0057845 W03755

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 62 *Pages*

Report No.: 19465

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03755	B01-090	B14CX7	J2D110288-1	EXQ8N1AD	9EXQ8N10	2102321
		B14CX7	J2D110288-1	EXQ8N1AE	9EXQ8N10	2102322
		B14CX7	J2D110288-1	EXQ8N1AC	9EXQ8N10	2102323
		B14CX7	J2D110288-1	EXQ8N1AG	9EXQ8N10	2102324
		B14CX7	J2D110288-1	EXQ8N1AH	9EXQ8N10	2102325
		B14CX7	J2D110288-1	EXQ8N1AA	9EXQ8N10	2102326

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CERTIFICATE OF ANALYSIS

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

May 2, 2002

Attention: Joan Kessner

SAF Number	:	B01-090
Date SDG Closed	:	April 11, 2002
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W03755
Data Deliverable	:	21-Day / Summary

I. Introduction

On April 11, 2002, one soil sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

STLR ID#	BHI ID#	MATRIX	DATE OF RECEIPT
EXQ8N	B14CX7	SOIL	4/11/02

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-5080
Plutonium-238, -239/40 by method RICH-RC-5010
Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017
Gas Proportional Counting
Total Strontium by method RICH-RC-5006
Liquid Scintillation Counting
Nickel-63 by method RICH-RC-5069
Tritium by method RICH-RC-5037

III. Quality Control

The analytical results for each analysis performed under SDG W03755 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-5080:

The duplicate result does not agree with the sample result due to matrix effects. Except as noted, the LCS, matrix spike, matrix blank, batch blank, samples and sample duplicate (B14CX7) results are within contractual requirements.

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

The reagent blank tracer recovery failed. Since the reagent blank had acceptable yields, the batch results will be reported. Except as noted, the LCS, matrix spike, matirx blank, samples and sample duplicate (B14CX7) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017:

The sample and duplicate MDCs are greater than the CRDL but the Co-60 and Cs-137 concentrations are greater than their MDC and CRDL. The LCS, batch blank, samples and sample duplicate (B14CX7) results are within contractual requirements.

Gas Proportional Counting

Total Strontium by method RICH-RC-5006:

The LCS, batch blank, samples and sample duplicate (B14CX7) results are within contractual requirements.

Liquid Scintillation Counting

Nickel-63 by method RICH-RC-5069:

The LCS, batch blank, samples, sample matrix spike (B14CX7) and sample duplicate (B14CX7) results are within contractual requirements.

Tritium by method RICH-RC-5037:
The LCS, batch blank, samples and sample duplicate (B14CX7) 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 = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), 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) ***u_c - Combined Uncertainty.***	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, ***u_c the combined uncertainty.*** 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 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * 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 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * 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)/[sqrt($TPUs^2$ + $TPUd^2$)] 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

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 02-May-02

Report No. : 19465

SDG No: W03755

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
B14CX7	EXQ8N1AD	PU-238	5.91E-01 +- 5.3E-01	U	pCi/g	57.87%	5.97E-01	
		PU239/40	3.17E+00 +- 1.3E+00		pCi/g	57.87%	2.86E-01	
B14CX7	EXQ8N1AE	AM-241	1.42E+00 +- 8.6E-01		pCi/g	55.70%	4.79E-01	
B14CX7	EXQ8N1AC	NI-63	1.30E+01 +- 1.2E+01	U	pCi/g	86.32%	1.56E+01	
B14CX7	EXQ8N1AG	H-3	2.57E+00 +- 4.2E+00	U	pCi/g	100.00%	6.65E+00	
B14CX7	EXQ8N1AH	CO-60	1.37E+01 +- 1.6E+00		pCi/g		7.05E-02	
		CS-137	1.82E+02 +- 2.2E+01		pCi/g		1.43E-01	
		EU-152	1.31E-01 +- 3.1E-01	U	pCi/g		5.16E-01	
		EU-154	1.49E-01 +- 1.3E-01	U	pCi/g		2.28E-01	
		EU-155	3.00E-01 +- 3.7E-01	U	pCi/g		6.21E-01	
B14CX7	EXQ8N1AA	STRONTIUM	3.16E+03 +- 9.0E+02		pCi/g	88.40%	7.02E+00	
B14CX7 DUP	EXQ8N1AJ	PU-238	1.43E-01 +- 2.1E-01	U	pCi/g	79.07%	2.99E-01	
		PU239/40	2.79E+00 +- 1.0E+00		pCi/g	79.07%	4.19E-01	
B14CX7 DUP	EXQ8N1AK	AM-241	2.88E+00 +- 1.2E+00		pCi/g	63.12%	4.15E-01	
B14CX7 DUP	EXQ8N1AM	NI-63	1.03E+01 +- 1.0E+01	U	pCi/g	97.04%	1.42E+01	
B14CX7 DUP	EXQ8N1AN	H-3	1.62E+00 +- 4.1E+00	U	pCi/g	100.00%	6.64E+00	
B14CX7 DUP	EXQ8N1AP	CO-60	1.18E+01 +- 1.4E+00		pCi/g		5.87E-02	
		CS-137	1.60E+02 +- 1.9E+01		pCi/g		1.13E-01	
		EU-152	-1.30E-01 +- 2.3E-01	U	pCi/g		3.81E-01	
		EU-154	2.46E-01 +- 1.1E-01	U	pCi/g		1.94E-01	
		EU-155	1.16E-01 +- 2.3E-01	U	pCi/g		3.68E-01	
B14CX7 DUP	EXQ8N1AQ	STRONTIUM	3.13E+03 +- 8.9E+02		pCi/g	89.20%	7.34E+00	

Number of Results: 22

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RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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
STL Richland STLRL
Ordered by QC Type, Batch No.

Date: 02-May-02

Report No. : 19465

SDG No.: W03755

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
MATRIX SPI	EXQ8N1AL	NI-63	1.32E+03 +- 1.0E+02		pCi/g	85.36%	106.44%	0.1	1.57E+01
BLANK QC	EXTK41AA	PU-238	0.00E+00 +- 1.4E-01	U	pCi/g	5.55%			1.52E-01
		PU239/40	-8.96E-03 +- 1.3E-02	U	pCi/g	5.55%			2.56E-01
BLANK QC	EXTK41AD	PU-238	-4.17E-04 +- 8.4E-04	U	pCi/g	64.65%			2.10E-02
		PU239/40	2.00E-02 +- 2.1E-02	U	pCi/g	64.65%			2.38E-02
BLANK QC	EXTK61AA	AM-241	5.02E-02 +- 5.1E-02	U	pCi/g	26.49%			3.40E-02
BLANK QC	EXTK91AA	NI-63	3.49E-01 +- 4.2E+00	U	pCi/g	92.26%			6.12E+00
BLANK QC	EXTLC1AA	H-3	1.87E-01 +- 2.2E-01	U	pCi/g	100.00%			3.32E-01
BLANK QC	EXTLK1AA	CO-60	6.33E-03 +- 1.9E-02	U	pCi/g				3.33E-02
		CS-137	-3.17E-03 +- 1.5E-02	U	pCi/g				2.59E-02
		EU-152	-4.76E-03 +- 4.2E-02	U	pCi/g				7.03E-02
		EU-154	2.83E-02 +- 5.1E-02	U	pCi/g				9.26E-02
		EU-155	-1.06E-03 +- 2.7E-02	U	pCi/g				4.57E-02
BLANK QC	EXTLQ1AA	STRONTIUM	3.14E-02 +- 5.4E-02	U	pCi/g	94.40%			1.18E-01
LCS	EXTK41AC	PU239/40	3.59E+00 +- 7.5E-01		pCi/g	34.86%	104.67%	0.0	4.69E-02
LCS	EXTK41AE	PU239/40	3.33E+00 +- 6.2E-01		pCi/g	57.84%	98.75%	0.0	2.66E-02
LCS	EXTK61AC	AM-241	3.62E+00 +- 6.7E-01		pCi/g	74.73%	79.95%	-0.2	1.18E-02
LCS	EXTK91AC	NI-63	5.11E+02 +- 3.9E+01		pCi/g	89.99%	100.88%	0.0	6.10E+00
LCS	EXTLC1AC	H-3	1.30E+00 +- 3.2E-01		pCi/g	100.00%	93.35%	-0.1	3.47E-01
LCS	EXTLK1AC	CS-137	9.50E-01 +- 1.5E-01		pCi/g		101.72%	0.0	7.06E-02
		RA-226	2.00E+00 +- 2.8E-01		pCi/g		93.44%	-0.1	1.24E-01
LCS	EXTLQ1AC	STRONTIUM	9.44E-01 +- 2.9E-01		pCi/g	94.60%	82.14%	-0.2	1.14E-01

Number of Results: 22

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

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 I

SAMPLE RESULTS

Date: 02-May-02

Lab Name:	STL Richland	SDG:	W03755	Collection Date:	4/8/2002 8:15:00 AM
Lot-Sample No.:	J2D110288-1	Report No. :	19465	Received Date:	4/11/2002 2:55:00 PM
Client Sample ID:	B14CX7	COC No. :		Matrix:	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102321	Work Order: EXQ8N1AD			Report DB ID: 9EXQ8N10								
PU-238	5.91E-01	U	5.2E-01	5.3E-01	5.97E-01	pCi/g	57.87%	0.99	5/1/02 01:13 p		0.1015	PUISO_PLATE_AEA
						1.55E-01	1.00E+00	(2.2)			G	ALP37
PU239/40	3.17E+00		1.2E+00	1.3E+00	2.86E-01	pCi/g	57.87%	(11.1)	5/1/02 01:13 p		0.1015	PUISO_PLATE_AEA
							1.00E+00	(5.)			G	ALP37
Batch: 2102322	Work Order: EXQ8N1AE			Report DB ID: 9EXQ8N10								
AM-241	1.42E+00		8.2E-01	8.6E-01	4.79E-01	pCi/g	55.70%	(3.)	5/2/02 08:10 a		0.1015	AMCMISO_EIE_PLT_
						7.83E-02	1.00E+00	(3.3)			G	ALP127
Batch: 2102323	Work Order: EXQ8N1AC			Report DB ID: 9EXQ8N10								
NI-63	1.30E+01	U	6.8E+00	1.2E+01	1.56E+01	pCi/g	86.32%	0.83	4/29/02 03:52 p		0.1021	NI63LSC
						7.55E+00	3.00E+01	(2.2)			G	LSC6
Batch: 2102324	Work Order: EXQ8N1AG			Report DB ID: 9EXQ8N10								
H-3	2.57E+00	U	2.8E+00	4.2E+00	6.65E+00	pCi/g	100.00%	0.39	4/24/02 07:16 a		1.002	906.0_H3_LSC
						3.05E+00	4.00E+02	(1.2)			G	LSC3
Batch: 2102325	Work Order: EXQ8N1AH			Report DB ID: 9EXQ8N10								
CO-60	1.37E+01		1.6E+00	1.6E+00	7.05E-02	pCi/g		(193.7)	4/29/02 10:52 a		53.4	GAMMA_GS
							5.00E-02	(16.7)			g	GER3$1
CS-137	1.82E+02		2.2E+01	2.2E+01	1.43E-01	pCi/g		(1272.8)	4/29/02 10:52 a		53.4	GAMMA_GS
							1.00E-01	(16.9)			g	GER3$1
EU-152	1.31E-01	U	3.1E-01	3.1E-01	5.16E-01	pCi/g		0.25	4/29/02 10:52 a		53.4	GAMMA_GS
							1.00E-01	0.84			g	GER3$1

