

0059224

SAF-B03-010
105-H Smear and Filter Sampling
FINAL DATA PACKAGE

FAX RESULTS TO:

Rikki Thoren 372-2183

N/A
INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Rikki Thoren

N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Rikki Thoren

X9-05

RT 2/11/03
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG W03933

SAF-B03-010

X Rad only

Chem only

Rad & Chem

X Complete

Partial

RECEIVED
APR 28 2003

EDMC

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 123 Pages

Report No.: 21668

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03933	B03-010	J00F05	J2L200205-1	FE8Q01AD	9FE8Q010	2354467
		J00F05	J2L200205-1	FE8Q01AE	9FE8Q010	2354468
		J00F05	J2L200205-1	FE8Q01AF	9FE8Q010	2354469
		J00F05	J2L200205-1	FE8Q01AG	9FE8Q010	2354471
		J00F05	J2L200205-1	FE8Q01AA	9FE8Q010	2354472
		J00F05	J2L200205-1	FE8Q01AC	9FE8Q010	2354473
		J00F06	J2L200205-2	FE8Q81AD	9FE8Q810	2354467
		J00F06	J2L200205-2	FE8Q81AE	9FE8Q810	2354468
		J00F06	J2L200205-2	FE8Q81AF	9FE8Q810	2354469
		J00F06	J2L200205-2	FE8Q81AG	9FE8Q810	2354471
		J00F06	J2L200205-2	FE8Q81AA	9FE8Q810	2354472
		J00F06	J2L200205-2	FE8Q81AC	9FE8Q810	2354473

FEB 2003

CERTIFICATE OF ANALYSIS

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

January 31, 2003

Attention: Joan Kessner

SAF Number	:	B03-010
Date SDG Closed	:	December 20, 2002
Number of Samples	:	Two (2)
Sample Type	:	Other Solid (Filter)
SDG Number	:	W03933
Data Deliverable	:	30-Day / Summary

I. Introduction

On December 20, 2002, two filter samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
FE8Q0	J00F05	SOIL	12/18/03
FE8Q8	J00F06	SOIL	12/18/03

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-5072

Plutonium-238, -239/40 by method RICH-RC-5010

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

Thorium-228, 230, 232 by method RICH-RC-5084

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017

Severn Trent Laboratories, Inc.

STL Richland • 2800 George Washington Way, Richland, WA 99352

Tel 509 375 3131 Fax 509 375 5590 • www.stl-inc.com

Gas Proportional Counting
Gross Alpha by method RICH-RC-5014

III. Quality Control

The analytical results for each analysis performed under SDG W03933 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-5072:

The two LCSs, batch blank, and samples results are within contractual requirements.

Plutonium-238, -239/40 by method RICH-RC-5010:

The two LCSs, batch blank, and samples results are within contractual requirements.

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

The two LCSs, batch blank, and samples results are within contractual requirements.

Thorium-228, 230, 232 by method RICH-RC-5084:

The two LCSs, batch blank, and samples results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017:

The two LCSs, batch blank, and samples results are within contractual requirements.

Gas Proportional Counting

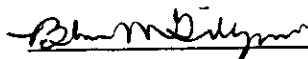
Gross Alpha by method RICH-RC-5014:

The two LCSs, batch blank, and samples results are within contractual requirements.

Bechtel Hanford, Inc.
January 31, 2003
Page 3

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 (Result/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	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	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: 03-Feb-03

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21668

SDG No: W03933

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC MDA	RER
J00F05	FE8Q01AD	PU-238	1.05E-01 +- 1.2E-01	U	pCi/sample	59.13%	9.51E-02	
		PU239/40	5.07E+00 +- 1.2E+00		pCi/sample	59.13%	1.98E-01	
J00F05	FE8Q01AE	AM-241	1.19E+00 +- 4.6E-01		pCi/sample	82.51%	9.49E-02	
J00F05	FE8Q01AF	U-234	9.10E-02 +- 1.0E-01	U	pCi/sample	90.71%	1.49E-01	
		U-235	1.73E-02 +- 4.4E-02	U	pCi/sample	90.71%	1.04E-01	
		U-238	2.60E-02 +- 6.4E-02	U	pCi/sample	90.71%	1.49E-01	
J00F05	FE8Q01AG	TH-228	2.21E-02 +- 1.0E-01	U	pCi/sample	89.25%	3.11E-01	
		TH-230	2.88E-02 +- 9.8E-02	U	pCi/sample	89.25%	2.71E-01	
		TH-232	8.84E-02 +- 1.4E-01	U	pCi/sample	89.25%	2.20E-01	
J00F05	FE8Q01AA	ALPHA	5.30E+00 +- 2.0E+00		pCi/sample	100.00%	1.39E+00	
J00F05	FE8Q01AC	CO-60	1.24E-01 +- 9.7E-01	U	pCi/sample		1.74E+00	
		CS-137	3.70E+01 +- 5.2E+00		pCi/sample		1.43E+00	
		EU-152	1.31E+00 +- 2.0E+00	U	pCi/sample		3.48E+00	
		EU-154	-1.28E+00 +- 2.8E+00	U	pCi/sample		4.73E+00	
		EU-155	-6.59E-01 +- 1.2E+00	U	pCi/sample		1.99E+00	
J00F06	FE8Q81AD	PU-238	6.40E+00 +- 1.4E+00		pCi/sample	66.53%	1.43E-01	
		PU239/40	2.44E+02 +- 4.2E+01		pCi/sample	66.53%	1.43E-01	
J00F06	FE8Q81AE	AM-241	6.11E+01 +- 1.2E+01		pCi/sample	77.54%	1.04E-01	
J00F06	FE8Q81AF	U-234	1.89E+00 +- 5.9E-01		pCi/sample	69.33%	2.00E-01	
		U-235	-5.81E-03 +- 1.2E-02	U	pCi/sample	69.33%	1.39E-01	
		U-238	1.89E+00 +- 5.9E-01		pCi/sample	69.33%	2.00E-01	
J00F06	FE8Q81AG	TH-228	2.88E-01 +- 3.0E-01	U	pCi/sample	86.69%	4.02E-01	
		TH-230	5.71E-02 +- 1.2E-01	U	pCi/sample	86.69%	2.50E-01	
		TH-232	0.00E+00 +- 1.5E-01	U	pCi/sample	86.69%	1.68E-01	
J00F06	FE8Q81AA	ALPHA	3.37E+02 +- 7.3E+01		pCi/sample	100.00%	1.32E+00	
J00F06	FE8Q81AC	CO-60	2.79E+01 +- 8.3E+00		pCi/sample		4.71E+00	
		CS-137	2.49E+03 +- 3.0E+02		pCi/sample		7.52E+00	
		EU-152	1.78E+02 +- 3.4E+01		pCi/sample		2.84E+01	
		EU-154	3.59E+01 +- 1.4E+01	U	pCi/sample		2.76E+01	
		EU-155	-1.47E+00 +- 1.3E+01	U	pCi/sample		2.27E+01	
J00F06 DUP	FE8Q81AK	CO-60	3.87E+01 +- 9.4E+00		pCi/sample		4.17E+00	1.7
		CS-137	2.49E+03 +- 3.1E+02		pCi/sample		8.93E+00	0.0

STL Richland RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.
 rptSTLRchSaSum U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.
 V3.97 A97

Sample Results Summary

Date: 03-Feb-03

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 21668

SDG No: W03933

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC MDA	RER
J00F06 DUP	FE8Q81AK	EU-152	1.68E+02 +- 3.9E+01		pCi/sample		2.58E+01	0.4
		EU-154	2.80E+01 +- 1.2E+01	U	pCi/sample		2.40E+01	0.9
		EU-155	1.50E+00 +- 1.0E+01	U	pCi/sample		1.73E+01	0.3

Number of Results: 35

STL Richland RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
 rptSTLRchSaSum U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.
 V3.97 A97

QC Results Summary
STL Richland STLRL
 Ordered by QC Type, Batch No.

Date: 03-Feb-03

Report No. : 21668

SDG No.: W03933

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
BLANK QC	FE9041AA	PU-238	0.00E+00 +- 4.6E-02	U	pCi/sample	33.56%			5.05E-02
		PU239/40	6.71E-02 +- 7.6E-02	U	pCi/sample	33.56%			1.05E-01
BLANK QC	FE91D1AA	AM-241	2.87E-02 +- 4.1E-02	U	pCi/sample	58.10%			3.89E-02
BLANK QC	FE91H1AA	U-234	1.82E-02 +- 3.4E-02	U	pCi/sample	89.09%			7.15E-02
		U-235	-5.19E-03 +- 5.3E-03	U	pCi/sample	89.09%			4.45E-02
		U-238	2.08E-02 +- 3.0E-02	U	pCi/sample	89.09%			5.80E-02
BLANK QC	FE91P1AA	TH-228	0.00E+00 +- 5.8E-02	U	pCi/sample	36.86%			6.44E-02
		TH-230	-1.82E-03 +- 3.6E-03	U	pCi/sample	36.86%			9.14E-02
		TH-232	2.09E-02 +- 4.6E-02	U	pCi/sample	36.86%			9.14E-02
BLANK QC	FE91V1AA	ALPHA	-6.23E-03 +- 3.3E-02	U	pCi/sample	100.00%			1.06E-01
BLANK QC	FE9101AA	CO-60	3.41E-01 +- 1.0E+00	U	pCi/sample				1.81E+00
		CS-137	2.05E-01 +- 8.5E-01	U	pCi/sample				1.50E+00
		EU-152	5.60E-01 +- 2.0E+00	U	pCi/sample				3.44E+00
		EU-154	-2.61E-02 +- 2.9E+00	U	pCi/sample				5.15E+00
		EU-155	-1.02E+00 +- 2.0E+00	U	pCi/sample				3.41E+00
LCS	FE9041AC	PU239/40	5.71E+00 +- 1.2E+00		pCi/sample	46.33%	124.48%	0.2	7.62E-02
LCS	FE9041AD	PU239/40	4.88E+00 +- 1.1E+00		pCi/sample	41.44%	106.32%	0.1	8.92E-02
LCS	FE91D1AC	AM-241	3.68E+00 +- 7.9E-01		pCi/sample	77.97%	80.88%	-0.2	2.89E-02
LCS	FE91D1AD	AM-241	4.67E+00 +- 1.0E+00		pCi/sample	60.92%	103.20%	0.0	3.80E-02
LCS	FE91H1AC	U-234	3.62E+00 +- 7.8E-01		pCi/sample	85.03%	108.21%	0.1	5.44E-02
		U-238	3.28E+00 +- 7.1E-01		pCi/sample	85.03%	93.47%	-0.1	4.79E-02
LCS	FE91H1AD	U-234	3.19E+00 +- 6.9E-01		pCi/sample	90.26%	95.63%	0.0	1.70E-02
		U-238	3.29E+00 +- 7.1E-01		pCi/sample	90.26%	94.00%	-0.1	1.70E-02
LCS	FE91P1AC	TH-230	1.83E+00 +- 5.1E-01		pCi/sample	45.73%	77.35%	-0.2	1.09E-01
LCS	FE91P1AD	TH-230	2.05E+00 +- 8.3E-01		pCi/sample	16.09%	86.37%	-0.1	1.91E-01
LCS	FE91V1AC	ALPHA	3.98E+00 +- 9.4E-01		pCi/sample	100.00%	87.10%	-0.1	1.22E-01
LCS	FE91V1AD	ALPHA	3.88E+00 +- 9.2E-01		pCi/sample	100.00%	84.44%	-0.2	1.12E-01
LCS	FE9101AC	CS-137	7.17E+01 +- 9.5E+00		pCi/sample		103.50%	0.0	1.79E+00

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

rptSTLRchQcSum U Qual - Analyzed for, but the result is less than the Mdc|Mda|Total Uncert or gamma scan software did not identify the nuclide.
 V3.97 A97

QC Results Summary
STL Richland STLRL
Ordered by QC Type, Batch No.

Date: 03-Feb-03

Report No. : 21668

SDG No.: W03933

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
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Number of Results: 28

FORM I

Date: 04-Feb-03

SAMPLE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J2L200205-1
 Client Sample ID: J00F05

SDG: W03933
 Report No.: 21668
 COC No.:

Collection Date: 12/18/2002 9:30:00 AM
 Received Date: 12/18/2002 11:20:00 AM
 Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2σ)	Total Uncert(2σ)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 2354467			Work Order: FE8Q01AD			Report DB ID: 9FE8Q010						
PU-238	1.05E-01	U	1.2E-01	1.2E-01	9.51E-02	pCi/sample	59.13%	(1.1) (1.7)	1/27/03 02:34 p	1.0 Sample	0.3 Sample	PUISO_IE_PLATE_A ALP37
PU239/40	5.07E+00		8.4E-01	1.2E+00	1.98E-01	pCi/sample 5.16E-02	59.13%	(25.6) (8.3)	1/27/03 02:34 p	1.0 Sample	0.3 Sample	PUISO_IE_PLATE_A ALP37
Batch: 2354468			Work Order: FE8Q01AE			Report DB ID: 9FE8Q010						
AM-241	1.19E+00		4.1E-01	4.6E-01	9.49E-02	pCi/sample	82.51%	(12.5) (5.1)	1/29/03 01:56 p	1.0 Sample	0.3 Sample	AMCMISO_IE_PREC_ ALP127
Batch: 2354469			Work Order: FE8Q01AF			Report DB ID: 9FE8Q010						
U-234	9.10E-02	U	9.8E-02	1.0E-01	1.49E-01	pCi/sample 4.51E-02	90.71%	0.61 (1.8)	1/21/03 04:20 p	1.0 Sample	0.3 Sample	UIISO_IE_PLATE_AE ALP1
U-235	1.73E-02	U	4.4E-02	4.4E-02	1.04E-01	pCi/sample 2.26E-02	90.71%	0.17 0.78	1/21/03 04:20 p	1.0 Sample	0.3 Sample	UIISO_IE_PLATE_AE ALP1
U-238	2.60E-02	U	6.4E-02	6.4E-02	1.49E-01	pCi/sample 4.51E-02	90.71%	0.17 0.81	1/21/03 04:20 p	1.0 Sample	0.3 Sample	UIISO_IE_PLATE_AE ALP1
Ratio U-234/238 = 3.5												
Batch: 2354471			Work Order: FE8Q01AG			Report DB ID: 9FE8Q010						
TH-228	2.21E-02	U	1.0E-01	1.0E-01	3.11E-01	pCi/sample 8.76E-02	89.25%	0.07 0.43	1/27/03 10:09 a	1.0 Sample	0.2 Sample	THISO_IE_PRECIP_ ALP113
TH-230	2.88E-02	U	9.8E-02	9.8E-02	2.71E-01	pCi/sample 7.07E-02	89.25%	0.11 0.59	1/27/03 10:09 a	1.0 Sample	0.2 Sample	THISO_IE_PRECIP_ ALP113

11/11/03

STL Richland MDC|MDA,Lc - Detection, Decison Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLrchSample U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.
 V3.98 A97

FORM I
SAMPLE RESULTS

Date: 04-Feb-03

Lab Name: STL Richland

SDG: W03933

Collection Date: 12/18/2002 9:30:00 AM

Lot-Sample No.: J2L200205-1

Report No.: 21668

Received Date: 12/18/2002 11:20:00 AM

Client Sample ID: J00F05

COC No.:

Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC(MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
TH-232	8.84E-02	U	1.4E-01	1.4E-01	2.20E-01	pCi/sample	89.25%	0.4 (1.3)	1/27/03 10:09 a	1.0 Sample	0.2 Sample	THISO_IE_PRECIP_ ALP113
Batch: 2354472	Work Order: FE8Q01AA			Report DB ID: 9FE8Q010								
ALPHA	5.30E+00		1.6E+00	2.0E+00	1.39E+00	pCi/sample	100.00%	(3.8) (5.4)	1/18/03 12:25 p	1.0 Sample	0.1 Sample	ALPHA_GPC GPC10A
Batch: 2354473	Work Order: FE8Q01AC			Report DB ID: 9FE8Q010								
CO-60	1.24E-01	U	9.7E-01	9.7E-01	1.74E+00	pCi/sample		0.07 0.26	12/23/02 07:56 p		1.0 SA	GAMMA_GS GER6\$1
CS-137	3.70E+01		5.2E+00	5.2E+00	1.43E+00	pCi/sample		(25.8) (14.3)	12/23/02 07:56 p		1.0 SA	GAMMA_GS GER6\$1
EU-152	1.31E+00	U	2.0E+00	2.0E+00	3.48E+00	pCi/sample		0.38 (1.3)	12/23/02 07:56 p		1.0 SA	GAMMA_GS GER6\$1
EU-154	-1.28E+00	U	2.8E+00	2.8E+00	4.73E+00	pCi/sample		-0.27 -0.92	12/23/02 07:56 p		1.0 SA	GAMMA_GS GER6\$1
EU-155	-6.59E-01	U	1.2E+00	1.2E+00	1.99E+00	pCi/sample		-0.33 (-1.1)	12/23/02 07:56 p		1.0 SA	GAMMA_GS GER6\$1

Number of Results: 15

Comments:

12/21/02
JL

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 the result is less than the Mdc/Mda/Total Uncert or gamma scan software did not identify the nuclide.
V3.98 A97

FORM I
SAMPLE RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200205-2
Client Sample ID: J00F06

SDG: W03933
Report No.: 21668
COC No.:

