



EBERLINE
SERVICES

0059984

May 29, 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352



Reference: P.O. #630
Eberline Services R3-04-071-7484, SDG H2152

Dear Mr. Trent:

Enclosed is the data report for seven solid samples designated under SAF No. F03-006 received at Eberline Services on April 11, 2003. 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

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Analytical Services
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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2152 was composed of eight solid (soil) samples designated under SAF No. F03-006 with a Project Designations of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.8 Neptunium-237 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

5/29/3
Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2152

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

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Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 05/29/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2152

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

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SAMPLE DELIVERY GROUP H2152

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GUIDE , c o n t .

Client Hanford
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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 H2152

SDG 7484
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LAB SAMPLE SUMMARY

Client Hanford
 Contract No. 630
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LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R304071-01	B16RW5	216-A-19 (C3245)	SOLID		F03-006	F03-006-002	04/04/03 11:24
R304071-02	B16RW6	216-A-19 (C3245)	SOLID		F03-006	F03-006-003	04/04/03 12:12
R304071-03	B16RW7	216-A-19 (C3245)	SOLID		F03-006	F03-006-004	04/04/03 13:48
R304071-04	B16RW8	216-A-19 (C3245)	SOLID		F03-006	F03-006-004	04/04/03 13:48
R304071-05	B16RW9	216-A-19 (C3245)	SOLID		F03-006	F03-006-005	04/07/03 08:30
R304071-06	B16RX0	216-A-19 (C3245)	SOLID		F03-006	F03-006-005	04/07/03 09:55
R304071-07	B16RX1	216-A-19 (C3245)	SOLID		F03-006	F03-006-005	04/07/03 13:45
R304071-08	Lab Control Sample		SOLID		F03-006		
R304071-09	Method Blank		SOLID		F03-006		
R304071-10	Duplicate (R304071-03)	216-A-19 (C3245)	SOLID		F03-006		04/04/03 13:48
R304071-11	Spike (R304071-03)	216-A-19 (C3245)	SOLID		F03-006		04/04/03 13:48
R304071-12	Lab Control Sample		SOLID		F03-006		
R304071-13	Method Blank		SOLID		F03-006		
R304071-14	Duplicate (R304071-03)	216-A-19 (C3245)	SOLID		F03-006		04/04/03 13:48
R304071-15	Spike (R304071-03)	216-A-19 (C3245)	SOLID		F03-006		04/04/03 13:48

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

SDG 7484
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QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2152

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7484	F03-006-002	B16RW5	SOLID	96.0	192.3 g		04/11/03 7	R304071-01		7484-001
	F03-006-003	B16RW6	SOLID	93.7	189.7 g		04/11/03 7	R304071-02		7484-002
	F03-006-004	B16RW7	SOLID	94.5	139.9 g		04/11/03 7	R304071-03		7484-003
		B16RW8	SOLID	94.2	138.1 g		04/11/03 7	R304071-04		7484-004
	F03-006-005	B16RW9	SOLID	95.7	163.2 g		04/11/03 4	R304071-05		7484-005
		B16RX0	SOLID	93.8	132.3 g		04/11/03 4	R304071-06		7484-006
		B16RX1	SOLID	97.3	156.1 g		04/11/03 4	R304071-07		7484-007
		Method Blank	SOLID					R304071-09		7484-009
		Method Blank	SOLID					R304071-13		7484-013
		Lab Control Sample	SOLID					R304071-08		7484-008
		Lab Control Sample	SOLID					R304071-12		7484-012
		Duplicate (R304071-03)	SOLID	94.5	139.9 g		04/11/03 7	R304071-10		7484-010
		Duplicate (R304071-03)	SOLID	94.5	139.9 g		04/11/03 7	R304071-14		7484-014
		Spike (R304071-03)	SOLID	94.5	139.9 g		04/11/03 7	R304071-11		7484-011
		Spike (R304071-03)	SOLID	94.5	139.9 g		04/11/03 7	R304071-15		7484-015

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PREP BATCH SUMMARY

Client Hanford
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TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Alpha Spectroscopy										
NP	SOLID	Neptunium in Soil	7060-071	5.0	7			1	1	1/1
TH	SOLID	Thorium, Isotopic in Soil	7060-071	5.0	7			1	1	1/1
Beta Counting										
SR	SOLID	Total Strontium in Soil	7060-071	10.0	7			1	1	1/1
TC	SOLID	Technetium 99 in Soil	7060-071	10.0	7			1	1	1/1
Gamma Spectroscopy										
I	SOLID	Iodine 129 in Soil	7060-071	10.0	7			1	1	1/1
Liquid Scintillation Counting										
C	SOLID	Carbon 14 in Soil	7060-071	10.0	7			1	1	1/1
H	SOLID	Tritium in Soil	7060-071	10.0	7			1	1	1/1 1/1 X
NI_L	SOLID	Nickel 63 in Soil	7060-071	10.0	7			1	1	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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LAB WORK SUMMARY

SDG 7484
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Client Hanford
Contract No. 630
Case no SDG H2152

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R304071-01	B16RW5			7484-001	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/04/03	216-A-19 (C3245)		SOLID	7484-001	H		05/18/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-002	F03-006		7484-001	I		05/13/03	05/29/03	MCM	Iodine 129 in Soil
				7484-001	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-001	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-001	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-001	TC		05/18/03	05/29/03	MCM	Technetium 99 in Soil
				7484-001	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-02	B16RW6			7484-002	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/04/03	216-A-19 (C3245)		SOLID	7484-002	H		05/18/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-003	F03-006		7484-002	I		05/14/03	05/29/03	MCM	Iodine 129 in Soil
				7484-002	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-002	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-002	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-002	TC		05/17/03	05/29/03	MCM	Technetium 99 in Soil
				7484-002	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-03	B16RW7			7484-003	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/04/03	216-A-19 (C3245)		SOLID	7484-003	H		05/18/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-004	F03-006		7484-003	I		05/15/03	05/29/03	MCM	Iodine 129 in Soil
				7484-003	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-003	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-003	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-003	TC		05/17/03	05/29/03	MCM	Technetium 99 in Soil
				7484-003	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-04	B16RW8			7484-004	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/04/03	216-A-19 (C3245)		SOLID	7484-004	H		05/18/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-004	F03-006		7484-004	I		05/15/03	05/29/03	MCM	Iodine 129 in Soil
				7484-004	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-004	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-004	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-004	TC		05/17/03	05/29/03	MCM	Technetium 99 in Soil
				7484-004	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2152

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R304071-05	B16RW9			7484-005	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/07/03	216-A-19 (C3245)		SOLID	7484-005	H		05/18/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-005	F03-006		7484-005	I		05/16/03	05/29/03	MCM	Iodine 129 in Soil
				7484-005	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-005	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-005	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-005	TC		05/18/03	05/29/03	MCM	Technetium 99 in Soil
				7484-005	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-06	B16RX0			7484-006	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/07/03	216-A-19 (C3245)		SOLID	7484-006	H		05/19/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-005	F03-006		7484-006	I		05/16/03	05/29/03	MCM	Iodine 129 in Soil
				7484-006	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-006	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-006	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-006	TC		05/16/03	05/29/03	MCM	Technetium 99 in Soil
				7484-006	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-07	B16RX1			7484-007	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/07/03	216-A-19 (C3245)		SOLID	7484-007	H		05/19/03	05/29/03	MCM	Tritium in Soil
04/11/03	F03-006-005	F03-006		7484-007	I		05/17/03	05/29/03	MCM	Iodine 129 in Soil
				7484-007	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
				7484-007	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-007	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-007	TC		05/18/03	05/29/03	MCM	Technetium 99 in Soil
				7484-007	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-08	Lab Control Sample			7484-008	C		05/22/03	05/29/03	MCM	Carbon 14 in Soil
			SOLID	7484-008	H		05/19/03	05/29/03	MCM	Tritium in Soil
		F03-006		7484-008	I		05/18/03	05/29/03	MCM	Iodine 129 in Soil
				7484-008	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-008	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-008	TC		05/16/03	05/29/03	MCM	Technetium 99 in Soil
				7484-008	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil

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WORK SUMMARY, cont.

Client Hanford
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LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R304071-09	Method Blank			7484-009	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
			SOLID	7484-009	H		05/19/03	05/29/03	MCM	Tritium in Soil
		F03-006		7484-009	I		05/19/03	05/29/03	MCM	Iodine 129 in Soil
				7484-009	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-009	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-009	TC		05/16/03	05/29/03	MCM	Technetium 99 in Soil
				7484-009	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-10	Duplicate (R304071-03)			7484-010	C		05/21/03	05/29/03	MCM	Carbon 14 in Soil
04/04/03	216-A-19 (C3245)		SOLID	7484-010	H		05/19/03	05/29/03	MCM	Tritium in Soil
04/11/03		F03-006		7484-010	I		05/19/03	05/29/03	MCM	Iodine 129 in Soil
				7484-010	NP		05/08/03	05/29/03	MCM	Neptunium in Soil
				7484-010	SR		05/02/03	05/29/03	MCM	Total Strontium in Soil
				7484-010	TC		05/18/03	05/29/03	MCM	Technetium 99 in Soil
				7484-010	TH		05/05/03	05/29/03	MCM	Thorium, Isotopic in Soil
R304071-11	Spike (R304071-03)			7484-011	H		05/19/03	05/29/03	MCM	Tritium in Soil
04/04/03	216-A-19 (C3245)		SOLID							
04/11/03		F03-006								
R304071-12	Lab Control Sample			7484-012	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
			SOLID							
		F03-006								
R304071-13	Method Blank			7484-013	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
			SOLID							
		F03-006								
R304071-14	Duplicate (R304071-03)			7484-014	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
04/04/03	216-A-19 (C3245)		SOLID							
04/11/03		F03-006								
R304071-15	Spike (R304071-03)			7484-015	NI_L		05/11/03	05/29/03	MCM	Nickel 63 in Soil
04/04/03	216-A-19 (C3245)		SOLID							
04/11/03		F03-006								

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WORK SUMMARY, cont.

Client Hanford
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COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F03-006	Carbon 14 in Soil	C14_COX_LSC		7		1	1	1		10
H	F03-006	Tritium in Soil	906.0_H3_LSC		7		1	1	1	1	11
I	F03-006	Iodine 129 in Soil	I129_SEP_LEPS_GS		7		1	1	1		10
NI_L	F03-006	Nickel 63 in Soil	NI63_LSC		7		1	1	1	1	11
NP	F03-006	Neptunium in Soil	NP237_LLE_PLATE_AEA		7		1	1	1		10
SR	F03-006	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC		7		1	1	1		10
TC	F03-006	Technetium 99 in Soil	TC99_TR_SEP_LSC		7		1	1	1		10
TH	F03-006	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA		7		1	1	1		10
TOTALS					56		8	8	8	2	82

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7484-009

Method Blank

METHOD BLANK

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-09</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7484-009</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-006</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.019	0.15	0.26	400	U	H
Carbon 14	14762-75-5	-1.09	2.1	3.6	50	U	C
Total Strontium	SR-RAD	0.081	0.13	0.25	1.0	U	SR
Technetium 99	14133-76-7	0.194	0.19	0.54	15	U	TC
Thorium 228	14274-82-9	0.042	0.17	0.32		U	TH
Thorium 230	14269-63-7	0.169	0.17	0.32	1.0	U	TH
Thorium 232	TH-232	0	0.085	0.32	1.0	U	TH
Neptunium 237	13994-20-2	0	0.063	0.095	1.0	U	NP
Iodine 129	15046-84-1	0.029	0.36	0.81	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

QC-BLANK #44438

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-013

Method Blank

METHOD BLANK

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	<u>SDG_H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-13</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7484-013</u>	Material/Matrix _____	<u>SOLID</u>
	SAF No <u>F03-006</u>	

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Nickel 63	13981-37-8	0	1.3	2.1	30	U	NI_L