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rptSTLRchSample V3.85 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 I

SAMPLE RESULTS

Date: 02-May-02

Lab Name:	STL Richland	**SDG:**	W03755	**Collection Date:**	4/8/2002 8:15:00 AM
Lot-Sample No.:	J2D110288-1	**Report No. :**	19465	**Received Date:**	4/11/2002 2:55:00 PM
Client Sample ID:	B14CX7	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
EU-154	1.49E-01	U	1.3E-01	1.3E-01	2.28E-01	pCi/g		*0.65*	4/29/02 10:52 a		53.4	GAMMA_GS
							1.00E-01	*(2.3)*			g	GER3$1
EU-155	3.00E-01	U	3.7E-01	3.7E-01	6.21E-01	pCi/g		*0.48*	4/29/02 10:52 a		53.4	GAMMA_GS
							1.00E-01	*(1.6)*			g	GER3$1
Batch: 2102326	**Work Order:** EXQ8N1AA			**Report DB ID:** 9EXQ8N10								
STRONTIUM	3.16E+03		5.0E+01	9.0E+02	7.02E+00	pCi/g	88.40%	*(450.2)*	4/26/02 08:10 p		0.1015	SRTOT_SEP_PRECIP
						3.24E+00		*(7.)*			G	GPC28A

Number of Results: 11

Comments:

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.

STL RICHLAND

FORM II

Date: 02-May-02

DUPLICATE RESULTS

Lab Name:	STL Richland	SDG:	W03755	Collection Date:	4/8/2002 8:15:00 AM
Lot-Sample No.:	J2D110288-1	Report No. :	19465	Received Date:	4/11/2002 2:55:00 PM
Client Sample ID:	B14CX7 DUP	COC No. :		Matrix:	SOIL

Parameter	Result, Orig Rsl	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, CRDL	Yield	Rsl/MDC, Rsl/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102321	Work Order: EXQ8N1AJ			Report DB ID: EXQ8N1JR		Orig Sa DB ID: 9EXQ8N10						
PU-238	1.43E-01	U	2.1E-01	2.1E-01	2.99E-01	pCi/g	79.07%	0.48	5/1/02 01:13 p		0.1003	PUISO_PLATE_AEA
	5.91E-01	RER	1.6			1.00E+00		(1.3)			G	ALP38
PU239/40	2.79E+00		9.2E-01	1.0E+00	4.19E-01	pCi/g	79.07%	(6.7)	5/1/02 01:13 p		0.1003	PUISO_PLATE_AEA
	3.17E+00	RER	0.5			1.00E+00		(5.5)			G	ALP38
										Alpha Spec Result Sum = 2.9E+00		
Batch: 2102322	Work Order: EXQ8N1AK			Report DB ID: EXQ8N1KR		Orig Sa DB ID: 9EXQ8N10						
AM-241	2.88E+00		1.1E+00	1.2E+00	4.15E-01	pCi/g	63.12%	(6.9)	5/2/02 08:10 a		0.1003	AMCMISO_EIE_PLT_
	1.42E+00	RER	2.0			1.00E+00		(4.8)			G	ALP128
										Alpha Spec Result Sum = 5.8E+00		
Batch: 2102323	Work Order: EXQ8N1AM			Report DB ID: EXQ8N1MR		Orig Sa DB ID: 9EXQ8N10						
NI-63	1.03E+01	U	6.1E+00	1.0E+01	1.42E+01	pCi/g	97.04%	0.73	4/29/02 07:16 p		0.0994	NI63LSC
	1.30E+01	RER	0.3			3.00E+01		(2.)			G	LSC6
										Alpha Spec Result Sum = 5.8E+00		
Batch: 2102324	Work Order: EXQ8N1AN			Report DB ID: EXQ8N1NR		Orig Sa DB ID: 9EXQ8N10						
H-3	1.62E+00	U	2.7E+00	4.1E+00	6.64E+00	pCi/g	100.00%	0.24	4/24/02 07:58 a		1.001	906.0_H3_LSC
	2.57E+00	RER	0.3			4.00E+02		0.79			G	LSC3
										Alpha Spec Result Sum = 5.8E+00		
Batch: 2102325	Work Order: EXQ8N1AP			Report DB ID: EXQ8N1PR		Orig Sa DB ID: 9EXQ8N10						
CO-60	1.18E+01		1.4E+00	1.4E+00	5.87E-02	pCi/g		(200.7)	4/29/02 10:53 a		53.1	GAMMA_GS
	1.37E+01	RER	1.7			5.00E-02		(16.7)			g	GER6$1
CS-137	1.60E+02		1.9E+01	1.9E+01	1.13E-01	pCi/g		(1413.4)	4/29/02 10:53 a		53.1	GAMMA_GS
	1.82E+02	RER	1.6			1.00E-01		(16.9)			g	GER6$1
EU-152	-1.30E-01	U	2.3E-01	2.3E-01	3.81E-01	pCi/g		-0.34	4/29/02 10:53 a		53.1	GAMMA_GS
	1.31E-01	RER	1.3			1.00E-01		-(1.1)			g	GER6$1

STL Richland

rptSTLRchDupV3.85 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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.

STL RICHLAND

FORM II

Date: 02-May-02

DUPLICATE RESULTS

Lab Name:	STL Richland	SDG:	W03755	Collection Date:	4/8/2002 8:15:00 AM
Lot-Sample No.:	J2D110288-1	Report No. :	19465	Received Date:	4/11/2002 2:55:00 PM
Client Sample ID:	B14CX7 DUP	COC No. :		Matrix:	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
EU-154	2.46E-01	U	1.1E-01	1.1E-01	1.94E-01	pCi/g		(1.3)	4/29/02 10:53 a		53.1	GAMMA_GS
	1.49E-01	RER	1.1			1.00E-01		(4.5)			g	GER6$1
EU-155	1.16E-01	U	2.3E-01	2.3E-01	3.68E-01	pCi/g		0.32	4/29/02 10:53 a		53.1	GAMMA_GS
	3.00E-01	RER	0.8			1.00E-01		(1.)			g	GER6$1
Batch: 2102326	Work Order: EXQ8N1AQ			Report DB ID: EXQ8N1QR		Orig Sa DB ID: 9EXQ8N10						
STRONTIUM	3.13E+03		5.0E+01	8.9E+02	7.34E+00	pCi/g	89.20%	(426.2)	4/26/02 08:10 p		0.0997	SRTOT_SEP_PRECIP
	3.16E+03	RER	0.1					(7.)			G	GPC28B

Number of Results: 11

Comments:

STL Richland

rptSTLRchDupV3.85 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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.

STL RICHLAND

FORM II

BLANK RESULTS

Date: 02-May-02

Lab Name: STL Richland **SDG:** W03755

Lot-Sample No.: J2D120000-321 **Report No. :** 19465 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102321	Work Order: EXTK41AA			Report DB ID: EXTK41AB								
PU-238	0.00E+00	U	0.0E+00	1.4E-01	1.52E-01	pCi/g	5.55%	0.	5/1/02 01:14 p		2.0	PUISO_PLATE_AEA
						1.00E+00		0.			G	ALP39
PU239/40	-8.96E-03	U	1.3E-02	1.3E-02	2.56E-01	pCi/g	5.55%	-0.04	5/1/02 01:14 p		2.0	PUISO_PLATE_AEA
					5.21E-02	1.00E+00		-(1.4)			G	ALP39
Batch: 2102321	Work Order: EXTK41AD			Report DB ID: EXTK41DX								
PU-238	-4.17E-04	U	8.3E-04	8.4E-04	2.10E-02	pCi/g	64.65%	-0.02	5/1/02 01:14 p		2.02	PUISO_PLATE_AEA
					3.43E-03	1.00E+00		-1.			G	ALP123
PU239/40	2.00E-02	U	2.1E-02	2.1E-02	2.38E-02	pCi/g	64.65%	0.84	5/1/02 01:14 p		2.02	PUISO_PLATE_AEA
					4.85E-03	1.00E+00		(1.9)			G	ALP123

Number of Results: 4

Comments:

STL Richland
rptSTLRchBlank V3.85 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.

STL RICHLAND

FORM II

BLANK RESULTS

Date: 02-May-02

Lab Name: STL Richland

SDG: W03755

Lot-Sample No.: J2D120000-322

Report No. : 19465

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102322	Work Order: EXTK61AA			Report DB ID: EXTK61AB								
AM-241	5.02E-02	U	5.0E-02	5.1E-02	3.40E-02	pCi/g	26.49%	(1.5)	5/2/02 08:11 a		2.0	AMCMISO_EIE_PLT_
						1.00E+00		(2.)			G	ALP129

Number of Results: 1

Comments:

STL Richland

rptSTLRchBlank V3.85 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.

STL RICHLAND

FORM II

BLANK RESULTS

Date: 02-May-02

Lab Name: STL Richland **SDG:** W03755

Lot-Sample No.: J2D120000-323 **Report No. :** 19465 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102323	Work Order: EXTK91AA			Report DB ID: EXTK91AB								
NI-63	3.49E-01	U	2.5E+00	4.2E+00	6.12E+00	pCi/g	92.26%	0.06	4/29/02 08:58 p		0.25	NI63LSC
					2.97E+00	3.00E+01		0.17			G	LSC6

Number of Results: 1

Comments:

STL Richland

rptSTLRchBlank V3.85 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.

