX5C10					
PU-238	0.00E+00	U	0.0E+00	1.5E-02	1.63E-02	pCi/g	49.34%	0.	3/13/03 09:40 a		2.0	ALP38
	-2.51E-03	U	RPD	-200.0		1.00E+00		0.			G	
PU239/40	5.41E-02		3.6E-02	3.7E-02	1.63E-02	pCi/g	49.34%	(3.3)	3/13/03 09:40 a		2.0	ALP38
	1.13E-02	U	RPD	131.1		1.00E+00		(2.9)			G	
<i>Alpha Spec Result Sum = 5.4E-02</i>												
Batch: 3052273	AMCMISO_EIE_PLT_AEA		Work Order: FHX5C1AK		Report DB ID: FHX5C1KR		Orig Sa DB ID: 9FHX5C10					
AM-241	0.00E+00	U	0.0E+00	1.1E-01	1.17E-01	pCi/g	10.33%	0.	3/13/03 11:03 a		2.0	ALP128
	3.33E-02		RPD	200.0		1.00E+00		0.			G	
<i>Alpha Spec Result Sum = 5.4E-02</i>												
Batch: 3052274	UIISO_IE_PLATE_AEA		Work Order: FHX5C1AL		Report DB ID: FHX5C1LR		Orig Sa DB ID: 9FHX5C10					
U-234	4.17E-01		9.3E-02	1.2E-01	2.47E-02	pCi/g	58.47%	(16.9)	3/12/03 06:54 a		2.0	ALP2
	4.93E-01		RPD	16.7		1.00E+00		(7.)			G	
U-235	5.06E-02		3.3E-02	3.4E-02	2.47E-02	pCi/g	58.47%	(2.)	3/12/03 06:54 a		2.0	ALP2
	1.58E-02	U	RPD	104.9		1.00E+00		(3.)			G	
U-238	4.99E-01		1.0E-01	1.4E-01	2.92E-02	pCi/g	58.47%	(17.1)	3/12/03 06:54 a		2.0	ALP2
	4.34E-01		RPD	14.0		1.00E+00		(7.4)			G	
<i>Ratio U-234/238 = 0.8</i>												
<i>Alpha Spec Result Sum = 1.0E+00</i>												
Batch: 3052275	GAMMA_GS		Work Order: FHX5C1AM		Report DB ID: FHX5C1MR		Orig Sa DB ID: 9FHX5C10					
AM-241	1.24E-02	U	4.4E-02	4.4E-02	7.55E-02	pCi/g		0.16	2/25/03 07:38 a		58.0	GER7\$1
	1.92E-02	U	RPD	43.1				0.56			g	

1
3

STL Richland

RPD - Relative Percent Difference.

rptSTLRchDupV3.
99 A97

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 the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 18-Mar-03

DUPLICATE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J3B200239-1
 Client Sample ID: B13XB2 DUP

SDG: W03990
 Report No.: 22033
 COC No.: B01-054-012

Collection Date: 2/19/2003 9:22:00 AM
 Received Date: 2/20/2003 10:50:00 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	Aliquot Size	Primary Detector
CO-60	2.61E-02	U	2.2E-02	2.2E-02	4.08E-02	pCi/g		0.64	2/25/03 07:38 a		58.0	GER7\$1
	3.49E-02	U	RPD 28.7			5.00E-02		(2.4)			g	
CS-137	1.78E+00		2.2E-01	2.2E-01	3.42E-02	pCi/g		(52.)	2/25/03 07:38 a		58.0	GER7\$1
	1.90E+00		RPD 6.6			1.00E-01		(16.1)			g	
EU-152	4.29E-01	U	1.1E-01	1.1E-01	1.15E-01	pCi/g		(3.7)	2/25/03 07:38 a		58.0	GER7\$1
	5.02E-01	U	RPD 15.6			1.00E-01		(8.)			g	
EU-154	3.11E-02	U	6.7E-02	6.7E-02	1.17E-01	pCi/g		0.27	2/25/03 07:38 a		58.0	GER7\$1
	4.57E-02	U	RPD 38.2			1.00E-01		0.93			g	
EU-155	4.60E-02	U	3.9E-02	3.9E-02	6.55E-02	pCi/g		0.7	2/25/03 07:38 a		58.0	GER7\$1
	7.44E-02	U	RPD 47.2			1.00E-01		(2.4)			g	
RA-224	6.05E-01		1.1E-01	1.1E-01	4.53E-02	pCi/g		(13.4)	2/25/03 07:38 a		58.0	GER7\$1
			RPD					(11.2)			g	
RA-226	3.50E-01		9.2E-02	9.2E-02	6.23E-02	pCi/g		(5.6)	2/25/03 07:38 a		58.0	GER7\$1
			RPD					(7.6)			g	
U-238DHP	2.58E-01	U	5.9E-01	5.9E-01	6.34E-01	pCi/g		0.41	2/25/03 07:38 a		58.0	GER7\$1
	3.96E-01	U	RPD 42.1					0.87			g	

Batch: 3052278 EPA7196 Work Order: FHX5C1AQ Report DB ID: FHX5C1QR Orig Sa DB ID: 9FHX5C10
 HEXCHROME 7.36E-01 0.0E+00 8.00E-02 mg/kg N/A (9.2) 3/5/03 2.5
 4.53E-01 RPD 47.5 3.50E-01 N/A G

Batch: 3065548 SRTOT_SEP_PRECIP_GPC Work Order: FHX5C1AT Report DB ID: FHX5C1TR Orig Sa DB ID: 9FHX5C20
 STRONTIUM 1.23E+00 1.5E-01 3.6E-01 1.45E-01 pCi/g 68.50% (8.5) 3/8/03 11:10 a 6.02 GPC31A
 1.03E+00 RPD 18.2 (6.9) G

STL Richland RPD - Relative Percent Difference.
 rptSTLRchDupV3. MDC|MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 99 A97 U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 18-Mar-03

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03990

Collection Date: 2/19/2003 9:22:00 AM

Lot-Sample No.: J3B200239-1

Report No. : 22033

Received Date: 2/20/2003 10:50:00 AM

Client Sample ID: B13XB2 DUP

COC No. : B01-054-012

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	Allquot Size	Primary Detector
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No. of Results: 17 Comments:

15

STL Richland RPD - Relative Percent Difference.

rptSTLRchDupV3. MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

99 A97

FORM II
BLANK RESULTS

Date: 18-Mar-03

Lab Name: **STL Richland**
Matrix: **SOIL**

SDG: **W03990**
Report No. : **22033**

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MD A,	Rpl Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
AM-241	2.25E-02	U	1.7E-02	1.7E-02	2.63E-02	pCi/g		0.85 (2.7)	2/25/03 07:38 a		52.0 g	GER8\$1
CO-60	7.56E-03	U	1.6E-02	1.6E-02	2.98E-02	pCi/g		0.25 0.93	2/25/03 07:38 a		52.0 g	GER8\$1
CS-137	-6.34E-04	U	1.5E-02	1.5E-02	2.56E-02	pCi/g		-0.02 -0.09	2/25/03 07:38 a		52.0 g	GER8\$1
EU-152	6.28E-04	U	3.7E-02	3.7E-02	6.34E-02	pCi/g		0.01 0.03	2/25/03 07:38 a		52.0 g	GER8\$1
EU-154	1.93E-02	U	4.3E-02	4.3E-02	7.79E-02	pCi/g		0.25 0.9	2/25/03 07:38 a		52.0 g	GER8\$1
EU-155	-1.00E-02	U	2.4E-02	2.4E-02	4.06E-02	pCi/g		-0.25 -0.83	2/25/03 07:38 a		52.0 g	GER8\$1
U-238DHP	5.49E-02	U	2.9E-01	2.9E-01	2.37E-01	pCi/g		0.23 0.38	2/25/03 07:38 a		52.0 g	GER8\$1
Batch: 3065548	SRTOT_SEP_PRECIP_GPC			Work Order: FJP741AA		Report DB ID: FJP741AB						
STRONTIUM	4.45E-02	U	5.7E-02	5.8E-02	1.23E-01	pCi/g	87.90%	0.36 (1.5)	3/8/03 11:10 a		6.0 G	GPC32B

No. of Results: 16 Comments:

17

FORM II
LCS RESULTS

Date: 18-Mar-03

Lab Name: STL Richland
Matrix: SOIL

SDG: W03990
Report No. : 22033

Parameter	Result	Count Qual	Count Error (2s)	Total Uncert(2 s)	MDC MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Primary Detector
Batch: 3052278	EPA7196					Work Order: FH1RC1AC		Report DB ID: FH1RC1AS					
HEXCHROME	3.85E+01			0.0E+00	8.00E-02	mg/kg	N/A	4.00E+01		96.16%	3/5/03	2.5	
							Rec Limits:	80	120	0.0		G	
Batch: 3052272	PUISO_PLATE_AEA					Work Order: FH1Q01AC		Report DB ID: FH1Q01CS					
PU239/40	3.44E+00		2.6E-01	6.2E-01	2.43E-02	pCi/g	61.64%	3.45E+00	1.7E-01	99.93%	3/13/03 09:40 a	2.0	ALP41
							Rec Limits:	70	130	0.0		G	
Batch: 3052273	AMCMISO_EIE_PLT_AEA					Work Order: FH1Q31AC		Report DB ID: FH1Q31CS					
AM-241	3.43E+00		2.2E-01	6.1E-01	9.40E-03	pCi/g	119.56%	4.51E+00	1.5E-01	76.11%	3/13/03 11:03 a	2.0	ALP130
							Rec Limits:	70	130	-0.2		G	
Batch: 3052273	AMCMISO_EIE_PLT_AEA					Work Order: FH1Q31AE		Report DB ID: FH1Q31EM					
AM-241	3.65E+00		2.3E-01	6.5E-01	1.71E-02	pCi/g	119.16%	4.51E+00	1.5E-01	80.94%	3/13/03 11:04 a	1.99	ALP132
							Rec Limits:	70	130	-0.2		G	
Batch: 3052274	UIISO_IE_PLATE_AEA					Work Order: FH1Q41AC		Report DB ID: FH1Q41CS					
U-234	1.56E+00		1.5E-01	3.3E-01	3.33E-02	pCi/g	88.23%	1.67E+00	1.0E-02	93.18%	3/12/03 06:54 a	2.0	ALP4
							Rec Limits:	20	105	-0.1		G	
U-238	1.45E+00		1.4E-01	3.1E-01	2.62E-02	pCi/g	88.23%	1.75E+00	1.1E-02	83.06%	3/12/03 06:54 a	2.0	ALP4
							Rec Limits:	20	105	-0.2		G	
Batch: 3052275	GAMMA_GS					Work Order: FH1Q61AC		Report DB ID: FH1Q61CM					
CS-137	9.05E-01		1.5E-01	1.5E-01	7.95E-02	pCi/g		9.23E-01	1.0E+00	98.07%	2/26/03 10:47 a	26.61	GER5\$1
							Rec Limits:	70	130	0.0		g	
RA-226	1.76E+00		3.0E-01	3.0E-01	1.26E-01	pCi/g		2.14E+00	2.5E+00	82.24%	2/26/03 10:47 a	26.61	GER5\$1
							Rec Limits:	70	130	-0.2		g	
Batch: 3065548	SRTOT_SEP_PRECIP_GPC					Work Order: FJP741AC		Report DB ID: FJP741CS					

**FORM II
LCS RESULTS**

Date: 18-Mar-03

Lab Name: STL Richland

SDG: W03990

Matrix: SOIL

Report No. : 22033

Parameter	Result	Count Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Defector
STRONTIUM	1.11E+00		1.3E-01	3.2E-01	1.20E-01	pCi/g	89.40%	1.14E+00	2.2E-02	97.16%	3/8/03 11:10 a	6.0	GPC32C
							Rec Limits:	20	105	0.0		G	

No. of Results: 9 Comments:

19

FORM II
MATRIX SPIKE RESULTS

Date: 18-Mar-03

Lab Name: STL Richland

SDG: W03990

Lot-Sample No.: J3B200239-1

Report No. : 22033

Matrix: SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MD	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3052278	EPA7196												
HEXCHROME	3.30E+01			0.0E+00	8.00E-02	mg/kg	N/A	77.37%	4.27E+01		3/5/03	2.5	
	4.53E-01	RPD	194.6									G	