200-PW-2/200-P2-4 OU - Borehole Soil

QC-BLANK #44519

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-008

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7484</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> <u>SDG H2152</u> Contract No. <u>630</u>
Lab sample id <u>R304071-08</u> Dept sample id <u>7484-008</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>SOLID</u> SAF No <u>F03-006</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ	LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS	
Tritium	13.2	0.40	0.26	400	H	13.0	0.52	102	83-117	80-120	
Carbon 14	2470	50	11	50	C	2630	110	94	84-116	80-120	
Total Strontium	19.6	0.88	0.30	1.0	SR	21.1	0.84	93	84-116	80-120	
Technetium 99	114	3.9	0.56	15	TC	109	4.4	105	82-118	80-120	
Thorium 230	39.3	4.4	0.34	1.0	TH	40.8	1.6	96	81-119	80-120	
Neptunium 237	17.4	1.5	0.094	1.0	NP	19.9	0.80	87	86-114	80-120	
Iodine 129	122	1.0	1.2	2.0	I	116	4.6	105	83-117	80-120	

200-PW-2/200-P2-4 OU - Borehole Soil

QC-LCS #44437

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-012

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	<u>SDG H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-12</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7484-012</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-006</u>	

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
Nickel 63	267	5.6	2.7	30		NI_L	274	11	97	84-116	80-120

200-PW-2/200-P2-4 OU - Borehole Soil

QC-LCS #44518

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-010

B16RW7

DUPLICATE

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R304071-10</u>	Lab sample id <u>R304071-03</u>	Client sample id <u>B16RW7</u>
Dept sample id <u>7484-010</u>	Dept sample id <u>7484-003</u>	Location/Matrix <u>216-A-19 (C3245)</u> <u>SOLID</u>
	Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 13:48</u> <u>139.9 g</u>
% solids <u>94.5</u>	% solids <u>94.5</u>	Custody/SAF No <u>F03-006-004</u> <u>F03-006</u>

ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	PROT
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS		pCi/g	(COUNT)	pCi/g	FIERS	%	TOT	LIMIT
Tritium	0.108	0.10	0.17	400	U	H	0.056	0.10	0.17	U	-		
Carbon 14	0.051	1.9	3.3	50	U	C	-1.44	2.0	3.5	U	-		
Total Strontium	7.69	0.45	0.19	1.0		SR	7.73	0.45	0.21		1	25	
Technetium 99	-0.053	0.26	0.56	15	U	TC	0.183	0.29	0.59	U	-		
Thorium 228	0.338	0.34	0.43		U	TH	0.457	0.31	0.29		30	174	
Thorium 230	0.561	0.34	0.43	1.0		TH	0.379	0.23	0.29		39	132	
Thorium 232	0.393	0.34	0.43	1.0	U	TH	0.341	0.23	0.29		14	168	
Neptunium 237	0	0.073	0.11	1.0	U	NP	0	0.061	0.091	U	-		
Iodine 129	0.404	0.85	1.9	2.0	U	I	-0.613	0.91	<u>2.1</u>	U	-		

200-PW-2/200-P2-4 OU - Borehole Soil

QC-DUP#3 44439

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-014

B16RW7

DUPLICATE

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R304071-14</u>	Lab sample id <u>R304071-03</u>	Client sample id <u>B16RW7</u>
Dept sample id <u>7484-014</u>	Dept sample id <u>7484-003</u>	Location/Matrix <u>216-A-19 (C3245)</u> <u>SOLID</u>
	Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 13:48</u> <u>139.9 g</u>
% solids <u>94.5</u>	% solids <u>94.5</u>	Custody/SAF No <u>F03-006-004</u> <u>F03-006</u>

ANALYTE	DUPLICATE		MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL		MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
	pCi/g	2σ ERR (COUNT)					pCi/g	2σ ERR (COUNT)					
Nickel 63	0	1.2	2.1	30	U	NI_L	0.298	1.2	2.1	U	-		

200-PW-2/200-P2-4 OU - Borehole Soil

QC-DUP#3 44520

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-011

B16RW7

MATRIX SPIKE

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R304071-11</u>	Lab sample id <u>R304071-03</u>	Client sample id <u>B16RW7</u>
Dept sample id <u>7484-011</u>	Dept sample id <u>7484-003</u>	Location/Matrix <u>216-A-19 (C3245)</u> SOLID
	Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 13:48</u> <u>139.9 g</u>
% solids <u>94.5</u>	% solids <u>94.5</u>	Custody/SAF No <u>F03-006-004</u> <u>F03-006</u>

ANALYTE	SPIKE	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	ORIGINAL	2σ ERR	REC 3σ	LNTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	pCi/g	(COUNT)	% (TOTAL)	LIMITS	
Tritium	46.3	0.58	0.17	400	X H	50.9	2.0	0.056	0.10	91	85-115	60-140

200-PW-2/200-P2-4 OU - Borehole Soil

QC-MS#3 44440

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

7484-015

B16RW7

MATRIX SPIKE

SDG <u>7484</u>		Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>		Contract <u>No. 630</u>	
MATRIX SPIKE	ORIGINAL		
Lab sample id <u>R304071-15</u>	Lab sample id <u>R304071-03</u>	Client sample id <u>B16RW7</u>	
Dept sample id <u>7484-015</u>	Dept sample id <u>7484-003</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
	Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 13:48 139.9 g</u>	
% solids <u>94.5</u>	% solids <u>94.5</u>	Custody/SAF No <u>F03-006-004</u>	<u>F03-006</u>

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 % (TOTAL)	LMTS LIMITS	PROTOCOL LIMITS
Nickel 63	936	19	5.2	30	NI_L	960	38	0.298	1.2	97	84-116	60-140

200-PW-2/200-P2-4 OU - Borehole Soil

QC-MS#3 44521

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-001

B16RW5

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-01</u>	Client sample id <u>B16RW5</u>	
Dept sample id <u>7484-001</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 11:24</u>	<u>192.3 g</u>
% solids <u>96.0</u>	Custody/SAF No <u>F03-006-002</u>	<u>F03-006</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.127	0.11	0.17	400	U	H
Carbon 14	14762-75-5	<u>-1.60</u>	1.1	1.9	50	U	C
Nickel 63	13981-37-8	17.6	1.6	2.0	30		NI_L
Total Strontium	SR-RAD	16.1	0.71	0.24	1.0		SR
Technetium 99	14133-76-7	0.316	0.31	0.58	15	U	TC
Thorium 228	14274-82-9	0.470	0.32	0.43			TH
Thorium 230	14269-63-7	0.507	0.32	0.30	1.0		TH
Thorium 232	TH-232	0.429	0.24	0.30	1.0		TH
Neptunium 237	13994-20-2	0	0.061	0.092	1.0	U	NP
Iodine 129	15046-84-1	-0.546	1.1	<u>2.4</u>	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-002

B16RW6

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-02</u>	Client sample id <u>B16RW6</u>	
Dept sample id <u>7484-002</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 12:12</u>	<u>189.7 g</u>
% solids <u>93.7</u>	Custody/SAF No <u>F03-006-003</u>	<u>F03-006</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.078	0.094	0.15	400	U	H
Carbon 14	14762-75-5	-0.683	0.97	1.7	50	U	C
Nickel 63	13981-37-8	1.22	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	20.0	0.80	0.24	1.0		SR
Technetium 99	14133-76-7	0.233	0.27	0.57	15	U	TC
Thorium 228	14274-82-9	0.594	0.34	0.41			TH
Thorium 230	14269-63-7	0.718	0.34	0.32	1.0		TH
Thorium 232	TH-232	0.380	0.26	0.32	1.0		TH
Neptunium 237	13994-20-2	0	0.073	0.11	1.0	U	NP
Iodine 129	15046-84-1	-0.048	1.1	<u>2.4</u>	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-003

B16RW7

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	<u>SDG H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-03</u>	Client sample id <u>B16RW7</u>	
Dept sample id <u>7484-003</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 13:48</u>	<u>139.9 g</u>
% solids <u>94.5</u>	Custody/SAF No <u>F03-006-004</u>	<u>F03-006</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.056	0.10	0.17	400	U	H
Carbon 14	14762-75-5	-1.44	2.0	3.5	50	U	C
Nickel 63	13981-37-8	0.298	1.2	2.1	30	U	NI_L
Total Strontium	SR-RAD	7.73	0.45	0.21	1.0		SR
Technetium 99	14133-76-7	0.183	0.29	0.59	15	U	TC
Thorium 228	14274-82-9	0.457	0.31	0.29			TH
Thorium 230	14269-63-7	0.379	0.23	0.29	1.0		TH
Thorium 232	TH-232	0.341	0.23	0.29	1.0		TH
Neptunium 237	13994-20-2	0	0.061	0.091	1.0	U	NP
Iodine 129	15046-84-1	-0.613	0.91	<u>2.1</u>	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-004

B16RW8

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-04</u>	Client sample id <u>B16RW8</u>	
Dept sample id <u>7484-004</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/04/03 13:48</u>	<u>138.1 g</u>
% solids <u>94.2</u>	Custody/SAF No <u>F03-006-004</u>	<u>F03-006</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.141	0.094	0.15	400	U	H
Carbon 14	14762-75-5	<u>-2.26</u>	1.9	3.3	50	U	C
Nickel 63	13981-37-8	1.59	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	7.71	0.50	0.24	1.0		SR
Technetium 99	14133-76-7	0.137	0.23	0.53	15	U	TC
Thorium 228	14274-82-9	0.561	0.30	0.29			TH
Thorium 230	14269-63-7	0.149	0.15	0.29	1.0	U	TH
Thorium 232	TH-232	0.298	0.22	0.29	1.0		TH
Neptunium 237	13994-20-2	0	0.062	0.092	1.0	U	NP
Iodine 129	15046-84-1	-0.423	0.86	2.0	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-005

B16RW9

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	<u>SDG_H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-05</u>	Client sample id <u>B16RW9</u>	
Dept sample id <u>7484-005</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/07/03 08:30</u>	<u>163.2 g</u>
% solids <u>95.7</u>	Custody/SAF No <u>F03-006-005</u>	<u>F03-006</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.085	0.10	0.17	400	U	H
Carbon 14	14762-75-5	-0.707	1.6	2.7	50	U	C
Nickel 63	13981-37-8	0.765	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	-0.004	0.11	0.23	1.0	U	SR
Technetium 99	14133-76-7	0.266	0.23	0.57	15	U	TC
Thorium 228	14274-82-9	0.450	0.23	0.29			TH
Thorium 230	14269-63-7	0.224	0.23	0.36	1.0	U	TH
Thorium 232	TH-232	0.449	0.23	0.29	1.0	U	TH
Neptunium 237	13994-20-2	0	0.072	0.11	1.0	U	NP
Iodine 129	15046-84-1	-0.992	1.3	<u>2.9</u>	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
 SAMPLE DELIVERY GROUP H2152

7484-006

B16RX0

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-06</u>	Client sample id <u>B16RX0</u>	
Dept sample id <u>7484-006</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/07/03 09:55</u>	<u>132.3 g</u>
% solids <u>93.8</u>	Custody/SAF No <u>F03-006-005</u>	<u>F03-006</u>

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	0.18	400	U	H
Carbon 14	14762-75-5	<u>-2.22</u>	1.9	3.3	50	U	C
Nickel 63	13981-37-8	10.1	1.5	2.1	30		NI_L
Total Strontium	SR-RAD	0.024	0.11	0.22	1.0	U	SR
Technetium 99	14133-76-7	0.460	0.27	0.56	15	U	TC
Thorium 228	14274-82-9	0.512	0.38	0.36			TH
Thorium 230	14269-63-7	0.742	0.38	0.35	1.0		TH
Thorium 232	TH-232	0.742	0.38	0.35	1.0		TH
Neptunium 237	13994-20-2	0	0.062	0.093	1.0	U	NP
Iodine 129	15046-84-1	-0.193	0.78	1.8	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2152