Collection Date: 12/18/2002 9:31:00 AM
Received Date: 12/18/2002 11:20:00 AM
Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC/MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Anal Method, Primary Detector
Batch: 2354467			Work Order: FE8Q81AD			Report DB ID: 9FE8Q810						
PU-238	6.40E+00		8.7E-01	1.4E+00	1.43E-01	pCi/sample	66.53%	(44.8)	1/27/03 02:35 p	1.0	0.3	PUISO_IE_PLATE_A
						3.10E-02		(9.2)		Sample	Sample	ALP38
PU239/40	2.44E+02		5.4E+00	4.2E+01	1.43E-01	pCi/sample	66.53%	(1714.)	1/27/03 02:35 p	1.0	0.3	PUISO_IE_PLATE_A
						3.10E-02		(11.7)		Sample	Sample	ALP38
Batch: 2354468			Work Order: FE8Q81AE			Report DB ID: 9FE8Q810						
AM-241	6.11E+01		3.1E+00	1.2E+01	1.04E-01	pCi/sample	77.54%	(587.5)	1/29/03 01:56 p	1.0	0.3	AMCMISO_IE_PREC_
								(10.4)		Sample	Sample	ALP128
Batch: 2354469			Work Order: FE8Q81AF			Report DB ID: 9FE8Q810						
U-234	1.89E+00		4.7E-01	5.9E-01	2.00E-01	pCi/sample	69.33%	(9.5)	1/21/03 04:20 p	1.0	0.3	UIISO_IE_PLATE_AE
						6.04E-02		(6.5)		Sample	Sample	ALP2
U-235	-5.81E-03	U	1.2E-02	1.2E-02	1.39E-01	pCi/sample	69.33%	-0.04	1/21/03 04:20 p	1.0	0.3	UIISO_IE_PLATE_AE
						3.02E-02		-1.		Sample	Sample	ALP2
U-238	1.89E+00		4.7E-01	5.9E-01	2.00E-01	pCi/sample	69.33%	(9.5)	1/21/03 04:20 p	1.0	0.3	UIISO_IE_PLATE_AE
						6.04E-02		(6.5)		Sample	Sample	ALP2
Ratio U-234/238 = 1.0												
Batch: 2354471			Work Order: FE8Q81AG			Report DB ID: 9FE8Q810						
TH-228	2.88E-01	U	2.9E-01	3.0E-01	4.02E-01	pCi/sample	86.69%	0.72	1/27/03 10:09 a	1.0	0.2	THISO_IE_PRECIP_
						1.13E-01		(2.)		Sample	Sample	ALP115
TH-230	5.71E-02	U	1.2E-01	1.2E-01	2.50E-01	pCi/sample	86.69%	0.23	1/27/03 10:09 a	1.0	0.2	THISO_IE_PRECIP_
						4.08E-02		0.91		Sample	Sample	ALP115

132

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 the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.
V3.98 A97

FORM I

Date: 04-Feb-03

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03933

Collection Date: 12/18/2002 9:31:00 AM

Lot-Sample No.: J2L200205-2

Report No.: 21668

Received Date: 12/18/2002 11:20:00 AM

Client Sample ID: J00F06

COC No.:

Matrix: SOLID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
TH-232	0.00E+00	U	0.0E+00	1.5E-01	1.68E-01	pCi/sample	86.69%	0. 0.	1/27/03 10:09 a	1.0 Sample	0.2 Sample	THISO_IE_PRECIP_ ALP115
Batch: 2354472	Work Order: FE8Q81AA	Report DB ID: 9FE8Q810										
ALPHA	3.37E+02		1.2E+01	7.3E+01	1.32E+00	pCi/sample	100.00%	(255.7) (9.3)	1/18/03 12:25 p	1.0 Sample	0.1 Sample	ALPHA_GPC GPC10B
5.14E-01												
Batch: 2354473	Work Order: FE8Q81AC	Report DB ID: 9FE8Q810										
CO-60	2.79E+01		8.3E+00	8.3E+00	4.71E+00	pCi/sample		(5.9) (6.8)	12/23/02 05:02 p		1.0 SA	GAMMA_GS GER2\$1
CS-137	2.49E+03		3.0E+02	3.0E+02	7.52E+00	pCi/sample		(331.3) (16.5)	12/23/02 05:02 p		1.0 SA	GAMMA_GS GER2\$1
EU-152	1.78E+02		3.4E+01	3.4E+01	2.84E+01	pCi/sample		(6.3) (10.4)	12/23/02 05:02 p		1.0 SA	GAMMA_GS GER2\$1
EU-154	3.59E+01	U	1.4E+01	1.4E+01	2.76E+01	pCi/sample		(1.3) (5.3)	12/23/02 05:02 p		1.0 SA	GAMMA_GS GER2\$1
EU-155	-1.47E+00	U	1.3E+01	1.3E+01	2.27E+01	pCi/sample		-0.06 -0.22	12/23/02 05:02 p		1.0 SA	GAMMA_GS GER2\$1

Number of Results: 15

Comments:

70 H 18

FORM II

Date: 04-Feb-03

DUPLICATE RESULTS

Lab Name: STL Richland

SDG: W03933

Collection Date: 12/18/2002 9:31:00 AM

Lot-Sample No.: J2L200205-2

Report No.: 21668

Received Date: 12/18/2002 11:20:00 AM

Client Sample ID: J00F06 DUP

COC No.:

Matrix: SOLID

Parameter	Result, Orig Rst	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2354473	Work Order: FE8Q81AK			Report DB ID: FE8Q81KR		Orig Sa DB ID: 9FE8Q810						
CO-60	3.87E+01		9.4E+00	9.4E+00	4.17E+00	pCi/sample		(9.3)	12/23/02 06:47 p		1.0	GAMMA_GS
	2.79E+01	RPD	32.3					(8.2)			SA	GER1\$1
CS-137	2.49E+03		3.1E+02	3.1E+02	8.93E+00	pCi/sample		(278.4)	12/23/02 06:47 p		1.0	GAMMA_GS
	2.49E+03	RPD	0.2					(16.1)			SA	GER1\$1
EU-152	1.68E+02		3.9E+01	3.9E+01	2.58E+01	pCi/sample		(6.5)	12/23/02 06:47 p		1.0	GAMMA_GS
	1.78E+02	RPD	5.9					(8.6)			SA	GER1\$1
EU-154	2.80E+01	U	1.2E+01	1.2E+01	2.40E+01	pCi/sample		(1.2)	12/23/02 06:47 p		1.0	GAMMA_GS
	3.59E+01	U RPD	24.6					(4.7)			SA	GER1\$1
EU-155	1.50E+00	U	1.0E+01	1.0E+01	1.73E+01	pCi/sample		0.09	12/23/02 06:47 p		1.0	GAMMA_GS
	-1.47E+00	U RPD	17821.8					0.29			SA	GER1\$1

Number of Results: 5

Comments:

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STL Richland

RPD - Relative Percent Difference.

rptSTLRchDupV3.
98 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
BLANK RESULTS

Date: 04-Feb-03

Lab Name: **STL Richland**
Lot-Sample No.: **J2L200000-467**

SDG: **W03933**
Report No.: **21668**

Matrix: **SOLID**

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/Tot Ucert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2354467	Work Order: FE9041AA			Report DB ID: FE9041AB								
PU-238	0.00E+00	U	0.0E+00	4.6E-02	5.05E-02	pCi/sample	33.56%	0. 0.	1/27/03 02:35 p	1.0 Sample	1.0 Sample	PUISO_IE_PLATE_A ALP39
PU239/40	6.71E-02	U	7.5E-02	7.6E-02	1.05E-01 2.74E-02	pCi/sample	33.56%	0.64 (1.8)	1/27/03 02:35 p	1.0 Sample	1.0 Sample	PUISO_IE_PLATE_A ALP39

Number of Results: 2

Comments:

non

FORM II
BLANK RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200000-468

SDG: W03933
Report No.: 21668

Matrix: SOLID

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2354468	Work Order: FE91D1AA				Report DB ID: FE91D1AB							
AM-241	2.87E-02	U	4.1E-02	4.1E-02	3.89E-02	pCi/sample	58.10%	0.74 (1.4)	1/29/03 01:56 p	1.0 Sample	1.0 Sample	AMCMISO_IE_PREC_ ALP129

Number of Results: 1

Comments:

~~17~~

STL Richland
rptSTLRchBlank
V3.98 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
BLANK RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200000-469

SDG: W03933
Report No.: 21668

Matrix: SOLID

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2354469	Work Order: FE91H1AA			Report DB ID: FE91H1AB								
U-234	1.82E-02	U	3.3E-02	3.4E-02	7.15E-02 2.70E-02	pCi/sample	89.09%	0.25 (1.1)	1/21/03 04:20 p	1.0 Sample	1.0 Sample	UIISO_IE_PLATE_AE ALP3
U-235	-5.19E-03	U	5.2E-03	5.3E-03	4.45E-02 1.35E-02	pCi/sample	89.09%	-0.12 -(2.)	1/21/03 04:20 p	1.0 Sample	1.0 Sample	UIISO_IE_PLATE_AE ALP3
U-238	2.08E-02	U	3.0E-02	3.0E-02	5.80E-02 2.02E-02	pCi/sample	89.09%	0.36 (1.4)	1/21/03 04:20 p	1.0 Sample	1.0 Sample	UIISO_IE_PLATE_AE ALP3

Ratio U-234/238 = 0.9

Number of Results: 3

Comments:

18
~~18~~

FORM II

Date: 04-Feb-03

BLANK RESULTS

Lab Name: STL Richland

SDG: W03933

Lot-Sample No.: J2L200000-471

Report No. : 21668

Matrix: SOLID

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Allquot Size	Analy Method, Primary Detector
Batch: 2354471	Work Order: FE91P1AA				Report DB ID: FE91P1AB							
TH-228	0.00E+00	U	0.0E+00	5.8E-02	6.44E-02	pCi/sample	36.86%	0.	1/27/03 10:10 a	1.0	1.0	THISO_IE_PRECIP_
								0.		Sample	Sample	ALP117
TH-230	-1.82E-03	U	3.6E-03	3.6E-03	9.14E-02	pCi/sample	36.86%	-0.02	1/27/03 10:10 a	1.0	1.0	THISO_IE_PRECIP_
					1.49E-02			-1.		Sample	Sample	ALP117
TH-232	2.09E-02	U	4.6E-02	4.6E-02	9.14E-02	pCi/sample	36.86%	0.23	1/27/03 10:10 a	1.0	1.0	THISO_IE_PRECIP_
					1.49E-02			0.91		Sample	Sample	ALP117