No. of Results: 1 Comments:

20

SEVERN TRENT STL

Data Review Checklist RADIOCHEMISTRY First Level Review

P

Lot Number: J3 B201839
 Client ID: BH2
 Due Date: 3/13/03
 QC Batch Number: 3050073
 Method Test Parameter: SX-AM
 Matrix: Soil
 SDG Number: W03950

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch			
1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples			
1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?		✓	
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?		✓	
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data			
1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. Other			
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. Are worksheet entries complete and correct?	✓		

Comments on any "No" response: Both spikes have high yields looks like Pu bled through the procedure. (ROI interferes w tracer)
Also dup fails 10.3% yield 707493

First Level Review: Pam Anderson

Date: 2-13-03



STL

Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 3052273

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. Sample Analysis			
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. QC Samples			
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?		✓	
C. Other			
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: *uzumby* Date: 5/14/03

Clouseau Nonconformance Memo

SEVERN
TRENT
SERVICES

NCM #: J07493	Classification: Anomaly
NCM Initiated By: Pam Anderson	Status: PMREVIEW
Date Opened: 03/14/03	Production Area: Environmental - Sep
Date Closed: N/A	Tests: Amlso by ALP
	Lot #'s (Sample #'s): J3B200239 (1); J3B210000 (273)
	QC Batch: 3052273
Nonconformance: Tracer yield out of limits	
Subcategory: Unknown	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Pam Anderson	03/14/03	The yields on the spikes are high. Looking at the spectra shows the Pu from the spikes bled through and interfere with the tracer. The samples did not have this problem. There was no Pu in the samples. This is a problem that is not common. Will watch carefully.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Pam Anderson	03/14/03	Will transfer and contact client.

Approval History

<u>Name</u>	<u>Date Approved:</u>	<u>Position</u>
Pam Anderson	03/14/03	Group Leader

SEVERN
TRENT **STL**

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3B200239 P
 Client ID: BHI
 Due Date: 3/13/03
 QC Batch Number: 3052072
 Method Test Parameter: SO-12
 Matrix: soil
 SDG Number: W03990

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	/		
B. QC Batch			
1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	/		
2. Are the QC appropriate for the analysis included in the batch?	/		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	/		
4. Does the Worksheets include a Tracer Vial label for each sample?	/		
C. QC & Samples			
1. Is the blank result, yield and MDA within contract limits?	/		
2. Is the LCS result, yield and MDA within contract limits?	/		
3. Are the MS/MSD results, yields and MDAs within contract limits?			/
4. Are the duplicate results, yields and MDAs within contract limits?	/		
5. Are the sample yields and MDAs within contract limits?	/		
D. Raw Data			
1. Were results calculated in the correct units?	/		
2. Were analysis volumes entered correctly?	/		
3. Were yields entered correctly?			/
4. Were spectra reviewed/meet contractual requirements?	/		
5. Were raw counts reviewed for anomalies?	/		
E. Other			
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. Are worksheet entries complete and correct?	/		

Comments on any "No" response: _____

First Level Review: Pam Anderson Date: 3-13-03

Data Review Checklist
RADIOCHEMISTRY
First Level Review

P

Lot Number: J3B200239
 Client ID: BHJ
 Due Date: 2/19/03
 QC Batch Number: 3050274
 Method Test Parameter: SR-CR30
 Matrix: SOIL
 SDG Number: 6103990

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch			
1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples			
1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data			
1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. Other			
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. Are worksheet entries complete and correct?	✓		

Comments on any "No" response: _____

First Level Review: Pam Anderson Date: 3-12-03



STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3052274

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. Sample Analysis			
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. QC Samples			
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?	✓		
C. Other			
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: Shmby Date: 3/13/03

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3B200239
 Client ID: BHF
 Due Date: 3-13-03
 QC Batch Number: 3052275
 Method Test Parameter: GAMMA
 Matrix: Soil
 SDG Number: W03990

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch			
1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples			
1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓	✓	
5. Are the sample yields and MDAs within contract limits?	✓	✓	
D. Raw Data			
1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?			✓
E. Other			
1. Are all Nonconformances included and noted? <u>J07441</u>	✓		
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. Are worksheet entries complete and correct?	✓		

Comments on any "No" response: _____

First Level Review: *[Signature]* Date: 3-6-03



STL

Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 3052275

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. Sample Analysis			
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. QC Samples			
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?	✓		
C. Other			
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: Em. MDA > ORDL

Second Level Review: [Signature]

Date: 3/6/03

Clouseau Nonconformance Memo

NCM #: J07441	Classification: Anomaly
NCM Initiated By: Dale OConnell	Status: PMREVIEW
Date Opened: 03/06/03	Production Area: Environmental - Prep
Date Closed: N/A	Tests: Gamma by GER
Nonconformance: QC Result Out of Limits	Lot #'s (Sample #'s): J3B200239 (1)
Subcategory: MDA exceeds RDL	QC Batch: 3052275

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Dale OConnell	03/06/03	...for Eu-152,-154. Cause: Possibly Matrix Effect: High activity of other nuclides above the energy of interest are prohibitive to the achievement of the MDA, due to Compton Scattering.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Dale OConnell	03/06/03	Eu-152 keyline activity . MDA. MDA achieved on the blank. report results.

Approval History

<u>Name</u>	<u>Date Approved:</u>	<u>Position</u>
Dale OConnell	03/06/03	Group Leader

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3B200239
 Client ID: BHI
 Due Date: 3/21/2003
 QC Batch Number: 3065548
 Method Test Parameter: TA TOTAL STRONTIUM
 Matrix: SOIL
 SDG Number: W03990

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. COC			
1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch			
1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples			
1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data			
1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?			✓
5. Were raw counts reviewed for anomalies?	✓		
E. Other			
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. Are worksheet entries complete and correct?	✓		

Comments on any "No" response: Repeat yields OK, J07466

First Level Review: Pam Anderson Date: 3-10-03



STL

Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 3065548

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. Sample Analysis			
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. QC Samples			
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?	✓		
C. Other			
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: Shirley Date: 3/13/03

Clouseau Nonconformance Memo



NCM #: J07466	Classification: Anomaly
NCM Initiated By: Pam Anderson	Status: PMREVIEW
Date Opened: 03/11/03	Production Area: Environmental - Sep
Date Closed: N/A	Tests: SrTot by GPC
	Lot #'s (Sample #'s): J3B200239 (1)
	QC Batch: 3065548
Nonconformance: Tracer yield out of limits	
Subcategory: Matrix effect	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Pam Anderson	03/11/03	Sample failed in prep. Only 15% yield. The sample and dup were rerun. The results are good. Data accepted.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Pam Anderson	03/11/03	Sample and dup rerun.

Approval History

<u>Name</u>	<u>Date Approved:</u>	<u>Position</u>
Pam Anderson	03/11/03	Group Leader



STL

Richland Laboratory Data Review Check List METALS

Final 2/15/03

Work Order Number(s): <u>WO 29960</u>		3052278		
Lab Sample Numbers or SDG: <u>FHX5C, FH1RQ</u>				
Method/Test/Parameter: <u>CR+6 (SDA)</u>				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration				
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. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?		✓		✓
2. Were all sample holding times met?	✓			✓
D. QC Samples				
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?			✓	✓



STL

Data Review Checklist
~~RADIO~~CHEMISTRY
Second Level Review

QC Batch Number: 3052278

Review Item	Yes (✓)	No (✓)	N/A (✓)
A. Sample Analysis			
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. QC Samples			
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?	✓		
C. Other			
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: zhmbj

Date: 3/6/03

CHAIN OF CUSTODY

W-2'1050

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B01-054-012	Page 1 of 1
Collector D.Shea	Company Contact D.Shea	Telephone No. 521-6014	Project Coordinator KESSNER, JH		Price Code 8L	Data Turnaround 21 Days
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 BC deep zone islands		SAF No. B01-054	Air Quality <input type="checkbox"/>	
Ice Chest No. WM-001	Field Logbook No. EL-1548-3	COA R100BC2600	Method of Shipment GOV VEHICLE			
Shipped To Severn Trent Incorporated, Richland		Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A		

POSSIBLE SAMPLE HAZARDS/REMARKS <i>Potentially radiologically contaminated</i>	Preservation	Cool 4C	Cool 4C	None	None	None						
	Type of Container	G/P	G/P	G/P	G/P	G/P						
	No. of Container(s)	1	1	1	1	1						
	Volume	250mL	60mL	500mL	60mL	20mL						
SDG W03990 Due 3-13 SAMPLE ANALYSIS J3B200239	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	See item (1) in Special Instructions. ✓	See item (2) in Special Instructions.	Activity Scan							
	Sample No.	Matrix *	Sample Date	Sample Time								
B13XB2	FHX5C	SOIL	2/19/03	0922	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>DWShea</i>	Date/Time 2/19/03 1137	Received By/Stored In <i>100BC sample DWShea</i>	Date/Time 2/19/03 1137	(1) Gamma Spectroscopy (TCL List) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) (2) Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 - Total Sr; Merkel-63 DWS 2/19/03	S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From <i>100BC sample DWShea</i>	Date/Time 2/19/03 1702	Received By/Stored In <i>D.Shea DWShea</i>	Date/Time 2/19/03 1702			
Relinquished By/Removed From <i>DWShea DWShea</i>	Date/Time 2/19/03 1746	Received By/Stored In <i>Fridge 1A</i>	Date/Time 2/19/03 1746			
Relinquished By/Removed From <i>REF 1A</i>	Date/Time 2/20/03 0930	Received By/Stored In <i>SCALE 1A</i>	Date/Time 2/20/03 0930			
Relinquished By/Removed From <i>SCALE 1A</i>	Date/Time 2/20/03 1050	Received By/Stored In <i>A. Rhineheart</i>	Date/Time 2/20/03 10:50			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Personnel not available to relinquish samples from the 3728 Ref # 1A on 2/20/03		

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1864

7326-017

J001R9

DATA SHEET

SDG <u>7326</u>	Client/Case no <u>Hanford</u>	SDG <u>H1864</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R208043-17</u>	Client sample id <u>J001R9</u>	
Dept sample id <u>7326-017</u>	Location/Matrix <u>Campaign 1-Variance</u>	<u>SOLID</u>
Received <u>08/06/02</u>	Collected/Weight <u>08/01/02 13:09 930.5 g</u>	
* solids <u>100.0</u>	Custody/SAF No <u>B01-052-117</u>	<u>B01-052</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Cobalt 60	10198-40-0	0.388	0.12	<u>0.11</u>	0.050		GAM
Cesium 137	10045-97-3	23.3	0.50	<u>0.20</u>	0.10		GAM
Europium 152	14683-23-9	6.19	0.45	<u>0.49</u>	0.10		GAM
Europium 154	15585-10-1	0.846	0.31	<u>0.29</u>	0.10		GAM
Europium 155	14391-16-3	U		<u>0.36</u>	0.10	U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM

100 B/C Area Effluent Pipe. & Prox.

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/20/02</u>

Gillespie, Barbara

From: Giroir, Bev
Sent: Monday, March 17, 2003 11:22 AM
To: Gillespie, Barbara
Subject: W03990

Joan verbally approved to report W03990 "as is" a moment ago.

Beverly I Giroir
Project Manager
STL Richland
509-375-3131

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3/4/03 2:00:50 PM

Sample Preparation/Analysis

Balance Id:1120373922

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SX Americium-241 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: *NA*

Report Due: 03/13/2003 *W03990*

PRIORITY

Sep1 DT/Tm Tech: *NA*

Batch: 3052273 SOIL pCi/g

PM, Quote: BG2, 27038

Sep2 DT/Tm Tech: *NA*

SEQ Batch, Test: 3052272, 6ISO 3052272, 6ISO

Prep Tech: ,WAGNERJ

(9)

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FHX5C-1-AF J3B200239-1-SAMP	2.0g,in	PATB2714	02/03/03 11/15/02		<i>200</i>			
02/19/2003 09:22	AmtRec: 2X60G,500P,20ML	#Containers: 4					Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g	
2 FHX5C-1-AK-X J3B200239-1-DUP	2.0g,in	PATB2715	02/03/03 11/15/02					
02/19/2003 09:22	AmtRec: 2X60G,500P,20ML	#Containers: 4					Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g	
3 FH1Q3-1-AA-B J3B210000-273-BLK	2.0g,in	PATB2716	02/03/03 11/15/02					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	
4 FH1Q3-1-AC-C J3B210000-273-LCS	2.0g,in	PAS10001	02/03/03 11/15/02					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	
5 FH1Q3-1-AD-BX J3B210000-273-MBLK	2.0g,in	PATB2717	02/03/03 11/15/02					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	
6 FH1Q3-1-AE-CM J3B210000-273-MLCS	1.99g,in	PAS10002	02/03/03 11/15/02					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	

** popped on hot plate - lost in 1/2 sample or more*

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3/4/03 2:00:53 PM

Sample Preparation/Analysis

Balance Id:1120373922

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
 SX Americium-241 by Alpha Spec
 5I CLIENT: HANFORD

Pipet #: _____

Report Due: 03/13/2003

PRIORITY

Sep1 DT/Tm Tech:

Batch: 3052273

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

Comments: *Samples were muffled. In 3-5-03
 Ottawa sand used for samples FH1Q3 - BY JCM. In 3-5-03*

All Clients for Batch:

127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc.

, BG2, 27038

FHX5C1AF-SAMP Constituent List:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FH1Q31AA-BLK:											
Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FH1Q31AC-LCS:											
Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FH1Q31AD-MBLK:											
Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FH1Q31AE-MLCS:											
Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

FHX5C1AF-SAMP Calc Info:

Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q31AA-BLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q31AC-LCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q31AD-MBLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q31AE-MLCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

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ICOC Fraction Transfer/Status Report

ByDate: 2/12/03, 3/15/03, Batch: '3052273', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
3052273				
AC	CalcC	BELSITOB	2/21/03 1:36:51 PM	
SC		WagarR	IsBatched	2/21/03 9:42:37 AM
SC		BELSITOB	InPrep	2/21/03 1:36:51 PM
SC		BELSITOB	Prep1C	2/24/03 11:14:06 AM
SC		KNUTSONG	InPrep2	2/25/03 9:23:16 AM
SC		WAGNERJ	Prep2C	3/5/03 4:54:58 PM
SC		HAMMERL	InSep1	3/6/03 8:24:06 AM
SC		DOWNEYS	Sep2C	3/13/03 8:00:06 AM
SC		BlackCL	InCnt1	3/13/03 8:55:00 AM
SC		BlackCL	CalcC	3/13/03 1:19:13 PM
AC		BELSITOB	2/24/03 11:14:06 AM	ICOC_RADCALC v4.5.3.2
AC		KNUTSONG	2/25/03 9:23:16 AM	RICH-RC-5013 REVISION 4
AC		WAGNERJ	3/5/03 4:54:58 PM	RICH-RC-5013 REVISION 4
AC		HAMMERL	3/6/03 8:24:06 AM	RICH-RC-5019 REVISION 4
AC		DOWNEYS	3/13/03 8:00:06 AM	RICH-RC-5019 REVISION 4
AC		BlackCL	3/13/03 8:55:00 AM	RICH-RC-5080 REVISION 1
AC		BlackCL	3/13/03 1:19:13 PM	RICH-RC-5080 REVISION 1
				RICH-RC-5003 REVISION 4
				RICH-RD-0008 REVISION 2
				RICH-RD-0008 REVISION 2

3/4/03 1:58:51 PM

Sample Preparation/Analysis

Balance Id:1120373922

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec

Pipet #: _____

Report Due: 03/13/2003 **WO 3990**

5I CLIENT: HANFORD

Sep1 DT/Tm Tech:

Batch: 3052272 SOIL pCi/g

PM, Quote: BG2, 27038

PRIORITY

Sep2 DT/Tm Tech:

SEQ Batch, Test: 3052273, 6ISX 3052273, 6ISX

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FHX5C-1-AE J3B200239-1-SAMP	2.0g.in	PATB2714	02/03/03 11/15/02.r		200			
02/19/2003 09:22	AmtRec: 2X60G,500P,20ML	#Containers: 4					Scr Rst: Alpha: -1.56E+01 pCi/g	Beta: 2.62E-01 pCi/g
2 FHX5C-1-AJ-X J3B200239-1-DUP	2.0g.in	PATB2715	02/03/03 11/15/02.r					
02/19/2003 09:22	AmtRec: 2X60G,500P,20ML	#Containers: 4					Scr Rst: Alpha: -1.56E+01 pCi/g	Beta: 2.62E-01 pCi/g
3 FH1Q0-1-AA-B J3B210000-272-BLK	2.0g.in	PATB2716	02/03/03 11/15/02.r					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha:	Beta:
4 FH1Q0-1-AC-C J3B210000-272-LCS	2.0g.in	PAS10001	02/03/03 11/15/02.r					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha:	Beta:
5 FH1Q0-1-AD-BX J3B210000-272-MBLK	2.0g.in	PATB2717	02/03/03 11/15/02.r					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha:	Beta:
6 FH1Q0-1-AE-CM J3B210000-272-MLCS	1.99g.in	PAS10002	02/03/03 11/15/02.r					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha:	Beta:

44

3/4/03 1:59:02 PM

Sample Preparation/Analysis

Balance Id:1120373922

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 03/13/2003

Sep1 DT/Tm Tech:

Batch: 3052272

pCi/g

PRIORITY

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

Comments: *Samples were muffled. In 3-5-03*
Utawa sand used for samples FH1Q0-BX + CM. In 3-5-03

All Clients for Batch:

127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc.

, BG2, 27038

FHX5C1AE-SAMP Constituent List:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FH1Q01AA-BLK:											
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FH1Q01AC-LCS:											
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FH1Q01AD-MBLK:											
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FH1Q01AE-MLCS:											
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

FHX5C1AE-SAMP Calc Info:

Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q01AA-BLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q01AC-LCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q01AD-MBLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q01AE-MLCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

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ICOC Fraction Transfer/Status Report

ByDate: 2/12/03, 3/15/03, Batch: '3052272', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
3052272				
AC	CalcC	BELSITOB	2/21/03 1:36:46 PM	
SC		WagarR	IsBatched	2/21/03 9:42:37 AM
SC		BELSITOB	InPrep	2/21/03 1:36:46 PM
SC		BELSITOB	Prep1C	2/24/03 11:14:01 AM
SC		KNUTSONG	InPrep2	2/25/03 9:22:59 AM
SC		WAGNERJ	Prep2C	3/5/03 4:55:08 PM
SC		HAMMERL	InSep1	3/6/03 8:24:17 AM
SC		DOWNEYS	Sep1C	3/12/03 6:27:38 AM
SC		DOWNEYS	InSep2	3/12/03 6:28:53 AM
SC		DOWNEYS	Sep2C	3/13/03 7:23:13 AM
SC		BlackCL	InCnt1	3/13/03 7:43:21 AM
SC		BlackCL	CalcC	3/13/03 12:47:04 PM
AC		BELSITOB	2/24/03 11:14:01 AM	
AC		KNUTSONG	2/25/03 9:22:59 AM	
AC		WAGNERJ	3/5/03 4:55:08 PM	
AC		HAMMERL	3/6/03 8:24:17 AM	
AC		DOWNEYS	3/12/03 6:27:38 AM	
AC		DOWNEYS	3/12/03 6:28:53 AM	
AC		DOWNEYS	3/13/03 7:23:13 AM	
AC		BlackCL	3/13/03 7:43:21 AM	
AC		BlackCL	3/13/03 12:47:04 PM	

ICOC_RADCALC v4.5.3.2
 RICH-RC-5013 REVISION 4
 RICH-RC-5013 REVISION 4
 RICH-RC-5019 REVISION 4
 RICH-RC-5019 REVISION 4
 RICH-RC-5080 REVISION 1
 RICH-RC-5039 REVISION 3
 RICH-RC-5039 REVISION 3
 RICH-RC-5039 REVISION 3
 RICH-RC-5039 REVISION 3
 RICH-RD-0008 REVISION 2
 RICH-RD-0008 REVISION 2

AC: Accepting Entry, SC: Status Change

3/4/03 1:56:34 PM

Sample Preparation/Analysis

Balance Id:1120373922

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

7S Uiso PrpRC5013/RC5019, SepRC5079(5039)
SR Uranium-234,235,238 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 03/13/2003 **WO 3990**

PRIORITY

Sep1 DT/Tm Tech:

Batch: 3052274 SOIL pCi/g PM, Quote: BG2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 3052272 6ISO, 3052273 6ISX, 3052274 7SSR, 3052275 AXTA, 3052276 CHTH, 3052278 DWEA, 3052280 88OV, (3)

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FHX5C-1-AC J3B200239-1-SAMP	1.99g,in		UITC8868 01/14/03 12/16/02 r		200			
02/19/2003 09:22	AmtRec: 2X60G,500P,20ML	#Containers: 4					Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g	
2 FHX5C-1-AL-X J3B200239-1-DUP	2.0g,in		UITC8869 01/14/03 12/16/02 r					
02/19/2003 09:22	AmtRec: 2X60G,500P,20ML	#Containers: 4					Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g	
3 FH1Q4-1-AA-B J3B210000-274-BLK	2.0g,in		UITC8870 01/14/03 12/16/02 r					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	
4 FH1Q4-1-AC-C J3B210000-274-LCS	2.0g,in		UISH0175 01/10/03 10/05/02 r					
02/19/2003 09:22	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	

Comments: Samples were muffed. 3-5-03
Samples were converted 3x with can HLL. 3-5-03

All Clients for Batch:

127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG2, 27038

FHX5C1AC-SAMP Constituent List:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1	pCi/g	LCL:	UCL:	RPD:

FH1Q41AA-BLK:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1	pCi/g	LCL:	UCL:	RPD:

3/4/03 1:56:37 PM

Sample Preparation/Analysis

Balance Id:1120373922

7S Uiso PrpRC5013/RC5019, SepRC5079(5039)
SR Uranium-234,235,238 by Alpha Spec
SI CLIENT: HANFORD

Pipet #: _____

Report Due: 03/13/2003

PRIORITY

Sep1 DT/Tm Tech:

Batch: 3052274

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
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FH1Q41AC-LCS:
 U-232 RDL: pCi/g LCL:20 UCL:105 RPD:35 Uranium RDL: pCi/g LCL:70 UCL:130 RPD:35

FHX5C1AC-SAMP Calc Info:
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
 FH1Q41AA-BLK:
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
 FH1Q41AC-LCS:
 Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

ICOC Fraction Transfer/Status Report

ByDate: 2/11/03, 3/14/03, Batch: '3052274', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
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3052274

AC	CalcC	BELSITOB	2/21/03 1:36:54 PM	
SC		WagarR	IsBatched	2/21/03 9:42:37 AM
SC		BELSITOB	InPrep	2/21/03 1:36:54 PM
SC		BELSITOB	Prep1C	2/24/03 11:14:09 AM
SC		KNUTSONG	InPrep2	2/25/03 9:23:26 AM
SC		WAGNERJ	Prep2C	3/5/03 1:25:08 PM
SC		HAMMERL	InSep1	3/6/03 8:23:32 AM
SC		DOWNEYS	InSep2	3/10/03 4:43:35 AM
SC		DOWNEYS	Sep2C	3/11/03 12:50:04 PM
SC		BlackCL	InCnt1	3/11/03 12:53:03 PM
SC		BlackCL	CalcC	3/12/03 9:22:00 AM
AC		BELSITOB	2/24/03 11:14:09 AM	ICOC_RADCALC v4.5.3.2
AC		KNUTSONG	2/25/03 9:23:26 AM	RICH-RC-5013 REVISION 4
AC		WAGNERJ	3/5/03 1:25:08 PM	RICH-RC-5013 REVISION 4
AC		HAMMERL	3/6/03 8:23:32 AM	RICH-RC-5019 REVISION 4
AC		DOWNEYS	3/10/03 4:43:35 AM	RICH-RC-5019 REVISION 4
AC		DOWNEYS	3/11/03 12:50:04 PM	RICH-RC-5079 REVISION 1
AC		BlackCL	3/11/03 12:53:03 PM	RICH-RC-5039 REVISION 3
AC		BlackCL	3/12/03 9:22:00 AM	RICH-RC-5039 REVISION 3
				RICH-RD-0008 REVISION 2
				RICH-RD-0008 REVISION 2

AC: Accepting Entry; SC: Status Change

2/24/03 10:47:21 AM

Sample Preparation/Analysis

Balance Id: PB3001-S

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
SI CLIENT: HANFORD

PRIORITY

Pipet #: *N/A*

Report Due: 03/13/2003

W03990

Sep1 DT/Tm Tech: ↓

Batch: 3052275 SOIL

pCi/g

PM, Quote: BG2, 27038

Sep2 DT/Tm Tech: ↓

SEQ Batch, Test: None All Tests: 3052272 6ISO, 3052273 6ISX, 3052274 7SSR, 3052275 AXTA, 3052276 CHTH, 3052278 DWEA, 3052280 88OV, *(5)*

Prep Tech: *MB*

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FHX5C-1-AH J3B200239-1-SAMP	<i>57.3</i>				<i>S25</i>		<i>1000</i>	<i>G5</i>	<i>2/20</i> <i>0018</i>	<i>2/26/03</i> <i>MB</i>
02/19/2003 09:22			AmtRec: 2X60G,500P,20ML	#Containers: 4		Scr Rst:	Alpha: 1.56E+01 pCi/g	Beta: 2.62E-01 pCi/g		
2 FHX5C-1-AM-X J3B200239-1-DUP	<i>58.0</i>							<i>G7</i>	<i>0018</i>	
02/19/2003 09:22			AmtRec: 2X60G,500P,20ML	#Containers: 4		Scr Rst:	Alpha: 1.56E+01 pCi/g	Beta: 2.62E-01 pCi/g		
3 FH1Q6-1-AA-BX J3B210000-275-MBLK	<i>52.0</i>	<i>Fine Ottawa Sand</i>			<i>S25</i>			<i>G8</i>	<i>0018</i>	
02/19/2003 09:22			AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:		
4 FH1Q6-1-AC-CM J3B210000-275-MLCS	<i>26.61</i>	<i>CA23122</i>						<i>G5</i>	<i>2/27</i> <i>0327</i>	<i>2/26/03</i> <i>MB</i>
02/19/2003 09:22			AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:		

Comments:

All Clients for Batch:

127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc.

, BG2, 27038

FHX5C1AH-SAMP Constituent List:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:

FH1Q61AA-MBLK:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:

STL Richland

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt,

Richland Wa.

r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

2/21/2003 9:42:45 AM

Sample Preparation/Analysis

Balance Id: _____

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
SI CLIENT: HANFORD

PRIORITY

Pipet #: _____

Report Due: 03/13/2003

Sep1 DT/Tm Tech: _____

Batch: 3052275

pCi/g

Sep2 DT/Tm Tech: _____

SEQ Batch, Test: None

Prep Tech: _____

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
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FH1Q61AC-MLCS:

Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	Cs-137DA	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35	Ra-226	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35						

FHX5C1AH-SAMP Calc Info:

Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q61AA-MBLK:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FH1Q61AC-MLCS:				
Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

3/5/03 6:32:32 PM

ICOC Fraction Transfer/Status Report

ByDate: 2/3/03, 3/6/03, Batch: '3052275', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
3052275				
AC		CalcC	BELSITOB 2/21/03 1:36:31 PM	
SC		WagarR	IsBatched 2/21/03 9:42:38 AM	ICOC_RADCALC v4.5.3.2
SC		BELSITOB	InPrep 2/21/03 1:36:31 PM	RICH-RC-5013 REVISION 4
SC		BELSITOB	InPrep 2/21/03 1:36:35 PM	RICH-RC-5017 REVISION 3
SC		BELSITOB	Prep1C 2/24/03 11:13:50 AM	RICH-RC-5013 REVISION 4
SC		BELSITOB	Prep1C 2/24/03 11:13:53 AM	RICH-RC-5017 REVISION 3
SC		KoprivaA	InCnt1 2/24/03 11:31:47 AM	RICH-RD-0007 REVISION 3
SC		BlackCL	CalcC 2/27/03 11:33:43 AM	RICH-RD-0007 REVISION 3
AC		BELSITOB	2/21/03 1:36:35 PM	
AC		BELSITOB	2/24/03 11:13:50 AM	
AC		BELSITOB	2/24/03 11:13:53 AM	
AC		KoprivaA	2/24/03 11:31:47 AM	
AC		BlackCL	2/27/03 11:33:43 AM	

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AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.



STL

PRIORITY

*** RE-ANALYSIS REQUEST ***

DUE DATE 3-13-03

CUSTOMER BHI

ANALYSIS T Sr

MATRIX soil

LOT NUMBER J2B200239

SAMPLE DELIVERY GROUP W03990

OLD BATCH NUMBER 3052276

NEW BATCH NUMBER 3065548

LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
PA 30-3) FX FH X5C1A0	sample fails - in lab
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.

3/6/03 5:15:16 PM

Sample Preparation/Analysis

Balance Id:1120373922

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

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

PRIORITY

Pipet #: NA

Report Due: 03/21/2003

Sep1 DT/Tm Tech: 3/7/03 3:59 PM

Batch: 3065548 SOIL pCi/g PM, Quote: BG2, 27038

Sep2 DT/Tm Tech: N/A

SEQ Batch, Test: None

Prep Tech: WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FHX5C-1-AT-X J3B200239-1-DUP		6.02g,in	SRTA8620 12/06/02 09/19/02.r							
						68.5	50	21A	1135	3/8/2003 OA
02/19/2003 09:22		AmtRec: 2X60G,500P,20ML		#Containers: 4		Scr Rst:		Alpha: -1.56E+01 pCi/g		Beta: 2.62E-01 pCi/g
2 FHX5C-2-AD J3B200239-1-SAMP		6.02g,in	SRTA8621 12/06/02 09/19/02.r							
						46.5		32A	1135	3/8/2003 OA
02/19/2003 09:22		AmtRec: 2X60G,500P,20ML		#Containers: 4		Scr Rst:		Alpha: -1.56E+01 pCi/g		Beta: 2.62E-01 pCi/g
3 FJP74-1-AA-B J3C060000-548-BLK		6.0g,in	SRTA8622 12/06/02 09/19/02.r							
						87.9		32B	1135	3/8/2003 OA
02/19/2003 09:22		AmtRec:		#Containers: 1		Scr Rst:		Alpha:		Beta:
4 FJP74-1-AC-C J3C060000-548-LCS		6.0g,in	STSB0696 01/15/03 11/25/02.r							
						89.4		32C		
02/19/2003 09:22		AmtRec:		#Containers: 1		Scr Rst:		Alpha:		Beta:

Comments:

All Clients for Batch:

127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG2, 27038

FHX5C1AT-DUP Constituent List:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
FJP741AA-BLK:					
Sr-90	RDL:1	pCi/g	LCL:	UCL:	RPD:
FJP741AC-LCS:					
Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

FHX5C1AT-DUP Calc Info:

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

3/6/03 5:15:19 PM

Sample Preparation/Analysis

Balance Id:1120373922

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

Pipet #: _____

Report Due: 03/21/2003

PRIORITY

Sep1 DT/Tm Tech:

Batch: 3065548

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
Uncert Level (#s): 2		Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y		ODRs: B				
FJP741AA-BLK:										
Uncert Level (#s): 2		Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y		ODRs: B				
FJP741AC-LCS:										
Uncert Level (#s): 2		Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y		ODRs: B				

3/11/03 8:57:03 AM

ICOC Fraction Transfer/Status Report

ByDate: 2/9/03, 3/12/03, Batch: '3065548', User: 'All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
3065548				
AC	CalcC	WAGNERJ	3/6/03 5:21:30 PM	
SC		AndersonP	IsBatched	3/6/03 5:03:53 PM
SC		WAGNERJ	InPrep2	3/6/03 5:21:30 PM
SC		WAGNERJ	InPrep2	3/7/03 11:30:33 AM
SC		WAGNERJ	Prep2C	3/7/03 11:30:52 AM
SC		FABREM	InSep1	3/7/03 12:25:21 PM
SC		FABREM	Sep1C	3/7/03 5:24:12 PM
SC		DAWKINSO	InCnt1	3/7/03 5:56:50 PM
SC		DAWKINSO	CalcC	3/8/03 3:18:15 PM
AC		WAGNERJ	3/7/03 11:30:33 AM	
AC		WAGNERJ	3/7/03 11:30:52 AM	
AC		FABREM	3/7/03 12:25:21 PM	
AC		FABREM	3/7/03 5:24:12 PM	
AC		DAWKINSO	3/7/03 5:56:50 PM	
AC		DAWKINSO	3/8/03 3:18:15 PM	

ICOC_RADCALC v4.5.3.2
 RICH-RC-5013 REVISION 4
 RICH-RC-5013 REVISION 4
 RICH-RC-5013 REVISION 4
 RICH-RC-5006 REVISION 5
 RICH-RC-5006 REVISION 5
 RICH-RD-0003 REVISION 3
 RICH-RD-0003 REVISION 3

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AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.

2/21/2003 9:42:45 AM

Sample Preparation/Analysis

Balance Id: _____

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

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

PRIORITY

Pipet #: _____

Report Due: 03/13/2003

WO3990

Sep1 DT/Tm Tech: _____

Batch: 3052278 SOIL

mg/kg

PM, Quote: BG2, 27038

Sep2 DT/Tm Tech: _____

SEQ Batch, Test: None

Prep Tech: _____

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
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1 FHX5C-1-AA
J3B200239-1-SAMP

02/19/2003 09:22 AmtRec: 2X60G,500P,20ML #Containers: 4 Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g

2 FHX5C-1-AP-S
J3B200239-1-MS

02/19/2003 09:22 AmtRec: 2X60G,500P,20ML #Containers: 4 Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g

3 FHX5C-1-AQ-X
J3B200239-1-DUP

02/19/2003 09:22 AmtRec: 2X60G,500P,20ML #Containers: 4 Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g

4 FHX5C-1-AR-S
J3B200239-1-MS

02/19/2003 09:22 AmtRec: 2X60G,500P,20ML #Containers: 4 Scr Rst: Alpha: -1.56E+01 pCi/g Beta: 2.62E-01 pCi/g

5 FH1RC-1-AA-B
J3B210000-278-BLK

02/19/2003 09:22 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta:

6 FH1RC-1-AC-C
J3B210000-278-LCS

02/19/2003 09:22 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta:

2/21/2003 9:42:46 AM

Sample Preparation/Analysis

Balance Id: _____

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

PRIORITY

Pipet #: _____

Report Due: 03/13/2003

Sep1 DT/Tm Tech: _____

Batch: 3052278 mg/kg

Sep2 DT/Tm Tech: _____

SEQ Batch, Test: None

Prep Tech: _____

Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
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Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG2, 27038

FHX5C1AA-SAMP Constituent List:

HEXCHROME RDL:0.35 mg/kg LCL:80 UCL:120 RPD:20

FHX5C1AP-MS Constituent List:

HEXCHROME RDL:0.35 mg/kg LCL:75 UCL:125 RPD:20

FHX5C1AR-MS:

HEXCHROME RDL:0.35 mg/kg LCL:75 UCL:125 RPD:20

FH1RC1AA-BLK:

HEXCHROME RDL:0.35 mg/kg LCL: UCL: RPD:

FH1RC1AC-LCS:

HEXCHROME RDL:0.35 mg/kg LCL:80 UCL:120 RPD:20

FHX5C1AA-SAMP Calc Info:

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

FHX5C1AP-MS Calc Info:

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

FHX5C1AR-MS:

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

FH1RC1AA-BLK:

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

FH1RC1AC-LCS:

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

3/6/03 4:03:21 PM

ICOC Fraction Transfer/Status Report

ByDate: 2/4/03, 3/7/03, Batch: '3052278', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
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3052278

AC	InPrep	DobeckIT	3/4/03 2:01:50 PM		
SC		WagarR	IsBatched	2/21/03 9:42:38 AM	ICOC_RADCALC v4.5.3.2
SC		DobeckIT	InPrep	3/4/03 2:01:50 PM	RICHWC5005 REV6

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AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.