7484-007

B16RX1

DATA SHEET

SDG <u>7484</u>	Client/Case no <u>Hanford</u>	SDG <u>H2152</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304071-07</u>	Client sample id <u>B16RX1</u>	
Dept sample id <u>7484-007</u>	Location/Matrix <u>216-A-19 (C3245)</u>	<u>SOLID</u>
Received <u>04/11/03</u>	Collected/Weight <u>04/07/03 13:45</u>	<u>156.1 g</u>
% solids <u>97.3</u>	Custody/SAF No <u>F03-006-005</u>	<u>F03-006</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.026	0.10	0.17	400	U	H
Carbon 14	14762-75-5	-1.10	1.2	2.0	50	U	C
Nickel 63	13981-37-8	0.148	1.2	2.1	30	U	NI_L
Total Strontium	SR-RAD	-0.023	0.096	0.21	1.0	U	SR
Technetium 99	14133-76-7	0.286	0.21	0.58	15	U	TC
Thorium 228	14274-82-9	0.180	0.18	0.34		U	TH
Thorium 230	14269-63-7	0.493	0.36	0.43	1.0		TH
Thorium 232	TH-232	0.404	0.27	0.34	1.0		TH
Neptunium 237	13994-20-2	0	0.067	0.26	1.0	U	NP
Iodine 129	15046-84-1	0.344	0.74	1.7	2.0	U	I

200-PW-2/200-P2-4 OU - Borehole Soil

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

LAB METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Test NP Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2152

RESULTS

LAB	RAW	SUF-		Neptunium	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	237
Preparation batch 7060-071					
R304071-01			7484-001	B16RW5	U
R304071-02			7484-002	B16RW6	U
R304071-03			7484-003	B16RW7	U
R304071-04			7484-004	B16RW8	U
R304071-05			7484-005	B16RW9	U
R304071-06			7484-006	B16RX0	U
R304071-07			7484-007	B16RX1	U
R304071-08			7484-008	LCS (QC ID=44437)	ok
R304071-09			7484-009	BLK (QC ID=44438)	U
R304071-10			7484-010	Duplicate (R304071-03)	- U
Nominal values and limits from method					
			RDls (pCi/g)	1.0	
200-PW-2/200-P2-4 OU - Borehole Soil					

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-				
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7060-071 2σ prep error 5.0 % Reference Lab Notebook 7060 pg. 071																	
R304071-01			B16RW5		0.092	0.500			83		109		34	05/07/03	05/08	SS-039	
R304071-02			B16RW6		0.11	0.500			69		109		34	05/07/03	05/08	SS-040	
R304071-03			B16RW7		0.091	0.500			83		109		34	05/07/03	05/08	SS-041	
R304071-04			B16RW8		0.092	0.500			82		109		34	05/07/03	05/08	SS-042	
R304071-05			B16RW9		0.11	0.500			69		109		31	05/07/03	05/08	SS-043	
R304071-06			B16RX0		0.093	0.500			78		109		31	05/07/03	05/08	SS-044	
R304071-07			B16RX1		0.26	0.500			73		107		31	05/07/03	05/08	SS-045	
R304071-08			LCS (QC ID=44437)		0.094	0.500			79		109			05/07/03	05/08	SS-047	
R304071-09			BLK (QC ID=44438)		0.095	0.500			80		109			05/07/03	05/08	SS-048	
R304071-10			Duplicate (R304071-03)		0.11	0.500			79		110		34	05/07/03	05/08	SS-049	
(QC ID=44439)																	
Nominal values and limits from method																	
			1.0	0.500			20-105		100		180						

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

Client Hanford

Contract No. 630

Contract SDG H2152

Test NP Matrix SOLID

SDG 7484

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-930	Neptunium from Solids and Water by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES \pm 2 SD

MDA 0.11 \pm 0.10

FOR 10 SAMPLES

YIELD 78 \pm 11

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 05/29/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

Test TH Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2152

RESULTS

LAB RAW SUF-
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Thorium 230

Preparation batch 7060-071

R304071-01	7484-001	B16RW5	0.507
R304071-02	7484-002	B16RW6	0.718
R304071-03	7484-003	B16RW7	0.379
R304071-04	7484-004	B16RW8	U
R304071-05	7484-005	B16RW9	U
R304071-06	7484-006	B16RX0	0.742
R304071-07	7484-007	B16RX1	0.493
R304071-08	7484-008	LCS (QC ID=44437)	ok
R304071-09	7484-009	BLK (QC ID=44438)	U
R304071-10	7484-010	Duplicate (R304071-03)	ok

Nominal values and limits from method RDLs (pCi/g) 1.0
200-PW-2/200-P2-4 OU - Borehole Soil

METHOD PERFORMANCE

LAB RAW SUF- MAX MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-
SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7060-071 2σ prep error 5.0 % Reference Lab Notebook 7060 pg. 071

R304071-01	B16RW5	0.30	0.250	94	152	31	05/05/03	05/05	SS-039
R304071-02	B16RW6	0.32	0.250	84	152	31	05/05/03	05/05	SS-040
R304071-03	B16RW7	0.29	0.250	95	152	31	05/05/03	05/05	SS-041
R304071-04	B16RW8	0.29	0.250	97	153	31	05/05/03	05/05	SS-042
R304071-05	B16RW9	0.36	0.250	95	152	28	05/05/03	05/05	SS-043
R304071-06	B16RX0	0.35	0.250	75	152	28	05/05/03	05/05	SS-044
R304071-07	B16RX1	0.43	0.250	77	152	28	05/05/03	05/05	SS-045
R304071-08	LCS (QC ID=44437)	0.34	0.250	81	152		05/05/03	05/05	SS-047
R304071-09	BLK (QC ID=44438)	0.32	0.250	86	152		05/05/03	05/05	SS-048
R304071-10	Duplicate (R304071-03) (QC ID=44439)	0.43	0.250	74	152	31	05/05/03	05/05	SS-049

Nominal values and limits from method 1.0 0.250 20-105 150 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test TH Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.
THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2152

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES \pm 2 SD	MDA <u>0.34</u> \pm <u>0.10</u>
FOR 10 SAMPLES	YIELD <u>86</u> \pm <u>18</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LMS</u>
Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test SR Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY
TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2152

RESULTS

LAB	RAW	SUF-		Total	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 7060-071					
R304071-01			7484-001	B16RW5	16.1
R304071-02			7484-002	B16RW6	20.0
R304071-03			7484-003	B16RW7	7.73
R304071-04			7484-004	B16RW8	7.71
R304071-05			7484-005	B16RW9	U
R304071-06			7484-006	B16RX0	U
R304071-07			7484-007	B16RX1	U
R304071-08			7484-008	LCS (QC ID=44437)	ok
R304071-09			7484-009	BLK (QC ID=44438)	U
R304071-10			7484-010	Duplicate (R304071-03)	ok
Nominal values and limits from method					
200-PW-2/200-P2-4 OU - Borehole Soil				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST	FIX	CLIENT	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7060-071 2σ prep error 10.0 % Reference Lab Notebook 7060 pg. 071															
R304071-01			B16RW5	0.24	1.00		97	100				28	05/02/03	05/02	GRB-219
R304071-02			B16RW6	0.24	1.00		95	100				28	05/02/03	05/02	GRB-217
R304071-03			B16RW7	0.21	1.00		97	100				28	05/02/03	05/02	GRB-223
R304071-04			B16RW8	0.24	1.00		95	100				28	05/02/03	05/02	GRB-222
R304071-05			B16RW9	0.23	1.00		98	100				25	05/02/03	05/02	GRB-201
R304071-06			B16RX0	0.22	1.00		97	100				25	05/02/03	05/02	GRB-202
R304071-07			B16RX1	0.21	1.00		96	100				25	05/02/03	05/02	GRB-203
R304071-08			LCS (QC ID=44437)	0.30	1.00		78	100					05/02/03	05/02	GRB-230
R304071-09			BLK (QC ID=44438)	0.25	1.00		79	100					05/02/03	05/02	GRB-217
R304071-10			Duplicate (R304071-03)	0.19	1.00			100	100			28	05/02/03	05/02	GRB-221
			(QC ID=44439)												
Nominal values and limits from method				1.0	1.00		30-105	100				180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test SR Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.
TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2152

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD	MDA <u>0.23</u> ± <u>0.060</u>
FOR 10 SAMPLES	YIELD <u>93</u> ± <u>16</u>

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

Test IC Matrix SOLID
 SDG 7484
 Contact Melissa C. Mannion

LAB METHOD SUMMARY
 TECHNETIUM 99 IN SOIL
 BETA COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2152

RESULTS

LAB	RAW	SUF-		Technetium
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID
Preparation batch 7060-071				
R304071-01			7484-001	B16RW5 U
R304071-02			7484-002	B16RW6 U
R304071-03			7484-003	B16RW7 U
R304071-04			7484-004	B16RW8 U
R304071-05			7484-005	B16RW9 U
R304071-06			7484-006	B16RX0 U
R304071-07			7484-007	B16RX1 U
R304071-08			7484-008	LCS (QC ID=44437) ok
R304071-09			7484-009	BLK (QC ID=44438) U
R304071-10			7484-010	Duplicate (R304071-03) - U

Nominal values and limits from method RDLs (pCi/g) 15
 200-PW-2/200-P2-4 DU - Borehole Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-				
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7060-071 2σ prep error 10.0 % Reference Lab Notebook 7060 pg. 071																	
R304071-01			B16RW5		0.58	1.03			85		50		44	05/13/03	05/18		GRB-230
R304071-02			B16RW6		0.57	1.03			84		50		43	05/13/03	05/17		GRB-222
R304071-03			B16RW7		0.59	1.04			87		50		43	05/13/03	05/17		GRB-223
R304071-04			B16RW8		0.53	1.05			91		50		43	05/13/03	05/17		GRB-224
R304071-05			B16RW9		0.57	1.01			88		50		41	05/13/03	05/18		GRB-230
R304071-06			B16RX0		0.56	1.01			90		50		39	05/13/03	05/16		GRB-230
R304071-07			B16RX1		0.58	1.03			89		50		41	05/13/03	05/18		GRB-232
R304071-08			LCS (QC ID=44437)		0.56	1.00			96		50			05/13/03	05/16		GRB-232
R304071-09			BLK (QC ID=44438)		0.54	1.00			93		50			05/13/03	05/16		GRB-217
R304071-10			Duplicate (R304071-03)		0.56	1.04			86		50		44	05/13/03	05/18		GRB-217
			(QC ID=44439)														

Nominal values and limits from method 15 1.00 20-105 50 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
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 Version 3.06
 Report date 05/29/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

Test TC Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2152

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 2
	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA <u>0.56</u> ± <u>0.037</u>
FOR 10 SAMPLES	YIELD <u>89</u> ± <u>7</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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Version <u>3.06</u>
Report date <u>05/29/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test I Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY
IODINE 129 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2152

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Iodine 129	
Preparation batch 7060-071					
R304071-01		7484-001	B16RW5		U
R304071-02		7484-002	B16RW6		U
R304071-03		7484-003	B16RW7		U
R304071-04		7484-004	B16RW8		U
R304071-05		7484-005	B16RW9		U
R304071-06		7484-006	B16RX0		U
R304071-07		7484-007	B16RX1		U
R304071-08		7484-008	LCS (QC ID=44437)		ok
R304071-09		7484-009	BLK (QC ID=44438)		U
R304071-10		7484-010	Duplicate (R304071-03)	-	U
Nominal values and limits from method					
200-PW-2/200-P2-4 OU - Borehole Soil			RDLs (pCi/g)	2.0	

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7060-071 2σ prep error 10.0 % Reference Lab Notebook 7060 pg. 071															
R304071-01		B16RW5	<u>2.4</u>	1.01			35			671		39	05/12/03	05/13	XSPEC-004
R304071-02		B16RW6	<u>2.4</u>	1.03			29			668		40	05/12/03	05/14	XSPEC-004
R304071-03		B16RW7	<u>2.1</u>	1.01			43			607		41	05/12/03	05/15	XSPEC-004
R304071-04		B16RW8	2.0	1.09			28			1227		41	05/12/03	05/15	XSPEC-004
R304071-05		B16RW9	<u>2.9</u>	1.04			28			618		39	05/12/03	05/16	XSPEC-004
R304071-06		B16RX0	1.8	1.01			33			1241		39	05/12/03	05/16	XSPEC-004
R304071-07		B16RX1	1.7	1.03			30			1366		40	05/12/03	05/17	XSPEC-004
R304071-08		LCS (QC ID=44437)	1.2	1.00			92			1249			05/12/03	05/18	XSPEC-004
R304071-09		BLK (QC ID=44438)	0.81	1.00			92			604			05/12/03	05/19	XSPEC-004
R304071-10		Duplicate (R304071-03)	1.9	1.01			31			745		45	05/12/03	05/19	XSPEC-004
		(QC ID=44439)													
Nominal values and limits from method			2.0	1.00			20-105			300		180			

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

Test I Matrix SOLID

SDG 7484

Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.

