0059283

SAF-B02-030
105-F Rx Phase IV Soils
(Side-slope, overburden, under & adjacent & decon area)
FINAL DATA PACKAGE

FAX RESULTS TO:

Rikki Thoren 372-2183 N/A
INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Rikki Thoren N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Rikki Thoren X9-05 B L 2/5/03
INITIAL/DATE

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

SDG H2020 SAF-B02-030

Rad only Chem only X Rad & Chem

X Complete Partial

RECEIVED
MAY 13 2003
EDMC

LIONVILLE LABORATORY INC.

FEB 2003

29 January 2003

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0212L323
SDG #	H2020
SAF #	B02-030
Date Received	12-11-02
# Samples	27
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	X
DRO	
GRO	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

FEB 2003

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00BH6	001	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BH6	001 MS	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BH6	001 MSD	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BH7	002	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BH8	003	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BH9	004	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BJ0	005	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BJ1	006	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BJ2	007	S	02LE1481	12/04/02	12/12/02	12/20/02
J00BJ3	008	S	02LE1481	12/05/02	12/12/02	12/20/02
J00BJ4	009	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BJ5	010	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BJ6	011	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BJ7	012	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BJ8	013	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BJ9	014	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK0	015	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK1	016	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK2	017	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK3	018	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK4	019	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK5	020	S	02LE1481	12/05/02	12/12/02	12/21/02
J00BK6	021	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BK6	021 MS	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BK6	021 MSD	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BK7	022	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BK8	023	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BK9	024	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BL0	025	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BL1	026	S	02LE1482	12/05/02	12/12/02	12/21/02
J00BL2	027	S	02LE1482	12/05/02	12/12/02	12/21/02

LAB QC:

PBLKHO	MB1	S	02LE1481	N/A	12/12/02	12/20/02
PBLKHO	MB1 BS	S	02LE1481	N/A	12/12/02	12/20/02
PBLKHN	MB1	S	02LE1482	N/A	12/12/02	12/20/02
PBLKHN	MB1 BS	S	02LE1482	N/A	12/12/02	12/20/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-030
LVL #: 0212L323
SDG/SAF #: H2020/B02-030

W.O. #: 11343-606-001-9999-00
Date Received: 12-11-02

PCB

The set of samples consisted of twenty-seven (27) soil samples collected on 12-04,05-02.

The samples and their associated QC samples were extracted on 12-12-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-20,21-02. The extraction procedure was based on method 3520 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. Please refer to the Sample Receipt Checklist for sample discrepancies in LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric Acid and a Sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. Eleven (11) of seventy (70) surrogate recoveries were outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. Patterns for Aroclors 1254 and 1260 were identified in these samples. The reported Aroclor was chosen based on the best pattern match and fit. Quantitation was performed using congeners common to both Aroclors to give the best overall total PCB concentration.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/31/02
Date

pef\r:\group\data\pest\tnu hanford\12L-323.pcb

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/23/02 16:48

RFW Batch Number: **0212L323** Client: **TNUHANFORD B02-030 H2020** Work Order: 11343606001 Page: 1

5

	Cust ID:	J00BH6	J00BH6	J00BH6	J00BH7	J00BH8	J00BH9
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	145 * %	110 %	110 %	115 %	115 %	115 %
	Decachlorobiphenyl	120 %	95 %	95 %	95 %	95 %	105 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		35 U	110 %	112 %	35 U	35 U	35 U
Aroclor-1221		69 U	69 U	69 U	70 U	69 U	69 U
Aroclor-1232		35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1242		35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1248		35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1254		35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1260		35 U	87 %	85 %	35 U	35 U	35 U

	Cust ID:	J00BJ0	J00BJ1	J00BJ2	J00BJ3	J00BJ4	J00BJ5
Sample Information	RFW#:	005	006	007	008	009	010
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	125 * %	115 %	130 * %	110 %	110 %	115 %
	Decachlorobiphenyl	110 %	100 %	115 %	100 %	105 %	105 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		35 U	35 U	35 U	34 U	35 U	34 U
Aroclor-1221		71 U	69 U	70 U	69 U	70 U	69 U
Aroclor-1232		35 U	35 U	35 U	34 U	35 U	34 U
Aroclor-1242		35 U	35 U	35 U	34 U	35 U	34 U
Aroclor-1248		35 U	35 U	35 U	34 U	35 U	34 U
Aroclor-1254		72	35 U	61	34 U	35 U	34 U
Aroclor-1260		35 U	35 U	35 U	34 U	35 U	34 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/23/02 16:48

RFW Batch Number: 0212L323 Client: TNUHANFORD B02-030 H2020 Work Order: 11343606001 Page: 2

	Cust ID:	J00BJ6	J00BJ7	J00BJ8	J00BJ9	J00BK0	J00BK1
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	105 %	125 * %	125 * %	110 %	120 * %	120 * %
	Decachlorobiphenyl	105 %	120 %	115 %	100 %	105 %	110 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		35 U	35 U	36 U	34 U	35 U	36 U
Aroclor-1221		71 U	69 U	71 U	69 U	69 U	72 U
Aroclor-1232		35 U	35 U	36 U	34 U	35 U	36 U
Aroclor-1242		35 U	35 U	36 U	34 U	35 U	36 U
Aroclor-1248		35 U	35 U	36 U	34 U	35 U	36 U
Aroclor-1254		100	35 U	59	34 U	35 U	36 U
Aroclor-1260		35 U	35 U	36 U	34 U	35 U	36 U

	Cust ID:	J00BK2	J00BK3	J00BK4	J00BK5	J00BK6	J00BK6
Sample Information	RFW#:	017	018	019	020	021	021 MS
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	115 %	100 %	105 %	110 %	115 %	105 %
	Decachlorobiphenyl	105 %	100 %	100 %	110 %	110 %	110 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		35 U	34 U	35 U	35 U	35 U	106 %
Aroclor-1221		71 U	69 U	70 U	69 U	70 U	70 U
Aroclor-1232		35 U	34 U	35 U	35 U	35 U	35 U
Aroclor-1242		35 U	34 U	35 U	35 U	35 U	35 U
Aroclor-1248		35 U	34 U	35 U	35 U	35 U	35 U
Aroclor-1254		35 U	34 U	35 U	35 U	35 U	35 U
Aroclor-1260		35 U	34 U	35 U	35 U	35 U	110 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

12/24/02

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/23/02 16:48

RFW Batch Number: **0212L323** Client: **TNUHANFORD B02-030 H2020** Work Order: 11343606001 Page: 3

	Cust ID:	J00BK6	J00BK7	J00BK8	J00BK9	J00BL0	J00BL1
Sample Information	RFW#:	-021 MSD	022	023	024	025	026
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	105 %	110 %	110 %	115 %	110 %	105 %
	Decachlorobiphenyl	110 %	110 %	110 %	125 * %	115 %	105 %
Aroclor-1016		107 %	35 U	34 U	34 U	34 U	35 U
Aroclor-1221		70 U	69 U	69 U	69 U	68 U	69 U
Aroclor-1232		35 U	35 U	34 U	34 U	34 U	35 U
Aroclor-1242		35 U	35 U	34 U	34 U	34 U	35 U
Aroclor-1248		35 U	35 U	34 U	34 U	34 U	35 U
Aroclor-1254		35 U	35 U	34 U	34 U	34 U	35 U
Aroclor-1260		110 %	35 U	34 U	34 U	34 U	35 U

	Cust ID:	J00BL2	PBLKHO	PBLKHO BS	PBLKHN	PBLKHN BS
Sample Information	RFW#:	027	02LE1481-MB1	02LE1481-MB1	02LE1482-MB1	02LE1482-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	120 * %	135 * %	130 * %	110 %
	Decachlorobiphenyl	110 %	90 %	95 %	95 %	85 %
Aroclor-1016		35 U	33 U	86 %	33 U	107 %
Aroclor-1221		70 U	67 U	67 U	67 U	67 U
Aroclor-1232		35 U	33 U	33 U	33 U	33 U
Aroclor-1242		35 U	33 U	33 U	33 U	33 U
Aroclor-1248		35 U	33 U	33 U	33 U	33 U
Aroclor-1254		380	33 U	33 U	33 U	33 U
Aroclor-1260		35 U	33 U	91 %	33 U	78 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

12/24/02

Lionville Laboratory Use Only

02121 323

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

VLI Lionville Laboratory Inc.

Client TNU-HANFORD SAF# B02-030

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec. Del Std. TAT 21 days

Date Rec'd 12/11/02 Date Due 01/01/03

		A	B	C
Refrigerator #		5	5	5
#/Type Container	Liquid			
	Solid	1AG	1AG	1AG
Volume	Liquid			
	Solid	250	500	120
Preservatives		—	—	—

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Total Metal Hg, CN, Hex Cr

Lionville Laboratory Use Only: OPCB; Hg, Pb, Be; ICP/C

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	Hg, Pb, Be	ICP/C
001	J00BH6			S	12-4-02	1015	1	1	1
002	H7					1040	1	1	1
003	H8					1055	1	1	1
004	H9					1110	1	1	1
005	J0					1130	1	1	1
006	J1					1155	1	1	1
007	J2					1210	1	1	1
008	J3				12-5-02	0840	1	1	1
009	J4					0850	1	1	1
010	J5					0905	1	1	1

Special Instructions:

SAF # B02-030

Run matrix QC

DATE/REVISIONS:

005A 1. ID on COC Reads J00BJ0 on
2. PCB Bottle reads J00BJ3
3. Time and Date Match COC for
4. Sample #5
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped / or Hand Delivered ___ Airbill # FedEx
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was: 1) Present on Outer Package Y or N; 2) Unbroken on Outer Package Y or N; 3) Present on Sample Y or N; 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 3 °C 3.2

Relinquished by	Received by	Date	Time
FedEx	[signature]	12-11-02	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7901 5827 5499

7901 5827 5444 Trip 3.5 / 7901 5827 5477 / 7901 5827 5503 Trip 2°

Lionville Laboratory Use Only
02/2L 323

Custody Transfer Record/Lab Work Request

Page ___ of ___

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORIES INC

Client: HANFORD SAFE B02-030

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #: See page 2

Lionville Laboratory Project Manager:

QC: Del: TAT:

Date Rec'd: 12/11/02 Date Due: 1/01/03

		A						B		C					
Refrigerator #				5						5		5			
#/Type Container	Liquid														
	Solid			1AG						1AG		1AG			
Volume	Liquid														
	Solid			250						500		120			
Preservatives				-						-		-			
ANALYSES REQUESTED		ORGANIC						INORG							
		VOA	BNA	Pest/PCB	Herb			Total Metal	CN						
		Lionville Laboratory Use Only													
				OPCB				Hg-Pb Be		ICP6					

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
011	J00BJ6			S	12-5-02	0915			1				1		1				
012	J7					0925			1				1		1				
013	J8					0935			1				1		1				
014	J9					0950			1				1		1				
015	K0					1000			1				1		1				
016	K1					1015			1				1		1				
017	K2					1025			1				1		1				
018	K3					1035			1				1		1				
019	K4					1050			1				1		1				
020	K5					1100			1				1		1				

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

See Page

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
[signature]	[signature]	12/11/02	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only
02124323

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC

Client: TNU Hanford B02-030
Est. Final Proj. Sampling Date:
Project #:
Project Contact/Phone #: see page 1
Lionville Laboratory Project Manager:
QC: Del: TAT:
Date Rec'd: 12/11/02 Date Due: 01/01/03

		A	B	C
Refrigerator #		5	5	5
#/Type Container	Liquid			
	Solid	1AG	1AG	1AG
Volume	Liquid			
	Solid	250	500	120
Preservatives		—	—	—
ANALYSES REQUESTED →	ORGANIC: VOA			
	ORGANIC: BNA			
	ORGANIC: Pest/PCB	OPCB		
	ORGANIC: Herb			
	INORG: Pest/Metal		HG-PB BA	
	INORG: Hg			
	INORG: CN			
	INORG: Hot Affm			IORG

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	HG-PB BA	IORG
021	TOOB K6			S	12/5/02	1110	1	1	1
022	K7					1115	1	1	1
023	K8					1125	1	1	1
024	K9					1130	1	1	1
025	L0					1140	1	1	1
026	L1					1145	1	1	1
027	TOOB L2			S	12/5/02	1140	1	1	1

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
FedEx	[signature]	12/11/02	0930

Relinquished by	Received by	Date	Time
~~COPY~~ ~~WRITE~~	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			
Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ	Price Code 8L Air Quality ☐
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030	Data Turnaround 21 Days
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express	
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
Cool 4C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date (12/4/02)	Sample Time										
J00BH6	SOIL	12/5/12/4/02	1015	X	X	X	X						
J00BH7	SOIL	12/4/02	1040	X	X	X	X						
J00BH8	Soil	12-4-02	1055	X	X	X	X						
J00BH9	Soil	12-4-02	1110	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R Nielson	12/5/02 1600	Received By/Stored In: EFIB 12502	1600
Relinquished By/Removed From: IB 3728	12-10-02 1000	Received By/Stored In: R. Fehl R Fehlberg	12-10-02 1000
Relinquished By/Removed From: R Fehl R Fehlberg	12-10-02 1000	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	12-11-02 0930	Received By/Stored In: [illegible]	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref# IB on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-20	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Air Quality ☐

Data Turnaround 21 Days

12

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TieTo J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions. RF 12-10-02	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ0	SOIL	12/4/02	1130	X	X	X	X						
J00BJ1	SOIL	12/4/02	1155	X	X	X	X						
J00BJ2	Soil	12-4-02	1210	X	X	X	X						
J00BJ3	Soil	12-5-02	0840	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R. Nielson	12/5/02 1600	Received By/Stored In REF 1B	12502 1600
Relinquished By/Removed From 1B 3728	12.10.02 1000	Received By/Stored In R. Fahlberg	12.10.02 1000
Relinquished By/Removed From FRC R. Fahlberg	12.10.02 1000	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	12-11-02 0930	Received By/Stored In	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref# 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-22	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie to J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time											
J00BJ4	SOIL	12-5-02	0850	X	X	X	X							
J00BJ5	SOIL	12-5-02	0905	X	X	X	X							
J00BJ6	Soil	12-5-02	0915	X	X	X	X							
J00BJ7	Soil	12-5-02	0925	X	X	X	X							

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R Nielson	12/5/02 1600	Received By/Stored In REF 1B	12 5 02 1600
Relinquished By/Removed From 1B 3728	12-10-02 1000	Received By/Stored In R. Fahlberg	12-10-02 1000
Relinquished By/Removed From R. Fahlberg	12-10-02 1000	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	12-11-02 0930	Received By/Stored In	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

13

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B02-030-24 | Page 1 of 1

Collector: R. Nielson/C. Trice	Company Contact: Rikki Thoren	Telephone No.: 521-8003	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location: 105F		SAF No.: B02-030
Ice Chest No.: SEE OSPC	Field Logbook No.: EL-1516-2	COA: R105FX200C	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A-030-089		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

T.C. To J00BF5

Special Handling and/or Storage: cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	See item (2) in Special Instructions	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ8	SOIL	12-5-02	0935	X	X	X	X						
J00BJ9	SOIL	12-5-02	0950	X	X	X	X						
J00BK0	Soil	12-5-02	1000	X	X	X	X						
J00BK1	Soil	12-5-02	1015	X	X	X	X						

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / F. Nielson	12/5/02 1600	REF IB	12 5 02 1600
IB 3728	12-10-02 1000	R. Fohlbery	12-10-02 1000
R. Fohlbery	12-10-02 1000	Fed Ex	
Fed Ex	12-11-02 0930	Vicki Hersey	12-11-02 0930

Sign/Print Names

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium

(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) (Lead); ICP Metals - 6010A (TAL) (Barium)

Personnel not available to relinquish samples from the 3728 Ref # IB on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-26	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSRC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSRC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

15

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To J00BF5

Special Handling and/or Storage

cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BK2	SOIL	12/5/02	1025	X	X	X	X						
J00BK3	SOIL	12/5/02	1035	X	X	X	X						
J00BK4	Soil	12-5-02	1050	X	X	X	X						
J00BK5	Soil	12-5-02	1100	X	X	X	X						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	12/5/02 1600	REF 1B	12502 1600
1B 3728	12-10-02 1000	R. Fahlberg	12-10-02 1000
R. Fahlberg	12-10-02 1000	Fed Ex	
Fed Ex	12-11-02 0930		12-11-02 0930

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-28	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TiCs 100 BFG

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BK6	SOIL	12/5/02	1110	X	X	X	X						
J00BK7	SOIL	12/5/02	1115	X	X	X	X						
J00BK8	SOIL	12-5-02	1125	X	X	X	X						
J00BK9	SOIL	12-5-02	1130	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R. Nielson R. Nielson	12/5/02 1600	Received By/Stored In REF IB	12502 1600
Relinquished By/Removed From IB 3728	12.10.02 1000	Received By/Stored In R. Fahlberg R. Fahlberg	12.10.02 1000
Relinquished By/Removed From R. Fahlberg R. Fahlberg	12.10.02 1000	Received By/Stored In FEDEX	
Relinquished By/Removed From FEDEX	12-11-02 0930	Received By/Stored In V. Hamm	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref # IB on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

16

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-030-30
Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BL0	SOIL	12-5-02	1140	X	X	X	X						
J00BL1	SOIL	12-5-02	1145	X	X	X	X						
J00BL2	Soil	12-5-02	1140	X	X	X	X						

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: R. Nielson/R. Nielson, Date/Time 12/5/02 1600	Received By/Stored In: Ref 1B, Date/Time 12502 1600	(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium (2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}
Relinquished By/Removed From: 1B 3728, Date/Time 12-10-02 1000	Received By/Stored In: R. Fahlberg/R. Fahlberg, Date/Time 12-10-02 1000	
Relinquished By/Removed From: R. Fahlberg/R. Fahlberg, Date/Time 12-10-02 1000	Received By/Stored In: FedEx, Date/Time	
Relinquished By/Removed From: FedEx, Date/Time 12-11-02 0930	Received By/Stored In: [illegible], Date/Time 12-11-02 0930	
Relinquished By/Removed From, Date/Time	Received By/Stored In, Date/Time	
Relinquished By/Removed From, Date/Time	Received By/Stored In, Date/Time	

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 12-11-02

SAE# / SOW# / Release #: B02-030

Laboratory SDG #: 02126323

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☐ Yes	☑ No	☐ N/A	☑ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No	☐ N/A	☑ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC-02-501 3°
99-043 3.2
02-402 3.5
01-025 2°

005A= ID ON COC READS J00BJ0 ON PCB BOTTL
READS J00BJ3 Time and Date
collected Match COC for Sample # 005

Laboratory Sample Custodian:

Laboratory Project Manager:

FEB 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00BH6						
BARIUM, TOTAL	001	S	02L0732	12/04/02	12/12/02	12/13/02
BARIUM, TOTAL	001 REP	S	02L0732	12/04/02	12/12/02	12/13/02
BARIUM, TOTAL	001 MS	S	02L0732	12/04/02	12/12/02	12/13/02
BARIUM, TOTAL	001 MSD	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	001	S	02C0376	12/04/02	12/20/02	12/23/02
MERCURY, TOTAL	001 REP	S	02C0376	12/04/02	12/20/02	12/23/02
MERCURY, TOTAL	001 MS	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	001	S	02L0732	12/04/02	12/12/02	12/13/02
LEAD, TOTAL	001 REP	S	02L0732	12/04/02	12/12/02	12/13/02
LEAD, TOTAL	001 MS	S	02L0732	12/04/02	12/12/02	12/13/02
LEAD, TOTAL	001 MSD	S	02L0732	12/04/02	12/12/02	12/13/02
J00BH7						
BARIUM, TOTAL	002	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	002	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	002	S	02L0732	12/04/02	12/12/02	12/13/02
J00BH8						
BARIUM, TOTAL	003	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	003	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	003	S	02L0732	12/04/02	12/12/02	12/13/02
J00BH9						
BARIUM, TOTAL	004	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	004	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	004	S	02L0732	12/04/02	12/12/02	12/13/02
J00BJ0						
BARIUM, TOTAL	005	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	005	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	005	S	02L0732	12/04/02	12/12/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00BJ1						
BARIUM, TOTAL	006	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	006	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	006	S	02L0732	12/04/02	12/12/02	12/13/02
J00BJ2						
BARIUM, TOTAL	007	S	02L0732	12/04/02	12/12/02	12/13/02
MERCURY, TOTAL	007	S	02C0376	12/04/02	12/20/02	12/23/02
LEAD, TOTAL	007	S	02L0732	12/04/02	12/12/02	12/13/02
J00BJ3						
BARIUM, TOTAL	008	S	02L0732	12/05/02	12/12/02	12/13/02
MERCURY, TOTAL	008	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	008	S	02L0732	12/05/02	12/12/02	12/13/02
J00BJ4						
BARIUM, TOTAL	009	S	02L0732	12/05/02	12/12/02	12/13/02
MERCURY, TOTAL	009	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	009	S	02L0732	12/05/02	12/12/02	12/13/02
J00BJ5						
BARIUM, TOTAL	010	S	02L0732	12/05/02	12/12/02	12/13/02
MERCURY, TOTAL	010	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	010	S	02L0732	12/05/02	12/12/02	12/13/02
J00BJ6						
BARIUM, TOTAL	011	S	02L0732	12/05/02	12/12/02	12/13/02
MERCURY, TOTAL	011	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	011	S	02L0732	12/05/02	12/12/02	12/13/02
J00BJ7						
BARIUM, TOTAL	012	S	02L0732	12/05/02	12/12/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	012	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	012	S	02L0732	12/05/02	12/12/02	12/13/02
J00BJ8						
BARIUM, TOTAL	013	S	02L0732	12/05/02	12/12/02	12/13/02
MERCURY, TOTAL	013	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	013	S	02L0732	12/05/02	12/12/02	12/13/02
J00BJ9						
BARIUM, TOTAL	014	S	02L0732	12/05/02	12/12/02	12/13/02
MERCURY, TOTAL	014	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	014	S	02L0732	12/05/02	12/12/02	12/13/02
J00BK0						
BARIUM, TOTAL	015	S	02L0735	12/05/02	12/13/02	12/16/02
BARIUM, TOTAL	015 REP	S	02L0735	12/05/02	12/13/02	12/16/02
BARIUM, TOTAL	015 MS	S	02L0735	12/05/02	12/13/02	12/16/02
BARIUM, TOTAL	015 MSD	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	015	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	015	S	02L0735	12/05/02	12/13/02	12/16/02
LEAD, TOTAL	015 REP	S	02L0735	12/05/02	12/13/02	12/16/02
LEAD, TOTAL	015 MS	S	02L0735	12/05/02	12/13/02	12/16/02
LEAD, TOTAL	015 MSD	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK1						
BARIUM, TOTAL	016	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	016	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	016	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK2						
BARIUM, TOTAL	017	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	017	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	017	S	02L0735	12/05/02	12/13/02	12/16/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00BK3						
BARIUM, TOTAL	018	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	018	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	018	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK4						
BARIUM, TOTAL	019	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	019	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	019	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK5						
BARIUM, TOTAL	020	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	020	S	02C0376	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	020	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK6						
BARIUM, TOTAL	021	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	021	S	02C0377	12/05/02	12/20/02	12/23/02
MERCURY, TOTAL	021 REP	S	02C0377	12/05/02	12/20/02	12/23/02
MERCURY, TOTAL	021 MS	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	021	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK7						
BARIUM, TOTAL	022	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	022	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	022	S	02L0735	12/05/02	12/13/02	12/16/02
J00BK8						
BARIUM, TOTAL	023	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	023	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	023	S	02L0735	12/05/02	12/13/02	12/16/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00BK9						
BARIUM, TOTAL	024	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	024	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	024	S	02L0735	12/05/02	12/13/02	12/16/02
J00BL0						
BARIUM, TOTAL	025	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	025	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	025	S	02L0735	12/05/02	12/13/02	12/16/02
J00BL1						
BARIUM, TOTAL	026	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	026	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	026	S	02L0735	12/05/02	12/13/02	12/16/02
J00BL2						
BARIUM, TOTAL	027	S	02L0735	12/05/02	12/13/02	12/16/02
MERCURY, TOTAL	027	S	02C0377	12/05/02	12/20/02	12/23/02
LEAD, TOTAL	027	S	02L0735	12/05/02	12/13/02	12/16/02

LAB QC:

BARIUM LABORATORY	LC1 BS	S	02L0732	N/A	12/12/02	12/13/02
BARIUM, TOTAL	MB1	S	02L0732	N/A	12/12/02	12/13/02
MERCURY LABORATORY	LC1 BS	S	02C0376	N/A	12/20/02	12/23/02
MERCURY, TOTAL	MB1	S	02C0376	N/A	12/20/02	12/23/02
LEAD LABORATORY	LC1 BS	S	02L0732	N/A	12/12/02	12/13/02
LEAD, TOTAL	MB1	S	02L0732	N/A	12/12/02	12/13/02
BARIUM LABORATORY	LC1 BS	S	02L0735	N/A	12/13/02	12/16/02
BARIUM, TOTAL	MB1	S	02L0735	N/A	12/13/02	12/16/02
LEAD LABORATORY	LC1 BS	S	02L0735	N/A	12/13/02	12/16/02
LEAD, TOTAL	MB1	S	02L0735	N/A	12/13/02	12/16/02
MERCURY LABORATORY	LC1 BS	S	02C0377	N/A	12/20/02	12/23/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	MB1	S	02C0377	N/A	12/20/02	12/23/02

LIONVILLE LABORATORY INC.

*** REVISION ***

Analytical Report

Client: TNU-HANFORD B02-030
LVL#: 0212L323
SDG/SAF#: H2020/B02-030

W.O.#: 11343-606-001-9999-00
Date Received: 12-11-02

METALS CASE NARRATIVE

This report has been revised to correct the Barium and Lead results for sample J00BK9 because wrong percent solid results were entered in the LIMS. Consequently, the report has been reprinted with correct percent solid, re-numbered (pages 11 through 17) and reported.

1. This narrative covers the analyses of 27 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 8 pages.

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11. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

01-14-03
Date

som/gmb/m12-323-rev.

LVLI
LIONVILLE LABORATORY INC.