STL RICHLAND

FORM II

BLANK RESULTS

Date: 02-May-02

Lab Name: STL Richland

SDG: W03755

Lot-Sample No.: J2D120000-324

Report No. : 19465

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102324	Work Order:	EXTLC1AA		Report DB ID:	EXTLC1AB							
H-3	1.87E-01	U	1.4E-01	2.2E-01	3.32E-01	pCi/g	100.00%	0.56	4/24/02 05:52 a		10.0	906.0_H3_LSC
					1.52E-01	4.00E+02		(1.7)			G	LSC3

Number of Results: 1

Comments:

STL Richland

rptSTLRchBlank V3.85 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: 02-May-02

Lab Name: STL Richland **SDG:** W03755

Lot-Sample No.: J2D120000-325 **Report No. :** 19465 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102325	Work Order: EXTLK1AA			Report DB ID: EXTLK1AX								
CO-60	6.33E-03	U	1.9E-02	1.9E-02	3.33E-02	pCi/g		0.19	4/29/02 10:53 a		52.0	GAMMA_GS
						5.00E-02		0.68			g	GER8$1
CS-137	-3.17E-03	U	1.5E-02	1.5E-02	2.59E-02	pCi/g		-0.12	4/29/02 10:53 a		52.0	GAMMA_GS
						1.00E-01		-0.42			g	GER8$1
EU-152	-4.76E-03	U	4.2E-02	4.2E-02	7.03E-02	pCi/g		-0.07	4/29/02 10:53 a		52.0	GAMMA_GS
						1.00E-01		-0.23			g	GER8$1
EU-154	2.83E-02	U	5.1E-02	5.1E-02	9.26E-02	pCi/g		0.31	4/29/02 10:53 a		52.0	GAMMA_GS
						1.00E-01		(1.1)			g	GER8$1
EU-155	-1.06E-03	U	2.7E-02	2.7E-02	4.57E-02	pCi/g		-0.02	4/29/02 10:53 a		52.0	GAMMA_GS
						1.00E-01		-0.08			g	GER8$1

Number of Results: 5

Comments:

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: 02-May-02

Lab Name: STL Richland SDG: W03755

Lot-Sample No.: J2D120000-326 Report No. : 19465 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rsl/MDC, Rsl/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2102326	Work Order:	EXTLQ1AA		Report DB ID:	EXTLQ1AB							
STRONTIUM	3.14E-02	U	5.3E-02	5.4E-02	1.18E-01	pCi/g	94.40%	0.27	4/26/02 08:10 p		6.0	SRTOT_SEP_PRECIP
					5.47E-02			(1.2)			G	GPC28C

Number of Results: 1

Comments:

STL Richland

rptSTLRchBlank V3.85 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

LCS RESULTS

Date: 02-May-02

Lab Name: STL Richland

SDG: W03755

Lot-Sample No.: J2D120000-321

Report No. : 19465

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2102321	Work Order: EXTK41AC			Report DB ID: EXTK41CS									
PU239/40	3.59E+00		3.6E-01	7.5E-01	4.69E-02	pCi/g	34.86%	3.43E+00	1.1E-01	104.67%	5/1/02 01:14 p	2.0	PUISO_PLATE_AEA
							Rec Limits:	70.	130.	0.0		G	ALP41
Batch: 2102321	Work Order: EXTK41AE			Report DB ID: EXTK41EM									
PU239/40	3.33E+00		2.8E-01	6.2E-01	2.66E-02	pCi/g	57.84%	3.38E+00	1.0E-01	98.75%	5/1/02 01:15 p	2.01	PUISO_PLATE_AEA
							Rec Limits:	70.	130.	0.0		G	ALP124

Number of Results: 2

Comments:

STL RICHLAND

FORM II

LCS RESULTS

Date: 02-May-02

Lab Name: STL Richland **SDG:** W03755

Lot-Sample No.: J2D120000-322 **Report No. :** 19465 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2102322	Work Order: EXTK61AC			Report DB ID: EXTK61CS									
AM-241	3.62E+00		2.5E-01	6.7E-01	1.18E-02	pCi/g	74.73%	4.52E+00	1.3E-01	79.95%	5/2/02 08:11 a	2.0	AMCMISO_EIE_PLT_
							Rec Limits:	70.	130.	-0.2		G	ALP130

Number of Results: 1

Comments:

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

STL RICHLAND

FORM II

LCS RESULTS

Date: 02-May-02

Lab Name: STL Richland

SDG: W03755

Lot-Sample No.: J2D120000-323

Report No. : 19465

Matrix: SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2102323	Work Order: EXTK91AC			Report DB ID: EXTK91CS									
NI-63	5.11E+02		8.6E+00	3.9E+01	6.10E+00	pCi/g	89.99%	5.07E+02	1.7E+01	100.88%	4/29/02 10:40 p	0.25	NI63LSC
							Rec Limits:	70.	130.	0.0		G	LSC6

Number of Results: 1

Comments:

STL Richland

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

rptSTLRchLcs V3.85 A97

STL RICHLAND

FORM II

LCS RESULTS

Date: 02-May-02

Lab Name: STL Richland

SDG: W03755

Lot-Sample No.: J2D120000-324

Report No. : 19465

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2102324	Work Order: EXTLC1AC			Report DB ID: EXTLC1CS									
H-3	1.30E+00		2.1E-01	3.2E-01	3.47E-01	pCi/g	100.00%	1.39E+00	4.8E-02	93.35%	4/24/02 06:34 a	10.0	906.0_H3_LSC
							Rec Limits:	70.	130.	-0.1		G	LSC3

Number of Results: 1

Comments:

STL Richland

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

rptSTLRchLcs V3.85 A97

FORM II

LCS RESULTS

Date: 02-May-02

Lab Name: STL Richland

SDG: W03755

Lot-Sample No.: J2D120000-325

Report No. : 19465

Matrix: SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2102325	Work Order: EXTLK1AC			Report DB ID: EXTLK1CM									
CS-137	9.50E-01		1.5E-01	1.5E-01	7.06E-02	pCi/g		9.34E-01	1.0E+00	101.72%	4/30/02 10:15 a	26.61	GAMMA_GS
							Rec Limits:	70.	130.	0.0		g	GER7$1
RA-226	2.00E+00		2.8E-01	2.8E-01	1.24E-01	pCi/g		2.14E+00	2.5E+00	93.44%	4/30/02 10:15 a	26.61	GAMMA_GS
							Rec Limits:	70.	130.	-0.1		g	GER7$1

Number of Results: 2

Comments:

STL Richland

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

rptSTLRchLcs V3.85 A97

STL RICHLAND

FORM II

LCS RESULTS

Date: 02-May-02

Lab Name: STL Richland **SDG:** W03755

Lot-Sample No.: J2D120000-326 **Report No. :** 19465 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2102326	Work Order: EXTLQ1AC			Report DB ID: EXTLQ1CS									
STRONTIUM	9.44E-01		1.2E-01	2.9E-01	1.14E-01	pCi/g	94.60%	1.15E+00	1.4E-02	82.14%	4/26/02 08:10 p	6.0	SRTOT_SEP_PRECIP
							Rec Limits:	70.	130.	-0.2		G	GPC28D

Number of Results: 1

Comments:

FORM II

MATRIX SPIKE RESULTS

Date: 02-May-02

Lab Name: STL Richland SDG: W03755

Lot-Sample No.: J2D110288-1 Report No. : 19465 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	Analy Method, Primary Detector
Batch: 2102323	Work Order: EXQ8N1AL			Report DB ID: EXQ8N1LW			Orig Sa DB ID: 9EXQ8N10						
NI-63	1.32E+03		2.2E+01	1.0E+02	1.57E+01	pCi/g	85.36%	106.44%	1.24E+03	4.2E+01	4/29/02 05:34 p	0.1024	NI63LSC
	1.30E+01	RER	25.6									G	LSC6

Number of Results: 1

Comments:

STL Richland
rptSTLRchMs V3.85 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2D 110 288
Client ID: BH1
Due Date: 5/2/02
QC Batch Number: 2102322
Method Test Parameter: SX Am
Matrix: Soil
SDG Number: NA

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?	✓		

Comments on any "No" response: Dups out - possible matrix effect (soil)
J05416

First Level Review: Pam Richmond Date: 5-2-02

LS-038A, Rev. 8, 8/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number 2102322

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
C. QC Samples 1. Is the blank yield within acceptance criteria?	✓		
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
3. Does the blank result meet the Contract criteria?	✓		
4. Is the blank result < the Contract Detection Limit?	✓		
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
6. Is the LCS result within acceptance criteria?	✓		
7. Is the LCS yield within acceptance criteria?	✓		
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
9. Do the MS/MSD results and yields meet acceptance criteria?	✓		✓ BMO
10. Do the duplicate sample results and yields meet acceptance criteria?		✓	
D. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Were units checked?	✓		

Comments on any "No" response: Blank result > MDA

Second Level Review: [signature] Date: 5/2/02

LS-013B, Rev.0, 09/01
STL RICHLAND

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J05416	Classification:	Anomaly
NCM Initiated By:	Pam Anderson	Status:	QAREVIEW
Date Opened:	05/02/02	Production Area:	Environmental - Sep
Date Closed:	N/A	Tests:	AmIso by ALP
		Lot #'s (Sample #'s):	J2D110288 (1)
		QC Batch:	2102322
Nonconformance:	Dups not within acceptance limits		
Subcategory:	Matrix effect		

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	05/02/02	Soil matrix effect.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	05/02/02	Note in case narrative.

Approval History

Name	Date Approved:	Position
Pam Anderson	05/02/02	

SEVERN TRENT SERVICES

P

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2D110288
Client ID: PGW
Due Date: 5/2/02
QC Batch Number: 210 2321
Method Test Parameter: 90 Pu 1+0
Matrix: soil
SDG Number: NA W03755

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?	✓		

Comments on any "No" response: 1. Water blank fails (5.5% yield) - matrix blank acceptable
2. Tech noted rinse from water spike poured into water blank, but doesn't matter water blank fails anyway J05415

First Level Review: Pam Anderson Date: 5-2-02

LS-038A, Rev. 8, 8/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: _____

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
C. QC Samples 1. Is the blank yield within acceptance criteria?	✓		
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
3. Does the blank result meet the Contract criteria?	✓		
4. Is the blank result < the Contract Detection Limit?	✓		
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
6. Is the LCS result within acceptance criteria?	✓		
7. Is the LCS yield within acceptance criteria?	✓		
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
9. Do the MS/MSD results and yields meet acceptance criteria?	✓		
10. Do the duplicate sample results and yields meet acceptance criteria?	✓		
D. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [illegible] Date: 5/2/02

LS-033B, Rev.0, 09/01
STL RICHLAND

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J05415	Classification:	Anomaly
NCM Initiated By:	Pam Anderson	Status:	QAREVIEW
Date Opened:	05/02/02	Production Area:	Environmental - Sep
Date Closed:	N/A	Tests:	Pulso by ALP
		Lot #'s (Sample #'s):	J2D110288 (1); J2D120000 (321)
		QC Batch:	2102321
Nonconformance:	Tracer yield out of limits		
Subcategory:	Unknown		

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	05/02/02	Reagent blank failed with low yield, 5.5%. Will report matrix blank. 2. Tech noted on paperwork the rinse from the reagent spike was added to the reagent blank. This is not a problem because the reagent blank failed anyway.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	05/02/02	None at this time.

Approval History

Name	Date Approved:	Position
Pam Anderson	05/02/02	

Date Printed: 05/02/02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2D110288
Client ID: BHI
Due Date: 5-2-02
QC Batch Number: 2102525
Method Test Parameter: Gamma
Matrix: Soil
SDG Number: W03755

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? J05406	✓		
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?	✓		

Comments on any "No" response: Am241 also detected in samples

First Level Review: [signature] Date: 5-1-02

LS-038A, Rev. 8, 8/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2102325

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?		✓	
C. QC Samples 1. Is the blank yield within acceptance criteria?			✓
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
3. Does the blank result meet the Contract criteria?	✓		
4. Is the blank result < the Contract Detection Limit?	✓		
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
6. Is the LCS result within acceptance criteria?	✓		
7. Is the LCS yield within acceptance criteria?			✓
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
9. Do the MS/MSD results and yields meet acceptance criteria?			✓
10. Do the duplicate sample results and yields meet acceptance criteria?	✓		
D. Other 1. Are all Nonconformances included and noted?	✓		BnD
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 5/2/02

LS-038B, Rev.9, 09/01

STL RICHLAND

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

P

Lot Number: J2D110288
Client ID: BHF
Due Date: 5/2/02
QC Batch Number: 210288
Method Test Parameter: TH TSR
Matrix: Soil
SDG Number: W03755

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?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 4-29-02

LS-038A, Rev. 8, 8/01

STL RICHLAND

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2/02 3 26

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?		✓	
C. QC Samples 1. Is the blank yield within acceptance criteria?	✓		
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
3. Does the blank result meet the Contract criteria?	✓		
4. Is the blank result < the Contract Detection Limit?	✓		
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
6. Is the LCS result within acceptance criteria?			
7. Is the LCS yield within acceptance criteria?			
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
9. Do the MS/MSD results and yields meet acceptance criteria?			✓
10. Do the duplicate sample results and yields meet acceptance criteria?	✓		
D. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 4/28/02

LS-038B, Rev.9, 09/01

STL RICHLAND

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

P

Lot Number: J2D110288
Client ID: BHI
Due Date: 5/2/02
QC Batch Number: 2102323
Method Test Parameter: SY-NT-63
Matrix: Sol.
SDG Number: W13755

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?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 4-30-02

LS-038A, Rev. 8, 8/01

STL RICHLAND

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: _____

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
C. QC Samples 1. Is the blank yield within acceptance criteria?	✓		
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
3. Does the blank result meet the Contract criteria?	✓		
4. Is the blank result < the Contract Detection Limit?	✓		
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
6. Is the LCS result within acceptance criteria?	✓		
7. Is the LCS yield within acceptance criteria?	✓		
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?			
9. Do the MS/MSD results and yields meet acceptance criteria?	✓		
10. Do the duplicate sample results and yields meet acceptance criteria?	✓		
D. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 4/30/02

LS-038B, Rev.9, 09/01

STL RICHLAND

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

P

Lot Number: J2D110288
Client ID: BHI
Due Date: 5/2/02
QC Batch Number: 2102324
Method Test Parameter: Sr-H3
Matrix: Soil
SDG Number: AFW03755
4-25-02

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?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 4-25-02

LS-038A, Rev. 8, 8/01

STL RICHLAND

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2102324

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
C. QC Samples 1. Is the blank yield within acceptance criteria?			✓
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
3. Does the blank result meet the Contract criteria?	✓		
4. Is the blank result < the Contract Detection Limit?	✓		
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
6. Is the LCS result within acceptance criteria?	✓		
7. Is the LCS yield within acceptance criteria?			✓
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
9. Do the MS/MSD results and yields meet acceptance criteria?			✓
10. Do the duplicate sample results and yields meet acceptance criteria?	✓		
D. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 4/25/02

CHAIN OF CUSTODY

Q-27038

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-090-018	Page 1 of 1

Collector: R Kerkow	Company Contact: R Kerkow — Telephone No.: 509-372-2187	Project Coordinator: TRENT, SJ	Price Code: 8D — Data Turnaround: 21 Days/21
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-3 Crib DZ Verification	SAF No.: B01-090	Air Quality ☐
Ice Chest No.: ERC 01-061	Field Logbook No.: EL-1524-1 — COA: R1325N2600	Method of Shipment: ~~FED EX~~ 4/11/02 GOV. VEHICLE	
Shipped To: Severn Trent Incorporated, Richland	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: RSA # 106933	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive

Special Handling and/or Storage
None

Preservation	None	Cool 4C	None								
Type of Container	P	G	~~P~~ Or								
No. of Container(s)	1	1	1								
Volume	20mL	120mL	~~1000mL~~ 120mL								

SDG W03755 Due 5-2

SAMPLE ANALYSIS: J2D110288

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	NO2/NO3 - 353.1	See Item (1) in Special Instructions							
B14CX7 EQ EXQ8N	SOIL	4-8-02	0815	X	X	X							DZ-02S

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
~~RK 4-8-02 STORED IN IC~~	~~4-8-02~~ 1530	~~RB Kerkow~~	~~4-8-02~~ 1530
RB Kerkow	4-8-02 1530	~~RK 4-8-02 STORED IN REF IC~~	~~4-8-02~~ 1530
Ref IC 4-11-02	0900	Doug Bowers	4-11-02 0900
Doug Bowers	4-11-02 0900	~~Fed Ex~~ 4/11/02 SIGALE	4/11/02 0950
ERC SIGALE	4/11/02 1455	~~SRI~~ 12000 CPM A. Rhinehart	4-11-02 1455

SPECIAL INSTRUCTIONS
Lab COA: R1325N-2F00
(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Isotopic Plutonium (Plutonium-239/240); Americium-241; Strontium-89,90 – Total Sr; Nickel-63; Tritium - H3

Personnel not available to relinquish samples from the 3728 Ref # IC on 4/11/02

Matrix *
S=Soil
SD=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (10/99)

STL RICHLAND

ERC Radiological Counting Facility Analysis Report

RCF Number RCF10148 **Sample Date & Time** 4/1/2002 1035

Project ID: 116-N-3 **SAF Number:** B00-054 **Date Analyzed** 4/2/2002 12:14

Sample ID: B14CN7

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40		7.8E+00	+/-	2.8E+00	2.2E+00
Co-60		1.4E+01	+/-	1.0E+00	3.1E-01
Cs-137		2.9E+02	+/-	1.7E+01	6.2E-01
Eu-152	<	2.3E+00			2.3E+00
Eu-154	<	7.6E-01			7.6E-01
Eu-155	<	2.3E+00			2.3E+00
U-235	<	4.6E+00			4.6E+00
Am-241	<	1.9E+00			1.9E+00

ADD:

Sr-90 3.2×10^3

ETA $3.5 \times 10^3 - Cs^{137}\ 2.9 \times 10^2$

$= Sr\text{-}90\ 3.2 \times 10^3$

TIE TO:

~~B13V29~~

B14CX7

~~B14CM4~~

B14CN4

Total GEA (pCi/g)	3.1E+02	+/-	2.1E+01

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	4.6E+01	+/-	2.7E+00	1.6E+01	
Gross Beta	3.5E+03	+/-	4.9E+01		1.8E+03

$3000 - 300 - 2700 = Sr^{90}$

Definitions:

All errors reported at 2 standard deviations.
N/R = no result or analysis not requested. <MDC = Less than detection limit.
All GEA results reported as "<" for the Minimum Detectable Concentration (MDC) value for that radionuclide.
Rounding error may result in the reported total GEA activity differing from the sum of the > MDC GEA values in the second significant digit.

For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.
The analysis of Np-237 is based on the activity of Pa-233.
U-238dau is the activity of Pb-214 and Bi-214, short lived daughter products of U-238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.
Th-232dau is the activity of Ac-228, Pb-212, and Tl-208, short lived daughter products of Th-232. Equilibrium between parent and daughter products may not exist in disturbed materials.
Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.
**The gross alpha results are not corrected for mass absorbtion
No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Analyst C. W. Lander 4/3/2002

Report To	Fax
Richard Karkow	372-8655
Joan Kessner	372-9487

Report Printed: Wednesday, April 03, 2002

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STL RICHLAND

RADIOACTIVE SHIPMENT RECORD

N 28 4-11-02 106933 106653 3.

Page 1 of 2

1. SHIP FROM U.S. DEPT. OF ENERGY C/O
Company: Bechtel Hanford Inc.
Address: 3728 Building, 300 Area
City, State, Zip: Richland, Wa 99352
Contact: Stuart (Jeff) Gale
Phone: 509-375-9439

4. Ship: [X] Prepaid [ ] Collect
Via: [X] Motor [X] Air Psgr [ ] UPS [ ] Rail [ ] Air Cargo [ ] Site Carrier
SHIPMENT AUTHORIZATION NUMBER

2. SHIP TO
Company: Severn Trent Lab. Inc.
Address: 2800 George Washington Way
City, State, Zip: Richland, Wa 99352
Attention: Barb Gillespie
Phone: 509-375-3131

Markings Applied 6.
- [ ] Radioactive - LSA
- [ ] Radioactive - SCO
- [ ] Type A
- [ ] Type B with trefoil

LSA Description 8.
- [ ] LSA-I
- [ ] LSA-II
- [ ] LSA-III
- [ ] SCO-I
- [ ] SCO-II

Labels Applied 10.
- [ ] Empty
- [ ] Radioactive White - I
- [ ] Radioactive Yellow - II
- [ ] Radioactive Yellow - III
- [ ] Subsidiary Hazard

7. For Normal Form only
Identify
Physical Form: [ ] Liquid [ ] Gas [X] Solid soil
Chemical Form: [X] Elemental [ ] Metal [ ] Nitrate [ ] Oxide [ ] Mixture [ ] Other

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
- [X] Excepted Package Statement

5. HM Proper Shipping Name: _____ Radioactive Material,

	excepted package - empty packaging	7	UN2910
	excepted package - instruments or articles	7	UN2910
X	excepted package - limited quantity of material	7	UN2910
	excepted package - articles manufactured from natural or depleted uranium or natural thorium	7	UN2910
	Special Form, n.o.s.	7	UN2974
	Low Specific Activity, n.o.s.	7	UN2912
	n.o.s.	7	UN2982
	Fissile, n.o.s.	7	UN2918
	Surface Contaminated Object	7	UN2913

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

KBq

11. No. Pkg.	Model Package	COC/Spec	Serial No.	Seal No.	Isotopes	T.I.	Bq/Package	Gr. Wt. Kg.
1	Poly Cooler	Strong tight	ERC01-061	Tape	Sr-90, Cs-137, Co-60	N/A	30.8	8.0
glass sample containers wrapped in bubble wrap, double bagged, padded with vermiculite & packing peanuts Sample # B14CX7								
(Shipper may describe package in detail on one of the unused lines above)					TOTALS	N/A	30.8	8.0

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: [signature] On behalf of DOE-RL | Date: 4-11-02 | Organization: ERC-AFS/SM | Complete Cost Code (Inc. End Function): R1325 N-2600

13. Surface Dose Rate of Package: [X] <0.005 or _____ mSv/hr; <0.5 or _____ mrem/hr (N+ß γ)
Dose Rate @ 1 Meter from Surface of Package: [X] <0.005 or _____ mSv/hr; <0.5 or _____ mrem/hr (N+ß γ)
Smears of Outer Container: [X] <0.41 Bq (22 dpm) ß γ /cm²; [X] <0.04 Bq (2.2 dpm) α /cm²; [X] <Tbl. 2-2 HSRCM Onsite Limits
TRUCK LOAD OR EXCLUSIVE USE: Surface [X] <2 mSv/hr (200 mrem/hr); @ 2 meters [X] <0.1 mSv/hr (10 mrem/hr); @ Cab or sleeper [X] <0.02 mSv/hr (2 mrem/hr) (Using N+ß γ)
Additional Data and Instructions (inc. Readings on Internal Packaging)
Signature - Radiation Monitoring: [signature] | Bldg. 3728 | Survey No. RCF 02-0510 | Date 4-11-02

14. TRANSPORTER: Vehicle Number 961-06052 | DRIVER SIGNATURE [signature]
RECEIVER: RECEIVER SIGNATURE [signature] | Date 4/11/2014

15. OFFSITE AUTHORIZATION
Shipment has been inspected and verified to be in compliance with DOT regulations
Authorized Signature: [signature] | Printed Name: Keith R. Smith | Date 4-11-02

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.	Date Shipped	Routing	ETA
RMBH 4907			
Surveyed By	Date	Approved for Shipment Offsite	Date

54-6000-088 (06/97)

SEVERN TRENT SERVICES

Sample Check-in List

Date/Time Received: 04/11/02 1455 aR

Client: BHI SDG #: _____ NA [ ] SAF #: B01-090 NA [ ]

Work Order Number: _____ Chain of Custody # B01-090-018

Shipping Container ID: ERC-01-0161 Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
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 [X] Yes [ ] No [ ]
8. Samples have:
   - ____ tape
   - X custody seals
   - X hazard labels
   - X appropriate samples labels
9. Samples are:
   - X in good condition
   - ____ 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 [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: [illegible] Date: 04/11/02

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/01, Rev. 4

STL RICHLAND

4/12/2002 10:55:56 AM

127642, BECHTEL HANFORD, INC. W03755

Bechtel Hanford, Inc.

Report Due: 05/02/2002 **PRIORITY**

Sample Preparation/Analysis

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)

SX Americium-241 by Alpha Spec

5I CLIENT: HANFORD

Balance Id: PB3002-3, #13

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: gw

Batch: 2102322 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: 2102321, 6ISO 2102321, 6ISO

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
1 EXQ8N-1-AE J2D110288-1-SAMP		0.1015	PATB2206 PR.1/15/02 EX.5/3/02		200			
04/08/2002 08:15	(0.1g)	AmtRec: 120G,20ML	#Containers: 2		Scr Rst:	Alpha:	Beta:	
2 EXQ8N-1-AK-X J2D110288-1-DUP		0.1003	PATB2207 PR.1/15/02 EX.5/3/02					
04/08/2002 08:15	(0.1g)	AmtRec: 120G,20ML	#Containers: 2		Scr Rst:	Alpha:	Beta:	
3 EXTK6-1-AA-B J2D120000-322-BLK		2.00	PATB2208 PR.1/15/02 EX.5/3/02					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
4 EXTK6-1-AC-C J2D120000-322-LCS		2.00	AMSJ0128 PR.1/15/02 EX.1/14/03					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EXTK6-1-AD-BX J2D120000-322-MBLK		2.02	PATB2209 PR.1/15/02 EX.5/3/02					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 EXTK6-1-AE-CM J2D120000-322-MLCS		2.01	AMSJ0129 PR.1/15/02 EX.1/14/03					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

Reduced aliquots targeted in procedure. gw 4-26-02

Odd size Sand used for samples EXTK6 BX & CM. gw 4-26-02

BX split into 2 vessels (MBO) after pressure released during digestion 4-26-02

C-M pressure released during digestion 4-26-02

STL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt,
r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 6
ICOC v4.5.3.2

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4/12/2002 10:55:56 AM **PRIORITY**

Sample Preparation/Analysis

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

Report Due: 05/02/2002

Batch: 2102322 pCi/g

SEQ Batch, Test: None

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

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

Comments: Accidently dumped rinse from EXTK61AC into EXTK61AAB when transferring from centrifuge tubes. LMA 4/29/02

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

EXQ8N1AE-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

EXTK61AA-BLK:

Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EXTK61AC-LCS:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EXTK61AD-MBLK:

Am-241	RDL:1	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EXTK61AE-MLCS:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EXQ8N1AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK61AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK61AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK61AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK61AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

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5/2/02 10:52:00 AM

ICOC Fraction Transfer/Status Report

ByDate: 4/2/02, 5/3/02, Batch: '2102322', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2102322						
AC		CalcC	OConnellD	4/16/02 4:18:24 PM		
SC			WagarR	IsBatched	4/12/02 10:55:45 AM	ICOC_RADCALC v4.5.3.2
SC			OConnellD	InPrep	4/16/02 4:18:24 PM	RICHRC5013 REVISION 3
SC			WAGNERJ	InPrep2	4/19/02 11:03:25 AM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	4/19/02 11:03:39 AM	RICH-RC-5019 REVISION 2
SC			HAMMERL	InSep1	5/1/02 2:42:05 PM	RICH-RC-5080 REVISION 0
SC			HAMMERL	Sep1C	5/1/02 2:42:31 PM	RICH-RC-5080 REVISION 0
SC			McPHERONC	InSep2	5/2/02 4:39:31 AM	RICH-RC-5003 REVISION 4
SC			McPHERONC	Sep2C	5/2/02 5:03:12 AM	RICH-RC-5003 REVISION 4
SC			IOVINC	InCnt1	5/2/02 5:52:57 AM	RICH-RD-0008 REVISION 2
SC			IOVINC	CalcC	5/2/02 10:44:07 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ	4/19/02 11:03:25 AM		
AC			WAGNERJ	4/19/02 11:03:39 AM		
AC			HAMMERL	5/1/02 2:42:05 PM		
AC			HAMMERL	5/1/02 2:42:31 PM		
AC			McPHERONC	5/2/02 4:39:31 AM		
AC			McPHERONC	5/2/02 5:03:12 AM		
AC			IOVINC	5/2/02 5:52:57 AM		
AC			IOVINC	5/2/02 10:44:07 AM		

AC: Accepting Entry; SC: Status Change

4/16/02 3:07:29 PM

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

Report Due: 05/02/2002 W03755

Sample Preparation/Analysis

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

PRIORITY

Balance Id: P13002-S, #13
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: Jw

Batch: 2102321 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: 2102322, 6ISX 2102322, 6ISX 2102326 CHTH, 2102328 88OV,

All Tests: 2102321 6ISO, 2102322 6ISX, 2102323 AFS4, 2102324 ATS6, 2102325 AXTA,

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
1 EXQ8N-1-AD J2D110288-1-SAMP		0.1015	PATB2206 PR.1/15/02 EX.5/3/02		200			
04/08/2002 08:15	(0.1 g)	AmtRec: 120G,20ML	#Containers: 2		Scr Rst:	Alpha: 2.38E+01 pCi/g	Beta: 3.43E+03 pCi/g	
2 EXQ8N-1-AJ-X J2D110288-1-DUP		0.1003	PATB2207 PR.1/15/02 EX.5/3/02					
04/08/2002 08:15	(0.1g)	AmtRec: 120G,20ML	#Containers: 2		Scr Rst:	Alpha: 2.38E+01 pCi/g	Beta: 3.43E+03 pCi/g	
3 EXTK4-1-AA-B J2D120000-321-BLK		2.00	PATB2208 PR.1/15/02 EX.5/3/02					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
4 EXTK4-1-AC-C J2D120000-321-LCS		2.00	PUSK0412 PR.2/11/02 EX.5/17/02					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EXTK4-1-AD-BX J2D120000-321-MBLK		2.02	PATB2209 PR.1/15/02 EX.5/3/02					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 EXTK4-1-AE-CM J2D120000-321-MLCS		2.01	PUSK0413 PR.2/11/02 EX.5/17/02					
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

Reduced aliquots targeted in pretreatment. JW 4-26-02
Odd one sand used for samples EXTK4 BY + CM. JW 4-26-02
B-X split into 2 vessels (max) After pressure released during digestion.
C-M pressure released during digestion JW 4-26-02

STL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt,
r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 6
ICOC v4.5.3.2

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Sample Preparation/Analysis

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

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Report Due: 05/02/2002
Batch: 2102321 pCi/g
SEQ Batch, Test: None

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

Comments: Accidently dumped rinse from EXTK41ACC into EXTK41AA B when transferring from Centrifuge tubes. LMA 4/28/02

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

EXQ8N1AD-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						

EXTK41AA-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						

EXTK41AC-LCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EXTK41AD-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						

EXTK41AE-MLCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

EXQ8N1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK41AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK41AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK41AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

EXTK41AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/2/02 10:12:49 AM

ICOC Fraction Transfer/Status Report

ByDate: 4/2/02, 5/3/02, Batch: '2102321', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2102321						
AC		InSep1	OConnellD	4/16/02 4:18:43 PM		
SC			WagarR	IsBatched	4/12/02 10:55:45 AM	ICOC_RADCALC v4.5.3.2
SC			OConnellD	InPrep	4/16/02 4:18:43 PM	RICHRC5013 REVISION 3
SC			WAGNERJ	InPrep2	4/19/02 11:03:32 AM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	4/19/02 11:04:02 AM	RICH-RC-5019 REVISION 2
SC			HAMMERL	InSep1	4/26/02 5:00:00 PM	RICH-RC-5080 REVISION 0
SC			McPHERONC	InSep2	5/1/02 9:48:49 AM	RICH-RC-5039 REVISION 3
SC			IOVINC	InCnt1	5/1/02 10:49:22 AM	RICH-RD-0008 REVISION 2
SC			IOVINC	CalcC	5/2/02 7:45:01 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ	4/19/02 11:03:32 AM		
AC			WAGNERJ	4/19/02 11:04:02 AM		
AC			HAMMERL	4/26/02 5:00:00 PM		
AC			McPHERONC	5/1/02 9:48:49 AM		
AC			IOVINC	5/1/02 10:49:22 AM		
AC			IOVINC	5/2/02 7:45:01 AM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt:7

ICOCFractions

STL RICHLAND

DHL 201C

4/12/2002 10:55:58 AM

Sample Preparation/Analysis

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

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

PRIORITY

Balance Id: PB300-5
Pipet #: N/A

Report Due: 05/02/2002 W037155

Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: RB

Batch: 2102325 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit (fi)	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry (525)	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 EXQ8N-1-AH J2D110288-1-SAMP		53.4					1000	G3	4/30/02 0332	4/29/02
04/08/2002 08:15		AmtRec: 120G,20ML		#Containers: 2		Scr Rst:		Alpha:	Beta:	
2 EXQ8N-1-AP-X J2D110288-1-DUP		53.1						G4	0333	
04/08/2002 08:15		AmtRec: 120G,20ML		#Containers: 2		Scr Rst:		Alpha:	Beta:	
3 EXTLK-1-AA-BX J2D120000-325-MBLK		52.0	Fine Ottawa Sand			525		G8	0333	
04/08/2002 08:15		AmtRec:		#Containers: 1		Scr Rst:		Alpha:	Beta:	
4 EXTLK-1-AC-CM J2D120000-325-MLCS		26.61	CM3122			25		G7	5/1/02 0255	4/30/02
4/1/02 ~~04/08/2002 08:15~~		AmtRec:		#Containers: 1		Scr Rst:		Alpha:	Beta:	

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

EXQ8N1AH-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:
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:						

EXTLK1AA-MBLK:

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:						

EXTLK1AC-MLCS:

STL RICHLAND

4/12/2002 10:55:58 AM

Sample Preparation/Analysis

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

PRIORITY

Balance Id:

Pipet #: _____

Report Due: 05/02/2002

Sep1 DT/Tm Tech:

Batch: 2102325 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

Work Order, Lot, Sample DateTime	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
Cs-137	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

```
EXQ8N1AH-SAMP Calc Info:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
EXTLK1AA-MBLK:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
EXTLK1AC-MLCS:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

5/1/02 11:37:24 AM

ICOC Fraction Transfer/Status Report

ByDate: 4/1/02, 5/2/02, Batch: '2102325', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2102325						
AC		InCnt1	OConnellD	4/16/02 4:17:54 PM		
SC			WagarR	IsBatched	4/12/02 10:55:45 AM	ICOC_RADCALC v4.5.3.2
SC			OConnellD	InPrep	4/16/02 4:17:54 PM	RICHRC5013 REVISION 3
SC			DAWKINSO	InCnt1	4/17/02 5:08:04 PM	RICH-RD-0007 REVISION 2
AC			DAWKINSO	4/17/02 5:08:04 PM		

AC: Accepting Entry; SC: Status Change

4/12/2002 10:55:58 AM

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

Report Due: 05/02/2002 W03755

Batch: 2102326 SOIL pCi/g

SEQ Batch, Test: None

Sample Preparation/Analysis

CH Sr-Total PrpRC5013, SepRC5006
TH Total Strontium by GPC
5I CLIENT: HANFORD

PRIORITY

PM, Quote: BG1, 27038

Balance Id: #13 J PB3000 5
Pipet #:
Sep1 DT/Tm Tech: 4-26-02 10:45
Sep2 DT/Tm Tech:
Prep Tech:

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit (G)	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry (mg)	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 EXQ8N-1-AA J2D110288-1-SAMP		0.1015	SRTA7068 PR.3/15/02 EX.2/21/03		1.5"	88.4	50	28A	2035	4/26/2002
04/08/2002 08:15	(0.1)		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:		Alpha:	Beta:	
2 EXQ8N-1-AQ-X J2D110288-1-DUP		0.0997	SRTA7069 PR.3/15/02 EX.2/21/03			89.2		28B	2035	4/26/2002
04/08/2002 08:15	(0.1)		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:		Alpha:	Beta:	
3 EXTLQ-1-AA-B J2D120000-326-BLK		6.00	SRTA7070 PR.3/15/02 EX.2/21/03			94.4		28C	2035	4/26/2002
04/08/2002 08:15			AmtRec:	#Containers: 1		Scr Rst:		Alpha:	Beta:	
4 EXTLQ-1-AC-C J2D120000-326-LCS		6.00	STSB0578 PR.4/12/02 EX. 2/21/03			94.6		28D	2035	4/26/2002
04/08/2002 08:15			AmtRec:	#Containers: 1		Scr Rst:		Alpha:	Beta:	

Comments: Reduced aliquots targeted in parenthesis due to cat III, Samples weighted up in lab 142. 4-25-02

```
All Clients for Batch:
   127642, BECHTEL HANFORD, INC.                    Bechtel Hanford, Inc.        , BG1, 27038
EXQ8N1AA-SAMP Constituent List:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35
EXTLQ1AA-BLK:
  Sr-90       RDL:1          pCi/g     LCL:        UCL:        RPD:
EXTLQ1AC-LCS:
  Sr-90       RDL:1          pCi/g     LCL:70      UCL:130     RPD:35
EXQ8N1AA-SAMP Calc Info:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
EXTLQ1AA-BLK:
```

Sample Preparation/Analysis

PRIORITY

CH Sr-Total PrpRC5013, SepRC5006
TH Total Strontium by GPC
5I CLIENT: HANFORD

Report Due: 05/02/2002

Batch: 2102326 pCi/g

SEQ Batch, Test: None

Balance Id:

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

Work Order, Lot, Sample DateTime	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
EXTLQ1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```


STL RICHLAND

4/29/02 1:27:58 PM

ICOC Fraction Transfer/Status Report

ByDate: 3/30/02, 4/30/02, Batch: '2102326', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2102326						
AC		InCnt1	OConnellD	4/16/02 4:17:32 PM		
SC			WagarR	IsBatched	4/12/02 10:55:45 AM	ICOC_RADCALC v4.5.3.2
SC			OConnellD	InPrep	4/16/02 4:17:32 PM	RICHRC5013 REVISION 3
SC			WAGNERJ	InPrep2	4/19/02 11:03:11 AM	RICH-RC-5013 REVISION 4
SC			SteffensB	InSep1	4/23/02 3:05:37 PM	RICH-RC-5006 REVISION 4
SC			BlackCL	InCnt1	4/26/02 12:42:46 PM	RICH-RD-0003 REVISION 2
AC			WAGNERJ	4/19/02 11:03:11 AM		
AC			SteffensB	4/23/02 3:05:37 PM		
AC			BlackCL	4/26/02 12:42:46 PM		

AC: Accepting Entry; SC: Status Change

4/12/2002 10:55:56 AM

127642, BECHTEL HANFORD, INC.

Bechtel Hanford, Inc.

W03755

PRIORITY

Sample Preparation/Analysis

AF Ni-63 PrpRC5013/5019, SepRC5069

S4 Nickel by ICP and Nickel-63 by Liquid Scint

5I CLIENT: HANFORD

Balance Id: P830025 J13

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: Gw

Report Due: 05/02/2002

Batch: 2102323 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: None

(9)

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
1 EXQ8N-1-AC J2D110288-1-SAMP			0.1021	NITA0870 PR.3/21/02 EX.10/04			100			
04/08/2002 08:15	(0.1g)		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:		Alpha:	Beta:	
2 EXQ8N-1-AL-S J2D110288-1-MS			0.1024	NISA0356 PR.3/21/02 EX.8/27/02						
04/08/2002 08:15	(0.1g)		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:		Alpha:	Beta:	
3 EXQ8N-1-AM-X J2D110288-1-DUP			0.0994	NITA0871 PR.3/21/02 EX.10/04						
04/08/2002 08:15	(0.1g)		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:		Alpha:	Beta:	
4 EXTK9-1-AA-B J2D120000-323-BLK			0.2500	NITA0845 PR.12/14/01 EX.10/04						
04/08/2002 08:15			AmtRec:	#Containers: 1		Scr Rst:		Alpha:	Beta:	
5 EXTK9-1-AC-C J2D120000-323-LCS			0.2500	NISA0357 PR.3/21/02 EX.8/27/02						
04/08/2002 08:15			AmtRec:	#Containers: 1		Scr Rst:		Alpha:	Beta:	
6 EXTK9-1-AD-BN J2D120000-323-IBLK										
04/08/2002 08:15			AmtRec:	#Containers: 1		Scr Rst:		Alpha:	Beta:	

Reduced aliquots targeted in parentheses due to cat II. Samples weighted up in Lab 142. gw 4-23-02

STL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt,
r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 6
ICOC v4.5.3.2

STL RICHLAND

57

Sample Preparation/Analysis

PRIORITY

AF Ni-63 PrpRC5013/5019, SepRC5069
S4 Nickel by ICP and Nickel-63 by Liquid Scint
SI CLIENT: HANFORD

Report Due: 05/02/2002

Batch: 2102323 pCi/g

SEQ Batch, Test: None

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

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

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

EXQ8N1AC-SAMP Constituent List:
Ni-63 RDL:30 pCi/g LCL:70 UCL:130 RPD:35
EXQ8N1AL-MS Constituent List:
Ni-63 RDL:30 pCi/g LCL:70 UCL:130 RPD:35
EXTK91AA-BLK:
Ni-63 RDL:30 pCi/g LCL: UCL: RPD:
EXTK91AC-LCS:
Ni-63 RDL:30 pCi/g LCL:70 UCL:130 RPD:35
EXTK91AD-IBLK:
Ni-63 RDL:30 pCi/g LCL: UCL: RPD:

EXQ8N1AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXQ8N1AL-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTK91AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTK91AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTK91AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

4/30/02 11:05:11 AM

ICOC Fraction Transfer/Status Report

ByDate: 3/31/02, 5/1/02, Batch: '2102323', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2102323						
AC		InCnt1	OConnellD	4/16/02 4:18:11 PM		
SC			WagarR	IsBatched	4/12/02 10:55:45 AM	ICOC_RADCALC v4.5.3.2
SC			OConnellD	InPrep	4/16/02 4:18:11 PM	RICHRC5013 REVISION 3
SC			WAGNERJ	InPrep2	4/19/02 11:03:18 AM	RICH-RC-5013 REVISION 4
SC			ManisD	InSep1	4/26/02 8:48:56 AM	RICH-RC-5069 REVISION 4
SC			BlackCL	InCnt1	4/29/02 8:26:20 AM	RICH-RD-0001 REVISION 1
AC			WAGNERJ	4/19/02 11:03:18 AM		
AC			ManisD	4/26/02 8:48:56 AM		
AC			BlackCL	4/29/02 8:26:20 AM		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Grp Rec Cnt:4

ICOCFractions

STL RICHLAND

4/16/02 3:07:30 PM

Sample Preparation/Analysis

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

AT H-3 Prp/SepRC5037
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

PRIORITY

Balance Id: 029
Pipet #: N/A
Sep1 DT/Tm Tech: 4-22-02 DK
Sep2 DT/Tm Tech:
Prep Tech:

Report Due: 05/02/2002

Batch: 2102324 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: None

W03755

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
1 EXQ8N-1-AG J2D110288-1-SAMP								
04/08/2002 08:15		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:	Alpha: 2.38E+01 pCi/g	Beta: 3.43E+03 pCi/g	
2 EXQ8N-1-AN-X J2D110288-1-DUP								
04/08/2002 08:15		AmtRec: 120G,20ML	#Containers: 2		Scr Rst:	Alpha: 2.38E+01 pCi/g	Beta: 3.43E+03 pCi/g	
3 EXTLC-1-AA-B J2D120000-324-BLK								
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
4 EXTLC-1-AC-C J2D120000-324-LCS								
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
5 EXTLC-1-AD-BN J2D120000-324-IBLK								
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	
6 EXTLC-1-AE-BN J2D120000-324-IBLK								
04/08/2002 08:15		AmtRec:	#Containers: 1		Scr Rst:	Alpha:	Beta:	

4/16/02 3:07:30 PM

Sample Preparation/Analysis

AT H-3 Prp/SepRC5037
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id: 029
Pipet #: N/A
Sep1 DT/Tm Tech: 4-22-02 pm
Sep2 DT/Tm Tech:
Prep Tech:

Report Due: 05/02/2002

Batch: 2102324 pCi/g

SEQ Batch, Test: None

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

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

EXQ8N1AG-SAMP Constituent List:
H-3 RDL:400 pCi/g LCL:70 UCL:130 RPD:35
EXTLC1AA-BLK:
H-3 RDL:400 pCi/g LCL: UCL: RPD:
EXTLC1AC-LCS:
H-3 RDL:400 pCi/g LCL:70 UCL:130 RPD:35
EXTLC1AD-IBLK:
H-3 RDL:400 pCi/g LCL: UCL: RPD:
EXTLC1AE-IBLK:
H-3 RDL:400 pCi/g LCL: UCL: RPD:

EXQ8N1AG-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTLC1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTLC1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTLC1AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
EXTLC1AE-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

4/25/02 3:01:55 PM

ICOC Fraction Transfer/Status Report

ByDate: 3/26/02, 4/26/02, Batch: '2102324', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting			Comments
2102324							
AC			InCnt1	McDowellD	4/16/02 3:31:44 PM		
SC				WagarR	IsBatched	4/12/02 10:55:45 AM	ICOC_RADCALC v4.5.3.2
SC				McDowellD	InSep1	4/16/02 3:31:44 PM	RICH-RC-5037 REVISION 3
SC				IOVINC	InCnt1	4/23/02 1:04:55 PM	RICH-RD-0001 REVISION 1
AC				IOVINC	4/23/02 1:04:55 PM		

AC: Accepting Entry; SC: Status Change

SEVERN TRENT SERVICES

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel 314 298 8566
Fax 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. 100NR1 TSD SITE

B01-090

Lot #: F2D120248
SDG #: W03755

Joan Kessner

Bechtel Hanford, Inc.
3190 George Washington Way
Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

MWard

MARTI WARD
Project Manager

RECEIVED
APR 2002

April 19, 2002

SEVERN TRENT SERVICES

STL St. Louis

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

April 23, 2002

Attention: Joan Kessner

Project Number	:	43915
SAF	:	B01-090
SDG	:	W03755
Number of Samples	:	four
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	April 11, 2002

II. Introduction

On April 12, 2002, four (4) "solid" samples were received by STL–St. Louis for chemical analysis. The samples were received at the St. Louis lab within temperature criteria. See the COC and CUR forms for details of sample condition and temperature. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see the attached methods summary sheet

Deviation from Request: none

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike
MS- Matrix Spike.
DUP- Matrix Duplicate
MSD- Matrix Spike Duplicate.

SEVERN TRENT SERVICES

STL St. Louis

Bechtel Hanford Incorporated
April 23, 2002
Project Number: 43915
SDG: W03755
Page 2

V. Comments

General: The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Wet Chemistry: A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Duplicate were analyzed with each preparation batch per the protocol for this analysis.

The MS recovery for NO2/NO3 is outside the control limit at 121% with an upper limit of 110%.

I certify that this Summary 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:

Marti Ward

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F2D120248

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EXT6E	001	B14CN3-A	04/08/02	08:50
EXT6F	002	B14CX7	04/08/02	08:15
EXT6M	003	B14CM9-A per 4/29/02 direction of JAK	04/08/02	08:10
EXT6Q	004	B14CN0-A	04/08/02	08:25

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

F2D120248

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Nitrate-Nitrite	MCAWW 353.1	
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/02
Time: 14:24:52
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR1 TSD SITE
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-090
AMOUNT REC"D: 120G
STORAGE LOC: R124
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14CN3-A nc 4/29/02 per direction of JHK
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43915
LAB ID: F-2D120248-001
WORK ORDER: EXT6E
RECEIVING DATE: 4/12/02
SAMPLING DATE: 4/08/02
ANALYTICAL DUE DATE: 5/01/02N
REPORT DUE DATE: 5/01/02
PRIORITY: 19
+ SAMPLING TIME: 8:50
RECEIVING TIME: 8:45
SDG# : W03755

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3)	06	4/12/02	0/00/00	7/16/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-WM-01) EXT6E-1-AA Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	4/12/02	5/06/02	5/06/02
LEACHATE, DI (Routine)				
(A-82-HN-01) EXT6E-1-AC Protocol: A QC Program: STANDARD TEST SET				
RAD SCREEN	06	4/12/02	0/00/00	4/08/02
IN-HOUSE RAD SCREEN				
(A-RA-ZV-01) EXT6E-1-AD Protocol: A QC Program: STANDARD TEST SET				

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/02
Time: 14:24:53
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR1 TSD SITE
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-090
AMOUNT REC"D: 120G
STORAGE LOC: R124
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14CX7
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43915
LAB ID: F-2D120248-002
WORK ORDER: EXT6F
RECEIVING DATE: 4/12/02
SAMPLING DATE: 4/08/02
ANALYTICAL DUE DATE: 5/01/02N
REPORT DUE DATE: 5/01/02
PRIORITY: 19
+ SAMPLING TIME: 8:15
RECEIVING TIME: 8:45

SDG# : W03755

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3)	06	4/12/02	0/00/00	7/16/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-WM-01) EXT6F-1-AA Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	4/12/02	5/06/02	5/06/02
LEACHATE, DI (Routine)				
(A-82-HN-01) EXT6F-1-AC Protocol: A QC Program: STANDARD TEST SET				
RAD SCREEN	06	4/12/02	0/00/00	4/08/02
IN-HOUSE RAD SCREEN				
(A-RA-ZV-01) EXT6F-1-AD Protocol: A QC Program: STANDARD TEST SET				

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/02
Time: 14:24:53
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR1 TSD SITE
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-090
AMOUNT REC"D: 120G
STORAGE LOC: R124
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14CX7
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43915
LAB ID: F-2D120248-002-S
WORK ORDER: EXT6F MS
RECEIVING DATE: 4/12/02
SAMPLING DATE: 4/08/02
ANALYTICAL DUE DATE: 5/01/02N
REPORT DUE DATE: 5/01/02
PRIORITY: 19
+ SAMPLING TIME: 8:15
RECEIVING TIME: 8:45
SDG# : W03755

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Nitrate-Nitrite (353.1)	06	4/12/02	5/06/02	5/06/02

LEACHATE, DI (Routine)
(A-82-HN-01) EXT6F-1-AE Protocol: A QC Program: STANDARD TEST SET

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/02
Time: 14:24:53
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR1 TSD SITE
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-090
AMOUNT REC"D: 120G
STORAGE LOC: R124
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14CX7 DUP
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43915
LAB ID: F-2D120248-002-X
WORK ORDER: EXT6F SMPDUP
RECEIVING DATE: 4/12/02
SAMPLING DATE: 4/08/02
ANALYTICAL DUE DATE: 5/01/02N
REPORT DUE DATE: 5/01/02
PRIORITY: 19
+ SAMPLING TIME: 8:15
RECEIVING TIME: 8:45
SDG# : W03755

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Nitrate-Nitrite (353.1)	06	4/12/02	5/06/02	5/06/02

LEACHATE, DI (Routine)
(A-82-HN-01) EXT6F-1-AF Protocol: A QC Program: STANDARD TEST SET

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/02
Time: 14:24:53
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR1 TSD SITE
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-090
AMOUNT REC"D: 120G
STORAGE LOC: R124
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14CM9-A nc 4/29/02 per direction of JHK
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43915
LAB ID: F-2D120248-003
WORK ORDER: EXT6M
RECEIVING DATE: 4/12/02