IODINE 129 IN SOIL

GAMMA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG H2152

PROCEDURES	REFERENCE	I129_SEP_LEPS_GS
	CP-024	Iodine-129, Sample Dissolution, rev 3
	CP-530	Iodine-129 Purification, rev 0

AVERAGES \pm 2 SD	MDA	<u>1.9</u>	\pm	<u>1.2</u>
FOR 10 SAMPLES	YIELD	<u>44</u>	\pm	<u>51</u>

METHOD SUMMARIES

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 05/29/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2152

LAB METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Test C Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2152

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14
Preparation batch 7060-071					
R304071-01			7484-001	B16RW5	U
R304071-02			7484-002	B16RW6	U
R304071-03			7484-003	B16RW7	U
R304071-04			7484-004	B16RW8	U
R304071-05			7484-005	B16RW9	U
R304071-06			7484-006	B16RX0	U
R304071-07			7484-007	B16RX1	U
R304071-08			7484-008	LCS (QC ID=44437)	ok
R304071-09			7484-009	BLK (QC ID=44438)	U
R304071-10			7484-010	Duplicate (R304071-03)	- U

Nominal values and limits from method RDLs (pCi/g) 50
200-PW-2/200-P2-4 DU - Borehole Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-			
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/g	g	FAC	TION	%	%	min keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7060-071 2σ prep error 10.0 % Reference Lab Notebook 7060 pg. 071																
R304071-01			B16RW5		1.9	0.462			100	100			47	05/20/03	05/21	LSC-005
R304071-02			B16RW6		1.7	0.529			100	100			47	05/20/03	05/21	LSC-005
R304071-03			B16RW7		3.5	0.243			100	100			47	05/20/03	05/21	LSC-005
R304071-04			B16RW8		3.3	0.269			100	100			47	05/20/03	05/21	LSC-005
R304071-05			B16RW9		2.7	0.317			100	100			44	05/20/03	05/21	LSC-005
R304071-06			B16RX0		3.3	0.262			100	100			44	05/20/03	05/21	LSC-005
R304071-07			B16RX1		2.0	0.429			100	100			44	05/20/03	05/21	LSC-005
R304071-08			LCS (QC ID=44437)		11	0.243			100	11				05/20/03	05/22	LSC-005
R304071-09			BLK (QC ID=44438)		3.6	0.243			100	100				05/20/03	05/21	LSC-005
R304071-10			Duplicate (R304071-03)		3.3	0.261			100	100			47	05/20/03	05/21	LSC-005
			(QC ID=44439)													

Nominal values and limits from method 50 0.243 50 180

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test C Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.
CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2152

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

AVERAGES \pm 2 SD MDA 3.6 \pm 5.4
FOR 10 SAMPLES YIELD 100 \pm 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test H Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY
TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2152

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7060-071					
R304071-01		7484-001	B16RW5	U	
R304071-02		7484-002	B16RW6	U	
R304071-03		7484-003	B16RW7	U	
R304071-04		7484-004	B16RW8	U	
R304071-05		7484-005	B16RW9	U	
R304071-06		7484-006	B16RX0	U	
R304071-07		7484-007	B16RX1	U	
R304071-08		7484-008	LCS (QC ID=44437)	ok	
R304071-09		7484-009	BLK (QC ID=44438)	U	
R304071-10		7484-010	Duplicate (R304071-03)	-	U
R304071-11		7484-011	Spike (R304071-03)	ok	X

Nominal values and limits from method RDLs (pCi/g) 400
200-PW-2/200-P2-4 OU - Borehole Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7060-071 2σ prep error 10.0 % Reference Lab Notebook 7060 pg. 071															
R304071-01		B16RW5	0.17	20.5			50		120			44	05/16/03	05/18	LSC-007
R304071-02		B16RW6	0.15	21.9			51		120			44	05/16/03	05/18	LSC-007
R304071-03		B16RW7	0.17	21.6			48		120			44	05/16/03	05/18	LSC-007
R304071-04		B16RW8	0.15	21.6			53		120			44	05/16/03	05/18	LSC-007
R304071-05		B16RW9	0.17	21.5			48		120			41	05/16/03	05/18	LSC-007
R304071-06		B16RX0	0.18	20.4			49		120			42	05/16/03	05/19	LSC-007
R304071-07		B16RX1	0.17	21.0			50		120			42	05/16/03	05/19	LSC-007
R304071-08		LCS (QC ID=44437)	0.26	20.0			33		120				05/16/03	05/19	LSC-007
R304071-09		BLK (QC ID=44438)	0.26	20.0			33		120				05/16/03	05/19	LSC-007
R304071-10		Duplicate (R304071-03) (QC ID=44439)	0.17	20.9			50		120			45	05/16/03	05/19	LSC-007
R304071-11		Spike (R304071-03) (QC ID=44440)	0.17	20.5			51		120			45	05/16/03	05/19	LSC-007

Nominal values and limits from method 400 20.0 25 180

METHOD SUMMARIES

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Protocol Hanford
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Form DVD-LMS
Version 3.06
Report date 05/29/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

Test H Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

LAB METHOD SUMMARY, cont.
TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2152

PROCEDURES REFERENCE 906.0_H3_LSC
CP-216 Tritium in Solid Samples by Azeotropic
Distillation, rev 6

AVERAGES \pm 2 SD MDA 0.18 \pm 0.078
FOR 11 SAMPLES YIELD 47 \pm 14

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

SAMPLE DELIVERY GROUP H2152

Test NI L Matrix SOLID
 SDG 7484
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2152

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63
Preparation batch 7060-071				
R304071-01		7484-001	B16RW5	17.6
R304071-02		7484-002	B16RW6	U
R304071-03		7484-003	B16RW7	U
R304071-04		7484-004	B16RW8	U
R304071-05		7484-005	B16RW9	U
R304071-06		7484-006	B16RX0	10.1
R304071-07		7484-007	B16RX1	U
R304071-12		7484-012	LCS (QC ID=44518)	ok
R304071-13		7484-013	BLK (QC ID=44519)	U
R304071-14		7484-014	Duplicate (R304071-03)	- U
R304071-15		7484-015	Spike (R304071-03)	ok

Nominal values and limits from method RDLs (pCi/g) 30
 200-PW-2/200-P2-4 OU - Borehole Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 7060-071 2σ prep error 10.0 % Reference Lab Notebook 7060 pg. 071													
R304071-01		B16RW5	2.0	0.500			100		100			37 05/09/03 05/11	LSC-004
R304071-02		B16RW6	2.1	0.500			100		100			37 05/09/03 05/11	LSC-004
R304071-03		B16RW7	2.1	0.500			100		100			37 05/09/03 05/11	LSC-004
R304071-04		B16RW8	2.1	0.500			100		100			37 05/09/03 05/11	LSC-004
R304071-05		B16RW9	2.0	0.500			100		100			34 05/09/03 05/11	LSC-004
R304071-06		B16RX0	2.1	0.500			100		100			34 05/09/03 05/11	LSC-004
R304071-07		B16RX1	2.1	0.500			100		100			34 05/09/03 05/11	LSC-004
R304071-12		LCS (QC ID=44518)	2.7	0.500			100		60			05/09/03 05/11	LSC-004
R304071-13		BLK (QC ID=44519)	2.1	0.500			100		100			05/09/03 05/11	LSC-004
R304071-14		Duplicate (R304071-03) (QC ID=44520)	2.1	0.500			100		100			37 05/09/03 05/11	LSC-004
R304071-15		Spike (R304071-03) (QC ID=44521)	5.2	0.500			100		<u>18</u>			37 05/09/03 05/11	LSC-004

Nominal values and limits from method 30 0.500 30-105 50 180

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2152

LAB METHOD SUMMARY, cont.
NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Test NI_L Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2152

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-281	Nickel-63 Purification By Extraction Chromatography, rev 0

AVERAGES \pm 2 SD MDA 2.4 \pm 1.9
FOR 11 SAMPLES YIELD 100 \pm 0

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 H2152

SDG 7484
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2152

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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SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2152

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.

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2152

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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SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2152

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).

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2152

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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Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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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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SAMPLE DELIVERY GROUP H2152

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 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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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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SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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 Case no SDG H2152

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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SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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Case no SDG_H2152

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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SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

REPORT GUIDE

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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

REPORT GUIDES

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SUMMARY DATA SECTION

Page 50

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 05/29/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2152

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/29/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2152

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'

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 05/29/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG_H2152

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.
 - * Preparation 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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 05/29/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
 Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
 Contract No. 630
 Case no SDG_H2152

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

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 05/29/03

REPORT GUIDES

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SUMMARY DATA SECTION

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2152

SDG 7484
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2152

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.

REPORT GUIDES

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SUMMARY DATA SECTION

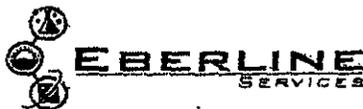
Page 55

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 05/29/03

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-003	Page 1 of 1	
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 17.5-20.0 ft		H 2152 (7484)		SAF No. F03-006		
Ice Chest No. ERC 96-032		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express		
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030 194		Bill of Lading/Air Bill No. 7913 4876-5047				
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To B16RX7 Special Handling and/or Storage None				Preservation	Cool 4C	Cool 4C	None	None
				Type of Container	aG	aG	aG	aG
				No. of Container(s)	1	1	1	1
				Volume	125mL	120mL	60mL	60mL
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions.	Tritium - H3	
				Tie To:				
Sample No.	Matrix *	Sample Date	Sample Time					
B16RW6	SOIL	4-4-03	1212		X	X	B16RX7	
CHAIN OF POSSESSION				SIGN/PRINT NAMES				
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time		SPECIAL INSTRUCTIONS ** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. TMS412103 *** The laboratory is to report both kerosene and diesel range compounds from the WTPH.D analysis. (1) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03	
M. Johnson		4/4/03 1520	REF 1A		4 4 03 1530			
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time			
IA 3728		4-10-03 1000	T. G. ...		4-10-03			
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time			
R. ...		4-10-03	Fed Ex					
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					F03-006-004	Page 1 of 1								
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ										
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 22.5-25.0 ft H2152 (7484)			SAF No. F03-006		Price Code 8N	Data Turnaround 45 Days								
Ice Chest No. ERC 96039		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express										
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030 194			Bill of Lading/Air Bill No. 7913 4876 5047											
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Potentially Radioactive</i> Tie To B16 Rxs Special Handling and/or Storage <i>None</i>				Preservation	Cool 4C	Cool 4C	None	None								
				Type of Container	aG	aG	aG	aG								
				No. of Container(s)	1 <i>MO41203</i>	1	1	1								
				Volume	<i>125mL</i> 120mL	120mL	60mL	60mL								
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions.	Tritium - HD									
								<i>Tie to:</i>								
Sample No.	Matrix *	Sample Date	Sample Time													
B16RW7	SOIL	4-4-03	1348	/		X	X									
B16RW8	SOIL	4-4-03	1348	/		X	X									
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *				
Relinquished By/Removed From <i>M. B. Johnson</i>		Date/Time 9/4/03 1530		Received By/Stored In <i>REF 1A</i>		Date/Time 4403 1530		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. <i>11/9/03</i> ** The laboratory is to report both leachate and diesel range compounds from the WTPH-D analysis. (1) Technetium-99; Strontium-89,90 -- Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03				S=Soil SE=Settlement SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other				
Relinquished By/Removed From <i>IA 3728</i>		Date/Time 4-10-03 1000		Received By/Stored In <i>R. F. Johnson</i>		Date/Time 4-10-03										
Relinquished By/Removed From <i>R. F. Johnson</i>		Date/Time 4-10-03		Received By/Stored In <i>Fed Ex</i>		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
LABORATORY SECTION		Received By		Title				Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time								