The following methods are used as reference for the digestion and analysis of samples contained within tl

Lot#: 02121323

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	__6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	__6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	__6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	__6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00BH6	Barium, Total	35.8	MG/KG	0.37	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-002	J00BH7	Barium, Total	43.7	MG/KG	0.38	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.5 u	MG/KG	3.5	1.0
-003	J00BH8	Barium, Total	40.4	MG/KG	0.36	1.0
		Mercury, Total	0.06	MG/KG	0.02	1.0
		Lead, Total	3.3 u	MG/KG	3.3	1.0
-004	J00BH9	Barium, Total	35.7	MG/KG	0.37	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-005	J00BJ0	Barium, Total	46.4	MG/KG	0.36	1.0
		Mercury, Total	0.59	MG/KG	0.02	1.0
		Lead, Total	6.1	MG/KG	3.3	1.0
-006	J00BJ1	Barium, Total	33.7	MG/KG	0.37	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-007	J00BJ2	Barium, Total	45.0	MG/KG	0.38	1.0
		Mercury, Total	0.24	MG/KG	0.02	1.0
		Lead, Total	3.5 u	MG/KG	3.5	1.0
-008	J00BJ3	Barium, Total	32.4	MG/KG	0.35	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.3 u	MG/KG	3.3	1.0
-009	J00BJ4	Barium, Total	36.4	MG/KG	0.36	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020 LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	J00BJ5	Barium, Total	32.2	MG/KG	0.34	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.1 u	MG/KG	3.1	1.0
-011	J00BJ6	Barium, Total	52.0	MG/KG	0.36	1.0
		Mercury, Total	0.12	MG/KG	0.01	1.0
		Lead, Total	4.8	MG/KG	3.3	1.0
-012	J00BJ7	Barium, Total	36.9	MG/KG	0.32	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.0 u	MG/KG	3.0	1.0
-013	J00BJ8	Barium, Total	49.6	MG/KG	0.35	1.0
		Mercury, Total	0.16	MG/KG	0.02	1.0
		Lead, Total	4.4	MG/KG	3.2	1.0
-014	J00BJ9	Barium, Total	35.3	MG/KG	0.37	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-015	J00BK0	Barium, Total	47.8	MG/KG	0.37	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	4.3	MG/KG	3.4	1.0
-016	J00BK1	Barium, Total	38.0	MG/KG	0.38	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.5 u	MG/KG	3.5	1.0
-017	J00BK2	Barium, Total	38.1	MG/KG	0.37	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-018	J00BK3	Barium, Total	32.9	MG/KG	0.28	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.9	MG/KG	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-019	J00BK4	Barium, Total	43.6	MG/KG	0.33	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.5	MG/KG	3.1	1.0
-020	J00BK5	Barium, Total	35.0	MG/KG	0.35	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.2 u	MG/KG	3.2	1.0
-021	J00BK6	Barium, Total	47.7	MG/KG	0.37	1.0
		Mercury, Total	0.05	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-022	J00BK7	Barium, Total	35.5	MG/KG	0.37	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-023	J00BK8	Barium, Total	39.0	MG/KG	0.37	1.0
		Mercury, Total	0.02	MG/KG	0.01	1.0
		Lead, Total	5.0	MG/KG	3.4	1.0
-024	J00BK9	Barium, Total	37.0	MG/KG	0.37	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-025	J00BL0	Barium, Total	37.9	MG/KG	0.36	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-026	J00BL1	Barium, Total	41.1	MG/KG	0.37	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.4 u	MG/KG	3.4	1.0
-027	J00BL2	Barium, Total	40.8	MG/KG	0.38	1.0
		Mercury, Total	0.09	MG/KG	0.01	1.0
		Lead, Total	3.5	MG/KG	3.5	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/14/03

CLIENT: TNUHANFORD B02-030 H2020 LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0732-MB1	Barium, Total	0.36 u	MG/KG	0.36	1.0
		Lead, Total	3.3 u	MG/KG	3.3	1.0
BLANK1	02C0376-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0
BLANK1	02L0735-MB1	Barium, Total	0.36 u	MG/KG	0.36	1.0
		Lead, Total	3.3 u	MG/KG	3.3	1.0
BLANK1	02C0377-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J00BH6	Barium, Total	209	35.8	177	97.6	1.0
		Barium, Total MSD	224	35.8	199	94.3	1.0
		Mercury, Total	0.18	0.02	0.17	99.4	1.0
		Lead, Total	42.5	3.4 u	44.3	95.9	1.0
		Lead, Total MSD	48.0	3.4 u	49.8	96.4	1.0
-015	J00BK0	Barium, Total	244	47.8	204	95.9	1.0
		Barium, Total MSD	235	47.8	200	93.2	1.0
		Lead, Total	52.6	4.3	51.0	94.6	1.0
		Lead, Total MSD	52.0	4.3	50.1	95.1	1.0
-021	J00BK6	Mercury, Total	0.18	0.05	0.15	85.7	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00BH6	Barium, Total	35.8	43.5	19.4	1.0
		Mercury, Total	0.02	0.02	12.5	1.0
		Lead, Total	3.4 u	3.4 u	NC	1.0
-015REP	J00BK0	Barium, Total	47.8	38.6	21.3	1.0
		Lead, Total	4.3	4.4	2.3	1.0
-021REP	J00BK6	Mercury, Total	0.05	0.04	25.9	1.0

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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0732-LC1	Barium, LCS	491	500	MG/KG	98.2
		Lead, LCS	250	250	MG/KG	99.8
LCS1	02C0376-LC1	Mercury, LCS	2.1	2.5	MG/KG	84.4
LCS1	02L0735-LC1	Barium, LCS	494	500	MG/KG	98.9
		Lead, LCS	239	250	MG/KG	95.6
LCS1	02C0377-LC1	Mercury, LCS	2.4	2.5	MG/KG	97.9

Lionville Laboratory Use Only
0212L323

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client TNU-HANFORD SAF# B02-030

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec. Del Std. TAT 21 days

Date Rec'd 12/11/02 Date Due 01/01/03

		A							B		C					
Refrigerator #				5					5		5					
#/Type Container	Liquid															
	Solid			1AG					1AG		1AG					
Volume	Liquid															
	Solid			250					500		120					
Preservatives				—					—		—					
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				TCP Metal Hg	CN	Hcl 4°C					
		↓ Lionville Laboratory Use Only ↓														
				OPCB					Hg, Pb Bc		ICRL					

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	Hg, Pb Bc	ICRL
001	J00BH6			S	12-4-2	1015	1	1	1
002	H7					1040	1	1	1
003	H8					1055	1	1	1
004	H9					1110	1	1	1
005	J0					1130	1	1	1
006	J1					1155	1	1	1
007	J2					1210	1	1	1
008	J3				12-5-2	0840	1	1	1
009	J4					0850	1	1	1
010	J5					0905	1	1	1

Special Instructions:

SAF# B02-030

Run matrix QC

DATE/REVISIONS:

005A 1. ID ON COC Reads J00BJ0 on
2. PCB Bottle reads J00BJ3
3. Time and Date match COC for
4. Sample #5
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # FedEx
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 3 °C 3.2

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

79015827 5499

79015827 5477 / 79015827 5503 Trip 2'

Relinquished by	Received by	Date	Time
FedEx	[signature]	12-11-02	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

0212L 323

Custody Transfer Record/Lab Work Request

Page 2 of 6

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client: HANFORD SAFE B02-030

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #: See page 8

Lionville Laboratory Project Manager:

QC: Del: TAT:

Date Rec'd: 12/11/02 Date Due: 1/01/03

		A	B	C
Refrigerator #		5	5	5
#/Type Container	Liquid			
	Solid	1AG	1AG	1AG
Volume	Liquid			
	Solid	250	500	120
Preservatives		–	–	–

ANALYSES REQUESTED →

ORGANIC				INORG		
VOA	BNA	Pest/PCB	Herb	Metal	CN	Hex Chrom

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	HG-Pb Ba	ICP6
S - Soil	011	J00BJ6			S	12-5-02	0915	1	1	1
SE - Sediment	012	J7					0925	1	1	1
SO - Solid	013	J8					0935	1	1	1
SL - Sludge	014	J9					0950	1	1	1
W - Water	015	K0					1000	1	1	1
O - Oil	016	K1					1015	1	1	1
A - Air	017	K2					1025	1	1	1
DS - Drum Solids	018	K3					1035	1	1	1
DL - Drum Liquids	019	K4					1050	1	1	1
L - EP/TCLP Leachate	020	K5					1100	1	1	1
WI - Wipe										
X - Other										
F - Fish										

Special Instructions:

DATE/REVISIONS:

1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ See page 8

Airbill #

2) Ambient or Chilled

3) Received in Good Condition Y or N

4) Samples Properly Preserved Y or N

5) Received Within Holding Times Y or N

Tamper Resistant Seal was: 1) Present on Outer Package Y or N

2) Unbroken on Outer Package Y or N

3) Present on Sample Y or N

4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	12/11/02	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Lionville Laboratory Use Only
02124323

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

Client: TNU Hanford B02-030

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #: See page 1

Lionville Laboratory Project Manager:

QC: Del: TAT:

Date Rec'd: 12/11/02 Date Due: 01/01/03

		A	B	C
Refrigerator #		5	5	5
#/Type Container	Liquid			
	Solid	1AG	1AG	1AG
Volume	Liquid			
	Solid	250	500	120
Preservatives		—	—	—

ANALYSES REQUESTED →

	ORGANIC				INORG			
	VOA	BNA	Pest/PCB	Herb	Metal	Hg	CN	Hg/Hm
Lionville Laboratory Use Only			OPCB		RG-PB BA			IORG

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	RG-PB BA	IORG
021	I00B K6			S	12/5/02	11-10	1	1	1
022	K7					1115	1	1	1
023	K8					1125	1	1	1
024	K9					1130	1	1	1
025	L0					1140	1	1	1
026	L1					1145	1	1	1
027	I00B L2			S	12-5-02	1140	1	1	1

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	12/11/2	0930

Relinquished by	Received by	Date	Time
COURIER WHITE	ORIGINAL REWRITTEN		

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-18	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
Cool 4C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

12/4/02

Sample No.	Matrix *	Sample Date	Sample Time										
J00BH6	SOIL	12/5/12/4/02	1015	X	X	X	X						
J00BH7	SOIL	12/4/02	1040	X	X	X	X						
J00BH8	Soil	12-4-02	1055	X	X	X	X						
J00BH9	Soil	12-4-02	1110	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R Nielson R Nielson 12/5/02	1600	Received By/Stored In RCF 1B 12502	1600
Relinquished By/Removed From 1B 3728 12-10-02	1000	Received By/Stored In R. Fello R. Fellows 12-10-02	1000
Relinquished By/Removed From R. Fello R. Fellows 12-10-02	1000	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex 12-11-02	0930	Received By/Stored In [illegible] 12-11-02	0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

21

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-20	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Air Quality ☐

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie to J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions. 12-10-02	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							
Sample No. / Matrix * / Sample Date / Sample Time											
J00BJ0 / SOIL / 12/4/02 / 1130	X	X	X	X							
J00BJ1 / SOIL / 12/4/02 / 1155	X	X	X	X							
J00BJ2 / Soil / 12-4-02 / 1210	X	X	X	X							
J00BJ3 / Soil / 12-5-02 / 0840	X	X	X	X							

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	12/5/02 1600	REF 1B	12502 1600
1B 3728	12-10-02 1000	R. Fahlberg	12-10-02 1000
R. Fahlberg	12-10-02 1000	Fed Ex	
Fed Ex	12-11-02 0930		12-11-02 0930

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 372E
Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-22	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSR	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSR

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ4	SOIL	12-5-02	0850	X	X	X	X						
J00BJ5	SOIL	12-5-02	0905	X	X	X	X						
J00BJ6	Soil	12-5-02	0915	X	X	X	X						
J00BJ7	Soil	12-5-02	0925	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R Nielson	12/5/02 1600	Received By/Stored In REF 1B	12 5 02 1600
Relinquished By/Removed From 1B 3728	12-10-02 1000	Received By/Stored In R. Fahlberg	12-10-02 1000
Relinquished By/Removed From R. Fahlberg R. Fahlberg	12-10-02 1000	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	12-11-02 0930	Received By/Stored In	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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

23

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-24	Page 1 of 1

Collector: R. Nielson/C. Trice	Company Contact: Rikki Thoren — Telephone No.: 521-8003	Project Coordinator: TRENT, SJ	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location: 105F	SAF No.: B02-030	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: EL-1516-2 — COA: R105FX200C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A-030-089	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	See item (2) in Special Instructions	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ8	SOIL	12-5-02	0935	X	X	X	X						
J00BJ9	SOIL	12-5-02	0950	X	X	X	X						
J00BK0	Soil	12-5-02	1000	X	X	X	X						
J00BK1	Soil	12-5-02	1015	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R Nielson / R Nielson 12/5/02	1600	Received By/Stored In: REF 18 12502	1600
Relinquished By/Removed From: 18 3728 12.10.02	1000	Received By/Stored In: R.Fohlbay / R.Fohlbay 12.10.02	1000
Relinquished By/Removed From: RRC / R.Fohlbay 12.10.02	1000	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FedEx 12-11-02	0930	Received By/Stored In: Vicki Herrera 12-11-02	0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 18 on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-26	Page 1 of 1

Collector: R. Nielson/C. Trice	Company Contact: Rikki Thoren — Telephone No.: 521-8003	Project Coordinator: TRENT, SJ	Price Code: 8L — Data Turnaround: 21 Days
Project Designation: 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location: 105F	SAF No.: B02-030	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: EL-1516-2 — COA: R105FX200C	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A030 089	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Tre To J00BF5

Special Handling and/or Storage: cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time											
J00BK2	SOIL	12/5/02	1025	X	X	X	X							
J00BK3	SOIL	12/5/02	1035	X	X	X	X							
J00BK4	Soil	12-5-02	1050	X	X	X	X							
J00BK5	Soil	12-5-02	1100	X	X	X	X							

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	12/5/02 1600	REF 1B	12 5 02 1600
Relinquished By/Removed From	1B 3728	12-10-02 1000	[illegible]	12-10-02 1000
Relinquished By/Removed From	[illegible]	12-10-02 1000	Fed Ex	
Relinquished By/Removed From	Fed Ex	12-11-02 0930	[illegible]	12-11-02 0930
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) (Lead); ICP Metals - 6010A (TAL) (Barium)

Personnel not available to relinquish samples from the 3728 Ref# 1B on 12/10/02

Matrix *: S=Soil, SE=Sediment, SO=Solid, SJ=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-28	Page 1 of 1

Collector: R. Nielson/C. Trice	Company Contact: Rikki Thoren	Telephone No.: 521-8003	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location: 105F	SAF No.: B02-030	
Ice Chest No.: SEE OSPC	Field Logbook No.: EL-1516-2	COA: R105FX200C	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A030 089		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TIC To 100 BFG

Special Handling and/or Storage
COOL 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BK6	SOIL	12/5/02	1110	X	X	X	X						
J00BK7	SOIL	12/5/02	1115	X	X	X	X						
J00BK8	SOIL	12-5-02	1125	X	X	X	X						
J00BK9	SOIL	12-5-02	1130	X	X	X	X						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	1600 12/5/02	REF IB	12502 1606
IB 3728	12.10.02 1000	R. Fahlberg R. Fahlberg	12.10.02 1000
R. Fahlberg R. Fahlberg	12.10.02 1000	FEDEX	
FEDEX	12-11-02 0930	[illegible]	12-11-02 0930

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref # IB on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-30	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie to J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BL0	SOIL	12-5-02	1140	X	X	X	X						
J00BL1	SOIL	12-5-02	1145	X	X	X	X						
J00BL2	Soil	12-5-02	1140	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R. Nielson/R. Nielson 12/5/02	1600	Received By/Stored In REF 1B 12502	1600
Relinquished By/Removed From 1B 3728 12-10-02	1000	Received By/Stored In R. Fahlberg R. Fahlberg 12-10-02	1000
Relinquished By/Removed From R. Fahlberg R. Fahlberg 12-10-02	1000	Received By/Stored In FedEx	
Relinquished By/Removed From FedEx 12-11-02	0930	Received By/Stored In [illegible] 12-11-02	0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) (Lead); ICP Metals - 6010A (TAL) (Barium)

Personnel not available to relinquish samples from the 3728
Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 12-11-02

SAF# / SOW# / Release #: B02-030

Laboratory SDG #: 02126323

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☐ Yes	☑ No	☐ N/A	☑ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No	☐ N/A	☑ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC-02-501 3°
99-043 3.2
02-402 3.5
01-025 2°

005A: ID on COC Reads J00BJ0 on PCB Bottle Reads J00BJ3 Time and Date collected Match COC for Sample # 005

Laboratory Sample Custodian:

Laboratory Project Manager:

FEB 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00BH6						
% SOLIDS	001	S	02L%S137	12/04/02	12/12/02	12/13/02
% SOLIDS	001 REP	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	001	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BH7						
% SOLIDS	002	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	002	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BH8						
% SOLIDS	003	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	003	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BH9						
% SOLIDS	004	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	004	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BJ0						
% SOLIDS	005	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	005	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BJ1						
% SOLIDS	006	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	006	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BJ2						
% SOLIDS	007	S	02L%S137	12/04/02	12/12/02	12/13/02
CHROMIUM VI	007	S	01LVI003	12/04/02	01/13/02	01/13/02
J00BJ3						
% SOLIDS	008	S	02L%S137	12/05/02	12/12/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	008	S	01LVI003	12/05/02	01/13/02	01/13/02
CHROMIUM VI	008 REP	S	01LVI003	12/05/02	01/13/02	01/13/02
CHROMIUM VI	008 MS	S	01LVI003	12/05/02	01/13/02	01/13/02
CHROMIUM VI	008 MSD	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BJ4						
% SOLIDS	009	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	009	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BJ5						
% SOLIDS	010	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	010	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BJ6						
% SOLIDS	011	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	011	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BJ7						
% SOLIDS	012	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	012	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BJ8						
% SOLIDS	013	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	013	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BJ9						
% SOLIDS	014	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	014	S	01LVI003	12/05/02	01/13/02	01/13/02
J00BK0						
% SOLIDS	015	S	02L%S137	12/05/02	12/12/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	015	S	03LVI002	12/05/02	01/08/03	01/09/03
CHROMIUM VI	015 REP	S	03LVI002	12/05/02	01/08/03	01/09/03
CHROMIUM VI	015 MS	S	03LVI002	12/05/02	01/08/03	01/09/03
CHROMIUM VI	015 MSD	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK1						
% SOLIDS	016	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	016	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK2						
% SOLIDS	017	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	017	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK3						
% SOLIDS	018	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	018	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK4						
% SOLIDS	019	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	019	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK5						
% SOLIDS	020	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	020	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK6						
% SOLIDS	021	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	021	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK7						
% SOLIDS	022	S	02L%S137	12/05/02	12/12/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B02-030 H2020

DATE RECEIVED: 12/11/02 LVL LOT # :0212L323

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	022	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK8						
% SOLIDS	023	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	023	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BK9						
% SOLIDS	024	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	024	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BL0						
% SOLIDS	025	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	025	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BL1						
% SOLIDS	026	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	026	S	03LVI002	12/05/02	01/08/03	01/09/03
J00BL2						
% SOLIDS	027	S	02L%S137	12/05/02	12/12/02	12/13/02
CHROMIUM VI	027	S	03LVI002	12/05/02	01/08/03	01/09/03

LAB QC:

CHROMIUM VI	MB1	S	01LVI003	N/A	01/13/02	01/13/02
CHROMIUM VI	MB1 BS	S	01LVI003	N/A	01/13/02	01/13/02
CHROMIUM VI	MB1 BSD	S	01LVI003	N/A	01/13/02	01/13/02
CHROMIUM VI	MB1	S	03LVI002	N/A	01/08/03	01/09/03
CHROMIUM VI	MB1 BS	S	03LVI002	N/A	01/08/03	01/09/03
CHROMIUM VI	MB1 BSD	S	03LVI002	N/A	01/08/03	01/09/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B02-030 H2020
LVL#: 0212L323

W.O.#: 11343-606-001-9999-00
Date Received: 12-11-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 27 soil samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were not met for Chromium VI due to several analysis events that yielded poor Laboratory Control Sample and matrix spike recoveries.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks for Chromium VI were within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analyses for Percent Solids and Chromium VI sample J00BJ3 were within the 20% Relative Percent Difference (RPD) control limit, however replicate analysis for Chromium VI sample J00BK0 was outside the control limit. Replicate results for sample J00BK0 were less than 10 times the reporting limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Nicki J. Kerzene
for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

1-16-03
Date

njp\i12-323

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 24 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	
Other:	**Method:**		
Other:	**Method**		

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00BH6	% Solids	96.6	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-002	J00BH7	% Solids	95.7	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-003	J00BH8	% Solids	96.1	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-004	J00BH9	% Solids	96.0	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-005	J00BJ0	% Solids	94.0	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-006	J00BJ1	% Solids	96.4	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-007	J00BJ2	% Solids	95.0	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-008	J00BJ3	% Solids	96.8	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-009	J00BJ4	% Solids	95.1	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-010	J00BJ5	% Solids	96.7	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020 LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J00BJ6	% Solids	94.3	%	0.01	1.0
		Chromium VI	0.89	MG/KG	0.42	1.0
-012	J00BJ7	% Solids	96.2	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-013	J00BJ8	% Solids	93.3	%	0.01	1.0
		Chromium VI	1.0	MG/KG	0.43	1.0
-014	J00BJ9	% Solids	97.0	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-015	J00BK0	% Solids	96.0	%	0.01	1.0
		Chromium VI	0.55	MG/KG	0.41	1.0
-016	J00BK1	% Solids	92.7	%	0.01	1.0
		Chromium VI	1.4	MG/KG	0.42	1.0
-017	J00BK2	% Solids	94.5	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-018	J00BK3	% Solids	96.7	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-019	J00BK4	% Solids	94.9	%	0.01	1.0
		Chromium VI	0.64	MG/KG	0.41	1.0
-020	J00BK5	% Solids	96.3	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-021	J00BK6	% Solids	95.6	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-022	J00BK7	% Solids	96.5	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-023	J00BK8	% Solids	97.0	%	0.01	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
-024	J00BK9	% Solids	97.0	%	0.01	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
-025	J00BL0	% Solids	97.7	%	0.01	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
-026	J00BL1	% Solids	96.4	%	0.01	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
-027	J00BL2	% Solids	95.3	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/14/03

CLIENT: TNUHANFORD B02-030 H2020

LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LVI003-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	03LVI002-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

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Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020 LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-008	J00BJ3	Soluble Chromium VI	4.0	0.41u	4.1	94.1	1.0
		Insoluble Chromium VI	1410	0.41u	1410	99.7	100
-015	J00BK0	Soluble Chromium VI	4.9	0.55	4.0	107.5	1.0
		Insoluble Chromium VI	1340	0.55	1270	105.3	100
BLANK10	01LVI003-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.4	1.0
		Insoluble Chromium VI	1220	0.40u	1210	100.4	100
BLANK10	03LVI002-MB1	Soluble Chromium VI	4.1	0.40u	4.0	102.2	1.0
		Insoluble Chromium VI	1160	0.40u	1150	101.1	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/14/03

CLIENT: TNUHANFORD B02-030 H2020 LVL LOT #: 0212L323

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00BH6	% Solids	96.6	96.7	0.12	1.0
-008REP	J00BJ3	Chromium VI	0.41u	0.41u	NC	1.0
-015REP	J00BK0	Chromium VI	0.55	0.69	23.2	1.0

Lionville Laboratory Use Only

02121 323

Custody Transfer Record/Lab Work Request

Page 1 of 3

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

Client TNU-HANFORD SAF# B02-030

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC Spec. Del Std. TAT 21 days

Date Rec'd 12/11/02 Date Due 01/01/03

		A							B		C						
Refrigerator #				5					5		5						3
#/Type Container	Liquid																
	Solid			1AG					1AG		1AG						
Volume	Liquid																
	Solid			250					500		120						
Preservatives				—					—		—						
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				TCP Metal Hg	CN	Hex Chrom						
									Lionville Laboratory Use Only								
				OPCB					Hg, Pb Ba		ICPC						

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	Hg, Pb Ba	ICPC
001	J00BH6			S	12-4-02	1015	1	1	1
002	H7					1040	1	1	1
003	H8					1055	1	1	1
004	H9					1110	1	1	1
005	J0					1130	1	1	1
006	J1					1155	1	1	1
007	J2					1210	1	1	1
008	J3				12-5-02	0840	1	1	1
009	J4					0850	1	1	1
010	J5					0905	1	1	1

Special Instructions:

SAF # B02-030

Run matrix QC

DATE/REVISIONS:

005A 1. ID ON COC Reads J00BJ0 on
2. PCB Bottle reads J00BJ3
3. Time and Date match COC for
4. Sample #5
5.
6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See Below
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 3 °C 3.2

Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	12-11-02	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

7901 5827 5499

7901 5827 5477 / 7901 5827 5503 Temp 2°

Rcvd 7901 5827 5444 Temp 3.5

Lionville Laboratory Use Only
0212L323

Custody Transfer Record/Lab Work Request

Page ___ of ___

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY, INC.