SAMPLING DATE: 4/08/02
ANALYTICAL DUE DATE: 5/01/02N
REPORT DUE DATE: 5/01/02
PRIORITY: 19
+ SAMPLING TIME: 8:10
RECEIVING TIME: 8:45
SDG# : W03755

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3)	06	4/12/02	0/00/00	7/16/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-WM-01) EXT6M-1-AA Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	4/12/02	5/06/02	5/06/02
LEACHATE, DI (Routine)				
(A-82-HN-01) EXT6M-1-AC Protocol: A QC Program: STANDARD TEST SET				
RAD SCREEN	06	4/12/02	0/00/00	4/08/02
IN-HOUSE RAD SCREEN				
(A-RA-ZV-01) EXT6M-1-AD Protocol: A QC Program: STANDARD TEST SET				

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/02
Time: 14:24:53
User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100NR1 TSD SITE
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B01-090
AMOUNT REC"D: 120G
STORAGE LOC: R124
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14CN0-A nc 4/29/02 per direction of JHK
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43915
LAB ID: F-2D120248-004
WORK ORDER: EXT6Q
RECEIVING DATE: 4/12/02
SAMPLING DATE: 4/08/02
ANALYTICAL DUE DATE: 5/01/02N
REPORT DUE DATE: 5/01/02
PRIORITY: 19
+ SAMPLING TIME: 8:25
RECEIVING TIME: 8:45
SDG# : W03755

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3)	06	4/12/02	0/00/00	7/16/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-WM-01) EXT6Q-1-AA Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	4/12/02	5/06/02	5/06/02
LEACHATE, DI (Routine)				
(A-82-HN-01) EXT6Q-1-AC Protocol: A QC Program: STANDARD TEST SET				
RAD SCREEN	06	4/12/02	0/00/00	4/08/02
IN-HOUSE RAD SCREEN				
(A-RA-ZV-01) EXT6Q-1-AD Protocol: A QC Program: STANDARD TEST SET				

LOT # F2D120248

STL St Louis

W03755

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-090-017	Page 1 of 2

Collector: R Kerkow / R Nielson W0375S	Company Contact: R Kerkow — Telephone No.: 509-372-2187	Project Coordinator: TRENT, SJ	Price Code: 8D — Data Turnaround: 21 Days/2 (AD 4-11-02)
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-3 Crib DZ Verification	SAF No.: B01-090	Air Quality ☐
Ice Chest No.: ERC 02 -107	Field Logbook No.: BL-1524-1 — COA: R1325N2600	Method of Shipment: Fed Ex	
Shipped To: ~~TMA/RECRA~~ STL St. Louis (RK 4-8-02)	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: BSR # 106931	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive

Special Handling and/or Storage
None

Preservation	Cool 4C	Cool 4C	None							
Type of Container	G	G	~~P~~ G (RK 4-8-02)							
No. of Container(s)	1	1 (RK 4-8-02)	1							
Volume	120mL	~~250mL~~ 60mL	~~1000mL~~ 120mL (RK 4-8-02)							
SAMPLE ANALYSIS	NO2/NO3 - 353.2	Alcohols, Glycols, & Ketones 8015 (Methanol) (RK 4-8-02)	See item (1) in Special Instructions (RK 4-8-02)							

Sample No.	Matrix *	Sample Date	Sample Time											
~~B14CM8~~	~~SOIL~~	~~4-8-02~~	~~0900~~	X										DZ-10
B14CM9-A NC HB9/10	SOIL	4-8-02	0810	X										DZ-01
B14CN0-A per direction JHK	SOIL	4-8-02	0825	X										DZ-03
~~B14CN1~~	~~SOIL~~	~~4-8-02~~	~~0835~~	X										DZ-05
~~B14CN2~~	~~SOIL~~	~~4-8-02~~	~~0840~~	X										DZ-06

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
RK 4-8-02 (Stored in RCF 1C)	4-8-02 1530	RB Kerkow (RK 4-8-02)	4-8-02 1536
RB Kerkow	4-8-02 1530	RK 4-8-02 (Stored in RCF 1C)	4-8-02 1531
B of 1C	4-11-02 / 0900	Doug Bowers	4-11-02 / 0900
Doug Bowers	4-11-02 / 0930	Fed Ex	
FED EX		Sullivan	04-12-02 0845

SPECIAL INSTRUCTIONS
Lab COA: R1325N-2F00
(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Isotopic Plutonium (Plutonium-239/240); Americium-241; Strontium-89,90 -- Total Sr; Nickel-63; Tritium - H3

Personnel not available to relinquish samples from the 3728 Ref # 1C on 4/11/02

COPY AD 4-11-02

Matrix *: S=Soil, SD=Sediment, SO=Solid, S=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

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

BHI-EE-011 (10/99)

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LOT # F2D120248

STL St. Louis

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-090-017	Page 2 of 2
Collector: R Kerkow / R Nielson W03755	Company Contact: R Kerkow; Telephone No.: 509-372-2187	Project Coordinator: TRENT, SJ	Price Code: 8D; Data Turnaround: 21 Days
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-3 Crib DZ Verification	SAF No.: B01-090	Air Quality ☐
Ice Chest No.: ERC 02-107	Field Logbook No.: EL-1524-1; COA: R1325N2600	Method of Shipment: FedEx	
Shipped To: ~~TMARBERN~~ STL St. Louis	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: RSR# 106937	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive

Special Handling and/or Storage
None

Preservation	Cool 4C	Cool 4C	None								
Type of Container	G	G	G								
No. of Container(s)	1		1								
Volume	120mL	~~250mL~~ 60mL	~~1000mL~~ 120mL								
SAMPLE ANALYSIS	NOB/NOB - 3532	Alcohols, Glycols, & Ketones - 8015 (Methanol)	See Item (1) in Special Instructions								
		RK 4-8-02	RK 4-8-02								

Sample No. 5/02	Matrix *	Sample Date	Sample Time										
B14CN3 - A Dayes	SOIL	4-8-02	0850	X									DZ-02
~~B14CN4~~	~~SOIL~~	~~4-8-02~~	~~0815~~	~~X~~									DZ-02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By	Date/Time
Relinquished By: RK 4-8-02 ~~STORED IN REF IC~~	1530 ~~4-8-02~~	Received By: RB Kerkow ~~RB Kerkow~~	1530 4-8-02
Relinquished By: RB Kerkow RB KERKOW	1530 4-8-02	~~Received By: RK 4-8-02~~ STORED IN REF IC	1530 4-8-02
Relinquished By: R of IC 4-11-02	0900	Received By: Doug Bowers Doug Bowers 4-11-02	0900
Relinquished By: ~~Doug Bowers~~ Doug Bowers 4-11-02	0930	Received By: Fed EX	
Relinquished By: FED EX		Received By: Sue Miller 04-12-02	0815
Relinquished By		Received By	

SPECIAL INSTRUCTIONS
Lab COA: R1325N-2F00
RK 4-5-02
(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Isotopic Plutonium [Plutonium-239/240]; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63; Tritium - H3

Personnel not available to relinquish samples from the 3728
Ref # IC on 4/11/02

COPY
DD 4-11-02

Matrix *
S=Soil
SD=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liquid
T=Tissue
W=Wipe
L=Liquid
V=Vegetation
X=Other

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

BHI-EE-011 (10/99)

W03755

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STL St

SEVERN TRENT SERVICES

Lot No.: F2D120248
W03755

Condition Upon Receipt Form
St. Louis Laboratory

Client: Bechtel Hanford
Date: 04.12.02 Time: 0845
Quote No: 43915
Initiated by: [illegible]
Shipper/No: FedX 3227 3918 3470
COC/RFA Numbers: B01-090-017

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

1.	(Y) N	Sample received in undamaged condition.	5.	(Y) N	Sample volume sufficient for analysis.
2.	(Y) N	Sample received within 4°C ± 2°C*	6.	(Y) N	Sample received with Chain of Custody.
		Record temperature: 2°	7.	(Y) N	Chain of Custody matches sample IDs on containers.
3.	Y N (N/A)	Sample received with proper pH**.	8.	(Y) N	Custody seal received intact and tamper evident on cooler.
4.	(Y) N	Sample received in proper containers.	9.	(Y) N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes:

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [illegible] Date: 04.12.02

Project Management Review: [illegible] Date: 4.14.02

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM

LOT # F2D120248

W03755

STP St. Louis

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-090-018	Page 1 of 1
Collector: R Kerkow W03755	Company Contact: R Kerkow; Telephone No.: 509-372-2187	Project Coordinator: TRENT, SJ	Price Code: 8D; Data Turnaround: 21 Days/21
Project Designation: 100-NR-1 TSD Sites R. A. Verification Sampling - Soil	Sampling Location: 116-N-3 Crib DZ Verification	SAF No.: B01-090	Air Quality ☐
Ice Chest No.: ERC 01 - 062	Field Logbook No.: EL-1524-1; COA: R1325N2600	Method of Shipment: Fed Ex	
Shipped To: Severn Trent Incorporated, ~~Richland~~ ST LOUIS	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: RSR # ~~186652~~ 106934	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potentially Radioactive

Special Handling and/or Storage
None

Preservation	None	Cool 4C	None								
Type of Container	P	G	~~P~~ Or								
No. of Container(s)	1	1	1								
Volume	20mL	120mL	~~1000mL~~ 120mL								
SAMPLE ANALYSIS	Activity Scan	NO2/NO3 - 353.1	See Item (1) in Special Instructions								

Sample No.	Matrix *	Sample Date	Sample Time										
B14CX7	SOIL	4-8-02	0815	X	X	X							DZ-02s

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By: RK 4-8-02	1530	Received By: RB Kerkow	1530
Stored in Ref 1C	4-8-02	RB KERKOW	4-8-02
Relinquished By: RB Kerkow	1530	Received By: RK 4-8-02	1530
RB KERKOW	4-8-02	Stored in Ref 1C	4-8-02
Relinquished By: Ref 1C	4-11-02 / 0900	Received By: Doug Bowers	4-11-02 / 0900
Relinquished By: Doug Bowers	4-11-02 / 0930	Received By: Fed Ex	
Relinquished By: FED EX		Received By: 04-12-02	0845
Relinquished By		Received By	

SPECIAL INSTRUCTIONS
Lab COA: R1325N-2F00
(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Isotopic Plutonium (Plutonium-239/240); Americium-241; Strontium-89,90 – Total Sr; Nickel-63; Tritium - H3

Personnel not available to relinquish samples from the 3728 Ref # 1C on 4/11/02

COPY
JB 4/11/02

Matrix *
S=Soil
SD=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
Li=Liquid
Ve=Vegetation
X=Other

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

BHI-EE-011 (10/99)

STL St

SEVERN TRENT SERVICES

Lot No.: F2D120248

Condition Upon Receipt Form
St. Louis Laboratory

Client: Bechtel Hanford

Date: 04.12.02 Time: 0845

Quote No: 43915

Initiated by: SH

Shipper/No: FedEx 822739103681

COC/RFA Numbers: B01.090.018

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

1.	Y N	Sample received in undamaged condition.	5.	Y N	Sample volume sufficient for analysis.
2.	Y N	Sample received within 4°C ± 2°C*	6.	Y N	Sample received with Chain of Custody.
		Record temperature: 3°	7.	Y N	Chain of Custody matches sample IDs on containers.
3.	Y N N/A	Sample received with proper pH**.	8.	Y N	Custody seal received intact and tamper evident on cooler.
4.	Y N	Sample received in proper containers.	9.	Y N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses: _____

** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.

Notes:

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [signature] Date: 04.12.02

Project Management Review: MWard Date: 4.14.02

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM

BECHTEL HANFORD, INC.

Client Sample ID: B14CN3-A nc 4/12/02 per direction of JHK

General Chemistry

Lot-Sample #...: F2D120248-001 **Work Order #...:** EXT6E **Matrix.....:** SOLID
Date Sampled...: 04/08/02 **Date Received..:** 04/12/02
% Moisture.....: 1.8

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N	ND	0.51	mg/kg	MCAWW 353.1	04/17/02	2108473
		Dilution Factor: 1		MDL.....: 0.037		
Percent Moisture	**1.8**	**0.10**	**%**	**MCAWW 160.3 MOD**	**04/15-04/16/02**	**2105379**
		Dilution Factor: 1		MDL.....:		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B14CX7

General Chemistry

Lot-Sample #...: F2D120248-002 **Work Order #...:** EXT6F **Matrix.....:** SOLID
Date Sampled...: 04/08/02 **Date Received..:** 04/12/02
% Moisture.....: 1.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N	ND	0.51	mg/kg	MCAWW 353.1	04/17/02	2108473
		Dilution Factor: 1		MDL.....: 0.036		
Percent Moisture	**1.3**	**0.10**	**%**	**MCAWW 160.3 MOD**	**04/15-04/16/02**	**2105379**
		Dilution Factor: 1		MDL.....:		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F2D120248 **Work Order #...:** EXT6F-SMP EXT6F-DUP **Matrix.....:** SOLID

Date Sampled...: 04/08/02 **Date Received..:** 04/12/02

% Moisture.....: 1.3

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N						SD Lot-Sample #:	F2D120248-002	
	ND	ND	mg/kg	0	(0-15)	MCAWW 353.1	04/17/02	2108473

Dilution Factor: 1

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F2D120248 **Matrix.....:** SOLID
Date Sampled...: 04/08/02 **Date Received..:** 04/12/02

Percnt Moisture: 0.0

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N			Work Order #...:		EXT6F1AE		MS Lot-Sample #:	F2D120248-002
	ND	5.07	6.13 N	mg/kg	121	MCAWW 353.1	04/17/02	2108473
			Dilution Factor: 1					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B14CM9-A NC 4/29/02 per direction JHK

General Chemistry

Lot-Sample #...: F2D120248-003 **Work Order #...:** EXT6M **Matrix.....:** SOLID
Date Sampled...: 04/08/02 **Date Received..:** 04/12/02
% Moisture.....: 1.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N	0.80	0.51	mg/kg	MCAWW 353.1	04/17/02	2108473
		Dilution Factor: 1		MDL.....: 0.036		
Percent Moisture	1.3	0.10	%	MCAWW 160.3 MOD	04/15-04/16/02	2105379
		Dilution Factor: 1		MDL.....:		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

Client Sample ID: B14CN0-A nc 4/29/02 per direction JHK

General Chemistry

Lot-Sample #...: F2D120248-004 **Work Order #...:** EXT6Q **Matrix.....:** SOLID
Date Sampled...: 04/08/02 **Date Received..:** 04/12/02
% Moisture.....: 2.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N	0.75	0.51	mg/kg	MCAWW 353.1	04/17/02	2108473
		Dilution Factor: 1		MDL.....: 0.037		
Percent Moisture	2.1	0.10	%	MCAWW 160.3 MOD	04/15-04/16/02	2105379
		Dilution Factor: 1		MDL.....:		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F2D120248 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N		Work Order #: EX5NC1AA		MB Lot-Sample #:	F2D180000-473	
	ND	0.50	mg/kg	MCAWW 353.1	04/17/02	2108473
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F2D120248 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N		WO#:EX5NC1AC-LCS/EX5NC1AD-LCSD				LCS Lot-Sample#: F2D180000-473		
	4.00	4.10	mg/kg	102		MCAWW 353.1	04/17/02	2108473
	4.00	4.27	mg/kg	107	4.1	MCAWW 353.1	04/17/02	2108473

Dilution Factor: 1

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.