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-005		Page 1 of 1		
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 27.5-30.0 ft		MD 4-7-03 HZ152 (7484)		SAF No. F03-006		Air Quality <input type="checkbox"/>		
Ice Chest No. ERC 96.039		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express				
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030 194		Bill of Lading/Air Bill No. 7913 4876 5047						
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive SEE Below Special Handling and/or Storage None				Preservation	Cool 4C	Cool 4C	None	None		
				Type of Container	aG	aG	aG	aG		
				No. of Container(s)	1	1	1	1		
				Volume	125mL	120mL	60mL	60mL		
SAMPLE ANALYSIS				Chromium - Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions.	Tritium - H3	TIRE TO: & Depth		
Sample No.	Matrix *	Sample Date	Sample Time							
B16RW9	SOIL	4-7-03	0830		X	X	B16RW9	27.5-30.0		
D1URX0	SOIL	4-7-03	0955		X	X	B16RW9	32.5-35		
B16RX1	SOIL	4-7-03	1345		X	X	B16RW9	47.5-50		
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From F. H. Hulstrom		Date/Time 4-7-03 1015		Received By/Stored In R. F. Hulstrom		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both hexane and diesel range compounds from the WTPH.D analysis.				S=Soil SO=Sediment SL=Sludge W=Water O=Oil A=Air DS=Dry Solids DL=Dry Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From R. F. Hulstrom		Date/Time 4-7-03 1615		Received By/Stored In 1-B 3728		(1) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237				
Relinquished By/Removed From 1-B 3728		Date/Time 4-7-03 1000		Received By/Stored In R. F. Hulstrom						
Relinquished By/Removed From B. Hulstrom		Date/Time 4-7-03 1000		Received By/Stored In FedEx						
Relinquished By/Removed From		Date/Time		Received By/Stored In						
Relinquished By/Removed From		Date/Time		Received By/Stored In						
LABORATORY SECTION	Received By	Title				Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time				



ANALYTICAL SERVICES GROUP

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

Client: BFI FLR⁴ Date/Time received 1000 4-11-03
 CoC No. F03-006-02,03,04,05
 Container I.D. No. CC-96-039 Requested TAT (Days) 4S 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: 7 Wet [] Dry []
6. Number of samples in shipping container: _____
7. Number of containers per sample: 2 (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. Samples are: Preserved [] Not preserved [] Preservative _____
12. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [] No [] Date _____
14. Received by [Signature] Date: 4-11-03 Time: 1000

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe
B16RWS	50	.023					
B16RW6		.022					
B16RW7		.022					
B16RW8		.028					
B16RW9		.05					
B16RX0		.017					
B16RX1		.018					

Ion Chamber Ser. No. 1198 Calibration date 10-25-02
 Alpha Meter Ser. No. _____ Calibration date _____
 Beta/Gamma Meter Ser. No. 99574 Calibration date 12-12-03



23 May 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

**Subject: Contract No. 630
Analytical Data Package**

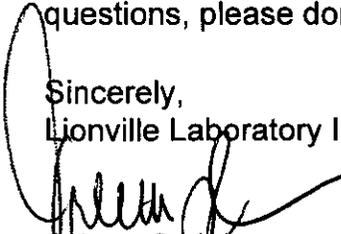
Dear Mr. Trent:

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

LvLI Batch #	0304L165
SDG #	H2152
SAF #	F03-006
Date Received	4-11-03
# Samples	8
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	X
DRO/GRO/KRO	X
Herbicides	X
GC Alcohol	
Metals	
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\fc_ltrs.doc

Lionville Laboratory, Inc.
 PEST/PCB ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F03-006 H2152

DATE RECEIVED: 04/11/03

LVL LOT # :0304L165

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16RW4	001	S	03LE0425	04/04/03	04/14/03	04/19/03
B16RW4	001 MS	S	03LE0440	04/04/03	04/15/03	04/19/03
B16RW4	001 MSD	S	03LE0440	04/04/03	04/15/03	04/19/03

LAB QC:

PBLKQV	MB1	S	03LE0425	N/A	04/14/03	04/19/03
PBLKQV	MB1 BS	S	03LE0425	N/A	04/14/03	04/19/03
PBLKQV	MB1 BSD	S	03LE0425	N/A	04/14/03	04/19/03
PBLKQW	MB1	S	03LE0440	N/A	04/15/03	04/19/03
PBLKQW	MB1 BS	S	03LE0440	N/A	04/15/03	04/19/03

Handwritten signature/initials





Analytical Report

Client: TNU-HANFORD F03-006
LVL #: 0304L165
SDG/SAF # H2152/F03-006

W.O. #: 11343-606-001-9999-00
Date Received: 04-11-2003

PESTICIDE

One (1) soil sample was collected on 04-04-2003.

The sample and its associated QC samples were extracted on 04-14,15-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 04-19-2003. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

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

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
2. The required holding time for extraction and analysis has been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. 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

5/5/03
Date

son\vr\group\data\pest\tnu hanford\0304-165.pes

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 1 3 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.

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 04/22/03 13:15

RFW Batch Number: 0304L165

Client: TNUHANFORD F03-006 H2152 Work Order: 11343606001 Page: 1

Cust ID:	B16RW4	B16RW4	B16RW4	PBLKQV	PBLKQV BS	PBLKQV BSD
Sample Information	RFW#: 001	001 MS	001 MSD	03LE0425-MB1	03LE0425-MB1	03LE0425-MB1
	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	85 %	90 %	85 %	100 %	100 %	100 %
Decachlorobiphenyl	120 %	105 %	100 %	120 %	115 %	120 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Alpha-BHC	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
Beta-BHC	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
Delta-BHC	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)	1.7 U	82 %	82 %	1.7 U	86 %	88 %
Heptachlor	1.7 U	84 %	82 %	1.7 U	86 %	90 %
Aldrin	1.7 U	80 %	76 %	1.7 U	82 %	84 %
Heptachlor epoxide	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
Endosulfan I	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
Dieldrin	3.4 U	92 %	90 %	3.3 U	95 %	101 %
4,4'-DDE	3.4 U	6.9 U	6.9 U	3.3 U	3.3 U	3.3 U
Endrin	3.4 U	106 %	105 %	3.3 U	110 %	117 %
Endosulfan II	3.4 U	6.9 U	6.9 U	3.3 U	3.3 U	3.3 U
4,4'-DDD	3.4 U	6.9 U	6.9 U	3.3 U	3.3 U	3.3 U
Endosulfan sulfate	3.4 U	6.9 U	6.9 U	3.3 U	3.3 U	3.3 U
4,4'-DDT	3.4 U	91 %	90 %	3.3 U	95 %	102 %
Methoxychlor	17 U	34 U	34 U	17 U	17 U	17 U
Endrin ketone	3.4 U	6.9 U	6.9 U	3.3 U	3.3 U	3.3 U
Endrin aldehyde	3.4 U	6.9 U	6.9 U	3.3 U	3.3 U	3.3 U
alpha-Chlordane	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
gamma-Chlordane	1.7 U	3.4 U	3.4 U	1.7 U	1.7 U	1.7 U
Toxaphene	170 U	340 U	340 U	170 U	170 U	170 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

Handwritten signature

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-001		Page 1 of 1	
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 0.5 ft.		SAF No. F03-006		Air Quality <input type="checkbox"/>			
Ice Chest No. ERC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express			
Shipped To TMS 413103 EBERLINE SERVICES (Formerly TMA) Becca		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5057					
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To B16R46 Special Handling and/or Storage Cool 4°C				Preservation		Cool 4C	Cool 4C		
				Type of Container		aG	aG		
				No. of Container(s)		1	1		
				Volume		60mL	250mL		
SAMPLE ANALYSIS				Pesticides - 8081	Chloro-Herbicides - EPA8151				
								Tie To!	
Sample No.	Matrix *	Sample Date	Sample Time						
B16RW4	SOIL	4-4-03	0750	X	X			B16R46	
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS			
Relinquished By/Removed From M. Hulstrom		Date/Time 4/4/03 1530		Received By/Stored In REF 1A		Date/Time 4-4-03 1530		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03	
Relinquished By/Removed From 1A 3728		Date/Time 4-10-03 1000		Received By/Stored In R. Fullin		Date/Time 4-10-03			
Relinquished By/Removed From R. Fullin		Date/Time 4-10-03 1000		Received By/Stored In F. Ex		Date/Time			
Relinquished By/Removed From J. E. ...		Date/Time 4-11-03/1015		Received By/Stored In S. ...		Date/Time 4-11-03/1015			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-002		Page 1 of 1		
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 14.5 - 17.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>		45 Days		
Ice Chest No. ERC 08 007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express				
Shipped To MMS 412103 EBERLINE SERVICES (Formerly TMA) Becca		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5057						
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie to B16RX6 Special Handling and/or Storage Cool 4°C				Preservation	Cool 4C	Cool 4C	None	None		
				Type of Container	aG	aG	aG	aG		
				No. of Container(s)	1 MMS 31403	1	1	1		
				Volume	125mL 120	120mL	60mL	60mL		
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions.	Plutonium - HB			
Sample No.	Matrix *	Sample Date	Sample Time							
B16RW5	SOIL	4-4-03	1124	X	X	✓			Tie to B16RX6	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237 JSP 4/3/03 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03		S=Solid SE=Solids 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
MMS 3728		4/4/03 1530		REF 1A		4/4/03 1530				
1A 3728		4-10-03 1000		R. Ferrero		4-6-03				
R. Ferrero		4-10-03		Fed Ex						
D. J. ...		4-11-03 11015		D. J. ...		4-11-03 11015				
LABORATORY SECTION		Received By		Title				Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time		

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-003		Page 1 of 1			
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days			
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 17.5-20.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>					
Ice Chest No. ECC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express					
Shipped To 4-3-03 EBERLINE SERVICES (Formerly TMA) Pecra		Offsite Property No. A030 208				Bill of Lading/Air Bill No. 7902-5690-5057					
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To 1316 R47 Special Handling and/or Storage COB 1402				Preservation	Cool 4C	Cool 4C	None	None			
				Type of Container	aG	aG	aG	aG			
				No. of Container(s)	1	1	1	1			
				Volume	125mL	120mL	60mL	60mL			
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Strontium - 87				
Sample No.	Matrix *	Sample Date	Sample Time								
B16RW6	SOIL	4-4-03	1212	X	X	/			B16RW6		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *	
Relinquished By/Removed From Johansen/Pope/Pfister		Date/Time 4/4/03 1530		Received By/Stored In REF 1A		Date/Time 4/4/03 1530		<p>** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. TMS43-03</p> <p>** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.</p> <p>(+) Technetium-99; Strontium-90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237</p> <p>Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03</p>		<p>S=Soil SE=Soil/Elem SO=Solid SL=Slurry W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time WI=Wipe L=Liquid V=Vegetation X=Other</p>	
Relinquished By/Removed From 1A 3728		Date/Time 4-10-03 1000		Received By/Stored In R. F. ... R. F. ...		Date/Time 4-10-03					
Relinquished By/Removed From ERC		Date/Time 4-10-03		Received By/Stored In F. E. ...		Date/Time					
Relinquished By/Removed From Johansen/Pope/Pfister		Date/Time 4-11-03/10:15		Received By/Stored In J. ...		Date/Time 4-11-03/10:15					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
LABORATORY SECTION	Received By			Title			Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time				