Client: HANFORD SAFE B02-030

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #: see page 2

Lionville Laboratory Project Manager:

QC: ___ Del: ___ TAT: ___

Date Rec'd: 12/11/02 Date Due: 1/01/03

		A						B		C					
Refrigerator #		5						5		5					✓
#/Type Container	Liquid														—
	Solid	1AG						1AG		1AG					
Volume	Liquid														
	Solid	250						500		125					
Preservatives		—						—		—					
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb			INORG: Total Metal	CN	HCl Chlor					
		Lionville Laboratory Use Only													
				OPCB				Hg Pb Be		ICP6					

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OPCB	Hg Pb Be	ICP6
011	J00BJ6			S	12-5-02	0915	1	1	1
012	J7					0925	1	1	1
013	J8					0935	1	1	1
014	J9					0950	1	1	1
015	K0					1000	1	1	1
016	K1					1015	1	1	1
017	K2					1025	1	1	1
018	K3					1035	1	1	1
019	K4					1050	1	1	1
020	K5					1100	1	1	1

Special Instructions:

DATE/REVISIONS:
1. ___
2. ___
3. ___
4. ___
5. ___
6. ___

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Relinquished by	Received by	Date	Time
[signature]	[signature]	12/11/02	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Lionville Laboratory Use Only
02124323

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC

Client: TNU Hanford B02-030

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #: See page 1

Lionville Laboratory Project Manager:

QC: Del: TAT:

Date Rec'd: 12/11/02 Date Due: 01/01/03

		A	B	C	D
Refrigerator #		5	5	5	5
#/Type Container	Liquid				
	Solid	1AG	1AG	1AG	
Volume	Liquid				
	Solid	250	500	120	
Preservatives		–	–	–	
ANALYSES REQUESTED →	ORGANIC: VOA				
	ORGANIC: BNA				
	ORGANIC: Pest/PCB				
	ORGANIC: Herb				
	INORG: Metal Hg				
	INORG: CN				
	INORG: Hof Chrom				
Lionville Laboratory Use Only		DPCB	HG-PB BR	ICP6	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	DPCB	HG-PB BR	ICP6
021	TOOB K6			S	12/5/02	11-10	1	1	1
022	K7					1115	1	1	1
023	K8					1125	1	1	1
024	K9					1130	1	1	1
025	L0					1140	1	1	1
026	L1					1145	1	1	1
027	TOOB L2			S	12-5-02	1140	1	1	1

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	12/11/02	0930

Relinquished by	Received by	Date	Time
COMPANY WAVE	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-18	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Trc To J00BF5

Special Handling and/or Storage
Coo | 4C

Preservation	None	Cool 4C	None	Cool 4C						
Type of Container	P	aG	aG	aG						
No. of Container(s)	1	1	1	1						
Volume	1000mL	120mL	500mL	250mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	See item (2) in Special Instructions	PCBs - 8082						

12/4/02

Sample No.	Matrix *	Sample Date	Sample Time										
J00BH6	SOIL	12/5/12/4/02	1015	X	X	X	X						
J00BH7	SOIL	12/4/02	1040	X	X	X	X						
J00BH8	Soil	12-4-02	1055	X	X	X	X						
J00BH9	Soil	12-4-02	1110	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R Nielson/C Trice	12/5/02 1600	Received By/Stored In REF 1B	12502 1600
Relinquished By/Removed From 1B 3728	12-10-02 1000	Received By/Stored In R. Fellows R Fahlberg	12-10-02 1000
Relinquished By/Removed From R. Fellows R Fahlberg	12-10-02 1000	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	12-11-02 0930	Received By/Stored In [illegible]	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-20	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TIE TO J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ0	SOIL	12/4/02	1130	X	X	X	X						
J00BJ1	SOIL	12/4/02	1155	X	X	X	X						
J00BJ2	Soil	12-4-02	1210	X	X	X	X						
J00BJ3	Soil	12-5-02	0840	X	X	X	X						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	12/5/02 1600	REF 1B	12502 1600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1B 3728	12-10-02 1000	R. Fahlberg	12-10-02 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg	12-10-02 1000	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	12-11-02 0930		12-11-02 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 372E Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-22	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSR	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSR

Price Code 8L

Air Quality ☐

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie to J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ4	SOIL	12-5-02	0850	X	X	X	X						
J00BJ5	SOIL	12-5-02	0905	X	X	X	X						
J00BJ6	Soil	12-5-02	0915	X	X	X	X						
J00BJ7	Soil	12-5-02	0925	X	X	X	X						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	12/5/02 1600	REF 1B	12 5 02 1600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1B 3728	12-10-02 1000	R. Fahlberg	12-10-02 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg	12-10-02 1000	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	12-11-02 0930		12-11-02 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-24	Page 1 of 1

Collector: R. Nielson/C. Trice	Company Contact: Rikki Thoren	Telephone No.: 521-8003	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days	Air Quality ☐	
Project Designation: 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location: 105F	SAF No.: B02-030	
Ice Chest No.: SEE OSPC	Field Logbook No.: EL-1516-2	COA: R105FX200C	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A-030-089	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions	Chromium Hex - 7196	See item (2) in Special Instructions	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ8	SOIL	12-5-02	0935	X	X	X	X						
J00BJ9	SOIL	12-5-02	0950	X	X	X	X						
J00BK0	Soil	12-5-02	1000	X	X	X	X						
J00BK1	Soil	12-5-02	1015	X	X	X	X						

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R Nielson / R Nielson	12-5-02 1600	REF 1B	12-5-02 1600
Relinquished By/Removed From	1B 3728	12-10-02 1000	R Fohlberg / R Fohlberg	12-10-02 1000
Relinquished By/Removed From	RRC / R Fohlberg	12-10-02 1000	Received By/Stored In: Fed Ex	
Relinquished By/Removed From	Fed Ex	12-11-02 0930	Received By/Stored In	12-11-02 0930
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-26	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code **8L** Data Turnaround **21 Days**

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tre To J00BF5

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BK2	SOIL	12/5/02	1025	X	X	X	X						
J00BK3	SOIL	12/5/02	1035	X	X	X	X						
J00BK4	Soil	12-5-02	1050	X	X	X	X						
J00BK5	Soil	12-5-02	1100	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R. Nielson	12/5/02 1600	Received By/Stored In REF 1B 12502	1600
Relinquished By/Removed From 1B 3728 12-10-02	1000	Received By/Stored In R. Fahlberg	12-10-02 1000
Relinquished By/Removed From R. Fahlberg	12-10-02 1000	Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex	12-11-02 0930	Received By/Stored In [illegible]	12-11-02 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium

(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-28	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00 BFS

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BK6	SOIL	12/5/02	1110	X	X	X	X						
J00BK7	SOIL	12/5/02	1115	X	X	X	X						
J00BK8	SOIL	12-5-02	1125	X	X	X	X						
J00BK9	SOIL	12-5-02	1130	X	X	X	X						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1600	Received By/Stored In	Date/Time
R. Nielson R. Nielson 12/5/02		REF 1B 12502 1605	
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
1B 3728 12.10.02		R. Fahlberg R. Fahlberg 12.10.02	
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg 12.10.02		FEDEX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FEDEX 12-11-02 0930		12-11-02 0930	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-30 Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped ~~To~~ TMA/RECRA	Offsite Property No. A030 089		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
Cool 4°C

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time											
J00BL0	SOIL	12-5-02	1140	X	X	X	X							
J00BL1	SOIL	12-5-02	1145	X	X	X	X							
J00BL2	SOIL	12-5-02	1140	X	X	X	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1600	Received By/Stored In	Date/Time
R. Nielson/R. Nielson 12/5/02		REF 1B 12502	1600
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
1B 37286 12-10-02		R. Fehlberg RFehlberg 12-10-02	
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time
RFehlberg RFehlberg 12-10-02		FedEx	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex 12-11-02	0930	12-11-02	0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 12-11-02

SAF# / SOW# / Release #: B02-030

Laboratory SDG #: 02126323

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☐ Yes	☑ No	☐ N/A	☑ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☐ Yes	☑ No	☐ N/A	☑ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☐ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC-02-501 3°
99-043 3.2
02-402 3.5
01-025 2°

005A: ID ON COC READS J00BJ0 ON PCB BOTTLE READS J00BJ3 Time and Date collected Match COC for Sample # 005

Laboratory Sample Custodian:

Laboratory Project Manager:

24

EBERLINE
SERVICES

January 21, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R2-12-085-7422, SDG H2020
R2-12-086-7423

Dear Ms. Kessner:

Enclosed is the data report for twenty-seven solid samples designated under SAF No. B02-030 received at Eberline Services on December 11, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

JAN 2003

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2020 was composed of twenty-seven solid (soil) samples designated under SAF No. B02-030 with a Project Designation of: 105-F Rx Phase IV Soils (Side-slope, overburden, under & a.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on January 10, 15, and 16, 2002.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the reanalyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-59 Analyses

The Ni-59 activity for sample J00BJ0 (7422-05) was corrected for Ni-63 interference (result and 2σ count error have been modified). The calculation excel spreadsheet is included herein. No problems were encountered during the course of the analyses.

2.4 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Plutonium Analyses

Due to a low yield (14%) sample J00BK6 (7423-09) was reworked in chemistry. The data from rework of sample J00BK6 is reported herein. No other problems were encountered during the course of the analyses.

2.7 Plutonium-241 Analyses

The Pu-241 data reported herein is from the rework of sample J00BK6 for isotopic plutonium (sequential analysis). No other problems were encountered during the course of the analyses.

2.8 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.9 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion

Melissa C. Mannion
Program Manager

1/21/03

Date

Ni59 Correction for Ni63 Interference

Group **7422** 09-Jan-03

version 1.01 5/28/98

Ni63 correction factor 0.00962 10 % 2sig erro *** FOR USE WITH NEW NI59 CALIBRATION ONLY ***

Sample Number	Ni 59 Actviity	1 sig % Error	Ni63 Actviity	1 sig % Error	Units		**Corrected Ni59**	2sig % Error		1sig % Error		fractional Correction	Ni63/Ni59 Ratios Orig	New
5	2.133E+01	23.10	1.172E+03	0.50	pCi/g		**1.006E+01**	98.63	%	49.31	%	0.528	54.9	116.5

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2020

SDG	7422
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H2020

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	11
Lab Control Samples	12
Duplicates	13
Matrix Spikes	15
Data Sheets	16
Method Summaries	28
Report Guides	46
End of Section	60

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	01/10/03

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/10/03

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00BH6	105F	SOLID		R212085-01	B02-030	B02-030-18	12/04/02 10:15
J00BH7	105F	SOLID		R212085-02	B02-030	B02-030-18	12/04/02 10:40
J00BH8	105F	SOLID		R212085-03	B02-030	B02-030-18	12/04/02 10:55
J00BH9	105F	SOLID		R212085-04	B02-030	B02-030-18	12/04/02 11:10
J00BJ0	105F	SOLID		R212085-05	B02-030	B02-030-20	12/04/02 11:30
J00BJ1	105F	SOLID		R212085-06	B02-030	B02-030-20	12/04/02 11:55
J00BJ2	105F	SOLID		R212085-07	B02-030	B02-030-20	12/04/02 12:10
J00BJ3	105F	SOLID		R212085-08	B02-030	B02-030-20	12/05/02 08:40
J00BJ4	105F	SOLID		R212085-09	B02-030	B02-030-22	12/05/02 08:50
J00BJ5	105F	SOLID		R212085-10	B02-030	B02-030-22	12/05/02 09:05
J00BJ6	105F	SOLID		R212085-11	B02-030	B02-030-22	12/05/02 09:15
J00BJ7	105F	SOLID		R212085-12	B02-030	B02-030-22	12/05/02 09:25
Method Blank		SOLID		R212085-14	B02-030		
Lab Control Sample		SOLID		R212085-13	B02-030		
Duplicate (R212085-06)	105F	SOLID		R212085-15	B02-030		12/04/02 11:55
Spike (R212085-07)	105F	SOLID		R212085-16	B02-030		12/04/02 12:10

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7422	B02-030-18	J00BH6	SOLID	97.4	1256 g		12/11/02	7	R212085-01	7422-001
		J00BH7	SOLID	96.9	1179 g		12/11/02	7	R212085-02	7422-002
		J00BH8	SOLID	96.7	1096 g		12/11/02	7	R212085-03	7422-003
		J00BH9	SOLID	97.1	1249 g		12/11/02	7	R212085-04	7422-004
	B02-030-20	J00BJ0	SOLID	97.5	1079 g		12/11/02	7	R212085-05	7422-005
		J00BJ1	SOLID	97.0	1201 g		12/11/02	7	R212085-06	7422-006
		J00BJ2	SOLID	95.5	1088 g		12/11/02	7	R212085-07	7422-007
		J00BJ3	SOLID	97.0	1106 g		12/11/02	6	R212085-08	7422-008
	B02-030-22	J00BJ4	SOLID	96.4	1137 g		12/11/02	6	R212085-09	7422-009
		J00BJ5	SOLID	97.1	1268 g		12/11/02	6	R212085-10	7422-010
		J00BJ6	SOLID	95.5	1246 g		12/11/02	6	R212085-11	7422-011
		J00BJ7	SOLID	96.2	1249 g		12/11/02	6	R212085-12	7422-012
		Method Blank	SOLID						R212085-14	7422-014
		Lab Control Sample	SOLID						R212085-13	7422-013
		Duplicate (R212085-06)	SOLID	97.0	1201 g		12/11/02	7	R212085-15	7422-015
		Spike (R212085-07)	SOLID	95.5	1088 g		12/11/02	7	R212085-16	7422-016

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7052-178	5.0	12			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-178	5.0	12			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	7052-178	5.0	12			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-178	15.0	12			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7052-178	10.0	12			1	1	1/1		
H	SOLID	Tritium in Soil	7052-178	10.0	12			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7052-178	10.0	12			1	1	1/1		
PU_L	SOLID	Plutonium 241 in Soil	7052-178	5.0	12			1	1	1/1		
Gamma Spectroscopy												
NI	SOLID	Nickel 59 in Soil	7052-178	10.0	12			1	1	1/1		X

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BH6			R212085-01	7422-001	AM		12/30/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-001	C		12/17/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-18	B02-030		12/11/02	7422-001	GAM		12/30/02	01/09/03	MCM	Gamma Scan
				7422-001	H		12/23/02	01/09/03	MCM	Tritium in Soil
				7422-001	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-001	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-001	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-001	PU_L		01/08/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-001	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BH7			R212085-02	7422-002	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-002	C		12/17/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-18	B02-030		12/11/02	7422-002	GAM		12/30/02	01/09/03	MCM	Gamma Scan
				7422-002	H		12/23/02	01/09/03	MCM	Tritium in Soil
				7422-002	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-002	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-002	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-002	PU_L		01/08/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-002	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BH8			R212085-03	7422-003	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-003	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-18	B02-030		12/11/02	7422-003	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-003	H		12/23/02	01/09/03	MCM	Tritium in Soil
				7422-003	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-003	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-003	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-003	PU_L		01/08/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-003	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BH9			R212085-04	7422-004	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-004	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-18	B02-030		12/11/02	7422-004	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-004	H		12/23/02	01/09/03	MCM	Tritium in Soil
				7422-004	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-004	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-004	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-004	PU_L		01/08/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-004	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BJ0			R212085-05	7422-005	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-005	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-20	B02-030		12/11/02	7422-005	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-005	H		12/23/02	01/09/03	MCM	Tritium in Soil
				7422-005	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-005	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-005	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-005	PU_L		01/08/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-005	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BJ1			R212085-06	7422-006	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-006	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-20	B02-030		12/11/02	7422-006	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-006	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-006	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-006	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-006	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-006	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-006	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BJ2			R212085-07	7422-007	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-007	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-20	B02-030		12/11/02	7422-007	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-007	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-007	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-007	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-007	PU		12/31/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-007	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-007	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BJ3			R212085-08	7422-008	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7422-008	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-20	B02-030		12/11/02	7422-008	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-008	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-008	NI		12/26/02	01/09/03	MCM	Nickel 59 in Soil
				7422-008	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-008	PU		12/31/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-008	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-008	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BJ4			R212085-09	7422-009	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7422-009	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-22	B02-030		12/11/02	7422-009	GAM		12/31/02	01/09/03	MCM	Gamma Scan
				7422-009	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-009	NI		12/27/02	01/09/03	MCM	Nickel 59 in Soil
				7422-009	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-009	PU		12/31/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-009	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-009	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BJ5			R212085-10	7422-010	AM		12/26/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7422-010	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-22	B02-030		12/11/02	7422-010	GAM		12/30/02	01/09/03	MCM	Gamma Scan
				7422-010	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-010	NI		12/27/02	01/09/03	MCM	Nickel 59 in Soil
				7422-010	NI_L		12/22/02	01/09/03	MCM	Nickel 63 in Soil
				7422-010	PU		01/02/03	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-010	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-010	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BJ6			R212085-11	7422-011	AM		12/30/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7422-011	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-22	B02-030		12/11/02	7422-011	GAM		12/30/02	01/09/03	MCM	Gamma Scan
				7422-011	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-011	NI		12/27/02	01/09/03	MCM	Nickel 59 in Soil
				7422-011	NI_L		12/23/02	01/09/03	MCM	Nickel 63 in Soil
				7422-011	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-011	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-011	U		12/19/02	01/09/03	MCM	Uranium, Isotopic in Soil
J00BJ7			R212085-12	7422-012	AM		12/27/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7422-012	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
B02-030-22	B02-030		12/11/02	7422-012	GAM		12/30/02	01/09/03	MCM	Gamma Scan
				7422-012	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-012	NI		12/27/02	01/09/03	MCM	Nickel 59 in Soil
				7422-012	NI_L		12/23/02	01/09/03	MCM	Nickel 63 in Soil
				7422-012	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-012	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-012	U		12/20/02	01/09/03	MCM	Uranium, Isotopic in Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7422
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R212085-14	7422-014	AM		12/27/02	01/09/03	MCM	Americium 241 in Soil
		SOLID		7422-014	C		12/17/02	01/09/03	MCM	Carbon 14 in Soil
	B02-030			7422-014	GAM		12/30/02	01/09/03	MCM	Gamma Scan
				7422-014	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-014	NI		12/30/02	01/09/03	MCM	Nickel 59 in Soil
				7422-014	NI_L		12/23/02	01/09/03	MCM	Nickel 63 in Soil
				7422-014	PU		12/31/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-014	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-014	U		12/20/02	01/09/03	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R212085-13	7422-013	AM		12/27/02	01/09/03	MCM	Americium 241 in Soil
		SOLID		7422-013	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
	B02-030			7422-013	GAM		01/02/03	01/09/03	MCM	Gamma Scan
				7422-013	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-013	NI		12/30/02	01/09/03	MCM	Nickel 59 in Soil
				7422-013	NI_L		12/23/02	01/09/03	MCM	Nickel 63 in Soil
				7422-013	PU		12/30/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-013	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-013	U		12/20/02	01/09/03	MCM	Uranium, Isotopic in Soil
Duplicate (R212085-06)			R212085-15	7422-015	AM		12/27/02	01/09/03	MCM	Americium 241 in Soil
105F		SOLID	12/04/02	7422-015	C		12/18/02	01/09/03	MCM	Carbon 14 in Soil
	B02-030		12/11/02	7422-015	GAM		01/02/03	01/09/03	MCM	Gamma Scan
				7422-015	H		12/24/02	01/09/03	MCM	Tritium in Soil
				7422-015	NI		12/30/02	01/09/03	MCM	Nickel 59 in Soil
				7422-015	NI_L		12/23/02	01/09/03	MCM	Nickel 63 in Soil
				7422-015	PU		12/31/02	01/09/03	MCM	Plutonium, Isotopic in Solids
				7422-015	PU_L		01/09/03	01/10/03	MCM	Plutonium 241 in Soil
				7422-015	U		12/20/02	01/09/03	MCM	Uranium, Isotopic in Soil
Spike (R212085-07)			R212085-16	7422-016	H		12/24/02	01/09/03	MCM	Tritium in Soil
105F		SOLID	12/04/02							
	B02-030		12/11/02							

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SAMPLE DELIVERY GROUP H2020

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Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
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COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AM	B02-030	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	12			1	1	1		15
C	B02-030	Carbon 14 in Soil	C14_COX_LSC	12			1	1	1		15
GAM	B02-030	Gamma Scan	GAMMA_GS	12			1	1	1		15
H	B02-030	Tritium in Soil	906.0_H3_LSC	12			1	1	1	1	16
NI	B02-030	Nickel 59 in Soil	NI59_GS	12			1	1	1		15
NI_L	B02-030	Nickel 63 in Soil	NI63_LSC	12			1	1	1		15
PU	B02-030	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	12			1	1	1		15
PU_L	B02-030	Plutonium 241 in Soil	PU241_IE_LSC	12			1	1	1		15
U	B02-030	Uranium, Isotopic in Soil	UISO_PLATE_AEA	12			1	1	1		15
TOTALS				108			9	9	9	1	136

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-14 Method Blank

METHOD BLANK

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-14	Client sample id	Method Blank		
Dept sample id	7422-014	Material/Matrix		SOLID	
		SAF No	B02-030		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.015	0.16	0.27	400	U	H
Carbon 14	14762-75-5	-0.742	2.3	4.0	50	U	C
Nickel 59	14336-70-0	6.37	7.8	18	30	U	NI
Nickel 63	13981-37-8	-0.036	1.1	1.9	30	U	NI_L
Uranium 233/234	U-233/234	0	0.048	0.18	1.0	U	U
Uranium 235	15117-96-1	0	0.058	0.22	1.0	U	U
Uranium 238	U-238	0	0.048	0.18	1.0	U	U
Plutonium 241	14119-32-5	5.01	4.6	7.5	15	U	PU_L
Plutonium 238	13981-16-3	0.022	0.087	0.17	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.043	0.17	1.0	U	PU
Americium 241	14596-10-2	0.064	0.19	0.31	1.0	U	AM
Potassium 40	13966-00-2	U		1.1		U	GAM
Cobalt 60	10198-40-0	U		0.085	0.050	U	GAM
Barium 133	13981-41-4	U		0.071		U	GAM
Cesium 137	10045-97-3	U		0.063	0.10	U	GAM
Radium 226	13982-63-3	U		0.13		U	GAM
Radium 228	15262-20-1	U		0.26		U	GAM
Europium 152	14683-23-9	U		0.19	0.10	U	GAM
Europium 154	15585-10-1	U		0.19	0.10	U	GAM
Europium 155	14391-16-3	U		0.17	0.10	U	GAM
Thorium 228	14274-82-9	U		0.082		U	GAM
Thorium 232	TH-232	U		0.26		U	GAM
Uranium 235	15117-96-1	U		0.29		U	GAM
Uranium 238	U-238	U		7.7		U	GAM
Americium 241	14596-10-2	U		0.23		U	GAM

105-F Rx Phase IV Soils

QC-BLANK 43404

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-13 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7422
Contact Melissa C. Mannion

Client/Case no Hanford SDG H2020
Contract No. 630

Lab sample id R212085-13
Dept sample id 7422-013

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B02-030

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	11.2	0.39	0.26	400		H	11.5	0.46	97	83-117	80-120
Carbon 14	2580	26	5.9	50		C	2700	110	96	84-116	80-120
Nickel 59	119	11	18	30		NI	123	4.9	97	79-121	80-120
Nickel 63	257	4.5	1.9	30		NI_L	276	11	93	85-115	80-120
Uranium 233/234	19.1	1.7	0.84	1.0		U	19.3	0.77	99	84-116	80-120
Uranium 235	15.9	1.6	0.18	1.0		U	15.7	0.63	101	82-118	80-120
Uranium 238	21.3	1.9	0.81	1.0		U	21.0	0.84	101	83-117	80-120
Plutonium 241	263	11	12	15		PU_L	260	10	101	89-111	80-120
Plutonium 238	30.5	3.4	0.50	1.0		PU	26.8	1.1	114	78-122	80-120
Plutonium 239/240	33.8	3.6	0.40	1.0		PU	29.0	1.2	117	79-121	80-120
Americium 241	21.9	2.3	0.28	1.0		AM	21.0	0.84	104	81-119	80-120
Cobalt 60	3.68	0.26	0.092	0.050		GAM	3.58	0.14	103	74-126	80-120
Cesium 137	4.99	0.25	0.13	0.10		GAM	4.68	0.19	107	74-126	80-120

105-F Rx Phase IV Soils

QC-LCS 43403

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-15

J00BJ1

DUPLICATE

SDG	7422			Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R212085-15	Lab sample id	R212085-06	Client sample id	J00BJ1
Dept sample id	7422-015	Dept sample id	7422-006	Location/Matrix	105F SOLID
		Received	12/11/02	Collected/Weight	12/04/02 11:55 1201 g
% solids	97.0	% solids	97.0	Custody/SAF No	B02-030-20 B02-030

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Tritium	0.294	0.11	0.17	400		H	0.194	0.11	0.17		41	98	
Carbon 14	24.7	2.3	2.9	50		C	26.4	2.3	2.9		7	29	
Nickel 59	5.59	9.6	22	30	U	NI	4.00	8.1	18	U	-		
Nickel 63	65.3	2.6	2.0	30		NI_L	65.4	2.5	2.0		0	23	
Uranium 233/234	0.360	0.17	0.16	1.0		U	0.295	0.18	0.17		20	114	
Uranium 235	0.026	0.051	0.20	1.0	U	U	0.027	0.055	0.21	U	-		
Uranium 238	0.276	0.17	0.16	1.0		U	0.386	0.18	0.17		33	113	
Plutonium 241	16.1	5.1	7.9	15		PU_L	16.6	4.8	7.5		3	65	
Plutonium 238	0.421	0.20	0.15	1.0		PU	0.398	0.25	0.23		6	118	
Plutonium 239/240	1.88	0.41	0.15	1.0		PU	2.20	0.50	0.23		16	49	
Americium 241	3.05	0.59	0.18	1.0		AM	3.29	0.66	0.22		8	43	
Potassium 40	12.7	2.2	1.7			GAM	12.9	1.5	1.1		2	45	
Cobalt 60	6.28	0.44	0.26	0.050		GAM	6.30	0.30	0.17		0	34	
Barium 133	U		0.29		U	GAM	U		0.21	U	-		
Cesium 137	17.1	0.56	0.40	0.10		GAM	15.4	0.36	0.24		10	32	
Radium 226	U		0.83		U	GAM	U		0.34	U	-		
Radium 228	U		2.0		U	GAM	U		0.92	U	-		
Europium 152	23.8	0.96	0.87	0.10		GAM	22.0	0.77	0.68		8	33	
Europium 154	3.32	0.81	0.77	0.10		GAM	3.22	0.60	0.50		3	56	
Europium 155	U		0.72	0.10	U	GAM	U		0.48	U	-		
Thorium 228	0.375	0.23	0.36			GAM	0.387	0.16	0.24		3	115	
Thorium 232	U		2.0		U	GAM	U		0.92	U	-		
Uranium 235	U		1.0		U	GAM	U		0.64	U	-		
Uranium 238	U		38		U	GAM	U		33	U	-		
Americium 241	U		0.64		U	GAM	U		0.37	U	-		

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-15 J00BJ1

DUPLICATE, cont.