Number of Results: 3

Comments:

1/27/03

FORM II

Date: 04-Feb-03

BLANK RESULTS

Lab Name: STL Richland

SDG: W03933

Lot-Sample No.: J2L200000-472

Report No. : 21668

Matrix: SOLID

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2354472	Work Order: FE91V1AA			Report DB ID: FE91V1AB								
ALPHA	-6.23E-03	U	3.3E-02	3.3E-02	1.06E-01	pCi/sample	100.00%	-0.06	1/18/03 12:25 p	1.0	1.0	ALPHA_GPC
					3.90E-02			-0.38		Sample	Sample	GPC10C

Number of Results: 1

Comments:

1802

FORM II
BLANK RESULTS

Date: 04-Feb-03

Lab Name: **STL Richland**
Lot-Sample No.: **J2L200000-473**

SDG: **W03933**
Report No. : **21668**

Matrix: **SOLID**

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/Tot Ucert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2354473	Work Order: FE9101AA				Report DB ID: FE9101AB							
CO-60	3.41E-01	U	1.0E+00	1.0E+00	1.81E+00	pCi/sample		0.19 0.68	12/23/02 07:57 p		1.0 SA	GAMMA_GS GER2\$1
CS-137	2.05E-01	U	8.5E-01	8.5E-01	1.50E+00	pCi/sample		0.14 0.48	12/23/02 07:57 p		1.0 SA	GAMMA_GS GER2\$1
EU-152	5.60E-01	U	2.0E+00	2.0E+00	3.44E+00	pCi/sample		0.16 0.56	12/23/02 07:57 p		1.0 SA	GAMMA_GS GER2\$1
EU-154	-2.61E-02	U	2.9E+00	2.9E+00	5.15E+00	pCi/sample		-0.01 -0.02	12/23/02 07:57 p		1.0 SA	GAMMA_GS GER2\$1
EU-155	-1.02E+00	U	2.0E+00	2.0E+00	3.41E+00	pCi/sample		-0.3 -0.99	12/23/02 07:57 p		1.0 SA	GAMMA_GS GER2\$1

Number of Results: 5

Comments:

17
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FORM II
LCS RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200000-467

SDG: W03933
Report No. : 21668

Matrix: SOLID

Parameter	Result	Count Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2354467	Work Order: FE9041AC	Report DB ID: FE9041CS											
PU239/40	5.71E+00	5.6E-01	1.2E+00	7.62E-02	pCi/sample	46.33%	4.59E+00	2.3E-01	124.48%	1/27/03 02:36 p	1.0	PUISO_IE_PLATE_A	
						Rec Limits:			0.2		Sample	ALP41	
Batch: 2354467	Work Order: FE9041AD	Report DB ID: FE9041DS											
PU239/40	4.88E+00	5.6E-01	1.1E+00	8.92E-02	pCi/sample	41.44%	4.59E+00	2.3E-01	106.32%	1/27/03 02:36 p	1.0	PUISO_IE_PLATE_A	
						Rec Limits:			0.1		Sample	ALP43	

Number of Results: 2

Comments:

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FORM II
LCS RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200000-468

SDG: W03933
Report No. : 21668

Matrix: SOLID

Parameter	Result	Count Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2354468	Work Order: FE91D1AC		Report DB ID: FE91D1CS										
AM-241	3.68E+00		4.0E-01	7.9E-01	2.89E-02	pCi/sample	77.97%	4.55E+00	1.5E-01	80.88%	1/29/03 01:56 p	1.0	AMCMISO_IE_PREC_
										Rec Limits: -0.2		Sample	ALP130
Batch: 2354468	Work Order: FE91D1AD		Report DB ID: FE91D1DS										
AM-241	4.67E+00		5.1E-01	1.0E+00	3.80E-02	pCi/sample	60.92%	4.53E+00	1.5E-01	103.20%	1/29/03 01:56 p	1.0	AMCMISO_IE_PREC_
										Rec Limits: 0.0		Sample	ALP131

Number of Results: 2

Comments:

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FORM II
LCS RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200000-469

SDG: W03933
Report No.: 21668

Matrix: SOLID

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2s)	MDC/MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Allquot Size	Analy Method, Primary Detector
Batch: 2354469	Work Order: FE91H1AC		Report DB ID: FE91H1CS										
U-234	3.62E+00		3.2E-01	7.8E-01	5.44E-02	pCi/sample	85.03%	3.35E+00	2.1E-02	108.21%	1/21/03 04:20 p	1.0	UIISO_IE_PLATE_AE
							Rec Limits:			0.1		Sample	ALP4
U-238	3.28E+00		3.0E-01	7.1E-01	4.79E-02	pCi/sample	85.03%	3.51E+00	2.2E-02	93.47%	1/21/03 04:20 p	1.0	UIISO_IE_PLATE_AE
							Rec Limits:			-0.1		Sample	ALP4
Batch: 2354469	Work Order: FE91H1AD		Report DB ID: FE91H1DS										
U-234	3.19E+00		2.8E-01	6.9E-01	1.70E-02	pCi/sample	90.26%	3.34E+00	2.1E-02	95.63%	1/21/03 04:20 p	1.0	UIISO_IE_PLATE_AE
							Rec Limits:			0.0		Sample	ALP8
U-238	3.29E+00		2.9E-01	7.1E-01	1.70E-02	pCi/sample	90.26%	3.50E+00	2.2E-02	94.00%	1/21/03 04:20 p	1.0	UIISO_IE_PLATE_AE
							Rec Limits:			-0.1		Sample	ALP8

Number of Results: 4

Comments:

Handwritten initials/signature

FORM II

Date: 04-Feb-03

LCS RESULTS

Lab Name: STL Richland

SDG: W03933

Lot-Sample No.: J2L200000-471

Report No. : 21668

Matrix: SOLID

Parameter	Result	Count Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2354471	Work Order: FE91P1AC		Report DB ID: FE91P1CS										
TH-230	1.83E+00		4.2E-01	5.1E-01	1.09E-01	pCi/sample	45.73%	2.37E+00	7.1E-02	77.35%	1/27/03 10:10 a	1.0	THISO_IE_PRECIP_
										Rec Limits: -0.2		Sample	ALP119
Batch: 2354471	Work Order: FE91P1AD		Report DB ID: FE91P1DS										
TH-230	2.05E+00		7.6E-01	8.3E-01	1.91E-01	pCi/sample	16.09%	2.37E+00	7.1E-02	86.37%	1/27/03 10:10 a	1.0	THISO_IE_PRECIP_
										Rec Limits: -0.1		Sample	ALP120

Number of Results: 2

Comments:

21
35 nC

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

rptSTLRchLcs
V3.98 A97

FORM II

Date: 04-Feb-03

LCS RESULTS

Lab Name: STL Richland

SDG: W03933

Lot-Sample No.: J2L200000-472

Report No. : 21668

Matrix: SOLID

Parameter	Result	Count Qual	Count Error (2s)	Total Uncert(2s)	MDC/MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2354472	Work Order: FE91V1AC	Report DB ID: FE91V1CS											
ALPHA	3.98E+00		4.1E-01	9.4E-01	1.22E-01	pCi/sample	100.00%	4.57E+00	1.3E-01	87.10%	1/18/03 12:25 p	1.0	ALPHA_GPC
Rec Limits:										-0.1		Sample	GPC10D
Batch: 2354472	Work Order: FE91V1AD	Report DB ID: FE91V1DS											
ALPHA	3.88E+00		4.0E-01	9.2E-01	1.12E-01	pCi/sample	100.00%	4.59E+00	1.5E-01	84.44%	1/18/03 12:25 p	1.0	ALPHA_GPC
Rec Limits:										-0.2		Sample	GPC10E

Number of Results: 2

Comments:

None

FORM II
LCS RESULTS

Date: 04-Feb-03

Lab Name: STL Richland
Lot-Sample No.: J2L200000-473

SDG: W03933
Report No.: 21668

Matrix: SOLID

Parameter	Result	Count Qual	Count Error (2s)	Total Uncert(2s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2354473	Work Order: FE9101AC	Report DB ID: FE9101CS											
CS-137	7.17E+01		9.5E+00	9.5E+00	1.79E+00	pCi/sample		6.93E+01	1.1E+00	103.50%	12/23/02 08:46 p	1.0	GAMMA_GS
							Rec Limits:			0.0		SA	GER1\$1

Number of Results: 1

Comments:

Handwritten initials: JLE

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2L200205
 Client ID: BHJ
 Due Date: 1/17/03
 QC Batch Number: 235468
 Method Test Parameter: SX-AM
 Matrix: Other
 SDG Number: WJ 03933

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: 1-30-03



STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2354468

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: Bh M Dillip

Date: 1/30/03

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2L200205
 Client ID: BH2
 Due Date: 1/17/05
 QC Batch Number: 2354467
 Method Test Parameter: SU-1u
 Matrix: OTM
 SDG Number: NA W63933

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: 1-29-05



STL

Data Review Checklist RADIOCHEMISTRY Second Level Review

QC Batch Number: 2354467

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: *[Signature]* Date: 1/30/03

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2L200205
 Client ID: D#2
 Due Date: 1/17/03
 QC Batch Number: 2354469
 Method Test Parameter: SR-1050
 Matrix: Solid
 SDG Number: NX

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: Samples show Pu 239,240 - does not affect ROI J0710

First Level Review: Paw Anderson Date: 1-22-03



STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2354469

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: See NCM

Second Level Review:

Date: 1-27-03

Clouseau Nonconformance Memo



NCM #: J07110	Classification: Anomaly
NCM Initiated By: Pam Anderson	Status: PMREVIEW
Date Opened: 01/23/03	Production Area: Environmental - Sep
Date Closed: N/A	Tests: Uiso by ALP
	Lot #'s (Sample #'s): J2L200205 (1,2)
	QC Batch: 2354469
Nonconformance: Other (describe in detail)	
Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Pam Anderson	01/23/03	Samples show Pu 239-240 in the Uiso spectra. It does not affect the Uiso ROI. Data accepted.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Pam Anderson	01/23/03	None necessary.

Approval History

<u>Name</u>	<u>Date Approved:</u>	<u>Position</u>
Pam Anderson	01/23/03	Group Leader

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Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: 226200205
 Client ID: BH2
 Due Date: 1/17/03
 QC Batch Number: 2354471
 Method Test Parameter: ISLTH
 Matrix: Other
 SDG Number: W03933

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: Paw Anderson Date: 1-29-03



STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2354471

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: *John M. Duffin* Date: 1/30/03

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: 32L200205
 Client ID: BH2
 Due Date: 1-17-02
 QC Batch Number: 2354473
 Method Test Parameter: Gamma
 Matrix: Filter
 SDG Number: w03933

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>506913</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: Eu-154 identification rejected by abundance
criteria. RDLs acceptable per client designated directions, provided in
email, 12-19-02.

First Level Review: [Signature] Date: 12-26-02

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2354473

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: sh mayer Date: 12/29/02

Clouseau Nonconformance Memo



NCM #: J06913	Classification: Anomaly
NCM Initiated By: Dale OConnell	Status: PMREVIEW
Date Opened: 12/27/02	Production Area: Environmental - Prep
Date Closed: N/A	Tests: Gamma by GER
	Lot #'s (Sample #'s): J2L200205 (1,2)
	QC Batch: 2354473
Nonconformance: Insufficient sample volume for QC	
Subcategory: Insufficient sample volume to prepare MS/MSD or duplicate	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Dale OConnell	12/27/02	There was insufficient sample volume provided to prepare duplicate.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Dale OConnell	12/27/02	Precision determination achieved by recounting sample on a different detector. Report results.

Approval History


<u>Name</u>	<u>Date Approved:</u>	<u>Position</u>
Dale OConnell	12/27/02	Group Leader

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2L200205 W03933
 Client ID: BHI
 Due Date: 1/17/2003
 QC Batch Number: 2354472
 Method Test Parameter: 37 GROSS ALPHA
 Matrix: OTHER SOLID
 SDG Number: _____

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:  Date: 1/20/03

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2354472

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: Beverly [Signature]

Date: 1-21-03

CHAIN OF CUSTODY

Q-21000

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B03-010-02	Page 1 of 1
Collector Jeff Gale	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator KESSNER, JH		Price Code	Data Turnaround 30 Days
Project Designation 105-H Smear and Filter Sampling		Sampling Location 100H	SAF No. B03-010		Air Quality <input type="checkbox"/>	
Ice Chest No. ERC-01-038	Field Logbook No. EL-1518-2	COA R105HX2200	Method of Shipment Hand deliver - Govt vehicle			
Shipped To Severn Trent Incorporated, Richland		Offsite Property No. RSR 107167	Bill of Lading/Air Bill No. N/A			

POSSIBLE SAMPLE HAZARDS/REMARKS RADIOACTIVE Special Handling and/or Storage	Preservation	None																			
	Type of Container	Snap Vial																			
	No. of Container(s)	1																			
	Volume	60mL																			

SDG	SAMPLE ANALYSIS	Due 1-17	See item (1) in Special Instructions.
W03933		02L200205	

Sample No.	Matrix *	Sample Date	Sample Time																			
J00F05	FE8Q0	12 18 02	0930	X	LAR-105H-02-0096	4100cpm																
J00F06	FE8Q8	12 18 02	0931	X	AIR-105H-02-0301	400cpm																

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From ERC SIOALE Model 121802 1120	Date/Time 12/18/02 1120	Received By/Stored In STL T. Heidelberg	Date/Time 12-18-02	Gamma Spec - Low Level; Gross Alpha; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium; Americium-241				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wl=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

FILTERS 1gm

VMS Gamma Spectroscopy Report generated 13-DEC-2002 06:50:31

```

Configuration : DKA100:[GAMMA.SCUSR.ARCHIVE]SMP_RCF10711_DET1_2INFILTER_1019.
Sample ID      : AIR-105H-02-0301      Project Number  : 105H
RFC Number    : RCF10711              SAF Number     : NONE
Sample Quantity : 1.00000E+00 ea
Sample Type    : FILTER
Sample Date    : 11-DEC-2002 10:25:00 Acquisition date : 12-DEC-2002 11:51:37
Decay time     : 1 01:26:37.85        % dead time    : 0.0%
Elapsed live time: 0 01:00:00.00      Elapsed real time: 0 01:00:00.66
Energy cal. time : 14-FEB-2002 16:05:03 Effic. cal. time : 2-APR-2002 15:25:02.
Detector name  : BEGE 3820           Counting geometry: 2infilter
Peak Sensitivity : 3.00000
Efficiency Type : EMPIRICA           Energy tolerance: 2.00000
    
```

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/ea)	Act error	MDA (pCi/ea)	MDA error	Act/MDA
CO-60	3.264E+01	1.076E+01	1.436E+01	1.881E+00	2.273
CS-137	2.607E+03	3.215E+02	1.847E+01	2.219E+00	141.108
EU-152	1.357E+02	1.901E+01	1.279E+01	1.971E+00	10.608
PB-212	2.010E+01	1.070E+01	1.541E+01	1.932E+00	1.304
AM-241	7.075E+01	1.271E+01	7.522E+00	9.465E-01	9.406

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/ea)	K.L. Ided	Act error	MDA (pCi/ea)	MDA error	Act/MDA
K-40	-9.799E+00		7.037E+01	1.356E+02	1.743E+01	-0.072
EU-154	4.005E+01	+	1.084E+01	1.563E+01	2.193E+00	2.563
EU-155	4.020E+00		5.909E+00	1.069E+01	1.141E+00	0.376
TL-208	4.822E-01		9.180E+00	1.595E+01	1.840E+00	0.030
BI-212	1.467E+01		1.566E+02	2.373E+02	3.423E+01	0.062
BI-214	1.770E+00		1.771E+01	3.234E+01	3.864E+00	0.055
PB-214	-1.474E+00		1.706E+01	2.978E+01	2.880E+00	-0.049
RA-226	1.488E+01		1.047E+02	1.829E+02	2.204E+01	0.081
AC-228	-1.501E+01		7.223E+01	1.050E+02	1.852E+01	-0.143
TH-234	-9.987E+00		4.027E+01	6.648E+01	2.774E+01	-0.150
U-235	-6.703E-01		5.861E+00	1.013E+01	1.280E+00	-0.066

Approved by: TIMOTHY J. SNIDER

Approval Date: 12 / 13 / 02

37:1 Cs to Am. ratio

ADD :

Sr-90 2.7×10^3 pCi/EA
 Pu-239 1.59×10^1 pCi/EA
 Pu-240 5.3×10^0 pCi/EA

1. SHIP FROM U.S. DEPT. OF ENERGY C/O
 Company BECHTEL HANFORD INC
 Address 3728 BLDG, 300 AREA
 City, State, Zip RICHLAND, WA. 99352
 Contact JEFF GALE
 Phone 509 372 9068

RADIOACTIVE SHIPMENT RECORD 107167³
 Page 1 of 2

Ship Prepaid Collect 4.
 Via Motor Air Psgr UPS
 Rail Air Cargo Site Carrier
 SHIPMENT AUTHORIZATION NUMBER RMBH 5060

2. SHIP TO
 Company SEVERN TRENT LABORATORIES
 Address 2800 GEORGE WASHINGTON WAY
 City, State, Zip RICHLAND, WA. 99352
 Attention BEVERLY GIROIR
 Phone 509-375-3131

Markings Applied 6.
 Radioactive - LSA
 Radioactive - SCO
 Type A NA
 Type B with trefoil
 LSA Description 8.
 LSA-I
 LSA-II
 LSA-III
 SCO-I NA
 SCO-II
 Labels Applied 10:
 Empty
 Radioactive White - I
 Radioactive Yellow - II
 Radioactive Yellow - III
 Subsidiary Hazards Haz

For Normal Form only 7.
 Identify
 Physical Form Liquid Gas
 Solid
 Chemical Form Elemental
 Metal Nitrate
 Oxide Mixture
 Other

5. HM	Proper Shipping Name:	Radioactive Material:
<input type="checkbox"/>	excepted package - empty packaging	7 UN2910
<input type="checkbox"/>	excepted package - instruments or articles	7 UN2910
<input checked="" type="checkbox"/>	excepted package - limited quantity of material	7 UN2910
<input type="checkbox"/>	excepted package - articles manufactured from natural or depleted uranium or natural thorium	7 UN2910
<input type="checkbox"/>	Special Form, n.o.s.	7 UN2974
<input type="checkbox"/>	Low Specific Activity, n.o.s.	7 UN2912
<input type="checkbox"/>	n.o.s.	7 UN2982
<input type="checkbox"/>	Fissile, n.o.s.	7 UN2918
<input type="checkbox"/>	Surface Contaminated Object	7 UN2913

EMERGENCY RESPONSE 9.
 Telephone 1-888-766-0771
 Emergency Response Guide(s) 161

Highway Route Controlled Quantity
 Exclusive Use Shipment with instructions
 Placards Applied
 If Rail Specify:
 Fissile Excepted, Grams <15g
 Excepted Package Statement

Warning -- Fissile Material Controlled Shipment. Do Not Load More Than NA Packages Per Vehicle. In Loading and Storage Areas, Keep at Least 20 Feet From Other Packages Bearing Radioactive Labels.

11. No. Pkg.	Model/Package	COC/Spec	Serial No.	Seal No.	Isotopes	T.I. No.	Bq/Package	Gr. Wt. Kg.
1	POLY COOLER	STRONG-TIGHT	ERC 01	TAPE	Co-60, Cs-137, Pu-239, Pu-240	NA	2.0x10 ¹⁰	6 Kg
	POLY BOTTLE DOUBLE POLY BAGGED PACKED WITH CUSHIONING MATERIAL IN STRONG-TIGHT							
(Shipper may describe package in detail on one of the unused lines above) SAF# B03-010 TOTALS							NA	2.0x10 ¹⁰ 6 Kg

12. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Certifier's Signature Stuart Cole On behalf of DOE-RL Date 12-18-02 Organization ERC-AFS Complete Cost Code (Inc. End Function) R105HX 2200

13. Surface Dose Rate of Package <0.005 or _____ mSv/hr
 <0.5 or _____ mrem/hr (N+β γ)

Dose Rate @ 1 Meter from Surface of Package <0.005 or _____ mSv/hr
 <0.5 or _____ mrem/hr (N+β γ)

Smears of Outer Container
 <0.41 Bq (22 dpm) β γ /cm²
 <0.04 Bq (2.2 dpm) α /cm²
 <Tbl. 2-2 HSRM Onsite Limits

TRUCK LOAD OR EXCLUSIVE USE
 Surface <2 mSv/hr (200 mrem/hr)
 @ 2 meters <0.1 mSv/hr (10 mrem/hr)
 @ Cab or sleeper <0.02 mSv/hr (2 mrem/hr) (Using N+β γ)

Additional Data and Instructions (inc. Readings on Internal Packaging)
 Signature - Radiation Monitoring CR 22 CWLander Bldg. 3728 Survey No. RSP-REF-02-0395 Date 12-18-02

14. TRANSPORTER DRIVER SIGNATURE Stuart Cole RECIPIENT SIGNATURE W. Lander Date 12-18-02

15. OFFSITE AUTHORIZATION
 Shipment has been inspected and verified to be in compliance with DOT regulations
 Authorized Signature Keith R. Smith Printed Name Keith R. Smith Date 12/18/02

16. AUTHORIZATION FOR SHIPMENT
 AIR TRANSPORT CERTIFICATION N/A CARGO AIRCRAFT Cargo Aircraft Only Labels Applied PASSENGER AIRCRAFT Ltd Qty <3 T.I. Research/Medical Diagnosis Human Medical Research Pkg. Dimensions (cm)

17. OFFSITE AUTHORIZATION
 Tracking No. RMBH 5060 Date Shipped 12/18/02 Routing CHG ETA 12-18-02
 Surveyed By _____ Date _____ Approved for Shipment Offsite _____ Date _____



Sample Check-in List

Date/Time Received: 12/18/11 11:20
Client: BHI SDG #: W03933 NA [] SAF #: B03010 NA []
Work Order Number: J26200205 Chain of Custody # B03-010-02
Shipping Container ID: ERC 01-038 Air Bill # hu

- 1. Custody Seals on shipping container intact? NA [] Yes [] No [X]
2. Custody Seals dated and signed? NA [] Yes [] No [X]
3. Chain of Custody record present? Yes [X] No []
4. Cooler temperature: NA [X] 5. Vermiculite/packing materials is NA [] Wet [] Dry [X]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? NA [] Yes [] No [X]
8. Samples have: tape [X] custody seals hazard labels [X] appropriate samples labels
9. Samples are: in good condition [X] broken leaking have air bubbles (Only for samples requiring head space)
10. Sample pH taken? NA [X] pH < 2 [] pH > 2 []
11. Sample Location, Sample Collector Listed? * Yes [] No [X]
12. Were any anomalies identified in sample receipt? Yes [] No [X]
13. Description of anomalies (include sample numbers):

Sample Custodian: [Signature] Date: 12/18/11

Table with 4 columns: Client Sample ID, Analysis Requested, Condition, Comments/Action

Client Informed on by Person contacted

[] No action necessary; process as is.

Project Manager Date

1/16/03 11:52:31 AM

Sample Preparation/Analysis

Balance Id:1120373922

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

6L PuAm PrpRC5016, SepRC5080(5003)/RC5010(5039)
SX Americium-241 by Alpha Spec

Pipet #: _____

Report Due: 01/17/2003

5I CLIENT: HANFORD

Sep1 DT/Tm Tech:

Batch: 2354468 OTHER SOLID pCi/g Sa. *Jan 16 03*

PM, Quote: BG2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: 2354467, 6LSO

Prep Tech: ,WAGNERJ

(Sa)

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 FE8Q0-1-AE J2L200205-1-SAMP	0.3sa,in	PATB2651	12/06/02 10/28/02 r		200			
12/18/2002 09:30	AmtRec: AIR FILTER	#Containers: 1					Scr Rst: Alpha: Beta:	
2 FE8Q8-1-AE J2L200205-2-SAMP	0.3sa,in	PATB2652	12/06/02 10/28/02 r					
12/18/2002 09:31	AmtRec: AIR FILTER	#Containers: 1					Scr Rst: Alpha: Beta:	
3 FE91D-1-AA-B J2L200000-468-BLK	1.0sa,in	PATB2653	12/06/02 10/28/02 r					
12/18/2002 09:30	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	
4 FE91D-1-AC-C J2L200000-468-LCS	1.0sa,in	PASC0417	11/06/02 09/30/02 r					
12/18/2002 09:30	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	
5 FE91D-1-AD-C J2L200000-468-LCS	1.0sa,in	PASC0418	11/06/02 09/30/02 r					
12/18/2002 09:30	AmtRec:	#Containers: 1					Scr Rst: Alpha: Beta:	

Comments: Samples were traced after aliquot *Jan 16 03*

All Clients for Batch:

127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc.

, BG2, 27038

FE8Q01AE-SAMP Constituent List:

Am-241 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20

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

1/16/03 11:52:32 AM

Sample Preparation/Analysis

Balance Id:1120373922

6L PuAm PrpRC5016, SepRC5080(5003)/RC5010(5039)
SX Americium-241 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354468

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
--------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

FE91D1AA-BLK:
Am-241 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20

FE91D1AC-LCS:

FE91D1AD-LCS:

FE8Q01AE-SAMP Calc Info:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

FE91D1AA-BLK:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

FE91D1AC-LCS:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

FE91D1AD-LCS:
Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

1/30/03 10:43:41 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/31/02, 1/31/03, Batch: '2354468', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
2354468				
AC	CalcC	WAGNERJ	1/15/03 2:12:38 PM	
SC		WagarR	IsBatched	12/20/02 2:55:50 PM
SC		WAGNERJ	InPrep2	1/15/03 2:12:38 PM
SC		WAGNERJ	Prep2C	1/16/03 4:59:41 PM
SC		HAMMERL	InSep1	1/17/03 1:48:36 PM
SC		HAMMERL	Sep1C	1/29/03 7:55:33 AM
SC		DobeckIT	InSep2	1/29/03 11:17:09 AM
SC		DobeckIT	Sep2C	1/29/03 11:17:21 AM
SC		BlackCL	InCnt1	1/29/03 11:46:34 AM
SC		BlackCL	CalcC	1/30/03 7:27:31 AM
AC		WAGNERJ	1/16/03 4:59:41 PM	
AC		HAMMERL	1/17/03 1:48:36 PM	
AC		HAMMERL	1/29/03 7:55:33 AM	
AC		DobeckIT	1/29/03 11:17:09 AM	
AC		DobeckIT	1/29/03 11:17:21 AM	
AC		BlackCL	1/29/03 11:46:34 AM	
AC		BlackCL	1/30/03 7:27:31 AM	

AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.

1/16/03 11:46:33 AM

Sample Preparation/Analysis

Balance Id:1120373922

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

6L PuAm PrpRC5016, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
SI CLIENT: HANFORD

Pipet #: *N/A*

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354467 OTHER SOLID *9-1-16-03* pCi/g Sa. PM, Quote: BG2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: 2354468, 6LSX All Tests: 2354467 6LSO, 2354468 6LSX, 2354469 7WSR, 2354471 9NS1, 2354472 BAS7, 2354473 AWTA, *(Sa.)*

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 FE8Q0-1-AD J2L200205-1-SAMP	0.3sa,in		PATB2651 12/06/02 10/28/02 r		<i>200</i>			
12/18/2002 09:30	AmtRec: AIR FILTER	#Containers: 1				Scr Rst:	Alpha:	Beta:
2 FE8Q8-1-AD J2L200205-2-SAMP	0.3sa,in		PATB2652 12/06/02 10/28/02 r					
12/18/2002 09:31	AmtRec: AIR FILTER	#Containers: 1				Scr Rst:	Alpha:	Beta:
3 FE904-1-AA-B J2L200000-467-BLK	1.0sa,in		PATB2653 12/06/02 10/28/02 r					
12/18/2002 09:30	AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
4 FE904-1-AC-C J2L200000-467-LCS	1.0sa,in		PASC0417 11/06/02 09/30/02 r					
12/18/2002 09:30	AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
5 FE904-1-AD-C J2L200000-467-LCS	1.0sa,in		PASC0418 11/06/02 09/30/02 r					
12/18/2002 09:30	AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:

Comments: Samples were traced after aliquot *9-1-16-03*.

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

FE8Q01AD-SAMP Constituent List: PU-238 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20 PU-239 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20

ICOC Fraction Transfer/Status Report

ByDate: 12/30/02, 1/30/03, Batch: '2354467', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
2354467				
AC		CalcC	WAGNERJ 1/15/03 2:12:44 PM	
SC			WagarR IsBatched 12/20/02 2:55:50 PM	ICOC_RADCALC v4.5.3.2
SC			WAGNERJ InPrep2 1/15/03 2:12:44 PM	RICH-RC-5016 REVISION 3
SC			WAGNERJ InPrep2 1/16/03 11:42:15 AM	RICH-RC-5016 REVISION 3
SC			WAGNERJ Prep2C 1/16/03 4:59:45 PM	RICH-RC-5016 REVISION 3
SC			HAMMERL InSep1 1/17/03 1:49:00 PM	RICH-RC-5080 REVISION 1
SC			DobeckIT InSep1 1/27/03 11:18:56 AM	RICH-RC-5039 REVISION 3
SC			DobeckIT Sep2C 1/27/03 11:19:37 AM	RICH-RC-5039 REVISION 3
SC			HAMMERL Sep1C 1/27/03 11:20:44 AM	RICH-RC-5010 REVISION 3
SC			BlackCL InCnt1 1/27/03 11:42:06 AM	RICH-RD-0008 REVISION 2
SC			BlackCL CalcC 1/28/03 8:02:52 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ 1/16/03 11:42:15 AM	
AC			WAGNERJ 1/16/03 4:59:45 PM	
AC			HAMMERL 1/17/03 1:49:00 PM	
AC			DobeckIT 1/27/03 11:18:56 AM	
AC			DobeckIT 1/27/03 11:19:37 AM	
AC			HAMMERL 1/27/03 11:20:44 AM	
AC			BlackCL 1/27/03 11:42:06 AM	
AC			BlackCL 1/28/03 8:02:52 AM	

AC: Accepting Entry; SC: Status Change

1/16/03 11:49:26 AM

Sample Preparation/Analysis

Balance Id:1120373922

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

7W Uiso PrpRC5016, SepRC5079(5039)
SR Uranium-234,235,238 by Alpha Spec
SI CLIENT: HANFORD

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354469 OTHER SOLID pCi/g Sa. *2-1-16-03*
PM, Quote: BG2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

(Sa.)

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 FE8Q0-1-AF J2L200205-1-SAMP		0.3sa,in	UITS8821 01/14/03 12/16/02,r		200			
12/18/2002 09:30		AmtRec: AIR FILTER	#Containers: 1				Scr Rst: Alpha: Beta:	
2 FE8Q8-1-AF J2L200205-2-SAMP		0.3sa,in	UITS8822 01/14/03 12/16/02,r					
12/18/2002 09:31		AmtRec: AIR FILTER	#Containers: 1				Scr Rst: Alpha: Beta:	
3 FE91H-1-AA-B J2L200000-469-BLK		1.0sa,in	UITS8823 01/14/03 12/16/02,r					
12/18/2002 09:30		AmtRec:	#Containers: 1				Scr Rst: Alpha: Beta:	
4 FE91H-1-AC-C J2L200000-469-LCS		1.0sa,in	UISH0167 01/10/03 10/05/02,r					
12/18/2002 09:30		AmtRec:	#Containers: 1				Scr Rst: Alpha: Beta:	
5 FE91H-1-AD-C J2L200000-469-LCS		1.0sa,in	UISH0168 01/10/03 10/05/02,r					
12/18/2002 09:30		AmtRec:	#Containers: 1				Scr Rst: Alpha: Beta:	

Comments: Samples were traced after aliquot - *2-1-16-03*
Samples were converted 3X with con HLL. *2-1-16-03*

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

FE8Q01AF-SAMP Constituent List:
U-234 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20 U-238 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20

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

1/16/03 11:49:27 AM

Sample Preparation/Analysis

Balance Id:1120373922

7W Uiso PrpRC5016, SepRC5079(5039)
SR Uranium-234,235,238 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354469

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	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
-------------------------------------	-------------------	-----------------------------	------------------------	------------------------	-------------------	----------------	---------------------------------	--------------------------

FE91H1AA-BLK:
 U-234 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20 U-238 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20

FE91H1AC-LCS:

FE91H1AD-LCS:

FE8Q01AF-SAMP Calc Info:

Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FE91H1AA-BLK: Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FE91H1AC-LCS: Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B
FE91H1AD-LCS: Uncert Level (#s): 2	Decay to SaDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRs: B

1/23/03 8:36:42 AM

ICOC Fraction Transfer/Status Report

ByDate: 12/24/02, 1/24/03, Batch: '2354469', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
	2354469				
AC		CalcC	WAGNERJ	1/15/03 2:12:34 PM	
SC			WagarR	IsBatched	12/20/02 2:55:50 PM
SC			WAGNERJ	inPrep2	1/15/03 2:12:34 PM
SC			WAGNERJ	Prep2C	1/16/03 4:59:54 PM
SC			DobeckIT	InSep2	1/21/03 1:51:30 PM
SC			DobeckIT	Sep2C	1/21/03 1:51:48 PM
SC			BlackCL	InCnt1	1/21/03 1:55:15 PM
SC			BlackCL	CalcC	1/22/03 8:39:40 AM
AC			WAGNERJ	1/16/03 11:42:30 AM	
AC			WAGNERJ	1/16/03 4:59:54 PM	
AC			DobeckIT	1/21/03 1:51:30 PM	
AC			DobeckIT	1/21/03 1:51:48 PM	
AC			BlackCL	1/21/03 1:55:15 PM	
AC			BlackCL	1/22/03 8:39:40 AM	

AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.

1/16/03 11:51:29 AM

Sample Preparation/Analysis

Balance Id:1120373922

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

9N Thiso PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: NA

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354471 OTHER SOLID ^{2/16/03} pCi/g Sa. PM, Quote: BG2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

(Sa)

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 FE8Q0-1-AG J2L200205-1-SAMP		0.2sa,in	THTC5394	01/06/03 11/18/02	200			
12/18/2002 09:30	AmtRec: AIR FILTER	#Containers: 1				Scr Rst:	Alpha:	Beta:
2 FE8Q8-1-AG J2L200205-2-SAMP		0.2sa,in	THTC5395	01/06/03 11/18/02				
12/18/2002 09:31	AmtRec: AIR FILTER	#Containers: 1				Scr Rst:	Alpha:	Beta:
3 FE91P-1-AA-B J2L200000-471-BLK		1.0sa,in	THTC5396	01/06/03 11/18/02				
12/18/2002 09:31	AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
4 FE91P-1-AC-C J2L200000-471-LCS		1.0sa,in	THSI0566	01/06/03 11/22/02				
12/18/2002 09:31	AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:
5 FE91P-1-AD-C J2L200000-471-LCS		1.0sa,in	THSI0567	01/06/03 11/22/02				
12/18/2002 09:31	AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:

Comments: Samples were traced after aliquot. 2/16/03
Samples were converted 3x with can HLL. 2/16/03

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

FEBQ01AG-SAMP Constituent List:
Th-228 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20 Th-230 RDL:1.00E+00 pCi/g LCL: UCL: RPD:20

1/16/03 11:51:30 AM

Sample Preparation/Analysis

Balance Id:1120373922

9N ThIsO PrpRc5016, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354471

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			
Th-232	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:20						
FE91P1AA-BLK:											
Th-228	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:20	Th-230	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:20
Th-232	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:20						
FE91P1AC-LCS:											
FE91P1AD-LCS:											
FE8Q01AG-SAMP Calc Info:											
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B		
FE91P1AA-BLK:											
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B		
FE91P1AC-LCS:											
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B		
FE91P1AD-LCS:											
Uncert Level (#s):	2	Decay to SaDt:	Y	Blk Subt.:	N	Sci.Not.:	Y	ODRs:	B		

ICOC Fraction Transfer/Status Report

ByDate: 12/30/02, 1/30/03, Batch: '2354471', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
2354471				
AC	CalcC	WAGNERJ	1/15/03 2:12:29 PM	
SC		WagarR	IsBatched	12/20/02 2:55:50 PM
SC		WAGNERJ	InPrep2	1/15/03 2:12:29 PM
SC		WAGNERJ	Prep2C	1/16/03 4:59:59 PM
SC		HAMMERL	InSep1	1/17/03 1:49:16 PM
SC		HAMMERL	Sep1C	1/23/03 8:54:47 AM
SC		DobeckIT	InSep2	1/23/03 10:50:24 AM
SC		DobeckIT	Sep2C	1/23/03 10:50:35 AM
SC		BlackCL	InCnt1	1/23/03 10:57:26 AM
SC		BlackCL	CalcC	1/27/03 1:28:59 PM
AC		WAGNERJ	1/16/03 4:59:59 PM	
AC		HAMMERL	1/17/03 1:49:16 PM	
AC		HAMMERL	1/23/03 8:54:47 AM	
AC		DobeckIT	1/23/03 10:50:24 AM	
AC		DobeckIT	1/23/03 10:50:35 AM	
AC		BlackCL	1/23/03 10:57:26 AM	
AC		BlackCL	1/27/03 1:28:59 PM	

AC: Accepting Entry; SC: Status Change

12/20/02 4:25:31 PM Sample Preparation/Analysis Balance Id: 1120373922
 127642, BECHTEL HANFORD, INC. AW Gamma PrpRC5017 Pipet #: _____
 Bechtel Hanford, Inc. TA Gamma by HPGE **PRIORITY SEQUENTIAL**
 Report Due: 01/17/2003 **W03933** SI CLIENT: HANFORD Sep1 DT/Tm Tech: _____
 Batch: 2354473 OTHER SOLID pCi/g PM, Quote: BG2, 27038 Sep2 DT/Tm Tech: _____
 SEQ Batch, Test: None **FILTER** **(sa)** **Geo.** Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	QC Vial Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date
1 FE8Q0-1-AC J2L200205-1-SAMP			1.0sa,in	1.0sa		<i>12-20-02</i>	500	G6	<i>12/24 0416</i>	<i>12/23/2002</i>
12/18/2002 09:30	AmtRec: AIR FILTER	#Containers: 1							Scr Rst: Alpha: Beta:	
2 FE8Q8-1-AC J2L200205-2-SAMP			1.0sa,in	1.0sa			100	G2	<i>1842</i>	<i>1</i>
12/18/2002 09:31	AmtRec: AIR FILTER	#Containers: 1							Scr Rst: Alpha: Beta:	
3 FE8Q8-1-AK-X J2L200205-2-DUP			1.0sa,in	1.0sa				G1	<i>2027</i>	
12/18/2002 09:31	AmtRec: AIR FILTER	#Containers: 1							Scr Rst: Alpha: Beta:	
4 FE910-1-AA-B J2L200000-473-BLK			1.0sa,in	1.0sa			500	G2	<i>12/24 0416</i>	
<i>12-20-02</i> 12/18/2002 09:31	AmtRec:	#Containers: 1							Scr Rst: Alpha: Beta:	
5 FE910-1-AC-C J2L200000-473-LCS			1.0sa,in	1.0sa				G1	<i>12/24 0506</i>	
<i>11-21-94</i> 12/18/2002 09:31	AmtRec:	#Containers: 1							Scr Rst: Alpha: Beta:	<i>R</i>

12-20-02
 Comments: Reccd dup on different detectors. *12-20-02*

PRIORITY SEQUENTIAL

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

FE8Q01AC-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:

12/20/02 4:25:32 PM

Sample Preparation/Analysis

Balance Id:1120373922

AW Gamma PrpRC5017
 TA Gamma by HPGE
 51 CLIENT: HANFORD

PRIORITY SENSITIVE

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354473

pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	
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:						
FE9101AA-BLK:											
Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	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:						
FE9101AC-LCS:											

FE8Q01AC-SAMP Calc Info:

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

FE9101AA-BLK:

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

FE9101AC-LCS:

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

12/27/02 9:04:02 AM

ICOC Fraction Transfer/Status Report

ByDate: 11/27/02, 12/28/02, Batch: '2354473', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
	2354473				
AC		CalcC	WAGNERJ	12/20/02 4:22:44 PM	
SC			WagarR	IsBatched 12/20/02 2:55:50 PM	ICOC_RADCALC v4.5.3.2
SC			WAGNERJ	InPrep2 12/20/02 4:22:44 PM	RICH-RC-5017 REVISION 3
SC			WAGNERJ	Prep2C 12/20/02 4:32:31 PM	RICH-RC-5017 REVISION 3
SC			DAWKINSO	InCnt1 12/20/02 5:09:11 PM	RICH-RD-0007 REVISION 3
SC			BlackCL	CalcC 12/24/02 6:07:27 AM	RICH-RD-0007 REVISION 3
AC			WAGNERJ	12/20/02 4:32:31 PM	
AC			DAWKINSO	12/20/02 5:09:11 PM	
AC			BlackCL	12/24/02 6:07:27 AM	

AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.

1/16/03 4:14:33 PM

Sample Preparation/Analysis

Balance Id:1120373922 /ABS4-S

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

BA Gross Alpha PrpRC5016/5014
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354472 OTHER SOLID pCi/g sa. ²¹¹⁷⁰³ PM, Quote: BG2, 27038

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
1 FE8Q0-1-AA J2L200205-1-SAMP	0.1sa,in				1.5	2.5	100	10A	1316	1/16/2003
12/18/2002 09:30	AmtRec: AIR FILTER	#Containers: 1						Scr Rst:	Alpha:	Beta:
2 FE8Q8-1-AA J2L200205-2-SAMP	0.1sa,in				3.1			10B	1316	
12/18/2002 09:31	AmtRec: AIR FILTER	#Containers: 1						Scr Rst:	Alpha:	Beta:
3 FE91V-1-AA-B J2L200000-472-BLK	1.0sa,in				0.7			10C		
12/18/2002 09:31	AmtRec:	#Containers: 1						Scr Rst:	Alpha:	Beta:
4 FE91V-1-AC-C J2L200000-472-LCS	1.0sa,in		ASD1769 06/10/02 02/05/02,r		0.9			10D		
12/18/2002 09:31	AmtRec:	#Containers: 1						Scr Rst:	Alpha:	Beta:
5 FE91V-1-AD-C J2L200000-472-LCS	1.0sa,in		ASD2036 11/26/02 08/08/02,r		0.8			10E		
12/18/2002 09:31	AmtRec:	#Containers: 1						Scr Rst:	Alpha:	Beta:

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc. , BG2, 27038

FE8Q01AA-SAMP Constituent List:
ALPHA RDL:10 pCi/g LCL: UCL: RPD:20

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

1/16/03 4:14:34 PM

Sample Preparation/Analysis

Balance Id:1120373922

BA Gross Alpha PrpRC5016/5014
 S7 Gross Alpha by GPC using Am-241 curve
 5I CLIENT: HANFORD

Pipet #: _____

Report Due: 01/17/2003

Sep1 DT/Tm Tech:

Batch: 2354472

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
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FE91V1AA-BLK:

ALPHA RDL:10 pCi/g LCL: UCL: RPD:20

FE91V1AC-LCS:

FE91V1AD-LCS:

FE8Q01AA-SAMP Calc Info:

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

FE91V1AA-BLK:

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

FE91V1AC-LCS:

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

FE91V1AD-LCS:

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

1/20/2003 4:12:12 PM

ICOC Fraction Transfer/Status Report

ByDate: 12/21/2002, 1/21/2003, Batch: '2354472', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
2354472				
AC		CalcC	WAGNERJ 1/15/2003 2:12:23 PM	
SC		WagarR	IsBatched 12/20/2002 2:55:50 PM	ICOC_RADCALC v4.5.3.2
SC		WAGNERJ	InPrep2 1/15/2003 2:12:23 PM	RICH-RC-5016 REVISION 3
SC		WAGNERJ	InPrep2 1/15/2003 2:12:52 PM	RICH-RC-5014 REVISION 3
SC		WAGNERJ	Prep2C 1/17/2003 5:47:14 PM	RICH-RC-5014 REVISION 3
SC		DAWKINSO	inCnt1 1/17/2003 6:15:20 PM	RICH-RD-0003 REVISION 3
SC		BlackCL	CalcC 1/20/2003 1:29:16 PM	RICH-RD-0003 REVISION 3
AC		WAGNERJ	1/15/2003 2:12:52 PM	
AC		WAGNERJ	1/17/2003 5:47:14 PM	
AC		DAWKINSO	1/17/2003 6:15:20 PM	
AC		BlackCL	1/20/2003 1:29:16 PM	

AC: Accepting Entry; SC: Status Change

STL Richland
Richland Wa.

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