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-004		Page 1 of 1		
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 22.5-25.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>				
Ice Chest No. ERC 02-002		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express				
Shipped To EBERLINE SERVICES (Formerly TMA) <i>Recra</i>		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5057						
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To B16R8 Special Handling and/or Storage Cool 14°C				Preservation	Cool 4C	Cool 4C	None	None		
				Type of Container	aG	aG	aG	aG		
				No. of Container(s)	1	1	1	1		
				Volume	125 mL 120 mL	120 mL	60 mL	60 mL		
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Tritium - H3			
Sample No.	Matrix *	Sample Date	Sample Time							
B16RW7	SOIL	4-4-03	1348	X	X				B16R8	
B16RW8	SOIL	4-4-03	1348	X	X				B16R8	
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From <i>Johansen/Pope/Pfister</i>		Date/Time 4/4/03 1530		Received By/Stored In <i>REF 1A</i>		Date/Time 4/4/03 1530		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (4) Technetium-99, Strontium-89,90 - Total Sr, isotopic Thorium (Thorium-232), Carbon-14, Iodine-129, Nickel-63, Neptunium-237 <i>4/3/03</i> Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03		
Relinquished By/Removed From <i>IA 3728</i>		Date/Time 4-10-03 1000		Received By/Stored In <i>REF 1A</i>		Date/Time 4-10-03				
Relinquished By/Removed From <i>R. Schley</i>		Date/Time 4-10-03		Received By/Stored In <i>F. E. E.</i>		Date/Time				
Relinquished By/Removed From <i>Dea) Ex</i>		Date/Time 4-11-03/10:15		Received By/Stored In <i>J. J. Smith</i>		Date/Time 4-11-03/10:15				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
LABORATORY SECTION		Received By		Title		Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time				

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-005		Page 1 of 1								
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days								
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 27.3-30.0 ft		MS 4-7-03		SAF No. F03-006		Air Quality <input type="checkbox"/>								
Ice Chest No. ERC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express										
Shipped To MS 4-3-03 EBERLINE SERVICES (Formerly TMA) Recva		Offsite Property No. R030 208		Bill of Lading/Air Bill No. 7902 5690 5057												
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive SE & Below Special Handling and/or Storage cool/coc				Preservation	Cool 4C	Cool 4C	None	None								
				Type of Container	aG	aG	aG	aG								
				No. of Container(s)	1	1	1	1								
				Volume	125mL	120mL	60mL	60mL								
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Tritium - H3									
Sample No.	Matrix *	Sample Date	Sample Time													
B16RW9	SOIL	4-7-03	0830	X	X											
B16RX0	SOIL	4-7-03	1345	X	X											
B16RX1	SOIL	4-7-03	1345	X	X											
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		** The laboratory is to achieve a detection limit of 30.0 pCi/g for Carbon-14 - MS 4-3-03 ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) - Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237 - RG 4-3-03				S=Soil SE=Solid SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
LABORATORY SECTION		Received By		Title				Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time								

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hartford

Purchase Order/Project:

DATE: 4.11.03

CAF# / SOW# / Release #: F03-006

Laboratory SDG #:

0304L165

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-02-007 / 0.2°

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
 HBGX ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD F03-006, #2152

DATE RECEIVED: 04/11/03

LVL LOT # :0304L165

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16RW4	001	S	03LE0423	04/04/03	04/14/03	04/15/03
B16RW4	001 MS	S	03LE0423	04/04/03	04/14/03	04/15/03
B16RW4	001 MSD	S	03LE0423	04/04/03	04/14/03	04/15/03

LAB QC:

PBLKQR	MB1	S	03LE0423	N/A	04/14/03	04/15/03
PBLKQR	MB1 BS	S	03LE0423	N/A	04/14/03	04/15/03

Handwritten signature/initials





Analytical Report

Client: TNU-HANFORD F03-006
LVL #: 0304L165
SDG/SAF # H2152/F03-006

W.O. #: 11343-606-001-9999-00
Date Received: 04-11-2003

HERBICIDE

One (1) soil sample was collected on 04-04-2003.

The sample and its associated QC samples were extracted on 04-14-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 04-15-2003. The extraction and analysis procedure was based on method 8151A.

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

1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
2. The required holding time for extraction and analysis has been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. One (1) of sixteen (16) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. 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


Date

son\c:\group\data\herb\tnu\0304-165 doc

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 13 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0306111

Initiator: Bruce Santoro
 Date: 4/16/03
 Client: TUV

Batch: 03042165
 Samples: 001MS
 Method: SW846MCAWW/CLP/

Parameter: 0H1BFX
 Matrix: Soil
 Prep Batch: 03LE0423

1. Reason for SDR

- a. COC Discrepancy** Tech Profile Error Client Request Sampler Error on C-O-C
 Transcription Error Wrong Test Code Other _____
- b. General Discrepancy**
 Missing Sample/Extract* Container Broken Wrong Sample Pulled Label ID's Illegible
 Hold Time Exceeded Insufficient Sample Preservation Wrong Received Past Hold
 Improper Bottle Type Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

① Low 2,4-DB recovery in MS @ 59% (acc limit = 60%). BS and MSD recoveries are good. All samplers are clean.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description: Varial

- Re-log
- Entire Batch
- Following Samples: _____
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to _____
- Place On/Take Off Hold (circle)

[Handwritten signature]

4. Project Manager Instructions...signature/date:

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:
- Date/Person _____
- Add
- Cancel

[Handwritten signature] 4/16/03

5. Final Action...signature/date:

Other Explanation:

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

[Handwritten signature]

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

- Route Distribution of Completed SDR
- Initiator
 - Lab General Manager: M. Taylor
 - Project Mgr: Stone/Johnson/Haslett
 - Technical Mgr: Wesson/Daniels
 - QA (file)
 - Data Management: Feldman
 - Sample Prep: Beegle/Kiger

- Route Distribution of Completed SDR
- Metals: Beegle
 - Inorganic: Perrone
 - GC/LC: Kiger
 - MS: Rychlak/Layman
 - Log-in: Melnic
 - Admin: Soos
 - Other: _____



GLOSSARY OF HERBICIDE 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 HERBICIDE DATA

- P** = This flag is used for an Herbicide 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 HPLC.



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Q3044165

Client <u>TNU Hamford</u> <u>F03-006</u>	Refrigerator #	A	B	C	D
Est. Final Proj. Sampling Date	#/Type Container	Liquid			
Project # <u>11343-606-001-9999-00</u>		Solid	<u>10g</u>	<u>10g</u>	
Project Contact/Phone #	Volume	Liquid			
Lionville Laboratory Project Manager <u>Orletta Johnson</u>		Solid	<u>60</u>	<u>250</u>	<u>120</u>
QC <u>Spec</u> Del <u>5D</u> TAT <u>30 days</u>	Preservatives		<u>1</u>	<u>1</u>	

Date Rec'd <u>4-11-03</u>	Date Due <u>5-11-03</u>	ANALYSES REQUESTED	ORGANIC	INORG
			VOA BNA Pests/PCBs Herb	Metal CN
				Hex Chrome Oil + STC/Case

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 (✓)	Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only						
							MS	MSD	0608H	0HBGX	ICR6	IOG6R	IN3N2
	001	B16RW4		S	4-4-03	0752			X	X			
	002	B16RW5		I		1124			X	X		✓	
	003	B16RW6		I		1212			X	X		✓	
	004	B16RW7		I		1348			X	X		✓	
	005	B16RW8		I		1348			X	X		✓	
	006	B16RW9		I	4-9-03	0830			X	X		✓	
	007	B16RX0		I		0955			X	X		✓	
	008	B16RX1		I		1345			X	X		✓	

Special Instructions: SAF + F03-006
Rem Matrix QC

DATE/REVISIONS:
4-23-03 1. per Client Add IN3N2
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

Lionville Laboratory Use Only	
Samples were: 1) Shipped <input checked="" type="checkbox"/> or Hand Delivered _____ Airbill # <u>See Below</u> 2) Ambient or <u>Chilled</u> 3) Received in Good Condition <input checked="" type="checkbox"/> or N 4) Samples Properly Preserved <input checked="" type="checkbox"/> or N 5) Received Within Holding Times <input checked="" type="checkbox"/> or N	Tamper Resistant Seal was: 1) Present on Outer Package <input checked="" type="checkbox"/> or N 2) Unbroken on Outer Package <input checked="" type="checkbox"/> or N 3) Present on Sample <input checked="" type="checkbox"/> or N 4) Unbroken on Sample <input checked="" type="checkbox"/> or N COC Record Present Upon Sample Rec't <input checked="" type="checkbox"/> or N Cooler Temp. <u>02</u> °C

Relinquished by	Received by	Date	Time
<u>Orletta Johnson</u>	<u>D. Johnson</u>	<u>4-11-03</u>	<u>10:15</u>

Relinquished by	Received by	Time
<u>Composite Waste</u>	<u>ORIGINAL REWRITTEN</u>	

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:
7902-5690-5057

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-001	Page 1 of 1
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 0.5 ft.		SAF No. F03-006		Price Code 8N Data Turnaround 45 Days	
Ice Chest No. ERC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express	
Shipped To IMS 413103 EBERLINE SERVICES (Formerly TMA) Becca		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5057			
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To B16RY6 Special Handling and/or Storage Cool 4°C				Preservation	Cool 4C	Cool 4C	
				Type of Container	aG	aG	
				No. of Container(s)	1	1	
				Volume	60mL	250mL	
SAMPLE ANALYSIS				Pesticides - 8081	Chloro-Herbicides - EPA#151		
Sample No.	Matrix *	Sample Date	Sample Time				
B16RW4	SOIL	4-4-03	0750	X	X		B16RY6
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS	
Relinquished By/Removed From M. Hulstrom 4/4/03 1530		Date/Time		Received By/Stored In REF 1A 4/4/03 1530		Date/Time	
Relinquished By/Removed From IA 3728 4-10-03 1000		Date/Time		Received By/Stored In R. F. 4/10/03 1000		Date/Time	
Relinquished By/Removed From R. F. 4/10/03 1000		Date/Time		Received By/Stored In F. Ex 4/10/03		Date/Time	
Relinquished By/Removed From J. 4-11-03 1015		Date/Time		Received By/Stored In S. 4-11-03 1015		Date/Time	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time	
LABORATORY SECTION		Received By		Title		Date/Time	
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time	

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-002		Page 1 of 1			
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days			
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 14.5 - 17.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>		45 Days			
Ice Chest No. ERC 08 007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express					
Shipped To TMS 412103 EBERLINE SERVICES (Formerly TMA) Becca		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5051							
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie to B16 RW6 Special Handling and/or Storage cool 4°C				Preservation	Cool 4C	Cool 4C	None	None			
				Type of Container	aG	aG	aG	aG			
				No. of Container(s)	1	1	1	1			
				Volume	125mL 120	120mL	60mL	60mL			
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions.	Tritium - H3				
Sample No.	Matrix *	Sample Date	Sample Time								
B16RW5	SOIL	4-4-03	1124	X	X	✓			Tie to B16 RW6		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *	
Relinquished By/Removed From M. Johnson 4/4/03 1530		Date/Time		Received By/Stored In REF 1A 4403 1530		Date/Time		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) Technetium-99, Strontium-89-90, Total Sr, Isotopic Thorium (Thorium-232), Carbon-14, Iodine-129, Nickel-63, Neptunium-237. 4/3/03 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03		S=Soil SE=Soil/rock SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From 1A 3728 4-10-03 1000		Date/Time		Received By/Stored In R. Green Ref # 1A 4-6-03		Date/Time					
Relinquished By/Removed From REF 1A 4-10-03 1000		Date/Time		Received By/Stored In Fed Ex		Date/Time					
Relinquished By/Removed From Dea E. 4-11-03 11:15		Date/Time		Received By/Stored In J. Johnson 4-11-03 11:15		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
LABORATORY SECTION	Received By	Title				Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time					