SDG	7422			Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R212085-15	Lab sample id	R212085-06	Client sample id	J00BJ1
Dept sample id	7422-015	Dept sample id	7422-006	Location/Matrix	105F SOLID
		Received	12/11/02	Collected/Weight	12/04/02 11:55 1201 g
% solids	97.0	% solids	97.0	Custody/SAF No	B02-030-20 B02-030

QC-DUP#6 43405

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-16 J00BJ2

MATRIX SPIKE

SDG	7422			Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion			Contract	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R212085-16	Lab sample id	R212085-07	Client sample id	J00BJ2
Dept sample id	7422-016	Dept sample id	7422-007	Location/Matrix	105F SOLID
		Received	12/11/02	Collected/Weight	12/04/02 12:10 1088 g
% solids	95.5	% solids	95.5	Custody/SAF No	B02-030-20 B02-030

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	50.4	0.65	0.18	400	X	H	52.2	2.1	0.043	0.11	96	84-116	60-140

105-F Rx Phase IV Soils

QC-MS#7 43406

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-01 J00BH6

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-01	Client sample id	J00BH6		
Dept sample id	7422-001	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/04/02 10:15	1256 g	
% solids	97.4	Custody/SAF No	B02-030-18	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.203	0.11	0.17	400		H
Carbon 14	14762-75-5	-0.502	1.8	3.0	50	U	C
Nickel 59	14336-70-0	3.83	6.9	15	30	U	NI
Nickel 63	13981-37-8	23.4	1.8	2.0	30		NI_L
Uranium 233/234	U-233/234	0.408	0.18	0.17	1.0		U
Uranium 235	15117-96-1	0	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.159	0.14	0.17	1.0	U	U
Plutonium 241	14119-32-5	9.52	4.7	7.6	15		PU_L
Plutonium 238	13981-16-3	0.032	0.064	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0.351	0.19	0.24	1.0		PU
Americium 241	14596-10-2	0.136	0.20	0.32	1.0	U	AM
Potassium 40	13966-00-2	11.3	1.8	0.95			GAM
Cobalt 60	10198-40-0	0.719	0.18	0.16	0.050		GAM
Barium 133	13981-41-4	U		0.18		U	GAM
Cesium 137	10045-97-3	6.62	0.36	0.25	0.10		GAM
Radium 226	13982-63-3	0.411	0.26	0.34			GAM
Radium 228	15262-20-1	U		1.1		U	GAM
Europium 152	14683-23-9	7.44	0.64	0.61	0.10		GAM
Europium 154	15585-10-1	0.842	0.45	0.57	0.10		GAM
Europium 155	14391-16-3	U		0.45	0.10	U	GAM
Thorium 228	14274-82-9	0.329	0.13	0.20			GAM
Thorium 232	TH-232	U		1.1		U	GAM
Uranium 235	15117-96-1	U		0.62		U	GAM
Uranium 238	U-238	U		22		U	GAM
Americium 241	14596-10-2	U		0.42		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-02 J00BH7

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-02	Client sample id	J00BH7		
Dept sample id	7422-002	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/04/02 10:40	1179 g	
% solids	96.9	Custody/SAF No	B02-030-18	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.719	0.12	0.17	400		H
Carbon 14	14762-75-5	-1.60	2.0	3.5	50	U	C
Nickel 59	14336-70-0	0.277	6.1	14	30	U	NI
Nickel 63	13981-37-8	8.75	1.4	1.9	30		NI_L
Uranium 233/234	U-233/234	0.365	0.23	0.22	1.0		U
Uranium 235	15117-96-1	0.034	0.068	0.26	1.0	U	U
Uranium 238	U-238	0.534	0.23	0.22	1.0		U
Plutonium 241	14119-32-5	10.4	4.5	7.2	15		PU_L
Plutonium 238	13981-16-3	0	0.062	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0.093	0.12	0.24	1.0	U	PU
Americium 241	14596-10-2	0.070	0.21	0.39	1.0	U	AM
Potassium 40	13966-00-2	12.0	1.1	0.65			GAM
Cobalt 60	10198-40-0	0.142	0.084	0.075	0.050		GAM
Barium 133	13981-41-4	U		0.083		U	GAM
Cesium 137	10045-97-3	1.69	0.12	0.081	0.10		GAM
Radium 226	13982-63-3	0.496	0.14	0.13			GAM
Radium 228	15262-20-1	0.534	0.26	0.27			GAM
Europium 152	14683-23-9	1.25	0.19	0.20	0.10		GAM
Europium 154	15585-10-1	U		0.28	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.427	0.075	0.089			GAM
Thorium 232	TH-232	0.534	0.26	0.27			GAM
Uranium 235	15117-96-1	U		0.24		U	GAM
Uranium 238	U-238	U		9.7		U	GAM
Americium 241	14596-10-2	U		0.14		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-03 J00BH8

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-03	Client sample id	J00BH8		
Dept sample id	7422-003	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/04/02 10:55	1096 g	
% solids	96.7	Custody/SAF No	B02-030-18	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.270	0.11	0.17	400		H
Carbon 14	14762-75-5	14.2	2.1	3.0	50		C
Nickel 59	14336-70-0	13.6	8.8	19	30	U	NI
Nickel 63	13981-37-8	414	5.8	2.0	30		NI_L
Uranium 233/234	U-233/234	0.263	0.14	0.18	1.0		U
Uranium 235	15117-96-1	0.029	0.058	0.22	1.0	U	U
Uranium 238	U-238	0.478	0.19	0.18	1.0		U
Plutonium 241	14119-32-5	14.5	4.9	7.7	15		PU_L
Plutonium 238	13981-16-3	0.220	0.19	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	6.10	0.94	0.24	1.0		PU
Americium 241	14596-10-2	1.85	0.59	0.34	1.0		AM
Potassium 40	13966-00-2	16.0	2.5	2.2			GAM
Cobalt 60	10198-40-0	9.85	0.57	0.37	0.050		GAM
Barium 133	13981-41-4	U		0.62		U	GAM
Cesium 137	10045-97-3	99.9	1.3	0.78	0.10		GAM
Radium 226	13982-63-3	0.900	0.74	1.0		U	GAM
Radium 228	15262-20-1	U		2.0		U	GAM
Europium 152	14683-23-9	88.4	2.1	2.0	0.10		GAM
Europium 154	15585-10-1	11.5	1.4	1.3	0.10		GAM
Europium 155	14391-16-3	U		1.4	0.10	U	GAM
Thorium 228	14274-82-9	U		0.70		U	GAM
Thorium 232	TH-232	U		2.0		U	GAM
Uranium 235	15117-96-1	U		2.0		U	GAM
Uranium 238	U-238	U		63		U	GAM
Americium 241	14596-10-2	U		2.2		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-04 J00BH9

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-04	Client sample id	J00BH9		
Dept sample id	7422-004	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/04/02 11:10	1249 g	
% solids	97.1	Custody/SAF No	B02-030-18	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.777	0.12	0.16	400		H
Carbon 14	14762-75-5	-0.667	1.8	3.1	50	U	C
Nickel 59	14336-70-0	1.02	7.6	17	30	U	NI
Nickel 63	13981-37-8	0.134	1.2	2.0	30	U	NI_L
Uranium 233/234	U-233/234	0.335	0.22	0.21	1.0		U
Uranium 235	15117-96-1	0	0.068	0.26	1.0	U	U
Uranium 238	U-238	0.391	0.23	0.21	1.0		U
Plutonium 241	14119-32-5	8.22	6.3	10	15	U	PU_L
Plutonium 238	13981-16-3	0	0.082	0.31	1.0	U	PU
Plutonium 239/240	PU-239/240	0.082	0.082	0.31	1.0	U	PU
Americium 241	14596-10-2	0	0.13	0.30	1.0	U	AM
Potassium 40	13966-00-2	12.0	1.2	0.45			GAM
Cobalt 60	10198-40-0	U		0.069	0.050	U	GAM
Barium 133	13981-41-4	U		0.075		U	GAM
Cesium 137	10045-97-3	U		0.063	0.10	U	GAM
Radium 226	13982-63-3	0.399	0.11	0.098			GAM
Radium 228	15262-20-1	0.808	0.26	0.18			GAM
Europium 152	14683-23-9	U		0.16	0.10	U	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.511	0.098	0.096			GAM
Thorium 232	TH-232	0.808	0.26	0.18			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		7.9		U	GAM
Americium 241	14596-10-2	U		0.13		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-05 J00BJ0

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-05	Client sample id	J00BJ0		
Dept sample id	7422-005	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/04/02 11:30	1079 g	
% solids	97.5	Custody/SAF No	B02-030-20	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.846	0.13	0.18	400		H
Carbon 14	14762-75-5	142	4.6	3.8	50		C
Nickel 59	14336-70-0	10.1	9.9	21	30	UX	NI
Nickel 63	13981-37-8	1170	12	2.4	30		NI_L
Uranium 233/234	U-233/234	0.433	0.22	0.21	1.0		U
Uranium 235	15117-96-1	0.066	0.066	0.25	1.0	U	U
Uranium 238	U-238	0.379	0.22	0.21	1.0		U
Plutonium 241	14119-32-5	30.2	5.5	8.3	15		PU_L
Plutonium 238	13981-16-3	0.617	0.26	0.25	1.0		PU
Plutonium 239/240	PU-239/240	17.1	1.8	0.25	1.0		PU
Americium 241	14596-10-2	5.26	0.92	0.24	1.0		AM
Potassium 40	13966-00-2	U		6.1		U	GAM
Cobalt 60	10198-40-0	34.1	1.0	0.69	0.050		GAM
Barium 133	13981-41-4	U		1.1		U	GAM
Cesium 137	10045-97-3	327	2.3	1.4	0.10		GAM
Radium 226	13982-63-3	U		1.8		U	GAM
Radium 228	15262-20-1	U		3.7		U	GAM
Europium 152	14683-23-9	342	4.3	4.0	0.10		GAM
Europium 154	15585-10-1	45.3	2.7	2.5	0.10		GAM
Europium 155	14391-16-3	U		2.6	0.10	U	GAM
Thorium 228	14274-82-9	U		1.3		U	GAM
Thorium 232	TH-232	U		3.7		U	GAM
Uranium 235	15117-96-1	U		3.6		U	GAM
Uranium 238	U-238	U		110		U	GAM
Americium 241	14596-10-2	U		4.2		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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E B E R L I N E S E R V I C E S / R I C H M O N D

SAMPLE DELIVERY GROUP H2020

R212085-06 **J00BJ1**

D A T A S H E E T

SDG	7422	Client/Case no	Hanford SDG_H2020
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212085-06	Client sample id	J00BJ1
Dept sample id	7422-006	Location/Matrix	105F SOLID
Received	12/11/02	Collected/Weight	12/04/02 11:55 1201 g
% solids	97.0	Custody/SAF No	B02-030-20 B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.194	0.11	0.17	400		H
Carbon 14	14762-75-5	26.4	2.3	2.9	50		C
Nickel 59	14336-70-0	4.00	8.1	18	30	U	NI
Nickel 63	13981-37-8	65.4	2.5	2.0	30		NI_L
Uranium 233/234	U-233/234	0.295	0.18	0.17	1.0		U
Uranium 235	15117-96-1	0.027	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.386	0.18	0.17	1.0		U
Plutonium 241	14119-32-5	16.6	4.8	7.5	15		PU_L
Plutonium 238	13981-16-3	0.398	0.25	0.23	1.0		PU
Plutonium 239/240	PU-239/240	2.20	0.50	0.23	1.0		PU
Americium 241	14596-10-2	3.29	0.66	0.22	1.0		AM
Potassium 40	13966-00-2	12.9	1.5	1.1			GAM
Cobalt 60	10198-40-0	6.30	0.30	0.17	0.050		GAM
Barium 133	13981-41-4	U		0.21		U	GAM
Cesium 137	10045-97-3	15.4	0.36	0.24	0.10		GAM
Radium 226	13982-63-3	U		0.34		U	GAM
Radium 228	15262-20-1	U		0.92		U	GAM
Europium 152	14683-23-9	22.0	0.77	0.68	0.10		GAM
Europium 154	15585-10-1	3.22	0.60	0.50	0.10		GAM
Europium 155	14391-16-3	U		0.48	0.10	U	GAM
Thorium 228	14274-82-9	0.387	0.16	0.24			GAM
Thorium 232	TH-232	U		0.92		U	GAM
Uranium 235	15117-96-1	U		0.64		U	GAM
Uranium 238	U-238	U		33		U	GAM
Americium 241	14596-10-2	U		0.37		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-07 J00BJ2

DATA SHEET

SDG	7422	Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212085-07	Client sample id	J00BJ2
Dept sample id	7422-007	Location/Matrix	105F SOLID
Received	12/11/02	Collected/Weight	12/04/02 12:10 1088 g
% solids	95.5	Custody/SAF No	B02-030-20 B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.043	0.11	0.18	400	U	H
Carbon 14	14762-75-5	0.301	1.9	3.2	50	U	C
Nickel 59	14336-70-0	6.52	4.5	9.0	30	U	NI
Nickel 63	13981-37-8	199	4.1	2.0	30		NI_L
Uranium 233/234	U-233/234	0.504	0.22	0.20	1.0		U
Uranium 235	15117-96-1	0	0.064	0.25	1.0	U	U
Uranium 238	U-238	0.424	0.21	0.20	1.0		U
Plutonium 241	14119-32-5	11.0	5.0	7.9	15		PU_L
Plutonium 238	13981-16-3	0.169	0.13	0.16	1.0		PU
Plutonium 239/240	PU-239/240	4.80	0.67	0.16	1.0		PU
Americium 241	14596-10-2	1.64	0.43	0.23	1.0		AM
Potassium 40	13966-00-2	13.7	2.9	1.7			GAM
Cobalt 60	10198-40-0	5.84	0.31	0.21	0.050		GAM
Barium 133	13981-41-4	U		0.33		U	GAM
Cesium 137	10045-97-3	79.5	0.78	0.37	0.10		GAM
Radium 226	13982-63-3	U		0.47		U	GAM
Radium 228	15262-20-1	U		1.2		U	GAM
Europium 152	14683-23-9	71.1	1.2	1.0	0.10		GAM
Europium 154	15585-10-1	8.47	0.76	0.66	0.10		GAM
Europium 155	14391-16-3	U		0.73	0.10	U	GAM
Thorium 228	14274-82-9	U		0.50		U	GAM
Thorium 232	TH-232	U		1.2		U	GAM
Uranium 235	15117-96-1	U		1.0		U	GAM
Uranium 238	U-238	U		39		U	GAM
Americium 241	14596-10-2	U		1.1		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-08 J00BJ3

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-08	Client sample id	J00BJ3		
Dept sample id	7422-008	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 08:40	1106 g	
% solids	97.0	Custody/SAF No	B02-030-20	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.287	0.12	0.18	400		H
Carbon 14	14762-75-5	-2.63	1.8	3.1	50	U	C
Nickel 59	14336-70-0	-2.59	4.5	9.2	30	U	NI
Nickel 63	13981-37-8	2.24	1.2	2.0	30		NI_L
Uranium 233/234	U-233/234	0.450	0.21	0.20	1.0		U
Uranium 235	15117-96-1	0	0.064	0.25	1.0	U	U
Uranium 238	U-238	0.529	0.22	0.20	1.0		U
Plutonium 241	14119-32-5	5.06	5.4	8.9	15	U	PU_L
Plutonium 238	13981-16-3	0	0.051	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.051	0.10	0.19	1.0	U	PU
Americium 241	14596-10-2	0.029	0.057	0.22	1.0	U	AM
Potassium 40	13966-00-2	16.2	1.1	0.65			GAM
Cobalt 60	10198-40-0	0.099	0.049	0.062	0.050		GAM
Barium 133	13981-41-4	U		0.058		U	GAM
Cesium 137	10045-97-3	1.02	0.081	0.076	0.10		GAM
Radium 226	13982-63-3	0.427	0.098	0.11			GAM
Radium 228	15262-20-1	0.669	0.23	0.26			GAM
Europium 152	14683-23-9	1.15	0.12	0.13	0.10		GAM
Europium 154	15585-10-1	U		0.36	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Thorium 228	14274-82-9	0.556	0.057	0.066			GAM
Thorium 232	TH-232	0.669	0.23	0.26			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		6.7		U	GAM
Americium 241	14596-10-2	U		0.18		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-09 J00BJ4

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-09	Client sample id	J00BJ4		
Dept sample id	7422-009	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 08:50	1137 g	
% solids	96.4	Custody/SAF No	B02-030-22	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.148	0.10	0.17	400	U	H
Carbon 14	14762-75-5	4.66	2.0	3.1	50		C
Nickel 59	14336-70-0	-0.472	9.0	21	30	U	NI
Nickel 63	13981-37-8	3.99	1.3	2.0	30		NI_L
Uranium 233/234	U-233/234	0.330	0.20	0.19	1.0		U
Uranium 235	15117-96-1	0.061	0.062	0.23	1.0	U	U
Uranium 238	U-238	0.355	0.20	0.19	1.0		U
Plutonium 241	14119-32-5	4.17	4.3	7.1	15	U	PU_L
Plutonium 238	13981-16-3	0.041	0.041	0.16	1.0	U	PU
Plutonium 239/240	PU-239/240	0.370	0.17	0.16	1.0		PU
Americium 241	14596-10-2	0.073	0.15	0.28	1.0	U	AM
Potassium 40	13966-00-2	15.2	0.66	0.28			GAM
Cobalt 60	10198-40-0	0.186	0.045	0.039	0.050		GAM
Barium 133	13981-41-4	U		0.060		U	GAM
Cesium 137	10045-97-3	4.15	0.096	0.054	0.10		GAM
Radium 226	13982-63-3	0.464	0.074	0.080			GAM
Radium 228	15262-20-1	0.659	0.14	0.14			GAM
Europium 152	14683-23-9	2.19	0.12	0.12	0.10		GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.625	0.055	0.064			GAM
Thorium 232	TH-232	0.659	0.14	0.14			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		6.3		U	GAM
Americium 241	14596-10-2	U		0.15		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-10 J00BJ5

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-10	Client sample id	J00BJ5		
Dept sample id	7422-010	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 09:05	1268 g	
% solids	97.1	Custody/SAF No	B02-030-22	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.258	0.11	0.17	400		H
Carbon 14	14762-75-5	-1.26	1.6	2.8	50	U	C
Nickel 59	14336-70-0	5.50	7.9	18	30	U	NI
Nickel 63	13981-37-8	6.16	1.4	2.1	30		NI_L
Uranium 233/234	U-233/234	0.372	0.19	0.18	1.0		U
Uranium 235	15117-96-1	0	0.056	0.22	1.0	U	U
Uranium 238	U-238	0.535	0.24	0.18	1.0		U
Plutonium 241	14119-32-5	2.53	4.6	7.7	15	U	PU_L
Plutonium 238	13981-16-3	-0.010	0.020	0.077	1.0	U	PU
Plutonium 239/240	PU-239/240	0.090	0.060	0.077	1.0		PU
Americium 241	14596-10-2	0.033	0.066	0.25	1.0	U	AM
Potassium 40	13966-00-2	15.3	0.78	0.29			GAM
Cobalt 60	10198-40-0	0.134	0.036	0.036	0.050		GAM
Barium 133	13981-41-4	U		0.029		U	GAM
Cesium 137	10045-97-3	1.50	0.056	0.040	0.10		GAM
Radium 226	13982-63-3	0.368	0.062	0.064			GAM
Radium 228	15262-20-1	0.570	0.15	0.15			GAM
Europium 152	14683-23-9	0.925	0.062	0.067	0.10		GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.068	0.10	U	GAM
Thorium 228	14274-82-9	0.501	0.033	0.034			GAM
Thorium 232	TH-232	0.570	0.15	0.15			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		4.1		U	GAM
Americium 241	14596-10-2	U		0.041		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-11 J00BJ6

DATA SHEET

SDG	7422	Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212085-11	Client sample id	J00BJ6
Dept sample id	7422-011	Location/Matrix	105F SOLID
Received	12/11/02	Collected/Weight	12/05/02 09:15 1246 g
% solids	95.5	Custody/SAF No	B02-030-22 B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.300	0.12	0.18	400		H
Carbon 14	14762-75-5	16.6	2.3	3.2	50		C
Nickel 59	14336-70-0	5.68	7.3	16	30	U	NI
Nickel 63	13981-37-8	315	5.0	1.9	30		NI_L
Uranium 233/234	U-233/234	0.339	0.18	0.17	1.0		U
Uranium 235	15117-96-1	0	0.055	0.21	1.0	U	U
Uranium 238	U-238	0.406	0.18	0.17	1.0		U
Plutonium 241	14119-32-5	12.6	5.8	9.3	15		PU_L
Plutonium 238	13981-16-3	0	0.25	0.51	1.0	U	PU
Plutonium 239/240	PU-239/240	9.54	1.4	0.40	1.0		PU
Americium 241	14596-10-2	1.50	0.38	0.16	1.0		AM
Potassium 40	13966-00-2	18.2	1.0	0.80			GAM
Cobalt 60	10198-40-0	8.12	0.18	0.11	0.050		GAM
Barium 133	13981-41-4	U		0.27		U	GAM
Cesium 137	10045-97-3	200	0.60	0.28	0.10		GAM
Radium 226	13982-63-3	0.437	0.28	0.36			GAM
Radium 228	15262-20-1	U		0.76		U	GAM
Europium 152	14683-23-9	93.3	0.88	0.85	0.10		GAM
Europium 154	15585-10-1	10.9	0.51	0.42	0.10		GAM
Europium 155	14391-16-3	U		0.63	0.10	U	GAM
Thorium 228	14274-82-9	U		0.34		U	GAM
Thorium 232	TH-232	U		0.76		U	GAM
Uranium 235	15117-96-1	U		0.86		U	GAM
Uranium 238	U-238	U		29		U	GAM
Americium 241	14596-10-2	U		1.8		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212085-12 J00BJ7

DATA SHEET

SDG	7422	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212085-12	Client sample id	J00BJ7		
Dept sample id	7422-012	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 09:25	1249 g	
% solids	96.2	Custody/SAF No	B02-030-22	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.265	0.11	0.17	400		H
Carbon 14	14762-75-5	10.3	1.7	2.5	50		C
Nickel 59	14336-70-0	-0.640	9.3	21	30	U	NI
Nickel 63	13981-37-8	92.3	2.9	2.0	30		NI_L
Uranium 233/234	U-233/234	0.486	0.22	0.17	1.0		U
Uranium 235	15117-96-1	0	0.054	0.20	1.0	U	U
Uranium 238	U-238	0.243	0.13	0.17	1.0		U
Plutonium 241	14119-32-5	6.61	5.6	9.1	15	U	PU_L
Plutonium 238	13981-16-3	0.215	0.26	0.41	1.0	U	PU
Plutonium 239/240	PU-239/240	5.42	1.0	0.33	1.0		PU
Americium 241	14596-10-2	0.406	0.29	0.36	1.0		AM
Potassium 40	13966-00-2	18.4	1.0	0.64			GAM
Cobalt 60	10198-40-0	5.14	0.18	0.12	0.050		GAM
Barium 133	13981-41-4	U		0.36		U	GAM
Cesium 137	10045-97-3	463	1.0	0.37	0.10		GAM
Radium 226	13982-63-3	U		0.55		U	GAM
Radium 228	15262-20-1	U		0.63		U	GAM
Europium 152	14683-23-9	53.9	1.2	1.3	0.10		GAM
Europium 154	15585-10-1	6.67	0.47	0.42	0.10		GAM
Europium 155	14391-16-3	U		0.93	0.10	U	GAM
Thorium 228	14274-82-9	U		0.54		U	GAM
Thorium 232	TH-232	U		0.63		U	GAM
Uranium 235	15117-96-1	U		1.3		U	GAM
Uranium 238	U-238	U		24		U	GAM
Americium 241	14596-10-2	U		2.0		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test AM Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 7052-178					
J00BH6	R212085-01			7422-001	U
J00BH7	R212085-02			7422-002	U
J00BH8	R212085-03			7422-003	1.85
J00BH9	R212085-04			7422-004	U
J00BJ0	R212085-05			7422-005	5.26
J00BJ1	R212085-06			7422-006	3.29
J00BJ2	R212085-07			7422-007	1.64
J00BJ3	R212085-08			7422-008	U
J00BJ4	R212085-09			7422-009	U
J00BJ5	R212085-10			7422-010	U
J00BJ6	R212085-11			7422-011	1.50
J00BJ7	R212085-12			7422-012	0.406
BLK (QC ID=43404)	R212085-14			7422-014	U
LCS (QC ID=43403)	R212085-13			7422-013	ok
Duplicate (R212085-06)	R212085-15			7422-015	ok
Nominal values and limits from method 105-F Rx Phase IV Soils				RDLs (pCi/g)	1.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test AM Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 178											
J00BH6	R212085-01			0.32	0.500			78		111			26	12/24/02	12/30	SS-041
J00BH7	R212085-02			0.39	0.500			77		119			22	12/24/02	12/26	SS-021
J00BH8	R212085-03			0.34	0.500			77		119			22	12/24/02	12/26	SS-022
J00BH9	R212085-04			0.30	0.500			78		120			22	12/24/02	12/26	SS-024
J00BJ0	R212085-05			0.24	0.500			82		120			22	12/24/02	12/26	SS-042
J00BJ1	R212085-06			0.22	0.500			95		119			22	12/24/02	12/26	SS-051
J00BJ2	R212085-07			0.23	0.500			79		120			22	12/24/02	12/26	SS-052
J00BJ3	R212085-08			0.22	0.500			92		120			21	12/24/02	12/26	SS-059
J00BJ4	R212085-09			0.28	0.500			65		121			21	12/24/02	12/26	SS-060
J00BJ5	R212085-10			0.25	0.500			75		121			21	12/24/02	12/26	SS-062
J00BJ6	R212085-11			0.16	0.500			86		173			25	12/24/02	12/30	SS-066
J00BJ7	R212085-12			0.36	0.500			80		139			22	12/24/02	12/27	SS-021
BLK (QC ID=43404)	R212085-14			0.31	0.500			67		139				12/24/02	12/27	SS-024
LCS (QC ID=43403)	R212085-13			0.28	0.500			82		139				12/24/02	12/27	SS-022
Duplicate (R212085-06) (QC ID=43405)	R212085-15			0.18	0.500			93		143			23	12/24/02	12/27	SS-042
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 0.27 ± 0.13
YIELD 80 ± 17

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 7052-178						
J00BH6	R212085-01			7422-001	U	0.351
J00BH7	R212085-02			7422-002	U	U
J00BH8	R212085-03			7422-003	U	6.10
J00BH9	R212085-04			7422-004	U	U
J00BJ0	R212085-05			7422-005	0.617	17.1
J00BJ1	R212085-06			7422-006	0.398	2.20
J00BJ2	R212085-07			7422-007	0.169	4.80
J00BJ3	R212085-08			7422-008	U	U
J00BJ4	R212085-09			7422-009	U	0.370
J00BJ5	R212085-10			7422-010	U	0.090
J00BJ6	R212085-11			7422-011	U	9.54
J00BJ7	R212085-12			7422-012	U	5.42
BLK (QC ID=43404)	R212085-14			7422-014	U	U
LCS (QC ID=43403)	R212085-13			7422-013	ok	ok
Duplicate (R212085-06)	R212085-15			7422-015	ok	ok
Nominal values and limits from method 105-F Rx Phase IV Soils				RDLs (pCi/g)	1.0	1.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 178												
J00BH6	R212085-01			0.24	0.500			85		113			26	12/30/02	12/30	SS-057
J00BH7	R212085-02			0.24	0.500			87		113			26	12/30/02	12/30	SS-058
J00BH8	R212085-03			0.24	0.500			87		112			26	12/30/02	12/30	SS-059
J00BH9	R212085-04			0.31	0.500			61		112			26	12/30/02	12/30	SS-060
J00BJ0	R212085-05			0.25	0.500			80		112			26	12/30/02	12/30	SS-061
J00BJ1	R212085-06			0.23	0.500			87		112			26	12/30/02	12/30	SS-062
J00BJ2	R212085-07			0.16	0.500			84		164			27	12/30/02	12/31	SS-047
J00BJ3	R212085-08			0.19	0.500			68		164			26	12/30/02	12/31	SS-048
J00BJ4	R212085-09			0.16	0.500			90		164			26	12/30/02	12/31	SS-051
J00BJ5	R212085-10			0.077	0.500			81		344			28	12/30/02	01/02	SS-060
J00BJ6	R212085-11			0.51	0.500			66		116			25	12/30/02	12/30	SS-021
J00BJ7	R212085-12			0.41	0.500			65		117			25	12/30/02	12/30	SS-022
BLK (QC ID=43404)	R212085-14			0.17	0.500			79		164				12/30/02	12/31	SS-052
LCS (QC ID=43403)	R212085-13			0.50	0.500			49		117				12/30/02	12/30	SS-024
Duplicate (R212085-06) (QC ID=43405)	R212085-15			0.15	0.500			86		165			27	12/30/02	12/31	SS-055
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 0.26 ± 0.25
YIELD 77 ± 24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test U Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7052-178											
J00BH6	R212085-01			7422-001	0.408	U	U				
J00BH7	R212085-02			7422-002	0.365	U	0.534	68	52	6	13
J00BH8	R212085-03			7422-003	0.263	U	0.478	55	37	6	12
J00BH9	R212085-04			7422-004	0.335	U	0.391	86	76	0	17
J00BJ0	R212085-05			7422-005	0.433	U	0.379	114	88	17	20
J00BJ1	R212085-06			7422-006	0.295	U	0.386	76	59	7	15
J00BJ2	R212085-07			7422-007	0.504	U	0.424	119	78	0	15
J00BJ3	R212085-08			7422-008	0.450	U	0.529	85	53	0	12
J00BJ4	R212085-09			7422-009	0.330	U	0.355	93	77	17	20
J00BJ5	R212085-10			7422-010	0.372	U	0.535	70	47	0	10
J00BJ6	R212085-11			7422-011	0.339	U	0.406	83	58	0	14
J00BJ7	R212085-12			7422-012	0.486	U	0.243	200	140	0	22
BLK (QC ID=43404)	R212085-14			7422-014	U	U	U				
LCS (QC ID=43403)	R212085-13			7422-013	ok	ok	ok				
Duplicate (R212085-06)	R212085-15			7422-015	ok	- U	ok	130	101	9	19
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
105-F Rx Phase IV Soils								Averages 98		5	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test U Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 178												
J00BH6	R212085-01			0.21	0.500			95		135			15	12/19/02	12/19	SS-041
J00BH7	R212085-02			0.26	0.500			82		135			15	12/19/02	12/19	SS-042
J00BH8	R212085-03			0.22	0.500			89		135			15	12/19/02	12/19	SS-043
J00BH9	R212085-04			0.26	0.500			74		135			15	12/19/02	12/19	SS-044
J00BJ0	R212085-05			0.25	0.500			77		135			15	12/19/02	12/19	SS-047
J00BJ1	R212085-06			0.21	0.500			92		136			15	12/19/02	12/19	SS-048
J00BJ2	R212085-07			0.25	0.500			88		136			15	12/19/02	12/19	SS-050
J00BJ3	R212085-08			0.25	0.500			76		136			14	12/19/02	12/19	SS-056
J00BJ4	R212085-09			0.23	0.500			92		137			14	12/19/02	12/19	SS-058
J00BJ5	R212085-10			0.22	0.500			99		137			14	12/19/02	12/19	SS-059
J00BJ6	R212085-11			0.21	0.500			93		137			14	12/19/02	12/19	SS-060
J00BJ7	R212085-12			0.20	0.500			79		169			15	12/19/02	12/20	SS-009
BLK (QC ID=43404)	R212085-14			0.22	0.500			79		151				12/19/02	12/20	SS-043
LCS (QC ID=43403)	R212085-13			0.84	0.500			92		169				12/19/02	12/20	SS-011
Duplicate (R212085-06) (QC ID=43405)	R212085-15			0.20	0.500			87		151			16	12/19/02	12/20	SS-044
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 4
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 0.27 ± 0.32
YIELD 86 ± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test GAM Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7052-178						
J00BH6	R212085-01			7422-001	0.719	6.62
J00BH7	R212085-02			7422-002	0.142	1.69
J00BH8	R212085-03			7422-003	9.85	99.9
J00BH9	R212085-04			7422-004	U	U
J00BJ0	R212085-05			7422-005	34.1	327
J00BJ1	R212085-06			7422-006	6.30	15.4
J00BJ2	R212085-07			7422-007	5.84	79.5
J00BJ3	R212085-08			7422-008	0.099	1.02
J00BJ4	R212085-09			7422-009	0.186	4.15
J00BJ5	R212085-10			7422-010	0.134	1.50
J00BJ6	R212085-11			7422-011	8.12	200
J00BJ7	R212085-12			7422-012	5.14	463
BLK (QC ID=43404)	R212085-14			7422-014	U	U
LCS (QC ID=43403)	R212085-13			7422-013	ok	ok
Duplicate (R212085-06)	R212085-15			7422-015	ok	ok
Nominal values and limits from method 105-F Rx Phase IV Soils				RDLs (pCi/g)	0.050	0.10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test GAM Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 15.0 %	Reference Lab Notebook 7052 pg. 178														
J00BH6	R212085-01			1.9	207					103			26	12/19/02	12/30	JR,03,00
J00BH7	R212085-02			0.57	214					126			26	12/19/02	12/30	JR,04,00
J00BH8	R212085-03			5.6	212					100			27	12/19/02	12/31	JR,03,00
J00BH9	R212085-04			0.53	205					100			27	12/19/02	12/31	JR,04,00
J00BJ0	R212085-05			10	208					107			27	12/19/02	12/31	JR,03,00
J00BJ1	R212085-06			1.7	220					109			27	12/19/02	12/31	JR,04,00
J00BJ2	R212085-07			2.6	208					108			27	12/19/02	12/31	JR,07,00
J00BJ3	R212085-08			0.53	767					108			26	12/19/02	12/31	02,03,00
J00BJ4	R212085-09			0.42	756					108			26	12/19/02	12/31	02,04,00
J00BJ5	R212085-10			0.24	853					124			25	12/19/02	12/30	MB,07,00
J00BJ6	R212085-11			2.0	807					120			25	12/19/02	12/30	02,04,00
J00BJ7	R212085-12			2.4	833					119			25	12/19/02	12/30	MB,05,00
BLK (QC ID=43404)	R212085-14			0.49	205					124				12/19/02	12/30	01,03,00
LCS (QC ID=43403)	R212085-13			0.092	205					100				12/19/02	01/02	MB,05,00
Duplicate (R212085-06) (QC ID=43405)	R212085-15			3.0	220					100			29	12/19/02	01/02	JR,03,00
Nominal values and limits from method				0.050	205					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 4
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 2.1 ± 5.2
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test C Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14
Preparation batch 7052-178					
J00BH6	R212085-01			7422-001	U
J00BH7	R212085-02			7422-002	U
J00BH8	R212085-03			7422-003	14.2
J00BH9	R212085-04			7422-004	U
J00BJ0	R212085-05			7422-005	142
J00BJ1	R212085-06			7422-006	26.4
J00BJ2	R212085-07			7422-007	U
J00BJ3	R212085-08			7422-008	U
J00BJ4	R212085-09			7422-009	4.66
J00BJ5	R212085-10			7422-010	U
J00BJ6	R212085-11			7422-011	16.6
J00BJ7	R212085-12			7422-012	10.3
BLK (QC ID=43404)	R212085-14			7422-014	U
LCS (QC ID=43403)	R212085-13			7422-013	ok
Duplicate (R212085-06)	R212085-15			7422-015	ok

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 50

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test C Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 10.0 %				Reference Lab Notebook 7052 pg. 178											
J00BH6	R212085-01			3.0	0.299			100		100			13	12/17/02	12/17	LSC-007
J00BH7	R212085-02			3.5	0.264			100		100			13	12/17/02	12/17	LSC-007
J00BH8	R212085-03			3.0	0.309			100		100			14	12/17/02	12/18	LSC-007
J00BH9	R212085-04			3.1	0.302			100		100			14	12/17/02	12/18	LSC-007
J00BJ0	R212085-05			3.8	0.236			100		100			14	12/17/02	12/18	LSC-007
J00BJ1	R212085-06			2.9	0.315			100		100			14	12/17/02	12/18	LSC-007
J00BJ2	R212085-07			3.2	0.286			100		100			14	12/17/02	12/18	LSC-007
J00BJ3	R212085-08			3.1	0.299			100		100			13	12/17/02	12/18	LSC-007
J00BJ4	R212085-09			3.1	0.290			100		100			13	12/17/02	12/18	LSC-007
J00BJ5	R212085-10			2.8	0.335			100		100			13	12/17/02	12/18	LSC-007
J00BJ6	R212085-11			3.2	0.288			100		100			13	12/17/02	12/18	LSC-007
J00BJ7	R212085-12			2.5	0.360			100		100			13	12/17/02	12/18	LSC-007
BLK (QC ID=43404)	R212085-14			4.0	0.236			100		100				12/17/02	12/17	LSC-007
LCS (QC ID=43403)	R212085-13			5.9	0.236			100		43				12/17/02	12/18	LSC-007
Duplicate (R212085-06) (QC ID=43405)	R212085-15			2.9	0.314			100		100			14	12/17/02	12/18	LSC-007
Nominal values and limits from method				50	0.236					50			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 3.3 ± 1.6
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test H Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7052-178						
J00BH6	R212085-01			7422-001	0.203	
J00BH7	R212085-02			7422-002	0.719	
J00BH8	R212085-03			7422-003	0.270	
J00BH9	R212085-04			7422-004	0.777	
J00BJ0	R212085-05			7422-005	0.846	
J00BJ1	R212085-06			7422-006	0.194	
J00BJ2	R212085-07			7422-007	U	
J00BJ3	R212085-08			7422-008	0.287	
J00BJ4	R212085-09			7422-009	U	
J00BJ5	R212085-10			7422-010	0.258	
J00BJ6	R212085-11			7422-011	0.300	
J00BJ7	R212085-12			7422-012	0.265	
BLK (QC ID=43404)	R212085-14			7422-014	U	
LCS (QC ID=43403)	R212085-13			7422-013	ok	
Duplicate (R212085-06)	R212085-15			7422-015	ok	
Spike (R212085-07)	R212085-16			7422-016	ok	X

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 400

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test H Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 178																
J00BH6	R212085-01			0.17	21.1			50		120			19	12/23/02	12/23	LSC-005
J00BH7	R212085-02			0.17	21.3			49		120			19	12/23/02	12/23	LSC-005
J00BH8	R212085-03			0.17	21.6			49		120			19	12/23/02	12/23	LSC-005
J00BH9	R212085-04			0.16	21.5			50		120			19	12/23/02	12/23	LSC-005
J00BJ0	R212085-05			0.18	20.5			49		120			19	12/23/02	12/23	LSC-005
J00BJ1	R212085-06			0.17	20.4			50		120			20	12/23/02	12/24	LSC-005
J00BJ2	R212085-07			0.18	20.1			49		120			20	12/23/02	12/24	LSC-005
J00BJ3	R212085-08			0.18	20.7			48		120			19	12/23/02	12/24	LSC-005
J00BJ4	R212085-09			0.17	21.0			50		120			19	12/23/02	12/24	LSC-005
J00BJ5	R212085-10			0.17	21.0			50		120			19	12/23/02	12/24	LSC-005
J00BJ6	R212085-11			0.18	20.6			48		120			19	12/23/02	12/24	LSC-005
J00BJ7	R212085-12			0.17	20.2			50		120			19	12/23/02	12/24	LSC-005
BLK (QC ID=43404)	R212085-14			0.27	20.0			33		120				12/23/02	12/24	LSC-005
LCS (QC ID=43403)	R212085-13			0.26	20.0			33		120				12/23/02	12/24	LSC-005
Duplicate (R212085-06) (QC ID=43405)	R212085-15			0.17	20.5			49		120			20	12/23/02	12/24	LSC-005
Spike (R212085-07) (QC ID=43406)	R212085-16			0.18	20.4			49		120			20	12/23/02	12/24	LSC-005
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-218 Tritium in Soil Samples by Azeotropic Distillation, rev 1

AVERAGES ± 2 SD FOR 16 SAMPLES
MDA 0.18 ± 0.064
YIELD 47 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test NI L Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63
Preparation batch 7052-178					
J00BH6	R212085-01			7422-001	23.4
J00BH7	R212085-02			7422-002	8.75
J00BH8	R212085-03			7422-003	414
J00BH9	R212085-04			7422-004	U
J00BJ0	R212085-05			7422-005	1170
J00BJ1	R212085-06			7422-006	65.4
J00BJ2	R212085-07			7422-007	199
J00BJ3	R212085-08			7422-008	2.24
J00BJ4	R212085-09			7422-009	3.99
J00BJ5	R212085-10			7422-010	6.16
J00BJ6	R212085-11			7422-011	315
J00BJ7	R212085-12			7422-012	92.3
BLK (QC ID=43404)	R212085-14			7422-014	U
LCS (QC ID=43403)	R212085-13			7422-013	ok
Duplicate (R212085-06)	R212085-15			7422-015	ok

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test NI L Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 10.0 %			Reference Lab Notebook 7052 pg. 178												
J00BH6	R212085-01			2.0	0.500			91		100			18	12/20/02	12/22	LSC-007
J00BH7	R212085-02			1.9	0.500			89		100			18	12/20/02	12/22	LSC-007
J00BH8	R212085-03			2.0	0.500			90		100			18	12/20/02	12/22	LSC-007
J00BH9	R212085-04			2.0	0.500			91		100			18	12/20/02	12/22	LSC-007
J00BJ0	R212085-05			2.4	0.500			90		63			18	12/20/02	12/22	LSC-007
J00BJ1	R212085-06			2.0	0.500			91		100			18	12/20/02	12/22	LSC-007
J00BJ2	R212085-07			2.0	0.500			90		100			18	12/20/02	12/22	LSC-007
J00BJ3	R212085-08			2.0	0.500			91		100			17	12/20/02	12/22	LSC-007
J00BJ4	R212085-09			2.0	0.500			92		100			17	12/20/02	12/22	LSC-007
J00BJ5	R212085-10			2.1	0.500			89		100			17	12/20/02	12/22	LSC-007
J00BJ6	R212085-11			1.9	0.500			92		100			18	12/20/02	12/23	LSC-007
J00BJ7	R212085-12			2.0	0.500			91		100			18	12/20/02	12/23	LSC-007
BLK (QC ID=43404)	R212085-14			1.9	0.500			97		100				12/20/02	12/23	LSC-007
LCS (QC ID=43403)	R212085-13			1.9	0.500			98		100				12/20/02	12/23	LSC-007
Duplicate (R212085-06) (QC ID=43405)	R212085-15			2.0	0.500			91		100			19	12/20/02	12/23	LSC-007
Nominal values and limits from method				30	0.500			30-105		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-431	Nickel-63 Purification, rev 5

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 2.0 ± 0.24
YIELD 92 ± 5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU L Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM 241 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 241
Preparation batch 7052-178					
J00BH6	R212085-01			7422-001	9.52
J00BH7	R212085-02			7422-002	10.4
J00BH8	R212085-03			7422-003	14.5
J00BH9	R212085-04			7422-004	U
J00BJ0	R212085-05			7422-005	30.2
J00BJ1	R212085-06			7422-006	16.6
J00BJ2	R212085-07			7422-007	11.0
J00BJ3	R212085-08			7422-008	U
J00BJ4	R212085-09			7422-009	U
J00BJ5	R212085-10			7422-010	U
J00BJ6	R212085-11			7422-011	12.6
J00BJ7	R212085-12			7422-012	U
BLK (QC ID=43404)	R212085-14			7422-014	U
LCS (QC ID=43403)	R212085-13			7422-013	ok
Duplicate (R212085-06)	R212085-15			7422-015	ok

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 15

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU L Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM 241 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 178											
J00BH6	R212085-01			7.6	0.500			80		100			35	01/08/03	01/08	LSC-004
J00BH7	R212085-02			7.2	0.500			82		100			35	01/08/03	01/08	LSC-004
J00BH8	R212085-03			7.7	0.500			77		100			35	01/08/03	01/08	LSC-004
J00BH9	R212085-04			10	0.500			83		100			35	01/08/03	01/08	LSC-004
J00BJ0	R212085-05			8.3	0.500			78		100			35	01/08/03	01/08	LSC-004
J00BJ1	R212085-06			7.5	0.500			79		100			36	01/08/03	01/09	LSC-004
J00BJ2	R212085-07			7.9	0.500			78		100			36	01/08/03	01/09	LSC-004
J00BJ3	R212085-08			8.9	0.500			85		100			35	01/08/03	01/09	LSC-004
J00BJ4	R212085-09			7.1	0.500			81		100			35	01/08/03	01/09	LSC-004
J00BJ5	R212085-10			7.7	0.500			83		100			35	01/08/03	01/09	LSC-004
J00BJ6	R212085-11			9.3	0.500			85		100			35	01/08/03	01/09	LSC-004
J00BJ7	R212085-12			9.1	0.500			87		100			35	01/08/03	01/09	LSC-004
BLK (QC ID=43404)	R212085-14			7.5	0.500			88		100				01/08/03	01/09	LSC-004
LCS (QC ID=43403)	R212085-13			12	0.500			90		100				01/08/03	01/09	LSC-004
Duplicate (R212085-06) (QC ID=43405)	R212085-15			7.9	0.500			76		100			36	01/08/03	01/09	LSC-004
Nominal values and limits from method				15	0.500					100			180			

PROCEDURES	REFERENCE	PU241_IE_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-940	Plutonium Separation and Purification, rev 4
	CP-008	Heavy Element Electroplating, rev 7
	RP-948	Plutonium-241 by Liquid Scintillation Counting, rev 2

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 8.4 ± 2.6
YIELD 82 ± 8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test NI Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 59 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 59	
Preparation batch 7052-178						
J00BH6	R212085-01			7422-001	U	
J00BH7	R212085-02			7422-002	U	
J00BH8	R212085-03			7422-003	U	
J00BH9	R212085-04			7422-004	U	
J00BJ0	R212085-05			7422-005	U	X
J00BJ1	R212085-06			7422-006	U	
J00BJ2	R212085-07			7422-007	U	
J00BJ3	R212085-08			7422-008	U	
J00BJ4	R212085-09			7422-009	U	
J00BJ5	R212085-10			7422-010	U	
J00BJ6	R212085-11			7422-011	U	
J00BJ7	R212085-12			7422-012	U	
BLK (QC ID=43404)	R212085-14			7422-014	U	
LCS (QC ID=43403)	R212085-13			7422-013	ok	
Duplicate (R212085-06)	R212085-15			7422-015	-	U

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test NI Matrix SOLID
SDG 7422
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 59 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-178	2σ prep error 10.0 %			Reference Lab Notebook 7052 pg. 178												
J00BH6	R212085-01			15	0.500					284			22	12/25/02	12/26	XSPEC-002
J00BH7	R212085-02			14	0.500					285			22	12/25/02	12/26	XSPEC-016
J00BH8	R212085-03			19	0.500					171			22	12/25/02	12/26	XSPEC-002
J00BH9	R212085-04			17	0.500					172			22	12/25/02	12/26	XSPEC-016
J00BJ0	R212085-05			21	0.500					155			22	12/25/02	12/26	XSPEC-002
J00BJ1	R212085-06			18	0.500					155			22	12/25/02	12/26	XSPEC-016
J00BJ2	R212085-07			9.0	0.500					759			22	12/25/02	12/26	XSPEC-002
J00BJ3	R212085-08			9.2	0.500					762			21	12/25/02	12/26	XSPEC-016
J00BJ4	R212085-09			21	0.500					155			22	12/25/02	12/27	XSPEC-002
J00BJ5	R212085-10			18	0.500					156			22	12/25/02	12/27	XSPEC-016
J00BJ6	R212085-11			16	0.500					200			22	12/25/02	12/27	XSPEC-016
J00BJ7	R212085-12			21	0.500					199			22	12/25/02	12/27	XSPEC-002
BLK (QC ID=43404)	R212085-14			18	0.500					199				12/25/02	12/30	XSPEC-016
LCS (QC ID=43403)	R212085-13			18	0.500					198				12/25/02	12/30	XSPEC-002
Duplicate (R212085-06) (QC ID=43405)	R212085-15			22	0.500					157			26	12/25/02	12/30	XSPEC-002
Nominal values and limits from method				30	0.500					25			180			

PROCEDURES	REFERENCE	NI59_GS
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	RP-430	Nickel-59 Isolation and Purification, rev 4

AVERAGES ± 2 SD FOR 15 SAMPLES
MDA 17 ± 7.9
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/10/03

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
Protocol Hanford
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SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

Lab id EBRLNE
Protocol Hanford
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SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

SDG 7422
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/10/03

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Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/10/03

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REPORT GUIDE

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Contract No. 630
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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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Case no SDG H2020

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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Protocol Hanford
Version Ver 1.0
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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

SDG 7422
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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Version 3.06
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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-18	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ	Price Code 8L Air Quality [ ]	Data Turnaround 21 Days
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7422)		SAF No. B02-030		
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express		
Shipped To TMA/RECRA	Offsite Property No. P030 073		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive
Tie To J00BF5

Special Handling and/or Storage

None

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

12/4/02 RIN

Sample No.	Matrix *	Sample Date	Sample Time										
J00BH6	SOIL	12/5/12/4/02	1015	X	X	X	X						
J00BH7	SOIL	12/4/02	1040	X	X	X	X						
J00BH8	Soil	12-4-02	1055	X	X	X	X						
J00BH9	Soil	12-4-02	1110	X	X	X	X						

12/10/02

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	12/5/02 1600	REF 1B 12502	1600
1B 3728	12-10-02 1000	R. Fell R.G. Hilberg	12-10-02 1000
R. Fell R.G. Hilberg	12-10-02 1000	Fed Ex	
Fed Ex		Fed Ex	12/11/02 10:45

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SJ=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-20	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7422)		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A038073		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TIE TO J00BF5

Special Handling and/or Storage
NONE

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

12-10-02

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ0	SOIL	12/4/02	1130	X	X	X	X						
J00BJ1	SOIL	12/4/02	1155	X	X	X	X						
J00BJ2	Soil	12-4-02	1210	X	X	X	X						
J00BJ3	Soil	12-5-02	0840	X	X	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R Nielson/R Nielson 12/5/02	1600	Received By/Stored In REF 1B 12502	1600
Relinquished By/Removed From 1B 3728 12-10-02	1000	Received By/Stored In R Fahlberg 12-10-02	1000
Relinquished By/Removed From		Received By/Stored In Fed Ex	
Relinquished By/Removed From Fed Ex		Received By/Stored In 12/11/02	10:45
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref # 1B on 12/10/02

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-22	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7422)		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030 073		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
None

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ4	SOIL	12-5-02	0850	X	X	X	X						
J00BJ5	SOIL	12-5-02	0905	X	X	X	X						
J00BJ6	Soil	12-5-02	0915	X	X	X	X						
J00BJ7	Soil	12-5-02	0925	X	X	X	X						

12-10-02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson R Nielson	12/5/02 1600	REF 1B	12 5 02 1600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1B 3728	12-10-02 1000	R. Fahlberg R. Fahlberg	12-10-02 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	12-10-02 1000	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex		[illegible]	12/11/02 10:45
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 12/11/02 10:45

CoC No. B02-030-18, 20, 22, 24, 26, 28, 30

Container I.D. No. ERC01040 ERC99-071 Requested TAT (Days) 21 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 27
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 12/11/02 Time: 10:45 AM

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2020

SDG	7423
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H2020

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	01/21/03

SDG 7423
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2020

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/21/03

SDG 7423
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7423
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00BJ8	105F	SOLID		R212086-01	B02-030	B02-030-24	12/05/02 09:35
J00BJ9	105F	SOLID		R212086-02	B02-030	B02-030-24	12/05/02 09:50
J00BK0	105F	SOLID		R212086-03	B02-030	B02-030-24	12/05/02 10:00
J00BK1	105F	SOLID		R212086-04	B02-030	B02-030-24	12/05/02 10:15
J00BK2	105F	SOLID		R212086-05	B02-030	B02-030-26	12/05/02 10:25
J00BK3	105F	SOLID		R212086-06	B02-030	B02-030-26	12/05/02 10:35
J00BK4	105F	SOLID		R212086-07	B02-030	B02-030-26	12/05/02 10:50
J00BK5	105F	SOLID		R212086-08	B02-030	B02-030-26	12/05/02 11:00
J00BK6	105F	SOLID		R212086-09	B02-030	B02-030-28	12/05/02 11:10
J00BK7	105F	SOLID		R212086-10	B02-030	B02-030-26	12/05/02 11:15
J00BK8	105F	SOLID		R212086-11	B02-030	B02-030-26	12/05/02 11:25
J00BK9	105F	SOLID		R212086-12	B02-030	B02-030-26	12/05/02 11:30
J00BL0	105F	SOLID		R212086-13	B02-030	B02-030-30	12/05/02 11:40
J00BL1	105F	SOLID		R212086-14	B02-030	B02-030-30	12/05/02 11:45
J00BL2	105F	SOLID		R212086-15	B02-030	B02-030-30	12/05/02 11:40
Method Blank		SOLID		R212086-17	B02-030		
Lab Control Sample		SOLID		R212086-16	B02-030		
Duplicate (R212086-01)	105F	SOLID		R212086-18	B02-030		12/05/02 09:35
Spike (R212086-02)	105F	SOLID		R212086-19	B02-030		12/05/02 09:50

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SAMPLE DELIVERY GROUP H2020

SDG 7423
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7423	B02-030-24	J00BJ8	SOLID	94.7	1236 g		12/11/02	6	R212086-01	7423-001
		J00BJ9	SOLID	97.0	1349 g		12/11/02	6	R212086-02	7423-002
		J00BK0	SOLID	96.4	1228 g		12/11/02	6	R212086-03	7423-003
		J00BK1	SOLID	97.0	1356 g		12/11/02	6	R212086-04	7423-004
	B02-030-26	J00BK2	SOLID	96.2	1231 g		12/11/02	6	R212086-05	7423-005
		J00BK3	SOLID	96.6	1255 g		12/11/02	6	R212086-06	7423-006
		J00BK4	SOLID	97.3	1283 g		12/11/02	6	R212086-07	7423-007
		J00BK5	SOLID	97.0	1208 g		12/11/02	6	R212086-08	7423-008
		J00BK7	SOLID	96.6	1174 g		12/11/02	6	R212086-10	7423-010
		J00BK8	SOLID	97.4	1308 g		12/11/02	6	R212086-11	7423-011
		J00BK9	SOLID	97.0	1325 g		12/11/02	6	R212086-12	7423-012
	B02-030-28	J00BK6	SOLID	97.1	1288 g		12/11/02	6	R212086-09	7423-009
	B02-030-30	J00BL0	SOLID	97.4	1288 g		12/11/02	6	R212086-13	7423-013
		J00BL1	SOLID	96.5	1144 g		12/11/02	6	R212086-14	7423-014
		J00BL2	SOLID	97.4	1236 g		12/11/02	6	R212086-15	7423-015
		Method Blank	SOLID						R212086-17	7423-017
		Lab Control Sample	SOLID						R212086-16	7423-016
		Duplicate (R212086-01)	SOLID	94.7	1236 g		12/11/02	6	R212086-18	7423-018
		Spike (R212086-02)	SOLID	97.0	1349 g		12/11/02	6	R212086-19	7423-019

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PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7052-187	5.0	15			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-187	5.0	15			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	7052-187	5.0	15			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-187	15.0	15			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7052-187	10.0	15			1	1	1/1		
H	SOLID	Tritium in Soil	7052-187	10.0	15			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7052-187	10.0	15			1	1	1/1		
PU_L	SOLID	Plutonium 241 in Soil	7052-187	5.0	15			1	1	1/1		
Gamma Spectroscopy												
NI	SOLID	Nickel 59 in Soil	7052-187	10.0	15			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BJ8			R212086-01	7423-001	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-001	C		12/18/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-24	B02-030		12/11/02	7423-001	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-001	H		12/31/02	01/10/03	MCM	Tritium in Soil
				7423-001	NI		01/01/03	01/10/03	MCM	Nickel 59 in Soil
				7423-001	NI_L		01/07/03	01/15/03	MCM	Nickel 63 in Soil
				7423-001	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-001	PU_L		01/11/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-001	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BJ9			R212086-02	7423-002	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-002	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-24	B02-030		12/11/02	7423-002	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-002	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-002	NI		01/01/03	01/10/03	MCM	Nickel 59 in Soil
				7423-002	NI_L		01/07/03	01/15/03	MCM	Nickel 63 in Soil
				7423-002	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-002	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-002	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK0			R212086-03	7423-003	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-003	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-24	B02-030		12/11/02	7423-003	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-003	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-003	NI		01/01/03	01/10/03	MCM	Nickel 59 in Soil
				7423-003	NI_L		01/07/03	01/15/03	MCM	Nickel 63 in Soil
				7423-003	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-003	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-003	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK1			R212086-04	7423-004	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-004	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-24	B02-030		12/11/02	7423-004	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-004	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-004	NI		01/01/03	01/10/03	MCM	Nickel 59 in Soil
				7423-004	NI_L		01/07/03	01/15/03	MCM	Nickel 63 in Soil
				7423-004	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-004	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-004	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil

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SDG 7423
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BK2			R212086-05	7423-005	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-005	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-005	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-005	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-005	NI		01/01/03	01/10/03	MCM	Nickel 59 in Soil
				7423-005	NI_L		01/07/03	01/15/03	MCM	Nickel 63 in Soil
				7423-005	PU		01/09/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-005	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-005	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK3			R212086-06	7423-006	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-006	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-006	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-006	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-006	NI		01/01/03	01/10/03	MCM	Nickel 59 in Soil
				7423-006	NI_L		01/07/03	01/15/03	MCM	Nickel 63 in Soil
				7423-006	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-006	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-006	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK4			R212086-07	7423-007	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-007	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-007	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-007	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-007	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-007	NI_L		01/08/03	01/15/03	MCM	Nickel 63 in Soil
				7423-007	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-007	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-007	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK5			R212086-08	7423-008	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-008	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-008	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-008	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-008	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-008	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-008	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-008	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-008	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil

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Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BK6			R212086-09	7423-009	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-009	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-28	B02-030		12/11/02	7423-009	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-009	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-009	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-009	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-009	PU	R1	01/13/03	01/15/03	MCM	Plutonium, Isotopic in Solids
				7423-009	PU_L	R1	01/15/03	01/16/03	MCM	Plutonium 241 in Soil
				7423-009	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK7			R212086-10	7423-010	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-010	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-010	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-010	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-010	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-010	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-010	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-010	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-010	U		01/02/03	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK8			R212086-11	7423-011	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-011	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-011	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-011	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-011	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-011	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-011	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-011	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-011	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BK9			R212086-12	7423-012	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-012	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-26	B02-030		12/11/02	7423-012	GAM		01/03/03	01/10/03	MCM	Gamma Scan
				7423-012	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-012	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-012	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-012	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-012	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-012	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil

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SDG 7423
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00BL0			R212086-13	7423-013	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-013	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-30	B02-030		12/11/02	7423-013	GAM		01/03/03	01/10/03	MCM	Gamma Scan
				7423-013	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-013	NI		01/03/03	01/10/03	MCM	Nickel 59 in Soil
				7423-013	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-013	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-013	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-013	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BL1			R212086-14	7423-014	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-014	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-30	B02-030		12/11/02	7423-014	GAM		01/06/03	01/10/03	MCM	Gamma Scan
				7423-014	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-014	NI		01/03/03	01/10/03	MCM	Nickel 59 in Soil
				7423-014	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-014	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-014	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-014	U		12/31/02	01/10/03	MCM	Uranium, Isotopic in Soil
J00BL2			R212086-15	7423-015	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-015	C		12/20/02	01/10/03	MCM	Carbon 14 in Soil
B02-030-30	B02-030		12/11/02	7423-015	GAM		01/02/03	01/10/03	MCM	Gamma Scan
				7423-015	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-015	NI		01/03/03	01/10/03	MCM	Nickel 59 in Soil
				7423-015	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-015	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-015	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-015	U		01/02/03	01/10/03	MCM	Uranium, Isotopic in Soil
Method Blank			R212086-17	7423-017	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
		SOLID		7423-017	C		12/18/02	01/10/03	MCM	Carbon 14 in Soil
	B02-030			7423-017	GAM		01/03/03	01/10/03	MCM	Gamma Scan
				7423-017	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-017	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-017	NI_L		01/10/03	01/15/03	MCM	Nickel 63 in Soil
				7423-017	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-017	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-017	U		01/02/03	01/10/03	MCM	Uranium, Isotopic in Soil

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7423
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			R212086-16	7423-016	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
		SOLID		7423-016	C		12/20/02	01/10/03	MCM	Carbon 14 in Soil
	B02-030			7423-016	GAM		01/06/03	01/10/03	MCM	Gamma Scan
				7423-016	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-016	NI		01/03/03	01/10/03	MCM	Nickel 59 in Soil
				7423-016	NI_L		01/08/03	01/15/03	MCM	Nickel 63 in Soil
				7423-016	PU		01/08/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-016	PU_L		01/12/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-016	U		01/02/03	01/10/03	MCM	Uranium, Isotopic in Soil
Duplicate (R212086-01)			R212086-18	7423-018	AM		01/09/03	01/10/03	MCM	Americium 241 in Soil
105F		SOLID	12/05/02	7423-018	C		12/19/02	01/10/03	MCM	Carbon 14 in Soil
	B02-030		12/11/02	7423-018	GAM		01/03/03	01/10/03	MCM	Gamma Scan
				7423-018	H		01/01/03	01/10/03	MCM	Tritium in Soil
				7423-018	NI		01/02/03	01/10/03	MCM	Nickel 59 in Soil
				7423-018	NI_L		01/08/03	01/15/03	MCM	Nickel 63 in Soil
				7423-018	PU		01/02/03	01/10/03	MCM	Plutonium, Isotopic in Solids
				7423-018	PU_L		01/13/03	01/15/03	MCM	Plutonium 241 in Soil
				7423-018	U		01/02/03	01/10/03	MCM	Uranium, Isotopic in Soil
Spike (R212086-02)			R212086-19	7423-019	H		01/01/03	01/10/03	MCM	Tritium in Soil
105F		SOLID	12/05/02							
	B02-030		12/11/02							

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

SDG 7423
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AM	B02-030	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	15			1	1	1		18
C	B02-030	Carbon 14 in Soil	C14_COX_LSC	15			1	1	1		18
GAM	B02-030	Gamma Scan	GAMMA_GS	15			1	1	1		18
H	B02-030	Tritium in Soil	906.0_H3_LSC	15			1	1	1	1	19
NI	B02-030	Nickel 59 in Soil	NI59_GS	15			1	1	1		18
NI_L	B02-030	Nickel 63 in Soil	NI63_LSC	15			1	1	1		18
PU	B02-030	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	15			1	1	1		18
PU_L	B02-030	Plutonium 241 in Soil	PU241_IE_LSC	15			1	1	1		18
U	B02-030	Uranium, Isotopic in Soil	UISO_PLATE_AEA	15			1	1	1		18
TOTALS				135			9	9	9	1	163

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-17 Method Blank

METHOD BLANK

SDG	7423	Client/Case no	Hanford, SDG_H2020
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212086-17	Client sample id	Method Blank
Dept sample id	7423-017	Material/Matrix	SOLID
		SAF No	B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.093	0.16	0.27	400	U	H
Carbon 14	14762-75-5	1.98	2.2	3.6	50	U	C
Nickel 59	14336-70-0	2.39	8.6	20	30	U	NI
Nickel 63	13981-37-8	-0.688	1.1	1.9	30	U	NI_L
Uranium 233/234	U-233/234	0.035	0.070	0.13	1.0	U	U
Uranium 235	15117-96-1	0.021	0.043	0.16	1.0	U	U
Uranium 238	U-238	0	0.035	0.13	1.0	U	U
Plutonium 241	14119-32-5	1.64	5.4	9.0	15	U	PU_L
Plutonium 238	13981-16-3	0	0.084	0.32	1.0	U	PU
Plutonium 239/240	PU-239/240	0.042	0.084	0.32	1.0	U	PU
Americium 241	14596-10-2	-0.045	0.045	0.17	1.0	U	AM
Potassium 40	13966-00-2	U		1.5		U	GAM
Cobalt 60	10198-40-0	U		0.066	0.050	U	GAM
Barium 133	13981-41-4	U		0.059		U	GAM
Cesium 137	10045-97-3	U		0.060	0.10	U	GAM
Radium 226	13982-63-3	U		0.12		U	GAM
Radium 228	15262-20-1	U		0.28		U	GAM
Europium 152	14683-23-9	U		0.14	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	U		0.071		U	GAM
Thorium 232	TH-232	U		0.28		U	GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		6.1		U	GAM
Americium 241	14596-10-2	U		0.066		U	GAM

105-F Rx Phase IV Soils

QC-BLANK 43420

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-16

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7423
Contact Melissa C. Mannion

Client/Case no Hanford SDG H2020
Contract No. 630

Lab sample id R212086-16
Dept sample id 7423-016

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B02-030

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	10.9	0.40	0.27	400		H	11.0	0.44	99	83-117	80-120
Carbon 14	2350	24	5.6	50		C	2410	96	98	84-116	80-120
Nickel 59	91.2	8.8	16	30		NI	102	4.1	89	80-120	80-120
Nickel 63	226	4.2	2.2	30		NI_L	230	9.2	98	84-116	80-120
Uranium 233/234	18.2	1.6	0.77	1.0		U	18.6	0.74	98	84-116	80-120
Uranium 235	15.1	1.4	0.16	1.0		U	15.1	0.60	100	83-117	80-120
Uranium 238	19.3	1.7	0.73	1.0		U	20.2	0.81	96	84-116	80-120
Plutonium 241	235	9.1	9.0	15		PU_L	260	10	90	90-110	80-120
Plutonium 238	24.7	0.98	0.057	1.0		PU	24.4	0.98	101	89-111	80-120
Plutonium 239/240	26.0	1.0	0.065	1.0		PU	26.4	1.1	98	89-111	80-120
Americium 241	20.3	2.3	0.26	1.0		AM	19.1	0.76	106	79-121	80-120
Cobalt 60	3.50	0.34	0.20	0.050		GAM	3.52	0.14	99	73-127	80-120
Cesium 137	4.39	0.31	0.22	0.10		GAM	4.62	0.18	95	76-124	80-120

105-F Rx Phase IV Soils

QC-LCS 43419

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-18 J00BJ8

DUPLICATE

SDG	7423			Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R212086-18	Lab sample id	R212086-01	Client sample id	J00BJ8
Dept sample id	7423-018	Dept sample id	7423-001	Location/Matrix	105F SOLID
		Received	12/11/02	Collected/Weight	12/05/02 09:35 1236 g
% solids	94.7	% solids	94.7	Custody/SAF No	B02-030-24 B02-030

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	0.503	0.12	0.18	400		H	0.497	0.12	0.18		1	55
Carbon 14	34.8	2.8	3.6	50		C	26.4	2.3	2.9		27	28
Nickel 59	7.46	8.9	19	30	U	NI	9.03	9.2	21	U	-	
Nickel 63	506	7.0	2.7	30		NI_L	512	6.7	2.5		1	21
Uranium 233/234	0.547	0.21	0.13	1.0		U	0.510	0.19	0.14		7	81
Uranium 235	0	0.041	0.16	1.0	U	U	0.023	0.046	0.18	U	-	
Uranium 238	0.820	0.24	0.13	1.0		U	0.643	0.23	0.14		24	69
Plutonium 241	17.0	6.6	10	15		PU_L	17.8	7.1	11		5	84
Plutonium 238	0.567	0.33	0.31	1.0		PU	0.659	0.30	0.28		15	110
Plutonium 239/240	18.0	2.1	0.31	1.0		PU	16.9	1.9	0.28		6	27
Americium 241	4.02	0.77	0.25	1.0		AM	3.96	0.81	0.26		2	43
Potassium 40	21.2	2.1	1.8			GAM	21.8	1.4	1.0		3	36
Cobalt 60	16.6	0.41	0.30	0.050		GAM	16.5	0.29	0.18		1	32
Barium 133	U		0.56		U	GAM	U		0.35	U	-	
Cesium 137	388	1.3	0.72	0.10		GAM	392	1.0	0.40		1	32
Radium 226	U		0.85		U	GAM	U		0.81	U	-	
Radium 228	U		1.5		U	GAM	U		1.3	U	-	
Europium 152	183	1.9	1.9	0.10		GAM	178	1.2	1.1		3	32
Europium 154	21.2	1.1	0.98	0.10		GAM	21.0	0.74	0.66		1	33
Europium 155	U		1.5	0.10	U	GAM	U		1.0	U	-	
Thorium 228	U		0.62		U	GAM	U		0.91	U	-	
Thorium 232	U		1.5		U	GAM	U		1.3	U	-	
Uranium 235	U		1.7		U	GAM	U		0.99	U	-	
Uranium 238	U		43		U	GAM	U		35	U	-	
Americium 241	U		3.1		U	GAM	U		3.4	U	-	

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-18 J00BJ8

DUPLICATE, cont.

SDG	7423			Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R212086-18	Lab sample id	R212086-01	Client sample id	J00BJ8
Dept sample id	7423-018	Dept sample id	7423-001	Location/Matrix	105F SOLID
		Received	12/11/02	Collected/Weight	12/05/02 09:35 1236 g
% solids	94.7	% solids	94.7	Custody/SAF No	B02-030-24 B02-030

QC-DUP#1 43421

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-19 J00BJ9

MATRIX SPIKE

SDG	7423			Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion			Contract	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R212086-19	Lab sample id	R212086-02	Client sample id	J00BJ9
Dept sample id	7423-019	Dept sample id	7423-002	Location/Matrix	105F SOLID
		Received	12/11/02	Collected/Weight	12/05/02 09:50 1349 g
% solids	97.0	% solids	97.0	Custody/SAF No	B02-030-24 B02-030

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	41.9	0.58	0.17	400	X	H	45.3	1.8	0.110	0.11	92	85-115	60-140

105-F Rx Phase IV Soils

QC-MS#2 43422

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-01 J00BJ8

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-01	Client sample id	J00BJ8		
Dept sample id	7423-001	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 09:35	1236 g	
% solids	94.7	Custody/SAF No	B02-030-24	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.497	0.12	0.18	400		H
Carbon 14	14762-75-5	26.4	2.3	2.9	50		C
Nickel 59	14336-70-0	9.03	9.2	21	30	U	NI
Nickel 63	13981-37-8	512	6.7	2.5	30		NI_L
Uranium 233/234	U-233/234	0.510	0.19	0.14	1.0		U
Uranium 235	15117-96-1	0.023	0.046	0.18	1.0	U	U
Uranium 238	U-238	0.643	0.23	0.14	1.0		U
Plutonium 241	14119-32-5	17.8	7.1	11	15		PU_L
Plutonium 238	13981-16-3	0.659	0.30	0.28	1.0		PU
Plutonium 239/240	PU-239/240	16.9	1.9	0.28	1.0		PU
Americium 241	14596-10-2	3.96	0.81	0.26	1.0		AM
Potassium 40	13966-00-2	21.8	1.4	1.0			GAM
Cobalt 60	10198-40-0	16.5	0.29	0.18	0.050		GAM
Barium 133	13981-41-4	U		0.35		U	GAM
Cesium 137	10045-97-3	392	1.0	0.40	0.10		GAM
Radium 226	13982-63-3	U		0.81		U	GAM
Radium 228	15262-20-1	U		1.3		U	GAM
Europium 152	14683-23-9	178	1.2	1.1	0.10		GAM
Europium 154	15585-10-1	21.0	0.74	0.66	0.10		GAM
Europium 155	14391-16-3	U		1.0	0.10	U	GAM
Thorium 228	14274-82-9	U		0.91		U	GAM
Thorium 232	TH-232	U		1.3		U	GAM
Uranium 235	15117-96-1	U		0.99		U	GAM
Uranium 238	U-238	U		35		U	GAM
Americium 241	14596-10-2	U		3.4		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-02 J00BJ9

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-02	Client sample id	J00BJ9		
Dept sample id	7423-002	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 09:50	1349 g	
% solids	97.0	Custody/SAF No	B02-030-24	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.110	0.11	0.17	400	U	H
Carbon 14	14762-75-5	1.02	2.0	3.3	50	U	C
Nickel 59	14336-70-0	-2.90	8.7	20	30	U	NI
Nickel 63	13981-37-8	112	3.4	2.5	30		NI_L
Uranium 233/234	U-233/234	0.397	0.20	0.15	1.0		U
Uranium 235	15117-96-1	0	0.048	0.18	1.0	U	U
Uranium 238	U-238	0.258	0.16	0.15	1.0		U
Plutonium 241	14119-32-5	4.61	5.4	8.9	15	U	PU_L
Plutonium 238	13981-16-3	0.036	0.15	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	1.24	0.44	0.28	1.0		PU
Americium 241	14596-10-2	0.142	0.17	0.31	1.0	U	AM
Potassium 40	13966-00-2	16.7	1.0	0.52			GAM
Cobalt 60	10198-40-0	0.924	0.085	0.066	0.050		GAM
Barium 133	13981-41-4	U		0.12		U	GAM
Cesium 137	10045-97-3	26.3	0.29	0.13	0.10		GAM
Radium 226	13982-63-3	0.481	0.15	0.18			GAM
Radium 228	15262-20-1	0.544	0.25	0.32			GAM
Europium 152	14683-23-9	10.4	0.39	0.40	0.10		GAM
Europium 154	15585-10-1	1.33	0.24	0.23	0.10		GAM
Europium 155	14391-16-3	U		0.34	0.10	U	GAM
Thorium 228	14274-82-9	0.490	0.10	0.15			GAM
Thorium 232	TH-232	0.544	0.25	0.32			GAM
Uranium 235	15117-96-1	U		0.44		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.97		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-03 J00BK0

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-03	Client sample id	J00BK0		
Dept sample id	7423-003	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 10:00	1228 g	
% solids	96.4	Custody/SAF No	B02-030-24	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.082	0.11	0.18	400	U	H
Carbon 14	14762-75-5	0.065	1.8	3.1	50	U	C
Nickel 59	14336-70-0	1.50	11	25	30	U	NI
Nickel 63	13981-37-8	7.92	1.7	2.6	30		NI_L
Uranium 233/234	U-233/234	0.303	0.16	0.15	1.0		U
Uranium 235	15117-96-1	0.049	0.049	0.19	1.0	U	U
Uranium 238	U-238	0.364	0.16	0.15	1.0		U
Plutonium 241	14119-32-5	5.43	6.5	11	15	U	PU_L
Plutonium 238	13981-16-3	0	0.16	0.38	1.0	U	PU
Plutonium 239/240	PU-239/240	0.161	0.16	0.31	1.0	U	PU
Americium 241	14596-10-2	0.061	0.12	0.24	1.0	U	AM
Potassium 40	13966-00-2	11.3	1.7	1.1			GAM
Cobalt 60	10198-40-0	0.233	0.11	0.12	0.050		GAM
Barium 133	13981-41-4	U		0.15		U	GAM
Cesium 137	10045-97-3	7.64	0.30	0.19	0.10		GAM
Radium 226	13982-63-3	0.594	0.23	0.26			GAM
Radium 228	15262-20-1	0.513	0.34	0.45			GAM
Europium 152	14683-23-9	4.48	0.49	0.49	0.10		GAM
Europium 154	15585-10-1	U		0.49	0.10	U	GAM
Europium 155	14391-16-3	U		0.33	0.10	U	GAM
Thorium 228	14274-82-9	0.496	0.14	0.19			GAM
Thorium 232	TH-232	0.513	0.34	0.45			GAM
Uranium 235	15117-96-1	U		0.49		U	GAM
Uranium 238	U-238	U		15		U	GAM
Americium 241	14596-10-2	U		0.32		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-04 J00BK1

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R212086-04	Client sample id	J00BK1	
Dept sample id	7423-004	Location/Matrix	105F	SOLID
Received	12/11/02	Collected/Weight	12/05/02 10:15	1356 g
% solids	97.0	Custody/SAF No	B02-030-24	B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.140	0.11	0.17	400	U	H
Carbon 14	14762-75-5	-0.116	1.9	3.3	50	U	C
Nickel 59	14336-70-0	-5.15	9.9	23	30	U	NI
Nickel 63	13981-37-8	0.969	1.7	2.8	30	U	NI_L
Uranium 233/234	U-233/234	0.339	0.16	0.15	1.0		U
Uranium 235	15117-96-1	0	0.048	0.18	1.0	U	U
Uranium 238	U-238	0.459	0.20	0.15	1.0		U
Plutonium 241	14119-32-5	5.79	4.7	7.7	15	U	PU_L
Plutonium 238	13981-16-3	0.034	0.068	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0.034	0.068	0.26	1.0	U	PU
Americium 241	14596-10-2	0	0.088	0.33	1.0	U	AM
Potassium 40	13966-00-2	11.9	1.0	0.51			GAM
Cobalt 60	10198-40-0	U		0.058	0.050	U	GAM
Barium 133	13981-41-4	U		0.064		U	GAM
Cesium 137	10045-97-3	0.163	0.055	0.051	0.10		GAM
Radium 226	13982-63-3	0.270	0.084	0.087			GAM
Radium 228	15262-20-1	0.559	0.26	0.25			GAM
Europium 152	14683-23-9	U		0.14	0.10	U	GAM
Europium 154	15585-10-1	U		0.21	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.536	0.089	0.083			GAM
Thorium 232	TH-232	0.559	0.26	0.25			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		7.1		U	GAM
Americium 241	14596-10-2	U		0.10		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-05 J00BK2

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-05	Client sample id	J00BK2		
Dept sample id	7423-005	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 10:25	1231 g	
% solids	96.2	Custody/SAF No	B02-030-26	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.004	0.10	0.17	400	U	H
Carbon 14	14762-75-5	0.717	1.8	3.0	50	U	C
Nickel 59	14336-70-0	-2.62	4.0	7.6	30	U	NI
Nickel 63	13981-37-8	8.11	1.6	2.3	30		NI_L
Uranium 233/234	U-233/234	0.408	0.20	0.15	1.0		U
Uranium 235	15117-96-1	0.047	0.047	0.18	1.0	U	U
Uranium 238	U-238	0.369	0.16	0.15	1.0		U
Plutonium 241	14119-32-5	2.19	7.7	13	15	U	PU_L
Plutonium 238	13981-16-3	0	0.083	0.32	1.0	U	PU
Plutonium 239/240	PU-239/240	0.250	0.17	0.32	1.0	U	PU
Americium 241	14596-10-2	0.216	0.19	0.24	1.0	U	AM
Potassium 40	13966-00-2	17.0	1.0	0.38			GAM
Cobalt 60	10198-40-0	0.267	0.052	0.050	0.050		GAM
Barium 133	13981-41-4	U		0.052		U	GAM
Cesium 137	10045-97-3	8.47	0.13	0.059	0.10		GAM
Radium 226	13982-63-3	0.419	0.080	0.088			GAM
Radium 228	15262-20-1	0.546	0.19	0.22			GAM
Europium 152	14683-23-9	2.92	0.12	0.12	0.10		GAM
Europium 154	15585-10-1	0.288	0.099	0.12	0.10		GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.660	0.050	0.061			GAM
Thorium 232	TH-232	0.546	0.19	0.22			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		5.8		U	GAM
Americium 241	14596-10-2	U		0.17		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-06 J00BK3

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-06	Client sample id	J00BK3		
Dept sample id	7423-006	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 10:35	1255 g	
% solids	96.6	Custody/SAF No	B02-030-26	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.066	0.10	0.17	400	U	H
Carbon 14	14762-75-5	-0.499	1.7	2.9	50	U	C
Nickel 59	14336-70-0	-1.73	4.7	8.7	30	U	NI
Nickel 63	13981-37-8	1.28	1.4	2.2	30	U	NI_L
Uranium 233/234	U-233/234	0.232	0.15	0.15	1.0		U
Uranium 235	15117-96-1	0	0.047	0.18	1.0	U	U
Uranium 238	U-238	0.232	0.12	0.15	1.0		U
Plutonium 241	14119-32-5	-2.54	12	20	15	U	PU_L
Plutonium 238	13981-16-3	-0.057	0.11	0.44	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.11	0.44	1.0	U	PU
Americium 241	14596-10-2	0	0.058	0.22	1.0	U	AM
Potassium 40	13966-00-2	16.4	0.81	0.35			GAM
Cobalt 60	10198-40-0	U		0.043	0.050	U	GAM
Barium 133	13981-41-4	U		0.032		U	GAM
Cesium 137	10045-97-3	0.284	0.032	0.030	0.10		GAM
Radium 226	13982-63-3	0.505	0.063	0.061			GAM
Radium 228	15262-20-1	0.685	0.18	0.18			GAM
Europium 152	14683-23-9	0.241	0.057	0.075	0.10		GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.529	0.040	0.043			GAM
Thorium 232	TH-232	0.685	0.18	0.18			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		4.8		U	GAM
Americium 241	14596-10-2	U		0.24		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-07 J00BK4

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-07	Client sample id	J00BK4		
Dept sample id	7423-007	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 10:50	1283 g	
% solids	97.3	Custody/SAF No	B02-030-26	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.130	0.11	0.17	400	U	H
Carbon 14	14762-75-5	2.02	1.7	2.8	50	U	C
Nickel 59	14336-70-0	-1.01	12	27	30	U	NI
Nickel 63	13981-37-8	19.1	1.9	2.5	30		NI_L
Uranium 233/234	U-233/234	0.259	0.15	0.14	1.0		U
Uranium 235	15117-96-1	0.090	0.090	0.17	1.0	U	U
Uranium 238	U-238	0.315	0.15	0.14	1.0		U
Plutonium 241	14119-32-5	0.247	7.8	13	15	U	PU_L
Plutonium 238	13981-16-3	0	0.075	0.29	1.0	U	PU
Plutonium 239/240	PU-239/240	0.905	0.38	0.29	1.0		PU
Americium 241	14596-10-2	0.268	0.27	0.34	1.0	U	AM
Potassium 40	13966-00-2	11.3	2.4	0.62			GAM
Cobalt 60	10198-40-0	0.983	0.12	0.095	0.050		GAM
Barium 133	13981-41-4	U		0.15		U	GAM
Cesium 137	10045-97-3	23.2	0.36	0.17	0.10		GAM
Radium 226	13982-63-3	0.274	0.21	0.23			GAM
Radium 228	15262-20-1	0.788	0.51	0.54			GAM
Europium 152	14683-23-9	10.6	0.37	0.33	0.10		GAM
Europium 154	15585-10-1	1.14	0.30	0.32	0.10		GAM
Europium 155	14391-16-3	U		0.29	0.10	U	GAM
Thorium 228	14274-82-9	0.397	0.13	0.18			GAM
Thorium 232	TH-232	0.788	0.51	0.54			GAM
Uranium 235	15117-96-1	U		0.43		U	GAM
Uranium 238	U-238	U		16		U	GAM
Americium 241	14596-10-2	U		0.26		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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SAMPLE DELIVERY GROUP H2020

R212086-08 J00BK5

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R212086-08	Client sample id	J00BK5	
Dept sample id	7423-008	Location/Matrix	105F	SOLID
Received	12/11/02	Collected/Weight	12/05/02 11:00	1208 g
% solids	97.0	Custody/SAF No	B02-030-26	B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.289	0.11	0.17	400		H
Carbon 14	14762-75-5	0.842	1.9	3.1	50	U	C
Nickel 59	14336-70-0	-3.50	8.9	21	30	U	NI
Nickel 63	13981-37-8	1.35	1.2	2.0	30	U	NI_L
Uranium 233/234	U-233/234	0.356	0.15	0.14	1.0		U
Uranium 235	15117-96-1	0.023	0.045	0.17	1.0	U	U
Uranium 238	U-238	0.244	0.15	0.14	1.0		U
Plutonium 241	14119-32-5	1.72	9.7	16	15	U	PU_L
Plutonium 238	13981-16-3	0	0.052	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0.103	0.10	0.20	1.0	U	PU
Americium 241	14596-10-2	0.027	0.11	0.21	1.0	U	AM
Potassium 40	13966-00-2	16.7	1.3	0.63			GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Barium 133	13981-41-4	U		0.066		U	GAM
Cesium 137	10045-97-3	2.49	0.13	0.092	0.10		GAM
Radium 226	13982-63-3	0.500	0.11	0.12			GAM
Radium 228	15262-20-1	0.621	0.27	0.30			GAM
Europium 152	14683-23-9	1.06	0.13	0.15	0.10		GAM
Europium 154	15585-10-1	U		0.26	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.541	0.066	0.080			GAM
Thorium 232	TH-232	0.621	0.27	0.30			GAM
Uranium 235	15117-96-1	U		0.25		U	GAM
Uranium 238	U-238	U		7.8		U	GAM
Americium 241	14596-10-2	U		0.22		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-09 J00BK6

DATA SHEET

SDG	7423	Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212086-09	Client sample id	J00BK6
Dept sample id	7423-009	Location/Matrix	105F SOLID
Received	12/11/02	Collected/Weight	12/05/02 11:10 1288 g
% solids	97.1	Custody/SAF No	B02-030-28 B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.144	0.11	0.18	400	U	H
Carbon 14	14762-75-5	1.65	1.7	2.7	50	U	C
Nickel 59	14336-70-0	-6.77	7.6	18	30	U	NI
Nickel 63	13981-37-8	4.73	1.4	2.1	30		NI_L
Uranium 233/234	U-233/234	0.450	0.21	0.16	1.0		U
Uranium 235	15117-96-1	0.025	0.050	0.19	1.0	U	U
Uranium 238	U-238	0.307	0.16	0.16	1.0		U
Plutonium 241	14119-32-5	0.840	9.1	15	15	U	PU_L
Plutonium 238	13981-16-3	0.059	0.12	0.45	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.12	0.45	1.0	U	PU
Americium 241	14596-10-2	0.033	0.066	0.25	1.0	U	AM
Potassium 40	13966-00-2	15.6	0.76	0.33			GAM
Cobalt 60	10198-40-0	0.148	0.042	0.038	0.050		GAM
Barium 133	13981-41-4	U		0.082		U	GAM
Cesium 137	10045-97-3	11.8	0.16	0.069	0.10		GAM
Radium 226	13982-63-3	0.474	0.094	0.10			GAM
Radium 228	15262-20-1	0.627	0.19	0.19			GAM
Europium 152	14683-23-9	2.37	0.15	0.17	0.10		GAM
Europium 154	15585-10-1	U		0.34	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.620	0.070	0.089			GAM
Thorium 232	TH-232	0.627	0.19	0.19			GAM
Uranium 235	15117-96-1	U		0.24		U	GAM
Uranium 238	U-238	U		6.3		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-10 J00BK7

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-10	Client sample id	J00BK7		
Dept sample id	7423-010	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 11:15	1174 g	
% solids	96.6	Custody/SAF No	B02-030-26	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.350	0.12	0.18	400		H
Carbon 14	14762-75-5	0.624	1.7	2.8	50	U	C
Nickel 59	14336-70-0	-2.03	8.9	21	30	U	NI
Nickel 63	13981-37-8	-0.444	1.3	2.2	30	U	NI_L
Uranium 233/234	U-233/234	0.405	0.49	0.78	1.0	U	U
Uranium 235	15117-96-1	-0.098	0.20	0.75	1.0	U	U
Uranium 238	U-238	0.486	0.33	0.62	1.0	U	U
Plutonium 241	14119-32-5	4.00	9.6	16	15	U	PU_L
Plutonium 238	13981-16-3	0.037	0.055	0.10	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.018	0.070	1.0	U	PU
Americium 241	14596-10-2	0.059	0.12	0.23	1.0	U	AM
Potassium 40	13966-00-2	17.0	0.92	0.26			GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Barium 133	13981-41-4	U		0.035		U	GAM
Cesium 137	10045-97-3	0.201	0.040	0.042	0.10		GAM
Radium 226	13982-63-3	0.504	0.081	0.079			GAM
Radium 228	15262-20-1	0.712	0.18	0.17			GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	0.522	0.046	0.050			GAM
Thorium 232	TH-232	0.712	0.18	0.17			GAM
Uranium 235	15117-96-1	U		0.17		U	GAM
Uranium 238	U-238	U		5.6		U	GAM
Americium 241	14596-10-2	U		0.28		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-11 J00BK8

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-11	Client sample id	J00BK8		
Dept sample id	7423-011	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 11:25	1308 g	
% solids	97.4	Custody/SAF No	B02-030-26	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.207	0.11	0.18	400		H
Carbon 14	14762-75-5	1.78	2.1	3.5	50	U	C
Nickel 59	14336-70-0	-7.20	7.4	18	30	U	NI
Nickel 63	13981-37-8	9.50	1.6	2.2	30		NI_L
Uranium 233/234	U-233/234	0.284	0.18	0.17	1.0		U
Uranium 235	15117-96-1	0.026	0.053	0.20	1.0	U	U
Uranium 238	U-238	0.350	0.18	0.17	1.0		U
Plutonium 241	14119-32-5	5.50	5.8	9.5	15	U	PU_L
Plutonium 238	13981-16-3	0.020	0.061	0.10	1.0	U	PU
Plutonium 239/240	PU-239/240	0.281	0.082	0.057	1.0		PU
Americium 241	14596-10-2	0.114	0.23	0.44	1.0	U	AM
Potassium 40	13966-00-2	11.1	2.6	1.1			GAM
Cobalt 60	10198-40-0	U		0.24	0.050	U	GAM
Barium 133	13981-41-4	U		0.13		U	GAM
Cesium 137	10045-97-3	13.4	0.32	0.12	0.10		GAM
Radium 226	13982-63-3	0.293	0.20	0.22			GAM
Radium 228	15262-20-1	0.413	0.30	0.34			GAM
Europium 152	14683-23-9	2.32	0.25	0.30	0.10		GAM
Europium 154	15585-10-1	U		0.48	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.392	0.11	0.15			GAM
Thorium 232	TH-232	0.413	0.30	0.34			GAM
Uranium 235	15117-96-1	U		0.39		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-12 J00BK9

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-12	Client sample id	J00BK9		
Dept sample id	7423-012	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 11:30	1325 g	
% solids	97.0	Custody/SAF No	B02-030-26	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.402	0.12	0.19	400		H
Carbon 14	14762-75-5	0.693	1.6	2.6	50	U	C
Nickel 59	14336-70-0	-3.76	4.0	8.6	30	U	NI
Nickel 63	13981-37-8	1.17	1.3	2.2	30	U	NI_L
Uranium 233/234	U-233/234	0.386	0.22	0.16	1.0		U
Uranium 235	15117-96-1	0.052	0.052	0.20	1.0	U	U
Uranium 238	U-238	0.343	0.17	0.16	1.0		U
Plutonium 241	14119-32-5	4.76	8.0	13	15	U	PU_L
Plutonium 238	13981-16-3	0	0.029	0.070	1.0	U	PU
Plutonium 239/240	PU-239/240	0.051	0.044	0.070	1.0	U	PU
Americium 241	14596-10-2	0.112	0.22	0.86	1.0	U	AM
Potassium 40	13966-00-2	16.2	0.83	0.29			GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Barium 133	13981-41-4	U		0.022		U	GAM
Cesium 137	10045-97-3	0.222	0.032	0.032	0.10		GAM
Radium 226	13982-63-3	0.450	0.051	0.047			GAM
Radium 228	15262-20-1	0.658	0.11	0.099			GAM
Europium 152	14683-23-9	U		0.099	0.10	U	GAM
Europium 154	15585-10-1	U		0.090	0.10	U	GAM
Europium 155	14391-16-3	U		0.056	0.10	U	GAM
Thorium 228	14274-82-9	0.665	0.047	0.047			GAM
Thorium 232	TH-232	0.658	0.11	0.099			GAM
Uranium 235	15117-96-1	U		0.088		U	GAM
Uranium 238	U-238	U		3.4		U	GAM
Americium 241	14596-10-2	U		0.036		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-13 J00BL0

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG_H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-13	Client sample id	J00BL0		
Dept sample id	7423-013	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 11:40	1288 g	
% solids	97.4	Custody/SAF No	B02-030-30	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.106	0.11	0.17	400	U	H
Carbon 14	14762-75-5	0.525	2.0	3.3	50	U	C
Nickel 59	14336-70-0	-6.81	7.2	17	30	U	NI
Nickel 63	13981-37-8	1.95	1.4	2.3	30	U	NI_L
Uranium 233/234	U-233/234	0.395	0.19	0.14	1.0		U
Uranium 235	15117-96-1	0.045	0.046	0.17	1.0	U	U
Uranium 238	U-238	0.338	0.15	0.14	1.0		U
Plutonium 241	14119-32-5	-0.499	6.8	11	15	U	PU_L
Plutonium 238	13981-16-3	-0.013	0.039	0.092	1.0	U	PU
Plutonium 239/240	PU-239/240	0.462	0.12	0.079	1.0		PU
Americium 241	14596-10-2	-0.072	0.14	0.55	1.0	U	AM
Potassium 40	13966-00-2	16.0	0.97	0.46			GAM
Cobalt 60	10198-40-0	0.079	0.054	0.058	0.050		GAM
Barium 133	13981-41-4	U		0.086		U	GAM
Cesium 137	10045-97-3	12.6	0.20	0.087	0.10		GAM
Radium 226	13982-63-3	0.550	0.14	0.16			GAM
Radium 228	15262-20-1	0.488	0.18	0.22			GAM
Europium 152	14683-23-9	2.12	0.16	0.20	0.10		GAM
Europium 154	15585-10-1	0.222	0.16	0.19	0.10		GAM
Europium 155	14391-16-3	U		0.18	0.10	U	GAM
Thorium 228	14274-82-9	0.543	0.069	0.096			GAM
Thorium 232	TH-232	0.488	0.18	0.22			GAM
Uranium 235	15117-96-1	U		0.28		U	GAM
Uranium 238	U-238	U		6.5		U	GAM
Americium 241	14596-10-2	U		0.23		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-14 J00BL1

DATA SHEET

SDG	7423	Client/Case no	Hanford SDG H2020
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212086-14	Client sample id	J00BL1
Dept sample id	7423-014	Location/Matrix	105F SOLID
Received	12/11/02	Collected/Weight	12/05/02 11:45 1144 g
% solids	96.5	Custody/SAF No	B02-030-30 B02-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.161	0.11	0.18	400	U	H
Carbon 14	14762-75-5	1.08	1.7	2.8	50	U	C
Nickel 59	14336-70-0	-0.769	6.9	16	30	U	NI
Nickel 63	13981-37-8	-0.712	1.3	2.2	30	U	NI_L
Uranium 233/234	U-233/234	0.224	0.15	0.14	1.0		U
Uranium 235	15117-96-1	0	0.045	0.17	1.0	U	U
Uranium 238	U-238	0.337	0.15	0.14	1.0		U
Plutonium 241	14119-32-5	1.83	12	21	15	U	PU_L
Plutonium 238	13981-16-3	-0.006	0.024	0.068	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.006	0.024	0.059	1.0	U	PU
Americium 241	14596-10-2	0	0.21	0.40	1.0	U	AM
Potassium 40	13966-00-2	16.0	0.79	0.23			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Barium 133	13981-41-4	U		0.027		U	GAM
Cesium 137	10045-97-3	0.474	0.041	0.036	0.10		GAM
Radium 226	13982-63-3	0.360	0.054	0.052			GAM
Radium 228	15262-20-1	0.614	0.12	0.12			GAM
Europium 152	14683-23-9	0.309	0.046	0.059	0.10		GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.062	0.10	U	GAM
Thorium 228	14274-82-9	0.509	0.033	0.033			GAM
Thorium 232	TH-232	0.614	0.12	0.12			GAM
Uranium 235	15117-96-1	U		0.096		U	GAM
Uranium 238	U-238	U		3.9		U	GAM
Americium 241	14596-10-2	U		0.039		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

R212086-15 J00BL2

DATA SHEET

SDG	7423	Client/Case no	Hanford	SDG H2020	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212086-15	Client sample id	J00BL2		
Dept sample id	7423-015	Location/Matrix	105F	SOLID	
Received	12/11/02	Collected/Weight	12/05/02 11:40	1236 g	
% solids	97.4	Custody/SAF No	B02-030-30	B02-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	0.109	0.11	0.18	400	U	H
Carbon 14	14762-75-5	1.71	1.7	2.8	50	U	C
Nickel 59	14336-70-0	0.083	8.4	19	30	U	NI
Nickel 63	13981-37-8	0.765	1.3	2.2	30	U	NI_L
Uranium 233/234	U-233/234	0.542	0.44	0.52	1.0		U
Uranium 235	15117-96-1	0.131	0.13	0.50	1.0	U	U
Uranium 238	U-238	0.433	0.33	0.41	1.0		U
Plutonium 241	14119-32-5	1.08	10	17	15	U	PU_L
Plutonium 238	13981-16-3	-0.018	0.036	0.098	1.0	U	PU
Plutonium 239/240	PU-239/240	0.027	0.053	0.085	1.0	U	PU
Americium 241	14596-10-2	0.060	0.12	0.23	1.0	U	AM
Potassium 40	13966-00-2	15.9	0.91	0.29			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Barium 133	13981-41-4	U		0.037		U	GAM
Cesium 137	10045-97-3	3.13	0.079	0.042	0.10		GAM
Radium 226	13982-63-3	0.451	0.070	0.070			GAM
Radium 228	15262-20-1	0.588	0.15	0.16			GAM
Europium 152	14683-23-9	0.694	0.068	0.083	0.10		GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.076	0.10	U	GAM
Thorium 228	14274-82-9	0.607	0.040	0.042			GAM
Thorium 232	TH-232	0.588	0.15	0.16			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		4.2		U	GAM
Americium 241	14596-10-2	U		0.047		U	GAM

105-F Rx Phase IV Soils

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test AM Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 7052-187					
J00BJ8	R212086-01			7423-001	3.96
J00BJ9	R212086-02			7423-002	U
J00BK0	R212086-03			7423-003	U
J00BK1	R212086-04			7423-004	U
J00BK2	R212086-05			7423-005	U
J00BK3	R212086-06			7423-006	U
J00BK4	R212086-07			7423-007	U
J00BK5	R212086-08			7423-008	U
J00BK6	R212086-09			7423-009	U
J00BK7	R212086-10			7423-010	U
J00BK8	R212086-11			7423-011	U
J00BK9	R212086-12			7423-012	U
J00BL0	R212086-13			7423-013	U
J00BL1	R212086-14			7423-014	U
J00BL2	R212086-15			7423-015	U
BLK (QC ID=43420)	R212086-17			7423-017	U
LCS (QC ID=43419)	R212086-16			7423-016	ok
Duplicate (R212086-01)	R212086-18			7423-018	ok
Nominal values and limits from method 105-F Rx Phase IV Soils				RDLs (pCi/g)	1.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test AM Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 187												
J00BJ8	R212086-01			0.26	0.500			72		129			35	01/02/03	01/09	SS-050
J00BJ9	R212086-02			0.31	0.500			69		152			35	01/02/03	01/09	SS-041
J00BK0	R212086-03			0.24	0.500			66		153			35	01/02/03	01/09	SS-042
J00BK1	R212086-04			0.33	0.500			52		126			35	01/02/03	01/09	SS-043
J00BK2	R212086-05			0.24	0.500			69		126			35	01/02/03	01/09	SS-044
J00BK3	R212086-06			0.22	0.500			69		126			35	01/02/03	01/09	SS-045
J00BK4	R212086-07			0.34	0.500			30		127			35	01/02/03	01/09	SS-046
J00BK5	R212086-08			0.21	0.500			88		128			35	01/02/03	01/09	SS-051
J00BK6	R212086-09			0.25	0.500			64		129			35	01/02/03	01/09	SS-056
J00BK7	R212086-10			0.23	0.500			80		129			35	01/02/03	01/09	SS-057
J00BK8	R212086-11			0.44	0.500			41		129			35	01/02/03	01/09	SS-058
J00BK9	R212086-12			0.86	0.500			21		129			35	01/02/03	01/09	SS-059
J00BL0	R212086-13			0.55	0.500			30		129			35	01/02/03	01/09	SS-060
J00BL1	R212086-14			0.40	0.500			43		129			35	01/02/03	01/09	SS-061
J00BL2	R212086-15			0.23	0.500			76		130			35	01/02/03	01/09	SS-065
BLK (QC ID=43420)	R212086-17			0.17	0.500			97		128				01/02/03	01/09	SS-052
LCS (QC ID=43419)	R212086-16			0.26	0.500			67		130				01/02/03	01/09	SS-066
Duplicate (R212086-01) (QC ID=43421)	R212086-18			0.25	0.500			68		128			35	01/02/03	01/09	SS-055
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 0.32 ± 0.33
YIELD 61 ± 42

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 7052-187						
J00BJ8	R212086-01			7423-001	0.659	16.9
J00BJ9	R212086-02			7423-002	U	1.24
J00BK0	R212086-03			7423-003	U	U
J00BK1	R212086-04			7423-004	U	U
J00BK2	R212086-05			7423-005	U	U
J00BK3	R212086-06			7423-006	U	U
J00BK4	R212086-07			7423-007	U	0.905
J00BK5	R212086-08			7423-008	U	U
J00BK6	R212086-09		R1	7423-009	U	U
J00BK7	R212086-10			7423-010	U	U
J00BK8	R212086-11			7423-011	U	0.281
J00BK9	R212086-12			7423-012	U	U
J00BL0	R212086-13			7423-013	U	0.462
J00BL1	R212086-14			7423-014	U	U
J00BL2	R212086-15			7423-015	U	U
BLK (QC ID=43420)	R212086-17			7423-017	U	U
LCS (QC ID=43419)	R212086-16			7423-016	ok	ok
Duplicate (R212086-01)	R212086-18			7423-018	ok	ok
Nominal values and limits from method 105-F Rx Phase IV Soils				RDLs (pCi/g)	1.0	1.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 187												
J00BJ8	R212086-01			0.28	0.500			75		110			28	12/26/02	01/02	SS-024
J00BJ9	R212086-02			0.28	0.500			74		110			28	12/26/02	01/02	SS-033
J00BK0	R212086-03			0.38	0.500			66		111			28	12/26/02	01/02	SS-041
J00BK1	R212086-04			0.26	0.500			82		111			28	12/26/02	01/02	SS-042
J00BK2	R212086-05			0.32	0.500			53		129			35	12/26/02	01/09	SS-047
J00BK3	R212086-06			0.44	0.500			46		111			28	12/26/02	01/02	SS-047
J00BK4	R212086-07			0.29	0.500			67		112			28	12/26/02	01/02	SS-048
J00BK5	R212086-08			0.20	0.500			42		232			34	12/26/02	01/08	SS-045
J00BK6	R212086-09		R1	0.45	0.500			47		110			39	12/26/02	01/13	SS-051
J00BK7	R212086-10			0.10	0.500			38		831			34	12/26/02	01/08	SS-043
J00BK8	R212086-11			0.10	0.500			68		847			34	12/26/02	01/08	SS-041
J00BK9	R212086-12			0.070	0.500			50		847			34	12/26/02	01/08	SS-042
J00BL0	R212086-13			0.092	0.500			54		831			34	12/26/02	01/08	SS-046
J00BL1	R212086-14			0.068	0.500			56		834			34	12/26/02	01/08	SS-047
J00BL2	R212086-15			0.098	0.500			43		835			34	12/26/02	01/08	SS-049
BLK (QC ID=43420)	R212086-17			0.32	0.500			64		112				12/26/02	01/02	SS-051
LCS (QC ID=43419)	R212086-16			0.065	0.500			64		835				12/26/02	01/08	SS-050
Duplicate (R212086-01) (QC ID=43421)	R212086-18			0.31	0.500			62		112			28	12/26/02	01/02	SS-052
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 18 SAMPLES				
MDA	0.23	±	0.26
YIELD	58	±	25

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test U Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7052-187											
J00BJ8	R212086-01			7423-001	0.510	U	0.643	79	41	4	7
J00BJ9	R212086-02			7423-002	0.397	U	0.258	154	123	0	19
J00BK0	R212086-03			7423-003	0.303	U	0.364	83	57	13	15
J00BK1	R212086-04			7423-004	0.339	U	0.459	74	47	0	10
J00BK2	R212086-05			7423-005	0.408	U	0.369	111	72	13	14
J00BK3	R212086-06			7423-006	0.232	U	0.232	100	83	0	20
J00BK4	R212086-07			7423-007	0.259	U	0.315	82	62	29	32
J00BK5	R212086-08			7423-008	0.356	U	0.244	146	109	9	19
J00BK6	R212086-09			7423-009	0.450	U	0.307	147	103	8	17
J00BK7	R212086-10			7423-010	U	U	U				
J00BK8	R212086-11			7423-011	0.284	U	0.350	81	66	7	16
J00BK9	R212086-12			7423-012	0.386	U	0.343	113	85	15	17
J00BL0	R212086-13			7423-013	0.395	U	0.338	117	76	13	15
J00BL1	R212086-14			7423-014	0.224	U	0.337	66	53	0	13
J00BL2	R212086-15			7423-015	0.542	U	0.433	125	139	30	38
BLK (QC ID=43420)	R212086-17			7423-017	U	U	U				
LCS (QC ID=43419)	R212086-16			7423-016	ok	ok	ok				
Duplicate (R212086-01)	R212086-18			7423-018	ok	- U	ok	67	32	0	5
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
105-F Rx Phase IV Soils								Averages 103		9	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test U Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 187												
J00BJ8	R212086-01			0.18	0.500			94		161			26	12/30/02	12/31	SS-006
J00BJ9	R212086-02			0.18	0.500			98		161			26	12/30/02	12/31	SS-009
J00BK0	R212086-03			0.19	0.500			89		162			26	12/30/02	12/31	SS-014
J00BK1	R212086-04			0.18	0.500			91		163			26	12/30/02	12/31	SS-031
J00BK2	R212086-05			0.18	0.500			88		163			26	12/30/02	12/31	SS-032
J00BK3	R212086-06			0.18	0.500			89		163			26	12/30/02	12/31	SS-039
J00BK4	R212086-07			0.17	0.500			96		163			26	12/30/02	12/31	SS-040
J00BK5	R212086-08			0.17	0.500			91		163			26	12/30/02	12/31	SS-043
J00BK6	R212086-09			0.19	0.500			81		163			26	12/30/02	12/31	SS-044
J00BK7	R212086-10			0.78	0.500			22		181			28	12/30/02	01/02	SS-022
J00BK8	R212086-11			0.20	0.500			87		164			26	12/30/02	12/31	SS-050
J00BK9	R212086-12			0.20	0.500			88		165			26	12/30/02	12/31	SS-053
J00BL0	R212086-13			0.17	0.500			99		165			26	12/30/02	12/31	SS-057
J00BL1	R212086-14			0.17	0.500			98		165			26	12/30/02	12/31	SS-058
J00BL2	R212086-15			0.52	0.500			31		181			28	12/30/02	01/02	SS-024
BLK (QC ID=43420)	R212086-17			0.16	0.500			88		180				12/30/02	01/02	SS-032
LCS (QC ID=43419)	R212086-16			0.77	0.500			96		180				12/30/02	01/02	SS-031
Duplicate (R212086-01) (QC ID=43421)	R212086-18			0.16	0.500			97		180			28	12/30/02	01/02	SS-033
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 4
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 0.26 ± 0.41
YIELD 85 ± 43

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test GAM Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7052-187						
J00BJ8	R212086-01			7423-001	16.5	392
J00BJ9	R212086-02			7423-002	0.924	26.3
J00BK0	R212086-03			7423-003	0.233	7.64
J00BK1	R212086-04			7423-004	U	0.163
J00BK2	R212086-05			7423-005	0.267	8.47
J00BK3	R212086-06			7423-006	U	0.284
J00BK4	R212086-07			7423-007	0.983	23.2
J00BK5	R212086-08			7423-008	U	2.49
J00BK6	R212086-09			7423-009	0.148	11.8
J00BK7	R212086-10			7423-010	U	0.201
J00BK8	R212086-11			7423-011	U	13.4
J00BK9	R212086-12			7423-012	U	0.222
J00BL0	R212086-13			7423-013	0.079	12.6
J00BL1	R212086-14			7423-014	U	0.474
J00BL2	R212086-15			7423-015	U	3.13
BLK (QC ID=43420)	R212086-17			7423-017	U	U
LCS (QC ID=43419)	R212086-16			7423-016	ok	ok
Duplicate (R212086-01)	R212086-18			7423-018	ok	ok
Nominal values and limits from method 105-F Rx Phase IV Soils				RDLs (pCi/g)	0.050	0.10

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test GAM Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 15.0 %			Reference Lab Notebook 7052 pg. 187												
J00BJ8	R212086-01			2.5	694					95			28	12/20/02	01/02	MB,07,00
J00BJ9	R212086-02			0.92	646					118			28	12/20/02	01/02	MB,05,00
J00BK0	R212086-03			1.2	203					145			28	12/20/02	01/02	JR,03,00
J00BK1	R212086-04			0.41	207					146			28	12/20/02	01/02	JR,04,00
J00BK2	R212086-05			0.39	663					118			28	12/20/02	01/02	MB,07,00
J00BK3	R212086-06			0.40	695					146			28	12/20/02	01/02	MB,05,00
J00BK4	R212086-07			1.1	211					146			28	12/20/02	01/02	JR,07,00
J00BK5	R212086-08			0.66	654					105			28	12/20/02	01/02	02,03,00
J00BK6	R212086-09			0.53	678					105			28	12/20/02	01/02	02,04,00
J00BK7	R212086-10			0.34	719					105			28	12/20/02	01/02	MB,05,00
J00BK8	R212086-11			0.97	212					105			28	12/20/02	01/02	JR,07,00
J00BK9	R212086-12			0.20	778					141			29	12/20/02	01/03	MB,07,00
J00BL0	R212086-13			0.72	822					141			29	12/20/02	01/03	02,03,00
J00BL1	R212086-14			0.22	809					115			32	12/20/02	01/06	MB,07,00
J00BL2	R212086-15			0.28	714					120			28	12/20/02	01/02	MB,07,00
BLK (QC ID=43420)	R212086-17			0.47	203					131				12/20/02	01/03	MB,07,00
LCS (QC ID=43419)	R212086-16			0.20	203					101				12/20/02	01/06	01,03,00
Duplicate (R212086-01) (QC ID=43421)	R212086-18			4.9	694					127			29	12/20/02	01/03	02,03,00
Nominal values and limits from method				0.050	203					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 4
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 0.91 ± 2.3
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test C Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14
Preparation batch 7052-187					
J00BJ8	R212086-01			7423-001	26.4
J00BJ9	R212086-02			7423-002	U
J00BK0	R212086-03			7423-003	U
J00BK1	R212086-04			7423-004	U
J00BK2	R212086-05			7423-005	U
J00BK3	R212086-06			7423-006	U
J00BK4	R212086-07			7423-007	U
J00BK5	R212086-08			7423-008	U
J00BK6	R212086-09			7423-009	U
J00BK7	R212086-10			7423-010	U
J00BK8	R212086-11			7423-011	U
J00BK9	R212086-12			7423-012	U
J00BL0	R212086-13			7423-013	U
J00BL1	R212086-14			7423-014	U
J00BL2	R212086-15			7423-015	U
BLK (QC ID=43420)	R212086-17			7423-017	U
LCS (QC ID=43419)	R212086-16			7423-016	ok
Duplicate (R212086-01)	R212086-18			7423-018	ok

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 50

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test C Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 10.0 %				Reference Lab Notebook 7052 pg. 187											
J00BJ8	R212086-01			2.9	0.334			100		100			13	12/18/02	12/18	LSC-006
J00BJ9	R212086-02			3.3	0.288			100		100			14	12/18/02	12/19	LSC-006
J00BK0	R212086-03			3.1	0.316			100		100			14	12/18/02	12/19	LSC-006
J00BK1	R212086-04			3.3	0.295			100		100			14	12/18/02	12/19	LSC-006
J00BK2	R212086-05			3.0	0.317			100		100			14	12/18/02	12/19	LSC-006
J00BK3	R212086-06			2.9	0.328			100		100			14	12/18/02	12/19	LSC-006
J00BK4	R212086-07			2.8	0.350			100		100			14	12/18/02	12/19	LSC-006
J00BK5	R212086-08			3.1	0.310			100		100			14	12/18/02	12/19	LSC-006
J00BK6	R212086-09			2.7	0.352			100		100			14	12/18/02	12/19	LSC-006
J00BK7	R212086-10			2.8	0.336			100		100			14	12/18/02	12/19	LSC-006
J00BK8	R212086-11			3.5	0.281			100		100			14	12/18/02	12/19	LSC-006
J00BK9	R212086-12			2.6	0.365			100		100			14	12/18/02	12/19	LSC-006
J00BL0	R212086-13			3.3	0.288			100		100			14	12/18/02	12/19	LSC-006
J00BL1	R212086-14			2.8	0.332			100		100			14	12/18/02	12/19	LSC-006
J00BL2	R212086-15			2.8	0.340			100		100			15	12/18/02	12/20	LSC-006
BLK (QC ID=43420)	R212086-17			3.6	0.265			100		100				12/18/02	12/18	LSC-006
LCS (QC ID=43419)	R212086-16			5.6	0.265			100		43				12/18/02	12/20	LSC-006
Duplicate (R212086-01) (QC ID=43421)	R212086-18			3.6	0.265			100		100			14	12/18/02	12/19	LSC-006
Nominal values and limits from method				50	0.265					50			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 3.2 ± 1.3
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test H Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7052-187						
J00BJ8	R212086-01			7423-001	0.497	
J00BJ9	R212086-02			7423-002	U	
J00BK0	R212086-03			7423-003	U	
J00BK1	R212086-04			7423-004	U	
J00BK2	R212086-05			7423-005	U	
J00BK3	R212086-06			7423-006	U	
J00BK4	R212086-07			7423-007	U	
J00BK5	R212086-08			7423-008	0.289	
J00BK6	R212086-09			7423-009	U	
J00BK7	R212086-10			7423-010	0.350	
J00BK8	R212086-11			7423-011	0.207	
J00BK9	R212086-12			7423-012	0.402	
J00BL0	R212086-13			7423-013	U	
J00BL1	R212086-14			7423-014	U	
J00BL2	R212086-15			7423-015	U	
BLK (QC ID=43420)	R212086-17			7423-017	U	
LCS (QC ID=43419)	R212086-16			7423-016	ok	
Duplicate (R212086-01)	R212086-18			7423-018	ok	
Spike (R212086-02)	R212086-19			7423-019	ok	X

Nominal values and limits from method 105-F Rx Phase IV Soils RDLs (pCi/g) 400

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test H Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 10.0 %			Reference Lab Notebook 7052 pg. 187												
J00BJ8	R212086-01			0.18	20.8			47		120			26	12/31/02	12/31	LSC-005
J00BJ9	R212086-02			0.17	20.9			50		120			27	12/31/02	01/01	LSC-005
J00BK0	R212086-03			0.18	20.5			49		120			27	12/31/02	01/01	LSC-005
J00BK1	R212086-04			0.17	20.7			50		120			27	12/31/02	01/01	LSC-005
J00BK2	R212086-05			0.17	21.9			50		120			27	12/31/02	01/01	LSC-005
J00BK3	R212086-06			0.17	20.3			51		120			27	12/31/02	01/01	LSC-005
J00BK4	R212086-07			0.17	20.5			49		120			27	12/31/02	01/01	LSC-005
J00BK5	R212086-08			0.17	20.2			51		120			27	12/31/02	01/01	LSC-005
J00BK6	R212086-09			0.18	20.7			49		120			27	12/31/02	01/01	LSC-005
J00BK7	R212086-10			0.18	20.6			49		120			27	12/31/02	01/01	LSC-005
J00BK8	R212086-11			0.18	20.5			49		120			27	12/31/02	01/01	LSC-005
J00BK9	R212086-12			0.19	20.1			50		120			27	12/31/02	01/01	LSC-005
J00BL0	R212086-13			0.17	20.8			50		120			27	12/31/02	01/01	LSC-005
J00BL1	R212086-14			0.18	20.2			49		120			27	12/31/02	01/01	LSC-005
J00BL2	R212086-15			0.18	20.5			50		120			27	12/31/02	01/01	LSC-005
BLK (QC ID=43420)	R212086-17			0.27	20.0			33		120				12/31/02	01/01	LSC-005
LCS (QC ID=43419)	R212086-16			0.27	20.0			33		120				12/31/02	01/01	LSC-005
Duplicate (R212086-01) (QC ID=43421)	R212086-18			0.18	21.2			49		120			27	12/31/02	01/01	LSC-005
Spike (R212086-02) (QC ID=43422)	R212086-19			0.17	20.6			51		120			27	12/31/02	01/01	LSC-005
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-218 Tritium in Soil Samples by Azeotropic Distillation, rev 1

AVERAGES ± 2 SD FOR 19 SAMPLES
MDA 0.19 ± 0.060
YIELD 48 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test NI L Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63
Preparation batch 7052-187					
J00BJ8	R212086-01			7423-001	512
J00BJ9	R212086-02			7423-002	112
J00BK0	R212086-03			7423-003	7.92
J00BK1	R212086-04			7423-004	U
J00BK2	R212086-05			7423-005	8.11
J00BK3	R212086-06			7423-006	U
J00BK4	R212086-07			7423-007	19.1
J00BK5	R212086-08			7423-008	U
J00BK6	R212086-09			7423-009	4.73
J00BK7	R212086-10			7423-010	U
J00BK8	R212086-11			7423-011	9.50
J00BK9	R212086-12			7423-012	U
J00BL0	R212086-13			7423-013	U
J00BL1	R212086-14			7423-014	U
J00BL2	R212086-15			7423-015	U
BLK (QC ID=43420)	R212086-17			7423-017	U
LCS (QC ID=43419)	R212086-16			7423-016	ok
Duplicate (R212086-01)	R212086-18			7423-018	ok

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test NI L Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 10.0 %				Reference Lab Notebook 7052 pg. 187											
J00BJ8	R212086-01			2.5	0.500			83		100			33	01/04/03	01/07	LSC-006
J00BJ9	R212086-02			2.5	0.500			85		100			33	01/04/03	01/07	LSC-006
J00BK0	R212086-03			2.6	0.500			82		100			33	01/04/03	01/07	LSC-006
J00BK1	R212086-04			2.8	0.500			86		100			33	01/04/03	01/07	LSC-006
J00BK2	R212086-05			2.3	0.500			90		100			33	01/04/03	01/07	LSC-006
J00BK3	R212086-06			2.2	0.500			92		100			33	01/04/03	01/07	LSC-006
J00BK4	R212086-07			2.5	0.500			83		100			34	01/04/03	01/08	LSC-006
J00BK5	R212086-08			2.0	0.500			92		100			36	01/04/03	01/10	LSC-005
J00BK6	R212086-09			2.1	0.500			88		100			36	01/04/03	01/10	LSC-005
J00BK7	R212086-10			2.2	0.500			87		100			36	01/04/03	01/10	LSC-005
J00BK8	R212086-11			2.2	0.500			84		100			36	01/04/03	01/10	LSC-005
J00BK9	R212086-12			2.2	0.500			85		100			36	01/04/03	01/10	LSC-005
J00BL0	R212086-13			2.3	0.500			80		100			36	01/04/03	01/10	LSC-005
J00BL1	R212086-14			2.2	0.500			83		100			36	01/04/03	01/10	LSC-005
J00BL2	R212086-15			2.2	0.500			82		100			36	01/04/03	01/10	LSC-005
BLK (QC ID=43420)	R212086-17			1.9	0.500			99		100				01/04/03	01/10	LSC-005
LCS (QC ID=43419)	R212086-16			2.2	0.500			96		100				01/04/03	01/08	LSC-006
Duplicate (R212086-01) (QC ID=43421)	R212086-18			2.7	0.500			76		100			34	01/04/03	01/08	LSC-006
Nominal values and limits from method				30	0.500			30-105		50			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-431	Nickel-63 Purification, rev 5

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 2.3 ± 0.48
YIELD 86 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2020

Test PU L Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM 241 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 241
Preparation batch 7052-187					
J00BJ8	R212086-01			7423-001	17.8
J00BJ9	R212086-02			7423-002	U
J00BK0	R212086-03			7423-003	U
J00BK1	R212086-04			7423-004	U
J00BK2	R212086-05			7423-005	U
J00BK3	R212086-06			7423-006	U
J00BK4	R212086-07			7423-007	U
J00BK5	R212086-08			7423-008	U
J00BK6	R212086-09		R1	7423-009	U
J00BK7	R212086-10			7423-010	U
J00BK8	R212086-11			7423-011	U
J00BK9	R212086-12			7423-012	U
J00BL0	R212086-13			7423-013	U
J00BL1	R212086-14			7423-014	U
J00BL2	R212086-15			7423-015	U
BLK (QC ID=43420)	R212086-17			7423-017	U
LCS (QC ID=43419)	R212086-16			7423-016	ok
Duplicate (R212086-01)	R212086-18			7423-018	ok

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 15

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
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SAMPLE DELIVERY GROUP H2020

Test PU L Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM 241 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 187											
J00BJ8	R212086-01			11	0.500			60		100			37	01/10/03	01/11	LSC-004
J00BJ9	R212086-02			8.9	0.500			77		100			38	01/10/03	01/12	LSC-004
J00BK0	R212086-03			11	0.500			72		100			38	01/10/03	01/12	LSC-004
J00BK1	R212086-04			7.7	0.500			81		100			38	01/10/03	01/12	LSC-004
J00BK2	R212086-05			13	0.500			74		100			38	01/10/03	01/12	LSC-004
J00BK3	R212086-06			20	0.500			56		100			38	01/10/03	01/12	LSC-004
J00BK4	R212086-07			13	0.500			58		100			38	01/10/03	01/12	LSC-004
J00BK5	R212086-08			16	0.500			75		100			38	01/10/03	01/12	LSC-004
J00BK6	R212086-09		R1	15	0.500			74		100			41	01/10/03	01/15	LSC-004
J00BK7	R212086-10			16	0.500			85		100			38	01/10/03	01/12	LSC-004
J00BK8	R212086-11			9.5	0.500			79		100			38	01/10/03	01/12	LSC-004
J00BK9	R212086-12			13	0.500			77		100			38	01/10/03	01/12	LSC-004
J00BL0	R212086-13			11	0.500			83		100			38	01/10/03	01/12	LSC-004
J00BL1	R212086-14			21	0.500			44		100			38	01/10/03	01/12	LSC-004
J00BL2	R212086-15			17	0.500			69		100			38	01/10/03	01/12	LSC-004
BLK (QC ID=43420)	R212086-17			9.0	0.500			88		100				01/10/03	01/12	LSC-004
LCS (QC ID=43419)	R212086-16			9.0	0.500			88		100				01/10/03	01/12	LSC-004
Duplicate (R212086-01) (QC ID=43421)	R212086-18			10	0.500			79		100			39	01/10/03	01/13	LSC-004
Nominal values and limits from method				15	0.500					100			180			

PROCEDURES	REFERENCE	PU241_IE_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-940	Plutonium Separation and Purification, rev 4
	CP-008	Heavy Element Electroplating, rev 7
	RP-948	Plutonium-241 by Liquid Scintillation Counting, rev 2

AVERAGES ± 2 SD				
FOR 18 SAMPLES	MDA	13	±	7.8
	YIELD	73	±	24

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Protocol Hanford
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Version 3.06
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SAMPLE DELIVERY GROUP H2020

Test NI Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 59 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 59	
Preparation batch 7052-187						
J00BJ8	R212086-01			7423-001	U	
J00BJ9	R212086-02			7423-002	U	
J00BK0	R212086-03			7423-003	U	
J00BK1	R212086-04			7423-004	U	
J00BK2	R212086-05			7423-005	U	
J00BK3	R212086-06			7423-006	U	
J00BK4	R212086-07			7423-007	U	
J00BK5	R212086-08			7423-008	U	
J00BK6	R212086-09			7423-009	U	
J00BK7	R212086-10			7423-010	U	
J00BK8	R212086-11			7423-011	U	
J00BK9	R212086-12			7423-012	U	
J00BL0	R212086-13			7423-013	U	
J00BL1	R212086-14			7423-014	U	
J00BL2	R212086-15			7423-015	U	
BLK (QC ID=43420)	R212086-17			7423-017	U	
LCS (QC ID=43419)	R212086-16			7423-016	ok	
Duplicate (R212086-01)	R212086-18			7423-018	-	U

Nominal values and limits from method 105-F Rx Phase IV Soils — RDLs (pCi/g) 30

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 01/21/03

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SAMPLE DELIVERY GROUP H2020

Test NI Matrix SOLID
SDG 7423
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 59 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2020

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-187	2σ prep error 10.0 %				Reference Lab Notebook 7052 pg. 187											
J00BJ8	R212086-01			21	0.500					201			27	12/30/02	01/01	XSPEC-002
J00BJ9	R212086-02			20	0.500					202			27	12/30/02	01/01	XSPEC-016
J00BK0	R212086-03			25	0.500					200			27	12/30/02	01/01	XSPEC-002
J00BK1	R212086-04			23	0.500					201			27	12/30/02	01/01	XSPEC-016
J00BK2	R212086-05			7.6	0.500					2207			27	12/30/02	01/01	XSPEC-002
J00BK3	R212086-06			8.7	0.500					2220			27	12/30/02	01/01	XSPEC-016
J00BK4	R212086-07			27	0.500					164			28	12/30/02	01/02	XSPEC-002
J00BK5	R212086-08			21	0.500					167			28	12/30/02	01/02	XSPEC-002
J00BK6	R212086-09			18	0.500					168			28	12/30/02	01/02	XSPEC-016
J00BK7	R212086-10			21	0.500					162			28	12/30/02	01/02	XSPEC-002
J00BK8	R212086-11			18	0.500					163			28	12/30/02	01/02	XSPEC-016
J00BK9	R212086-12			8.6	0.500					698			28	12/30/02	01/02	XSPEC-016
J00BL0	R212086-13			17	0.500					233			29	12/30/02	01/03	XSPEC-002
J00BL1	R212086-14			16	0.500					235			29	12/30/02	01/03	XSPEC-016
J00BL2	R212086-15			19	0.500					200			29	12/30/02	01/03	XSPEC-002
BLK (QC ID=43420)	R212086-17			20	0.500					165				12/30/02	01/02	XSPEC-016
LCS (QC ID=43419)	R212086-16			16	0.500					201				12/30/02	01/03	XSPEC-016
Duplicate (R212086-01) (QC ID=43421)	R212086-18			19	0.500					694			28	12/30/02	01/02	XSPEC-002
Nominal values and limits from method				30	0.500					25			180			

PROCEDURES	REFERENCE	NI59_GS
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	RP-430	Nickel-59 Isolation and Purification, rev 4

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 18 ± 11
YIELD ____ ± ____

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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/21/03

SDG 7423
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2020

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/21/03

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-24	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ	Price Code 8L Air Quality 1 1	Data Turnaround 21 Days
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7423)		SAF No. B02-030		
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express		
Shipped To TMA/RECRA	Offsite Property No. A030073		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To J00BF5

Special Handling and/or Storage
None

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time										
J00BJ8	SOIL	12-5-02	0935	X	X	X	X						
J00BJ9	SOIL	12-5-02	0950	X	X	X	X						
J00BK0	Soil	12-5-02	1000	X	X	X	X						
J00BK1	Soil	12-5-02	1015	X	X	X	X						

12-10-02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson 12/5/02	1600	REF 1B 12502	1600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1B 3728 12.10.02	1000	R. Fohlberg R. Fohlberg 12.10.02	1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fohlberg R. Fohlberg 12.10.02	1000	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex		[illegible] 12/11/02	10:45
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B02-030-26	Page 1 of 1
Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ	Price Code 8L Air Quality [ ]
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7423)		SAF No. B02-030	Data Turnaround 21 Days
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express	
Shipped To TMA/RECRA	Offsite Property No. A030 073		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To J00BF5

Special Handling and/or Storage

None

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082							

Sample No.	Matrix *	Sample Date	Sample Time											
J00BK2	SOIL	12/5/02	1025	X	X	X	X							
J00BK3	SOIL	12/5/02	1035	X	X	X	X							
J00BK4	Soil	12-5-02	1050	X	X	X	X							
J00BK5	Soil	12-5-02	1100	X	X	X	X							

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	12/5/02 1600	REF 1B	12502 1600
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1B 3728	12-10-02 1000	R. Fahlberg	12-10-02 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg	12-10-02	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex			12/11/02 10:45
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium

(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 12/10/02

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-28	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ	Price Code 8L Air Quality | |	Data Turnaround 21 Days
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7423)		SAF No. B02-030		
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express		
Shipped To TMA/RECRA	Offsite Property No. A030 073		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TRU To 100 BFS

Special Handling and/or Storage
None

Preservation	None	Cool 4C	None	Cool 4C							
Type of Container	P	aG	aG	aG							
No. of Container(s)	1	1	1	1							
Volume	1000mL	120mL	500mL	250mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions	PCBs - 8082							

12/10/02

Sample No.	Matrix *	Sample Date	Sample Time										
J00BK6	SOIL	12/5/02	1110	X	X	X	X						
J00BK7	SOIL	12/5/02	1115	X	X	X	X						
J00BK8	SOIL	12-5-02	1125	X	X	X	X						
J00BK9	SOIL	12-5-02	1130	X	X	X	X						

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	12/5/02 1600	REF IB	12502 1600
IB 3728	12.10.02 1000	R. Fahlberg R. Fahlberg	12.10.02 1000
R. Fahlberg R. Fahlberg	12.10.02 1000	FEDEX	
Fed Ex		Fed Ex	12/11/02 10:45

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728 Ref # IB on 12/10/02

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-030-30	Page 1 of 1

Collector R. Nielson/C. Trice	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator TRENT, SJ
Project Designation 105-F Rx Phase IV Soils (Side-slope, overburden, under & a	Sampling Location 105F H2020 (7423)		SAF No. B02-030
Ice Chest No. SEE OSPC	Field Logbook No. EL-1516-2	COA R105FX200C	Method of Shipment Federal Express
Shipped To TMA/RECRA	Offsite Property No. A030-073		Bill of Lading/Air Bill No. SEE OSPC

Price Code 8L

Data Turnaround 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie to J00BF5

Special Handling and/or Storage
None

SAMPLE ANALYSIS													
Preservation				None	Cool 4C	None	Cool 4C						
Type of Container				P	aG	aG	aG						
No. of Container(s)				1	1	1	1						
Volume				1000mL	120mL	500mL	250mL						
				See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082						
Sample No.	Matrix *	Sample Date	Sample Time										
J00BL0	SOIL	12-5-02	1140	X	X	X	X						
J00BL1	SOIL	12-5-02	1145	X	X	X	X						
J00BL2	Soil	12-5-02	1140	X	X	X	X						

12-10-02

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From R. Nielson/R. Nielson	Date/Time 1600 12/5/02	Received By/Stored In REF 1B 12502
Relinquished By/Removed From 1B 3728	Date/Time 1000 12-10-02	Received By/Stored In R. Fohlberg R. Fohlberg 12-10-02
Relinquished By/Removed From R. Fohlberg R. Fohlberg 12-10-02	Date/Time 1000	Received By/Stored In FedEx
Relinquished By/Removed From FedEx	Date/Time	Received By/Stored In 12/11/02 10:45
Relinquished By/Removed From	Date/Time	Received By/Stored In
Relinquished By/Removed From	Date/Time	Received By/Stored In

SPECIAL INSTRUCTIONS

(1) Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Tritium - H3; Carbon-14; Nickel-59; Nickel-63; Isotopic Plutonium; Plutonium-241; Isotopic Uranium
(2) Mercury - 7471 - (CV); ICP Metals - 6010A (Add-on) {Lead}; ICP Metals - 6010A (TAL) {Barium}

Personnel not available to relinquish samples from the 3728
Ref # 1B on 12/10/02

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

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

BHI-EE-011 (03/01/2002)

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 12/11/02 10:45

CoC No. B02-030-18, 20, 22, 24, 26, 28, 30

Container I.D. No. ERC99-071 ERC01040 Requested TAT (Days) 21 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 27
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 12/11/02 Time: 10:45 AM

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____