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-003		Page 1 of 1								
Collector: Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days								
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 17.5-20.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>										
Ice Chest No. ECC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express										
Shipped To 4-3-03 EBERLINE SERVICES (Formerly TMA) Peera		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902-5690 5057												
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To 1316 RX7 Special Handling and/or Storage COB 1 YOC				Preservation	Cool 4C	Cool 4C	None	None								
				Type of Container	aG	aG	aG	aG								
				No. of Container(s)	1	1	1	1								
				Volume	125mL	120mL	60mL	60mL								
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Tritium - H3									
Sample No.	Matrix *	Sample Date	Sample Time													
B16RW6	SOIL	4-4-03	1210	X	X	/										
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *								
Relinquished By/Removed From Johansen/Pope/Pfister 4/4/03 1530		Received By/Stored In REF 1A 4/4/03 1530		**The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. JMS4-3-03 ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (†) Technetium-99, Strontium-89,90 - Total Sr, Isotopic Thorium (Thorium-232); Carbon-14, Iodine-129; Nickel-63; Neptunium-237 Personnel not available to relinquish samples from the 3728 Ref # 18 on 4/10/03				S=Soil SE=Soilment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Trace WT=Wipe L=Liquid V=Vegetation X=Other								
Relinquished By/Removed From 1A 3728 4-10-03 1000		Received By/Stored In R.F. Allen R.F. Allen 4-10-03														
Relinquished By/Removed From ECC 4-10-03 1000		Received By/Stored In R.F. Allen 4-10-03														
Relinquished By/Removed From Johansen/Pope/Pfister 4-11-03 10:15		Received By/Stored In D. Johnson 4-11-03/10:15														
Relinquished By/Removed From		Received By/Stored In														
LABORATORY SECTION		Received By		Title				Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time								

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-004		Page 1 of 1			
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days			
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 22.5-25.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>					
Ice Chest No. ERC 02.002		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (Formerly TMA) <i>MD 4-3-03</i>		Offsite Property No. <i>A030 208</i>		Bill of Lading/Air Bill No. <i>7902 5690 5057</i>							
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Potentially Radioactive</i> <i>Tie To BIKR8</i> <i>Special Handling and/or Storage</i> <i>COOL 140C</i>				Preservation	Cool 4C	Cool 4C	None	None			
				Type of Container	aG	aG	aG	aG			
				No. of Container(s)	1	1	1	1			
				Volume	125mL 120mL	120mL	60mL	60mL			
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Tritium - H3				
								<i>Tie To:</i>			
Sample No.	Matrix *	Sample Date	Sample Time								
B16RW7	SOIL	4-4-03	1348	X	X				<i>B16RX8</i>		
B16RW8	SOIL	4-4-03	1348	X	X				<i>B16RX8</i>		
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS					
Relinquished By/Removed From <i>EA</i>		Date/Time <i>4/4/03</i>		Received By/Stored In <i>REF 1A</i>		Date/Time <i>4/4/03 1530</i>		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) Technetium-99, Strontium-89,90 - Total Sr, Isotopic Titanium (Titanium-232), Carbon-14, Iodine-129, Nickel-63, Neptunium-237 <i>98 4/3/03</i> Personnel not available to relinquish samples from the 3728 Ref # <i>1A</i> on <i>4/10/03</i>			
Relinquished By/Removed From <i>1A 3728</i>		Date/Time <i>4-10-03 1000</i>		Received By/Stored In <i>REF 1A</i>		Date/Time <i>4-10-03</i>					
Relinquished By/Removed From <i>ERC</i>		Date/Time <i>4-10-03</i>		Received By/Stored In <i>FEDER</i>		Date/Time					
Relinquished By/Removed From <i>EA</i>		Date/Time <i>4-11-03 10:15</i>		Received By/Stored In <i>EA</i>		Date/Time <i>4-11-03 10:15</i>					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix *			
LABORATORY SECTION		Received By		Title		Date/Time		S=Soil SE=Seawater 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			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-005		Page 1 of 1				
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days				
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 27.5-30.0 ft		MS 4-7-03		SAF No. F03-006		Air Quality <input type="checkbox"/>				
Ice Chest No. ERC 02-002		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express						
Shipped To EDERLINE SERVICES (Formerly TMA) Recra		Offsite Property No. A030 208		MS 4-3-03		Bill of Lading/Air Bill No. 7902 5690 5057						
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive SEE Below Special Handling and/or Storage cool (40C)				Preservation	Cool 4C	Cool 4C	None	None				
				Type of Container	aG	aG	aG	aG				
				No. of Container(s)	1	1	1	1				
				Volume	125mL	120mL	60mL	60mL				
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Tritium - H3					
Sample No.	Matrix *	Sample Date	Sample Time									
B16RW9	SOIL	4-7-03	0830	X	X			B16RYD	27.5-30			
B16RY0	SOIL	4-7-03	1345	X	X			B16RY0 Y1	32.5-35			
B16RY1	SOIL	4-7-03	1345	X	X			B16RY2	47.5-50			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *				
Relinquished By/Removed From M. Hulstrom 4/7/03 10:15		Received By/Stored In ERC 4/7/03 10:15		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. MS 4-3-03 ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237. RB 4-3-03				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other				
Relinquished By/Removed From R. G. G. 4/20/03 16:15		Received By/Stored In IB 3728 4/7/03 16:15										
Relinquished By/Removed From IB 3728 4-10-03 10:00		Received By/Stored In R. G. G. 4-10-03 10:00										
Relinquished By/Removed From ERC 4-10-03 10:00		Received By/Stored In FedEx										
Relinquished By/Removed From FedEx 4-11-03/10:15		Received By/Stored In J. Smith 4-11-03/10:15										
Relinquished By/Removed From		Received By/Stored In										
LABORATORY SECTION	Received By	Title				Date/Time						
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time						

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hartford

Purchase Order/Project:

DATE: 4-11-03

AF# / SOW# / Release #: F03-006

Laboratory SDG #:

0304L165

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets Lvl1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-02-007 / 0.2°

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager:

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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F03-006 H2152



DATE RECEIVED: 04/11/03

LVL LOT # :0304L165

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B16RW4						
% SOLIDS	001	S	03L*S052	04/04/03	04/14/03	04/15/03
B16RW5						
% SOLIDS	002	S	03L*S052	04/04/03	04/14/03	04/15/03
CHROMIUM VI	002	S	03LVI039	04/04/03	04/30/03	04/30/03
NITRATE NITRITE	002	S	03LN3A24	04/04/03	05/05/03	05/05/03
NITRATE NITRITE	002 REP	S	03LN3A24	04/04/03	05/05/03	05/05/03
NITRATE NITRITE	002 MS	S	03LN3A24	04/04/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	002	S	03LOG014	04/04/03	04/22/03	04/24/03
OIL AND GREASE BY GR	002 REP	S	03LOG014	04/04/03	04/22/03	04/24/03
OIL AND GREASE BY GR	002 MS	S	03LOG014	04/04/03	04/22/03	04/24/03
B16RW6						
% SOLIDS	003	S	03L*S052	04/04/03	04/14/03	04/15/03
CHROMIUM VI	003	S	03LVI039	04/04/03	04/30/03	04/30/03
NITRATE NITRITE	003	S	03LN3A24	04/04/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	003	S	03LOG014	04/04/03	04/22/03	04/24/03
B16RW7						
% SOLIDS	004	S	03L*S052	04/04/03	04/14/03	04/15/03
CHROMIUM VI	004	S	03LVI039	04/04/03	04/30/03	04/30/03
NITRATE NITRITE	004	S	03LN3A24	04/04/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	004	S	03LOG014	04/04/03	04/22/03	04/24/03
B16RW8						
% SOLIDS	005	S	03L*S052	04/04/03	04/14/03	04/15/03
CHROMIUM VI	005	S	03LVI039	04/04/03	04/30/03	04/30/03
NITRATE NITRITE	005	S	03LN3A24	04/04/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	005	S	03LOG014	04/04/03	04/22/03	04/24/03
B16RW9						
% SOLIDS	006	S	03L*S052	04/07/03	04/14/03	04/15/03

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F03-006 H2152

DATE RECEIVED: 04/11/03

LVL LOT # :0304L165

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	006	S	03LVI039	04/07/03	04/30/03	04/30/03
NITRATE NITRITE	006	S	03LN3A24	04/07/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	006	S	03LOG014	04/07/03	04/22/03	04/24/03

B16RX0

% SOLIDS	007	S	03L%S052	04/07/03	04/14/03	04/15/03
CHROMIUM VI	007	S	03LVI039	04/07/03	04/30/03	04/30/03
NITRATE NITRITE	007	S	03LN3A24	04/07/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	007	S	03LOG014	04/07/03	04/22/03	04/24/03

B16RX1

% SOLIDS	008	S	03L%S052	04/07/03	04/14/03	04/15/03
% SOLIDS	008 REP	S	03L%S052	04/07/03	04/14/03	04/15/03
CHROMIUM VI	008	S	03LVI039	04/07/03	04/30/03	04/30/03
CHROMIUM VI	008 REP	S	03LVI039	04/07/03	04/30/03	04/30/03
CHROMIUM VI	008 MS	S	03LVI039	04/07/03	04/30/03	04/30/03
CHROMIUM VI	008 MSD	S	03LVI039	04/07/03	04/30/03	04/30/03
NITRATE NITRITE	008	S	03LN3A24	04/07/03	05/05/03	05/05/03
OIL & GREASE BY GRAV	008	S	03LOG014	04/07/03	04/22/03	04/24/03

LAB QC:

CHROMIUM VI	MB1	S	03LVI039	N/A	04/30/03	04/30/03
CHROMIUM VI	MB1 BS	S	03LVI039	N/A	04/30/03	04/30/03
CHROMIUM VI	MB1 BSD	S	03LVI039	N/A	04/30/03	04/30/03
NITRATE NITRITE	MB1	S	03LN3A24	N/A	05/05/03	05/05/03
NITRATE NITRITE	MB1 BS	S	03LN3A24	N/A	05/05/03	05/05/03
OIL & GREASE BY GRAV	MB1	S	03LOG014	N/A	04/22/03	04/24/03
OIL AND GREASE BY GR	MB1 BS	S	03LOG014	N/A	04/22/03	04/24/03
OIL AND GREASE BY GR	MB1 BSD	S	03LOG014	N/A	04/22/03	04/24/03



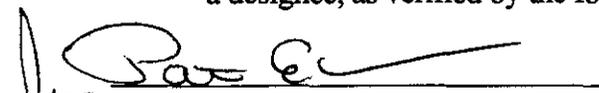
Analytical Report

Client: TNU-HANFORD F03-006 H2152
LVL#: 0304L165

W.O.#: 11343-606-001-9999-00
Date Received: 04-11-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 8 soil samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS was within Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries for Nitrate Nitrite, Oil and Grease and Chromium VI were within the 75-125% control limits.
8. The replicate analyses for Nitrate Nitrite, Oil and Grease, Percent Solids and Chromium VI were within the 20% RPD control 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.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

05-08-03
Date

njpl04-165

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 18 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% 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 / ✓ EPA 413.1(mod.)	
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: <i>Nitrate Nitrite</i>		Method: <i>EPA 353.2(mod)</i>	
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 05/07/03

CLIENT: TNUHANFORD F03-006 H2152
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L165

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B16RW4	% Solids	97.2	%	0.01	1.0
-002	B16RW5	% Solids	96.0	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
		Nitrate Nitrite	544	MG/KG	20.8	100
		Oil & Grease Gravimetri	694	u MG/KG	694	1.0
-003	B16RW6	% Solids	95.8	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
		Nitrate Nitrite	476	MG/KG	21.3	100
		Oil & Grease Gravimetri	696	u MG/KG	696	1.0
-004	B16RW7	% Solids	94.2	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
		Nitrate Nitrite	433	MG/KG	23.2	100
		Oil & Grease Gravimetri	707	u MG/KG	707	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 05/07/03

CLIENT: TNUHANFORD F03-006 H2152
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L165

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-005	B16RW8	% Solids	93.7	%	0.01	1.0
		Chromium VI	0.43	u MG/KG	0.43	1.0
		Nitrate Nitrite	501	MG/KG	21.8	100
		Oil & Grease Gravimetri	712	u MG/KG	712	1.0
-006	B16RW9	% Solids	96.4	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
		Nitrate Nitrite	861	MG/KG	35.6	200
		Oil & Grease Gravimetri	692	u MG/KG	692	1.0
-007	B16RX0	% Solids	94.1	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
		Nitrate Nitrite	1120	MG/KG	37.0	200
		Oil & Grease Gravimetri	709	u MG/KG	709	1.0
-008	B16RX1	% Solids	97.5	%	0.01	1.0
		Chromium VI	0.41	u MG/KG	0.41	1.0
		Nitrate Nitrite	3.1	MG/KG	0.18	1.0
		Oil & Grease Gravimetri	684	u MG/KG	684	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/07/03

CLIENT: TNUHANFORD F03-006 H2152
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L165

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI039-MB1	Chromium VI	0.40	u MG/KG	0.40	1.0
BLANK10	03LN3A24-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0
BLANK10	03LOG014-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/07/03

CLIENT: TNUHANFORD F03-006 H2152
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L165

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	B16RW5	Nitrate Nitrite	1570	544	1040	98.4	200
		Oil & Grease Gravimetr	7620	694 u	7930	96.0	1.0
-008	B16RX1	Soluble Chromium VI	3.9	0.41u	4.1	90.3	1.0
		Insoluble Chromium VI	1230	0.41u	1210	102.0	100
BLANK10	03LVI039-MB1	Soluble Chromium VI	4.1	0.40u	4.0	101.8	1.0
		Insoluble Chromium VI	1180	0.40u	1170	101.2	100
BLANK10	03LN3A24-MB1	Nitrate Nitrite	5.0	0.20u	5.0	100.6	1.0
BLANK10	03LOG014-MB1	Oil & Grease Gravimetr	7190	667 u	7610	94.4	1.0
		Oil & Grease - Grav M	7730	667 u	7610	101.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/07/03

CLIENT: TNUHANFORD F03-006 H2152
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L165

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	03LOG014-MB1	Oil & Grease - Grav	94.4	101.6	7.2

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/07/03

CLIENT: TNUHANFORD F03-006 H2152
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L165

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-002REP	B16RW5	Nitrate Nitrite	544	497	9.0	100
		Oil & Grease Gravimetri	694 u	694 u	NC	1.0
-008REP	B16RX1	% Solids	97.5	97.6	0.15	1.0
		Chromium VI	0.41u	0.41u	NC	1.0

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-001		Page 1 of 1	
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days	
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 0.5 ft.		SAF No. F03-006		Air Quality <input type="checkbox"/>			
Ice Chest No. ERC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express			
Shipped To TMS 413103 EBERLINE SERVICES (Formerly TMA) Becca		Offsite Property No. A030208		Bill of Lading/Air Bill No. 790256905057					
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To B16RY6 Special Handling and/or Storage Cool 4°C				Preservation		Cool 4C	Cool 4C		
				Type of Container		aG	aG		
				No. of Container(s)		1	1		
				Volume		60mL	250mL		
SAMPLE ANALYSIS				Pesticides - 8081		Chloro-Herbicides - EPA8151			
								Tie To:	
Sample No.	Matrix *	Sample Date	Sample Time						
B16RW4	SOIL	4-4-03	0750	X	X				B16RY6
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS			
Relinquished By/Removed From M. Hulstrom 4/4/03 1530		Date/Time		Received By/Stored In REF IA 4/4/03 1530		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.			
Relinquished By/Removed From IA 3728 4-10-03 1000		Date/Time		Received By/Stored In P. Fullon REF IA 4-10-03		Personnel not available to relinquish samples from the 3728 Ref # LA on 4/10/03			
Relinquished By/Removed From R. Fullon REF IA 4-10-03		Date/Time		Received By/Stored In Fred Ex		Matrix * S=Soil SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From J. Pope 4-11-03/1015		Date/Time		Received By/Stored In Symon D 4-11-03/1015					
Relinquished By/Removed From		Date/Time		Received By/Stored In					
Relinquished By/Removed From		Date/Time		Received By/Stored In					
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-002	Page 1 of 1	
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 14.5 - 17.0 ft		SAF No. F03-006		Price Code 8N Data Turnaround 45 Days		
Ice Chest No. ERC 08-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express		
Shipped To TMS 412103 EBERLINE SERVICES (Formerly TMA) Becca		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5051				
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie to B16RX6 Special Handling and/or Storage Cool 4°C				Preservation	Cool 4C	Cool 4C	None	None
				Type of Container	aG	aG	aG	aG
				No. of Container(s)	1 TMS 314103	1	1	1
				Volume	125mL 120	120mL	60mL	60mL
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions.	Thorium - H3	
				Tie to:				
Sample No.	Matrix *	Sample Date	Sample Time					
B16RW5	SOIL	4-4-03	1124	X	X	✓	B16RX6	
CHAIN OF POSSESSION				Sign/Print Names		SPECIAL INSTRUCTIONS		
Relinquished By/Removed From M. Johnson 4/4/03 1530		Received By/Stored In REF 1A 4403 1530		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237 JSP 4/3/03 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03				
Relinquished By/Removed From 1A 3728 4-10-03 1000		Received By/Stored In R. Ford Ref # 1A 4-10-03						
Relinquished By/Removed From R. Ford Ref # 1A 4-10-03		Received By/Stored In Fed Ex						
Relinquished By/Removed From J. E. 4-11-03 11015		Received By/Stored In J. E. 4-11-03 11015						
Relinquished By/Removed From		Received By/Stored In						
Relinquished By/Removed From		Received By/Stored In						
LABORATORY SECTION		Received By		Title		Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time		

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-003		Page 1 of 1		
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 17.5-20.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>				
Ice Chest No. ECC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express				
Shipped To 4-3-03 EBERLINE SERVICES (Formerly TMA) Pecra		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5057						
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To IS16 RX7 Special Handling and/or Storage COB 1402				Preservation	Cool 4C	Cool 4C	None	None		
				Type of Container	aG	aG	aG	aG		
				No. of Container(s)	1	1	1	1		
				Volume	125mL	120mL	60mL	60mL		
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions?	Strontium - 89			
								Tie To:		
Sample No.	Matrix *	Sample Date	Sample Time							
B16RW6	SOIL	4-4-03	1212	X	X	/			B16RX7	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. TMS4-3-03 ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (+) Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14, tritium-3; Nickel-63; Neptunium-237 Personnel not available to relinquish samples from the 3728 Ref # 10 on 4/10/03		E=Soil SE=Sediment SO=Soil SW=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
REF 1A		4/4/03 1530		REF 1A		4/4/03 1530				
IA 3728		4-10-03 1000		R. F. Hulstrom		4-10-03 1000				
ECC 02		4-10-03 1000		F. E. Hulstrom		4-10-03 1000				
F. E. Hulstrom		4-11-03 10:15		D. J. Hulstrom		4-11-03 10:15				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
LABORATORY SECTION		Received By		Title		Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time				

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-004		Page 1 of 1		
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days		
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 22.5-25.0 ft		SAF No. F03-006		Air Quality <input type="checkbox"/>				
Ice Chest No. ERC 02-002		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express				
Shipped To EBERLINE SERVICES (Formerly TMA) <i>Becca</i>		Offsite Property No. A030 208		Bill of Lading/Air Bill No. 7902 5690 5057						
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive Tie To BIKR28 Special Handling and/or Storage Cool 14°C				Preservation	Cool 4C	Cool 4C	None	None		
				Type of Container	aG	aG	aG	aG		
				No. of Container(s)	1	1	1	1		
				Volume	120mL 120mL	120mL	60mL	60mL		
SAMPLE ANALYSIS				Chromium Hex - 7196	Oil & Grease - 413.1	See item (1) in Special Instructions	Tritium - H3			
								<i>Tie To</i>		
Sample No.	Matrix *	Sample Date	Sample Time							
B16RW7	SOIL	4-4-03	1348	X	X				B16LXB	
B16RW8	SOIL	4-4-03	1348	X	X				B16LXB	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From <i>M. Johansen</i>		Date/Time 4/4/03		Received By/Stored In <i>REF IA</i>		Date/Time 4/4/03 1530		** The laboratory is to achieve a detection limit of 50.0 pCi/g for Carbon-14. ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) Technetium-99, Strontium-89,90 Total Sr, Isotopic Thorium (Thorium-232), Carbon-14, Iodine-129, Nickel-63, Neptunium-237 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/10/03 481 4/3/03		S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From <i>IA 3728</i>		Date/Time 4.10.03 1000		Received By/Stored In <i>REF IA</i>		Date/Time 4.10.03 1000				
Relinquished By/Removed From <i>R. Schum</i>		Date/Time 4.10.03		Received By/Stored In <i>FEDER</i>		Date/Time				
Relinquished By/Removed From <i>Joe G.</i>		Date/Time 4.11.03/10:15		Received By/Stored In <i>J. G. Smith</i>		Date/Time 4.11.03/10:15				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
LABORATORY SECTION		Received By		Title				Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time		

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-006-005		Page 1 of 1										
Collector Johansen/Pope/Pfister		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 8N Data Turnaround 45 Days										
Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling		Sampling Location 216-A-19 (C3245) 27.5-30.6 ft		MS 4-7-03		SAF No. F03-006		Air Quality <input type="checkbox"/>										
Ice Chest No. ERC 02-007		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express												
Shipped To MS 4-3-03 EBERLINE SERVICES (Formerly TMA) Beckra		Offsite Property No. R030 208		Bill of Lading/Air Bill No. 7902 5690 5057														
POSSIBLE SAMPLE HAZARDS/REMARKS Potentially Radioactive SEE Below Special Handling and/or Storage cool/coc				Preservation		Cool 4C	Cool 4C	None	None									
				Type of Container		aG	aG	aG	aG									
				No. of Container(s)		1	1	1	1									
				Volume		125mL	120mL	60mL	60mL									
SAMPLE ANALYSIS				Chromium Hex - 7196		Oil & Grease - 413.1		See item (1) in Special Instructions		Tritium - H3								
												Tilt To:		Depth				
Sample No.	Matrix *	Sample Date	Sample Time															
B16RW9	SOIL	4-7-03	0830	X	X							B16RW9	MS 4-3-03	97.5-30				
B16RX0	SOIL	4-7-03	1345	X	X							B16RX0	Y1	32.5-35				
B16RX1	SOIL	4-7-03	1345	X	X							B16RX1		47.5-50				
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *						
Relinquished By/Removed From M. Hulstrom 4/7/03 1015		Date/Time		Received By/Stored In ERC 4/7/03 1015		Date/Time		** - The laboratory is to achieve a detection limit of 30.0 pCi/g for Carbon-14 - MS 4-3-03 ** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) - Technetium-99; Strontium-89,90 - Total Sr; Isotopic Thorium (Thorium-232); Carbon-14; Iodine-129; Nickel-63; Neptunium-237. MS 4-3-03				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other						
Relinquished By/Removed From R. G. G. 4-10-03 1615		Date/Time		Received By/Stored In R. G. G. 4-10-03 1615		Date/Time												
Relinquished By/Removed From R. G. G. 4-10-03 1000		Date/Time		Received By/Stored In R. G. G. 4-10-03 1000		Date/Time												
Relinquished By/Removed From R. G. G. 4-10-03 1000		Date/Time		Received By/Stored In FedEx 4-10-03		Date/Time												
Relinquished By/Removed From R. G. G. 4-11-03 10:15		Date/Time		Received By/Stored In D. Hulstrom 4-11-03 10:15		Date/Time												
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time												
LABORATORY SECTION		Received By		Title		Date/Time												
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time												

LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hamford
Purchase Order/Project:

DATE: 4-11-03

F# / SOW# / Release #: F03-006

Laboratory SDG #: 03042165

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-02-007 / 0.2°

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager: