EBERLINE SERVICES

0058775

January 21, 2003

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

Reference: **P.O. #630**
Eberline Services R2-11-098-7398, SDG H1981

Dear Mr. Trent:

Enclosed is the data report for six solid samples designated under SAF No. F03-003 received at Eberline Services on November 20, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

JAN 2003
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FEB 18 2003
EDMC

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

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H1981 was composed of six solid (soil) samples designated under SAF No. F03-003 with a Project Designations of: 200 Area Source Characterization 200-CS-1 OU – 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 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium 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 Isotopic Thorium Analyses

There was Th-230 contamination in the method blank (0.534 pCi/g). The activity was less than the RDL (1.0 pCi/g) for Th-230 and less than 5-times the MDA (0.51 pCi/g). The Th-230 results for the client samples were above the sample specific MDAs for Th-230. No other problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

Per FH's instructions, the samples in SDG H1981 were not analyzed for isotopic uranium (see e-mail attached).

2.8 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.9 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.12 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

1/21/03

Date

Stephen_J_Trent@RL.gov
01/15/2003 11:50 AM

To: mmannion@eberlineservices.com
cc:
Subject: SDGs H1981 and H1983 tot U

Melissa,

We will not need to run isotopic U on either SDGs H1981 or H1983.

Thanks,

Steve J. Trent
Sample Management Project Coordinator
Fluor Hanford - Central Plateau Project
Ph: (509) 373-5869
EFax: (866) 252-5816
Site Pager: 85-7344

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1981

SDG	7398
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H1981

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

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

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

SDG 7398
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1981

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

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

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 H1981

SDG 7398
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1981

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15YK7	SP-2	SOLID		R211098-01	F03-003	F03-003-067	11/15/02 09:52
B15YK8	SP-2	SOLID		R211098-02	F03-003	F03-003-068	11/15/02 10:02
B15YK9	SP-2	SOLID		R211098-03	F03-003	F03-003-069	11/15/02 10:20
B15YL0	SP-2	SOLID		R211098-04	F03-003	F03-003-070	11/15/02 10:43
B15YL1	SP-2	SOLID		R211098-05	F03-003	F03-003-071	11/15/02 10:50
B15YL2	SP-2	SOLID		R211098-06	F03-003	F03-003-072	11/15/02 11:00
Method Blank		SOLID		R211098-08	F03-003		
Method Blank		SOLID		R211098-12	F03-003		
Lab Control Sample		SOLID		R211098-07	F03-003		
Lab Control Sample		SOLID		R211098-11	F03-003		
Duplicate (R211098-05)	SP-2	SOLID		R211098-09	F03-003		11/15/02 10:50
Duplicate (R211098-05)	SP-2	SOLID		R211098-13	F03-003		11/15/02 10:50
Spike (R211098-05)	SP-2	SOLID		R211098-10	F03-003		11/15/02 10:50

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melisse C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1981

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7398	F03-003-067	B15YK7	SOLID	93.5	995.2 g		11/20/02	5	R211098-01	7398-001
	F03-003-068	B15YK8	SOLID	96.3	1123 g		11/20/02	5	R211098-02	7398-002
	F03-003-069	B15YK9	SOLID	97.0	1185 g		11/20/02	5	R211098-03	7398-003
	F03-003-070	B15YL0	SOLID	95.0	1404 g		11/20/02	5	R211098-04	7398-004
	F03-003-071	B15YL1	SOLID	95.6	1548 g		11/20/02	5	R211098-05	7398-005
	F03-003-072	B15YL2	SOLID	95.4	1488 g		11/20/02	5	R211098-06	7398-006
		Method Blank	SOLID						R211098-08	7398-008
		Method Blank	SOLID						R211098-12	7398-012
		Lab Control Sample	SOLID						R211098-07	7398-007
		Lab Control Sample	SOLID						R211098-11	7398-011
		Duplicate (R211098-05)	SOLID	95.6	1548 g		11/20/02	5	R211098-09	7398-009
		Duplicate (R211098-05)	SOLID	95.6	1548 g		11/20/02	5	R211098-13	7398-013
		Spike (R211098-05)	SOLID	95.6	1548 g		11/20/02	5	R211098-10	7398-010

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Version Ver 1.0
Form DVD-QS
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Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1981

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7052-086	5.0	6			1	1	1/1		
NP	SOLID	Neptunium in Soil	7052-086	5.0	6			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-086	5.0	6			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-086	5.0	6			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-086	10.0	6			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7052-086	10.0	3			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-086	20.0	6			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-086	15.0	6			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-086	15.0	6			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-086	9.0	6			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	7052-086	10.0	3			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7052-086	10.0	3			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.

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1981

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YK7			R211098-01	7398-001	93A/93		01/14/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-001	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
F03-003-067	F03-003		11/20/02	7398-001	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-001	GAM		01/09/03	01/21/03	MCM	Gamma Scan
				7398-001	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-001	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-001	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-001	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
				7398-001	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YK8			R211098-02	7398-002	93A/93		01/14/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-002	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
F03-003-068	F03-003		11/20/02	7398-002	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-002	GAM		01/10/03	01/21/03	MCM	Gamma Scan
				7398-002	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-002	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-002	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-002	TH		01/14/03	01/21/03	MCM	Thorium, Isotopic in Soil
				7398-002	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YK9			R211098-03	7398-003	93A/93		01/14/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-003	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
F03-003-069	F03-003		11/20/02	7398-003	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-003	GAM		01/10/03	01/21/03	MCM	Gamma Scan
				7398-003	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-003	PU		01/14/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-003	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-003	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
				7398-003	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil

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Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1981

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YL0			R211098-04	7398-004	93A/93		01/09/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-004	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
F03-003-070	F03-003		11/20/02	7398-004	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-004	GAM		01/10/03	01/21/03	MCM	Gamma Scan
				7398-004	H		01/16/03	01/21/03	MCM	Tritium in Soil
				7398-004	NI_L		01/16/03	01/21/03	MCM	Nickel 63 in Soil
				7398-004	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-004	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-004	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-004	TC		01/13/03	01/21/03	MCM	Technetium 99 in Soil
				7398-004	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
				7398-004	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YL1			R211098-05	7398-005	93A/93		01/09/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-005	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
F03-003-071	F03-003		11/20/02	7398-005	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-005	GAM		01/10/03	01/21/03	MCM	Gamma Scan
				7398-005	H		01/17/03	01/21/03	MCM	Tritium in Soil
				7398-005	NI_L		01/16/03	01/21/03	MCM	Nickel 63 in Soil
				7398-005	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-005	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-005	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-005	TC		01/13/03	01/21/03	MCM	Technetium 99 in Soil
				7398-005	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
				7398-005	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YL2			R211098-06	7398-006	93A/93		01/09/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-006	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
F03-003-072	F03-003		11/20/02	7398-006	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-006	GAM		01/13/03	01/21/03	MCM	Gamma Scan
				7398-006	H		01/17/03	01/21/03	MCM	Tritium in Soil
				7398-006	NI_L		01/16/03	01/21/03	MCM	Nickel 63 in Soil
				7398-006	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-006	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-006	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-006	TC		01/13/03	01/21/03	MCM	Technetium 99 in Soil
				7398-006	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
				7398-006	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1981

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R211098-08	7398-008	93A/93		01/09/03	01/21/03	MCM	Gross Alpha in Soil
		SOLID		7398-008	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
	F03-003			7398-008	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-008	GAM		01/13/03	01/21/03	MCM	Gamma Scan
				7398-008	H		01/17/03	01/21/03	MCM	Tritium in Soil
				7398-008	NI_L		01/16/03	01/21/03	MCM	Nickel 63 in Soil
				7398-008	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-008	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-008	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-008	TC		01/14/03	01/21/03	MCM	Technetium 99 in Soil
				7398-008	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
Method Blank			R211098-12	7398-012	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									
Lab Control Sample			R211098-07	7398-007	93A/93		01/14/03	01/21/03	MCM	Gross Alpha in Soil
		SOLID		7398-007	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
	F03-003			7398-007	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-007	GAM		01/13/03	01/21/03	MCM	Gamma Scan
				7398-007	H		01/17/03	01/21/03	MCM	Tritium in Soil
				7398-007	NI_L		01/16/03	01/21/03	MCM	Nickel 63 in Soil
				7398-007	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-007	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-007	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-007	TC		01/13/03	01/21/03	MCM	Technetium 99 in Soil
				7398-007	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
Lab Control Sample			R211098-11	7398-011	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									

Lab id EBRLNE
Protocol Hanford
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SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1981

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R211098-05)			R211098-09	7398-009	93A/93		01/09/03	01/21/03	MCM	Gross Alpha in Soil
SP-2		SOLID	11/15/02	7398-009	93B/93		01/09/03	01/21/03	MCM	Gross Beta in Soil
	F03-003		11/20/02	7398-009	AM		01/20/03	01/21/03	MCM	Americium 241 in Soil
				7398-009	GAM		01/13/03	01/21/03	MCM	Gamma Scan
				7398-009	H		01/17/03	01/21/03	MCM	Tritium in Soil
				7398-009	NI_L		01/16/03	01/21/03	MCM	Nickel 63 in Soil
				7398-009	NP		01/17/03	01/21/03	MCM	Neptunium in Soil
				7398-009	PU		01/13/03	01/21/03	MCM	Plutonium, Isotopic in Solids
				7398-009	SR		01/09/03	01/21/03	MCM	Total Strontium in Soil
				7398-009	TC		01/15/03	01/21/03	MCM	Technetium 99 in Soil
				7398-009	TH		01/09/03	01/21/03	MCM	Thorium, Isotopic in Soil
Duplicate (R211098-05)			R211098-13	7398-013	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
SP-2		SOLID	11/15/02							
	F03-003		11/20/02							
Spike (R211098-05)			R211098-10	7398-010	H		01/17/03	01/21/03	MCM	Tritium in Soil
SP-2		SOLID	11/15/02							
	F03-003		11/20/02							

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

SDG 7398
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1981

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	F03-003	Gross Alpha in Soil	900.0_ALPHABETA_GPC	6			1	1	1		9
93B/93	F03-003	Gross Beta in Soil	900.0_ALPHABETA_GPC	6			1	1	1		9
AM	F03-003	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	6			1	1	1		9
GAM	F03-003	Gamma Scan	GAMMA_GS	6			1	1	1		9
H	F03-003	Tritium in Soil	906.0_H3_LSC	3			1	1	1	1	7
NI_L	F03-003	Nickel 63 in Soil	NI63_LSC	3			1	1	1		6
NP	F03-003	Neptunium in Soil	NP237_LLE_PLATE_AEA	6			1	1	1		9
PU	F03-003	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	6			1	1	1		9
SR	F03-003	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	6			1	1	1		9
TC	F03-003	Technetium 99 in Soil	TC99_TR_SEP_LSC	3			1	1	1		6
TH	F03-003	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	6			1	1	1		9
U_T	F03-003	Uranium, Total in Soil	UTOT_KPA	6			1	1	1		9
TOTALS				63			12	12	12	1	100

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-08 Method Blank

METHOD BLANK

SDG	7398	Client/Case no	Hanford	SDG	H1981
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211098-08	Client sample id	Method Blank		
Dept sample id	7398-008	Material/Matrix		SOLID	
		SAF No	F03-003		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.823	1.7	2.6	10	U	93A
Gross Beta	12587-47-2	0.972	3.1	5.2	15	U	93B
Tritium	10028-17-8	0.047	0.17	0.29	400	U	H
Nickel 63	13981-37-8	0.945	1.1	1.9	30	U	NI_L
Total Strontium	SR-RAD	-0.020	0.11	0.23	1.0	U	SR
Technetium 99	14133-76-7	-0.040	0.16	0.53	15	U	TC
Thorium 228	14274-82-9	0	0.13	0.51		U	TH
Thorium 230	14269-63-7	0.534	0.40	0.51	1.0		TH
Thorium 232	TH-232	0	0.13	0.51	1.0	U	TH
Neptunium 237	13994-20-2	0	0.073	0.11	1.0	U	NP
Plutonium 238	13981-16-3	-0.043	0.086	0.33	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.086	0.33	1.0	U	PU
Americium 241	14596-10-2	0	0.062	0.24	1.0	U	AM
Potassium 40	13966-00-2	U		0.28		U	GAM
Cobalt 60	10198-40-0	U		0.015	0.050	U	GAM
Cesium 137	10045-97-3	U		0.013	0.10	U	GAM
Radium 226	13982-63-3	U		0.028		U	GAM
Radium 228	15262-20-1	U		0.072		U	GAM
Europium 152	14683-23-9	U		0.036	0.10	U	GAM
Europium 154	15585-10-1	U		0.042	0.10	U	GAM
Europium 155	14391-16-3	U		0.043	0.10	U	GAM
Thorium 228	14274-82-9	U		0.020		U	GAM
Thorium 232	TH-232	U		0.072		U	GAM
Uranium 235	15117-96-1	U		0.063		U	GAM
Uranium 238	U-238	U		1.9		U	GAM
Americium 241	14596-10-2	U		0.096		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
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BLANK, cont.

SDG	7398	Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211098-08	Client sample id	Method Blank
Dept sample id	7398-008	Material/Matrix	SOLID
		SAF No	F03-003

QC-BLANK 43520

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

SAMPLE DELIVERY GROUP H1981

R211098-12 Method Blank

METHOD BLANK

SDG	7398	Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211098-12	Client sample id	Method Blank
Dept sample id	7398-012	Material/Matrix	SOLID
		SAF No	F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0	0.002	0.004	0.10	U	U_T

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43434

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-07 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7398 Client/Case no Hanford SDG H1981
Contact Melissa C. Mannion Contract No. 630

Lab sample id R211098-07 Client sample id Lab Control Sample
Dept sample id 7398-007 Material/Matrix SOLID
SAF No F03-003

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
Gross Alpha	175	13	3.5	10		93A	214	8.6	82	73-127	70-130
Gross Beta	215	11	6.5	15		93B	233	9.3	92	77-123	70-130
Tritium	11.3	0.41	0.28	400		H	11.5	0.46	98	83-117	80-120
Nickel 63	270	4.6	1.9	30		NI_L	276	11	98	84-116	80-120
Total Strontium	23.5	0.97	0.29	1.0		SR	22.3	0.89	105	82-118	80-120
Technetium 99	140	3.3	0.64	15		TC	120	4.8	117	81-119	80-120
Thorium 230	45.0	4.4	0.27	1.0	B	TH	44.8	1.8	100	82-118	80-120
Neptunium 237	24.8	2.3	0.13	1.0		NP	21.8	0.87	114	81-119	80-120
Plutonium 238	22.9	2.9	0.31	1.0		PU	26.8	1.1	85	82-118	80-120
Plutonium 239/240	27.6	3.3	0.31	1.0		PU	29.0	1.2	95	80-120	80-120
Americium 241	20.6	2.5	0.28	1.0		AM	21.0	0.84	98	80-120	80-120
Cobalt 60	0.939	0.048	0.022	0.050		GAM	0.963	0.039	98	76-124	80-120
Cesium 137	1.27	0.045	0.023	0.10		GAM	1.26	0.050	101	76-124	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43519

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-11

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7398
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1981
Contract No. 630

Lab sample id R211098-11
Dept sample id 7398-011

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F03-003

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
Total Uranium (ug/g)	16.6	2.0	0.040	0.10		U_T	16.5	0.66	101	77-123	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43433

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-09 B15YL1

DUPLICATE

SDG	7398			Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R211098-09	Lab sample id	R211098-05	Client sample id	B15YL1
Dept sample id	7398-009	Dept sample id	7398-005	Location/Matrix	SP-2 SOLID
		Received	11/20/02	Collected/Weight	11/15/02 10:50 1548 g
% solids	95.6	% solids	95.6	Custody/SAF No	F03-003-071 F03-003

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	3.75	2.6	2.9	10		93A	2.87	2.7	3.3	U	27	175
Gross Beta	14.5	4.2	5.7	15		93B	14.7	4.7	6.8		1	72
Tritium	0.074	0.11	0.18	400	U	H	0.126	0.11	0.19	U	-	
Nickel 63	1.41	1.2	2.0	30	U	NI_L	0.779	1.2	2.0	U	-	
Total Strontium	0.566	0.17	0.23	1.0		SR	0.564	0.16	0.20		0	66
Technetium 99	0.004	0.18	0.57	15	U	TC	-0.086	0.16	0.57	U	-	
Thorium 228	0.316	0.24	0.30			TH	0.117	0.16	0.30	U	92	200
Thorium 230	0.670	0.32	0.30	1.0	B	TH	0.743	0.40	0.30	B	10	109
Thorium 232	0.039	0.079	0.30	1.0	U	TH	0.156	0.16	0.30	U	-	
Neptunium 237	0.237	0.20	0.10	1.0		NP	0	0.063	0.094	U	200	266
Plutonium 238	0	0.12	0.48	1.0	U	PU	0	0.081	0.31	U	-	
Plutonium 239/240	0.062	0.12	0.48	1.0	U	PU	0	0.080	0.31	U	-	
Americium 241	0	0.098	0.37	1.0	U	AM	0.070	0.14	0.27	U	-	
Potassium 40	12.6	0.73	0.21			GAM	13.0	0.67	0.28		3	34
Cobalt 60	U		0.026	0.050	U	GAM	U		0.028	U	-	
Cesium 137	U		0.022	0.10	U	GAM	U		0.028	U	-	
Radium 226	0.378	0.050	0.046			GAM	0.406	0.055	0.053		7	43
Radium 228	0.562	0.11	0.10			GAM	0.637	0.11	0.11		13	50
Europium 152	U		0.054	0.10	U	GAM	U		0.070	U	-	
Europium 154	U		0.074	0.10	U	GAM	U		0.11	U	-	
Europium 155	U		0.051	0.10	U	GAM	U		0.093	U	-	
Thorium 228	0.537	0.030	0.027			GAM	0.553	0.037	0.036		3	34
Thorium 232	0.562	0.11	0.10			GAM	0.637	0.11	0.11		13	50
Uranium 235	U		0.081		U	GAM	U		0.13	U	-	
Uranium 238	U		3.0		U	GAM	U		3.7	U	-	
Americium 241	U		0.033		U	GAM	U		0.20	U	-	

200 Area Source Chara. 200-CS-1 OU

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

SAMPLE DELIVERY GROUP H1981

R211098-09 B15YL1

DUPLICATE, cont.

SDG	7398		Client/Case no	Hanford	SDG H1981
Contact	Melissa C. Mannion		Contract	No. 630	
DUPLICATE		ORIGINAL			
Lab sample id	R211098-09	Lab sample id	R211098-05	Client sample id	B15YL1
Dept sample id	7398-009	Dept sample id	7398-005	Location/Matrix	SP-2 SOLID
		Received	11/20/02	Collected/Weight	11/15/02 10:50 1548 g
% solids	95.6	% solids	95.6	Custody/SAF No	F03-003-071 F03-003

QC-DUP#5 43521

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-13 B15YL1

DUPLICATE

SDG	7398			Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211098-13	Lab sample id	R211098-05	Client sample id	B15YL1
Dept sample id	7398-013	Dept sample id	7398-005	Location/Matrix	SP-2 SOLID
		Received	11/20/02	Collected/Weight	11/15/02 10:50 1548 g
% solids	95.6	% solids	95.6	Custody/SAF No	F03-003-071 F03-003

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Total Uranium (ug/g)	0.282	0.032	0.004	0.10		U_T	0.289	0.033	0.004		2	31	

200 Area Source Chara. 200-CS-1 OU

QC-DUP#5 43435

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-10 B15YL1

MATRIX SPIKE

SDG	7398			Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion			Contract	No. 630
MATRIX SPIKE		ORIGINAL			
Lab sample id	R211098-10	Lab sample id	R211098-05	Client sample id	B15YL1
Dept sample id	7398-010	Dept sample id	7398-005	Location/Matrix	SP-2 SOLID
		Received	11/20/02	Collected/Weight	11/15/02 10:50 1548 g
% solids	95.6	% solids	95.6	Custody/SAF No	F03-003-071 F03-003

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	44.1	0.57	0.17	400	X	H	50.0	2.0	0.126	0.11	88	85-115	60-140

200 Area Source Chara. 200-CS-1 OU

QC-MS#5 43522

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-01 **B15YK7**

DATA SHEET

SDG	7398	Client/Case no	Hanford	SDG H1981	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211098-01	Client sample id	B15YK7		
Dept sample id	7398-001	Location/Matrix	SP-2	SOLID	
Received	11/20/02	Collected/Weight	11/15/02 09:52	995.2 g	
% solids	93.5	Custody/SAF No	F03-003-067	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	3.34	2.7	3.8	10	U	93A
Gross Beta	12587-47-2	16.5	4.1	5.2	15		93B
Total Strontium	SR-RAD	0.090	0.11	0.21	1.0	U	SR
Thorium 228	14274-82-9	0.424	0.31	0.29			TH
Thorium 230	14269-63-7	0.500	0.31	0.29	1.0	B	TH
Thorium 232	TH-232	0.308	0.23	0.29	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.409	0.047	0.004	0.10		U_T
Neptunium 237	13994-20-2	0.038	0.077	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0	0.12	0.44	1.0	U	PU
Plutonium 239/240	PU-239/240	0.058	0.12	0.44	1.0	U	PU
Americium 241	14596-10-2	-0.039	0.078	0.30	1.0	U	AM
Potassium 40	13966-00-2	12.8	0.48	0.11			GAM
Cobalt 60	10198-40-0	U		0.011	0.050	U	GAM
Cesium 137	10045-97-3	0.857	0.018	0.013	0.10		GAM
Radium 226	13982-63-3	0.498	0.032	0.022			GAM
Radium 228	15262-20-1	0.761	0.057	0.049			GAM
Europium 152	14683-23-9	U		0.028	0.10	U	GAM
Europium 154	15585-10-1	U		0.036	0.10	U	GAM
Europium 155	14391-16-3	U		0.042	0.10	U	GAM
Thorium 228	14274-82-9	0.711	0.018	0.014			GAM
Thorium 232	TH-232	0.761	0.057	0.049			GAM
Uranium 235	15117-96-1	U		0.040		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Americium 241	14596-10-2	U		0.016		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

SAMPLE DELIVERY GROUP H1981

R211098-02 **B15YK8**

DATA SHEET

SDG	7398	Client/Case no	Hanford	SDG H1981	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211098-02	Client sample id	B15YK8		
Dept sample id	7398-002	Location/Matrix	SP-2	SOLID	
Received	11/20/02	Collected/Weight	11/15/02 10:02	1123 g	
% solids	96.3	Custody/SAF No	F03-003-068	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	9.11	3.3	2.8	10		93A
Gross Beta	12587-47-2	14.4	4.2	5.7	15		93B
Total Strontium	SR-RAD	1.15	0.20	0.21	1.0		SR
Thorium 228	14274-82-9	0.278	0.15	0.19			TH
Thorium 230	14269-63-7	0.527	0.25	0.24	1.0	B	TH
Thorium 232	TH-232	0.176	0.15	0.19	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.488	0.056	0.004	0.10		U_T
Neptunium 237	13994-20-2	0.062	0.062	0.094	1.0	U	NP
Plutonium 238	13981-16-3	0.091	0.092	0.35	1.0	U	PU
Plutonium 239/240	PU-239/240	2.33	0.68	0.35	1.0		PU
Americium 241	14596-10-2	0.395	0.24	0.30	1.0		AM
Potassium 40	13966-00-2	11.3	0.63	0.22			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	1.77	0.051	0.027	0.10		GAM
Radium 226	13982-63-3	0.423	0.053	0.049			GAM
Radium 228	15262-20-1	0.596	0.10	0.10			GAM
Europium 152	14683-23-9	U		0.066	0.10	U	GAM
Europium 154	15585-10-1	U		0.078	0.10	U	GAM
Europium 155	14391-16-3	U		0.056	0.10	U	GAM
Thorium 228	14274-82-9	0.566	0.031	0.031			GAM
Thorium 232	TH-232	0.596	0.10	0.10			GAM
Uranium 235	15117-96-1	U		0.090		U	GAM
Uranium 238	U-238	U		2.8		U	GAM
Americium 241	14596-10-2	U		0.22		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

SAMPLE DELIVERY GROUP H1981

R211098-03 B15YK9

DATA SHEET

SDG	7398	Client/Case no	Hanford	SDG H1981	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211098-03	Client sample id	B15YK9		
Dept sample id	7398-003	Location/Matrix	SP-2	SOLID	
Received	11/20/02	Collected/Weight	11/15/02 10:20	1185 g	
% solids	97.0	Custody/SAF No	F03-003-069	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	3.62	2.6	3.5	10		93A
Gross Beta	12587-47-2	12.0	4.5	6.6	15		93B
Total Strontium	SR-RAD	0.178	0.12	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.155	0.16	0.30		U	TH
Thorium 230	14269-63-7	1.12	0.47	0.30	1.0	B	TH
Thorium 232	TH-232	0.193	0.16	0.30	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.415	0.047	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.065	0.098	1.0	U	NP
Plutonium 238	13981-16-3	0	0.19	0.40	1.0	U	PU
Plutonium 239/240	PU-239/240	0.096	0.19	0.31	1.0	U	PU
Americium 241	14596-10-2	0.303	0.27	0.32	1.0	U	AM
Potassium 40	13966-00-2	11.6	0.80	0.37			GAM
Cobalt 60	10198-40-0	U		0.043	0.050	U	GAM
Cesium 137	10045-97-3	U		0.033	0.10	U	GAM
Radium 226	13982-63-3	0.386	0.062	0.061			GAM
Radium 228	15262-20-1	0.603	0.17	0.18			GAM
Europium 152	14683-23-9	U		0.087	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.546	0.043	0.043			GAM
Thorium 232	TH-232	0.603	0.17	0.18			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.13		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-04 **B15YL0**

DATA SHEET

SDG	7398	Client/Case no	Hanford	SDG H1981	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211098-04	Client sample id	B15YL0		
Dept sample id	7398-004	Location/Matrix	SP-2	SOLID	
Received	11/20/02	Collected/Weight	11/15/02 10:43	1404 g	
% solids	95.0	Custody/SAF No	F03-003-070	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.70	2.4	3.0	10	U	93A
Gross Beta	12587-47-2	13.4	4.0	5.4	15		93B
Tritium	10028-17-8	0.084	0.11	0.18	400	U	H
Nickel 63	13981-37-8	1.01	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	0.280	0.12	0.19	1.0		SR
Technetium 99	14133-76-7	0.114	0.20	0.61	15	U	TC
Thorium 228	14274-82-9	0.266	0.27	0.34		U	TH
Thorium 230	14269-63-7	0.708	0.36	0.34	1.0	B	TH
Thorium 232	TH-232	0.310	0.27	0.34	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.397	0.045	0.004	0.10		U_T
Neptunium 237	13994-20-2	0.052	0.052	0.078	1.0	U	NP
Plutonium 238	13981-16-3	0	0.073	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.073	0.28	1.0	U	PU
Americium 241	14596-10-2	0.130	0.17	0.33	1.0	U	AM
Potassium 40	13966-00-2	11.7	0.50	0.23			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.024	0.10	U	GAM
Radium 226	13982-63-3	0.432	0.046	0.043			GAM
Radium 228	15262-20-1	0.615	0.12	0.10			GAM
Europium 152	14683-23-9	U		0.059	0.10	U	GAM
Europium 154	15585-10-1	U		0.097	0.10	U	GAM
Europium 155	14391-16-3	U		0.066	0.10	U	GAM
Thorium 228	14274-82-9	0.620	0.034	0.031			GAM
Thorium 232	TH-232	0.615	0.12	0.10			GAM
Uranium 235	15117-96-1	U		0.099		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Americium 241	14596-10-2	U		0.082		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

R211098-05 B15YL1

DATA SHEET

SDG	7398	Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211098-05	Client sample id	B15YL1
Dept sample id	7398-005	Location/Matrix	SP-2 SOLID
Received	11/20/02	Collected/Weight	11/15/02 10:50 1548 g
% solids	95.6	Custody/SAF No	F03-003-071 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.87	2.7	3.3	10	U	93A
Gross Beta	12587-47-2	14.7	4.7	6.8	15		93B
Tritium	10028-17-8	0.126	0.11	0.19	400	U	H
Nickel 63	13981-37-8	0.779	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	0.564	0.16	0.20	1.0		SR
Technetium 99	14133-76-7	-0.086	0.16	0.57	15	U	TC
Thorium 228	14274-82-9	0.117	0.16	0.30		U	TH
Thorium 230	14269-63-7	0.743	0.40	0.30	1.0	B	TH
Thorium 232	TH-232	0.156	0.16	0.30	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.289	0.033	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.063	0.094	1.0	U	NP
Plutonium 238	13981-16-3	0	0.081	0.31	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.080	0.31	1.0	U	PU
Americium 241	14596-10-2	0.070	0.14	0.27	1.0	U	AM
Potassium 40	13966-00-2	13.0	0.67	0.28			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.10	U	GAM
Radium 226	13982-63-3	0.406	0.055	0.053			GAM
Radium 228	15262-20-1	0.637	0.11	0.11			GAM
Europium 152	14683-23-9	U		0.070	0.10	U	GAM
Europium 154	15585-10-1	U		0.11	0.10	U	GAM
Europium 155	14391-16-3	U		0.093	0.10	U	GAM
Thorium 228	14274-82-9	0.553	0.037	0.036			GAM
Thorium 232	TH-232	0.637	0.11	0.11			GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		3.7		U	GAM
Americium 241	14596-10-2	U		0.20		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

SAMPLE DELIVERY GROUP H1981

R211098-06 **B15YL2**

DATA SHEET

SDG	7398	Client/Case no	Hanford SDG H1981
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211098-06	Client sample id	B15YL2
Dept sample id	7398-006	Location/Matrix	SP-2 SOLID
Received	11/20/02	Collected/Weight	11/15/02 11:00 1488 g
% solids	95.4	Custody/SAF No	F03-003-072 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.15	1.7	2.5	10	U	93A
Gross Beta	12587-47-2	11.2	4.0	5.8	15		93B
Tritium	10028-17-8	0.056	0.11	0.19	400	U	H
Nickel 63	13981-37-8	0.877	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	1.43	0.21	0.19	1.0		SR
Technetium 99	14133-76-7	0.019	0.17	0.57	15	U	TC
Thorium 228	14274-82-9	0.355	0.21	0.27			TH
Thorium 230	14269-63-7	0.425	0.29	0.27	1.0	B	TH
Thorium 232	TH-232	0.283	0.21	0.27	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.366	0.042	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.083	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0.061	0.12	0.47	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.12	0.47	1.0	U	PU
Americium 241	14596-10-2	0	0.083	0.32	1.0	U	AM
Potassium 40	13966-00-2	12.0	0.76	0.26			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.10	U	GAM
Radium 226	13982-63-3	0.408	0.053	0.049			GAM
Radium 228	15262-20-1	0.605	0.11	0.11			GAM
Europium 152	14683-23-9	U		0.057	0.10	U	GAM
Europium 154	15585-10-1	U		0.080	0.10	U	GAM
Europium 155	14391-16-3	U		0.056	0.10	U	GAM
Thorium 228	14274-82-9	0.607	0.033	0.029			GAM
Thorium 232	TH-232	0.605	0.11	0.11			GAM
Uranium 235	15117-96-1	U		0.087		U	GAM
Uranium 238	U-238	U		3.0		U	GAM
Americium 241	14596-10-2	U		0.035		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test AM Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 7052-086					
B15YK7	R211098-01			7398-001	U
B15YK8	R211098-02			7398-002	0.395
B15YK9	R211098-03			7398-003	U
B15YL0	R211098-04			7398-004	U
B15YL1	R211098-05			7398-005	U
B15YL2	R211098-06			7398-006	U
BLK (QC ID=43520)	R211098-08			7398-008	U
LCS (QC ID=43519)	R211098-07			7398-007	ok
Duplicate (R211098-05)	R211098-09			7398-009	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 086											
B15YK7	R211098-01			0.30	0.500			77		102			66	01/20/03	01/20	SS-011
B15YK8	R211098-02			0.30	0.500			74		102			66	01/20/03	01/20	SS-016
B15YK9	R211098-03			0.32	0.500			84		102			66	01/20/03	01/20	SS-031
B15YL0	R211098-04			0.33	0.500			63		102			66	01/20/03	01/20	SS-032
B15YL1	R211098-05			0.27	0.500			82		103			66	01/20/03	01/20	SS-041
B15YL2	R211098-06			0.32	0.500			72		103			66	01/20/03	01/20	SS-042
BLK (QC ID=43520)	R211098-08			0.24	0.500			84		103				01/20/03	01/20	SS-044
LCS (QC ID=43519)	R211098-07			0.28	0.500			74		103				01/20/03	01/20	SS-043
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.37	0.500			62		100			66	01/20/03	01/20	SS-051
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test AM	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1981	

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

AVERAGES ± 2 SD	MDA	0.30	±	0.075
FOR 9 SAMPLES	YIELD	75	±	16

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test NP Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237
Preparation batch 7052-086					
B15YK7	R211098-01			7398-001	U
B15YK8	R211098-02			7398-002	U
B15YK9	R211098-03			7398-003	U
B15YL0	R211098-04			7398-004	U
B15YL1	R211098-05			7398-005	U
B15YL2	R211098-06			7398-006	U
BLK (QC ID=43520)	R211098-08			7398-008	U
LCS (QC ID=43519)	R211098-07			7398-007	ok
Duplicate (R211098-05)	R211098-09			7398-009	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 086												
B15YK7	R211098-01			0.12	0.500			64		127			63	01/16/03	01/17	SS-003
B15YK8	R211098-02			0.094	0.500			63		153			63	01/16/03	01/17	SS-051
B15YK9	R211098-03			0.098	0.500			72		128			63	01/16/03	01/17	SS-008
B15YL0	R211098-04			0.078	0.500			71		154			63	01/16/03	01/17	SS-052
B15YL1	R211098-05			0.094	0.500			78		127			63	01/16/03	01/17	SS-011
B15YL2	R211098-06			0.12	0.500			61		127			63	01/16/03	01/17	SS-013
BLK (QC ID=43520)	R211098-08			0.11	0.500			63		127				01/16/03	01/17	SS-015
LCS (QC ID=43519)	R211098-07			0.13	0.500			52		127				01/16/03	01/17	SS-014
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.10	0.500			70		127			63	01/16/03	01/17	SS-016
Nominal values and limits from method				1.0	0.500			20-105		100			180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test NP	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1981	

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 3

AVERAGES ± 2 SD	MDA	0.10	±	0.033
FOR 9 SAMPLES	YIELD	66	±	15

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test PU Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 7052-086								
B15YK7	R211098-01			7398-001	U		U	
B15YK8	R211098-02			7398-002	U		2.33	
B15YK9	R211098-03			7398-003	U		U	
B15YL0	R211098-04			7398-004	U		U	
B15YL1	R211098-05			7398-005	U		U	
B15YL2	R211098-06			7398-006	U		U	
BLK (QC ID=43520)	R211098-08			7398-008	U		U	
LCS (QC ID=43519)	R211098-07			7398-007	ok		ok	
Duplicate (R211098-05)	R211098-09			7398-009	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0	
200 Area Source Chara. 200-CS-1 OU								

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 086												
B15YK7	R211098-01			0.44	0.500			43		107			59	01/13/03	01/13	SS-044
B15YK8	R211098-02			0.35	0.500			55		100			59	01/13/03	01/13	SS-045
B15YK9	R211098-03			0.40	0.500			72		139			60	01/13/03	01/14	SS-021
B15YL0	R211098-04			0.28	0.500			77		109			59	01/13/03	01/13	SS-059
B15YL1	R211098-05			0.31	0.500			64		110			59	01/13/03	01/13	SS-060
B15YL2	R211098-06			0.47	0.500			43		110			59	01/13/03	01/13	SS-061
BLK (QC ID=43520)	R211098-08			0.33	0.500			61		108				01/13/03	01/13	SS-052
LCS (QC ID=43519)	R211098-07			0.31	0.500			69		107				01/13/03	01/13	SS-051
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.48	0.500			42		108			59	01/13/03	01/13	SS-055
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test	PU
Matrix	SOLID
SDG	7398
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1981

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

AVERAGES ± 2 SD FOR 9 SAMPLES				
MDA	0.37	±	0.15
YIELD	58	±	27

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test TH Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-086					
B15YK7	R211098-01			7398-001	0.500
B15YK8	R211098-02			7398-002	0.527
B15YK9	R211098-03			7398-003	1.12
B15YL0	R211098-04			7398-004	0.708
B15YL1	R211098-05			7398-005	0.743
B15YL2	R211098-06			7398-006	0.425
BLK (QC ID=43520)	R211098-08			7398-008	0.534
LCS (QC ID=43519)	R211098-07			7398-007	ok
Duplicate (R211098-05)	R211098-09			7398-009	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 086												
B15YK7	R211098-01			0.29	0.250			98		152			55	01/09/03	01/09	SS-043
B15YK8	R211098-02			0.24	0.250			99		249			60	01/09/03	01/14	SS-042
B15YK9	R211098-03			0.30	0.250			97		153			55	01/09/03	01/09	SS-047
B15YL0	R211098-04			0.34	0.250			93		153			55	01/09/03	01/09	SS-050
B15YL1	R211098-05			0.30	0.250			101		153			55	01/09/03	01/09	SS-051
B15YL2	R211098-06			0.27	0.250			104		153			55	01/09/03	01/09	SS-055
BLK (QC ID=43520)	R211098-08			0.51	0.250			60		154				01/09/03	01/09	SS-057
LCS (QC ID=43519)	R211098-07			0.27	0.250			100		154				01/09/03	01/09	SS-056
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.30	0.250			100		154			55	01/09/03	01/09	SS-058
Nominal values and limits from method				1.0	0.250			20-105		150			180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test TH	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1981	

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-907	Thorium in Water and Dissolved Solid Samples by TEVA and Anion Exchange Column Method, rev 2
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD	MDA	0.31	±	0.16
FOR 9 SAMPLES	YIELD	95	±	27

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test SR Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-086					
B15YK7	R211098-01			7398-001	U
B15YK8	R211098-02			7398-002	1.15
B15YK9	R211098-03			7398-003	U
B15YL0	R211098-04			7398-004	0.280
B15YL1	R211098-05			7398-005	0.564
B15YL2	R211098-06			7398-006	1.43
BLK (QC ID=43520)	R211098-08			7398-008	U
LCS (QC ID=43519)	R211098-07			7398-007	ok
Duplicate (R211098-05)	R211098-09			7398-009	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 086																
B15YK7	R211098-01			0.21	1.00			94		100			55	01/09/03	01/09	GRB-217
B15YK8	R211098-02			0.21	1.00			85		100			55	01/09/03	01/09	GRB-218
B15YK9	R211098-03			0.20	1.00			95		100			55	01/09/03	01/09	GRB-219
B15YL0	R211098-04			0.19	1.00			91		100			55	01/09/03	01/09	GRB-220
B15YL1	R211098-05			0.20	1.00			92		100			55	01/09/03	01/09	GRB-221
B15YL2	R211098-06			0.19	1.00			96		100			55	01/09/03	01/09	GRB-222
BLK (QC ID=43520)	R211098-08			0.23	1.00			83		100				01/09/03	01/09	GRB-203
LCS (QC ID=43519)	R211098-07			0.29	1.00			79		78				01/09/03	01/09	GRB-229
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.23	1.00			82		100			55	01/09/03	01/09	GRB-223
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-CMS
Version 3.06
Report date 01/21/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test SR	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1981	

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-502	Strontium in Solids, rev 6

AVERAGES ± 2 SD	MDA	0.22	±	0.062
FOR 9 SAMPLES	YIELD	89	±	13

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test TC Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7052-086						
B15YL0	R211098-04			7398-004	U	
B15YL1	R211098-05			7398-005	U	
B15YL2	R211098-06			7398-006	U	
BLK (QC ID=43520)	R211098-08			7398-008	U	
LCS (QC ID=43519)	R211098-07			7398-007	ok	
Duplicate (R211098-05)	R211098-09			7398-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 086															
B15YL0	R211098-04			0.61	1.02			86		50			59	01/09/03	01/13	GRB-223
B15YL1	R211098-05			0.57	1.02			88		50			59	01/09/03	01/13	GRB-224
B15YL2	R211098-06			0.57	1.02			97		50			59	01/09/03	01/13	GRB-229
BLK (QC ID=43520)	R211098-08			0.53	1.00			101		50				01/09/03	01/14	GRB-232
LCS (QC ID=43519)	R211098-07			0.64	1.00			84		50				01/09/03	01/13	GRB-230
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.57	1.02			85		53			61	01/09/03	01/15	GRB-217
Nominal values and limits from method				15	1.00			20-105		50			180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test TC	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1981	

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	0.58	±	0.076
FOR 6 SAMPLES	YIELD	90	±	14

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test 93A Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7052-086					
B15YK7	R211098-01	93		7398-001	U
B15YK8	R211098-02	93		7398-002	9.11
B15YK9	R211098-03	93		7398-003	3.62
B15YL0	R211098-04	93		7398-004	U
B15YL1	R211098-05	93		7398-005	U
B15YL2	R211098-06	93		7398-006	U
BLK (QC ID=43520)	R211098-08	93		7398-008	U
LCS (QC ID=43519)	R211098-07	93		7398-007	ok
Duplicate (R211098-05)	R211098-09	93		7398-009	ok

Nominal values and limits from method RDLs (pCi/g) 10
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 20.0 % Reference Lab Notebook 7052 pg. 086															
B15YK7	R211098-01	93		3.8	0.100			27		100			60	01/09/03	01/14	GRB-113
B15YK8	R211098-02	93		2.8	0.100			24		100			60	01/09/03	01/14	GRB-114
B15YK9	R211098-03	93		3.5	0.100			23		100			60	01/09/03	01/14	GRB-115
B15YL0	R211098-04	93		3.0	0.100			24		100			55	01/09/03	01/09	GRB-109
B15YL1	R211098-05	93		3.3	0.100			21		100			55	01/09/03	01/09	GRB-110
B15YL2	R211098-06	93		2.5	0.100			23		100			55	01/09/03	01/09	GRB-111
BLK (QC ID=43520)	R211098-08	93		2.6	0.100			20		100				01/09/03	01/09	GRB-101
LCS (QC ID=43519)	R211098-07	93		3.5	0.100			18		100				01/09/03	01/14	GRB-113
Duplicate (R211098-05) (QC ID=43521)	R211098-09	93		2.9	0.100			24		100			55	01/09/03	01/09	GRB-102
Nominal values and limits from method				10	0.100			5-250		100			180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test 93A	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1981	

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-125	Gross Alpha and Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD	MDA	3.1	±	0.89
FOR 9 SAMPLES	RESIDUE	23	±	5

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test 93B Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-086					
B15YK7	R211098-01	93		7398-001	16.5
B15YK8	R211098-02	93		7398-002	14.4
B15YK9	R211098-03	93		7398-003	12.0
B15YL0	R211098-04	93		7398-004	13.4
B15YL1	R211098-05	93		7398-005	14.7
B15YL2	R211098-06	93		7398-006	11.2
BLK (QC ID=43520)	R211098-08	93		7398-008	U
LCS (QC ID=43519)	R211098-07	93		7398-007	ok
Duplicate (R211098-05)	R211098-09	93		7398-009	ok
Nominal values and limits from method				RDLs (pCi/g)	15
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 086															
B15YK7	R211098-01	93		5.2	0.100			27		100			55	01/09/03	01/09	GRB-101
B15YK8	R211098-02	93		5.7	0.100			24		100			55	01/09/03	01/09	GRB-102
B15YK9	R211098-03	93		6.6	0.100			23		100			55	01/09/03	01/09	GRB-105
B15YL0	R211098-04	93		5.4	0.100			24		100			55	01/09/03	01/09	GRB-109
B15YL1	R211098-05	93		6.8	0.100			21		100			55	01/09/03	01/09	GRB-110
B15YL2	R211098-06	93		5.8	0.100			23		100			55	01/09/03	01/09	GRB-111
BLK (QC ID=43520)	R211098-08	93		5.2	0.100			20		100				01/09/03	01/09	GRB-101
LCS (QC ID=43519)	R211098-07	93		6.5	0.100			18		100				01/09/03	01/09	GRB-112
Duplicate (R211098-05) (QC ID=43521)	R211098-09	93		5.7	0.100			24		100			55	01/09/03	01/09	GRB-102
Nominal values and limits from method				15	0.100			5-250		100			180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test 93B Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

PROCEDURES	REFERENCE	900.0_ALPHABETA_GPC
	CP-060	Soil Preparation, rev 4
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-125	Gross Alpha and Beta in Dissolved Solids, rev 3

AVERAGES ± 2 SD	MDA	5.9	±	1.2
FOR 9 SAMPLES	RESIDUE	23	±	5

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test GAM Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 7052-086								
B15YK7	R211098-01			7398-001	U		0.857	
B15YK8	R211098-02			7398-002	U		1.77	
B15YK9	R211098-03			7398-003	U		U	
B15YL0	R211098-04			7398-004	U		U	
B15YL1	R211098-05			7398-005	U		U	
B15YL2	R211098-06			7398-006	U		U	
BLK (QC ID=43520)	R211098-08			7398-008	U		U	
LCS (QC ID=43519)	R211098-07			7398-007	ok		ok	
Duplicate (R211098-05)	R211098-09			7398-009	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10	

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 086															
B15YK7	R211098-01			0.093	759					784			55	01/04/03	01/09	MB,07,00
B15YK8	R211098-02			0.21	853					139			56	01/04/03	01/10	MB,07,00
B15YK9	R211098-03			0.32	847					139			56	01/04/03	01/10	02,03,00
B15YL0	R211098-04			0.26	835					139			56	01/04/03	01/10	02,04,00
B15YL1	R211098-05			0.26	864					139			56	01/04/03	01/10	MB,05,00
B15YL2	R211098-06			0.21	828					128			59	01/04/03	01/13	MB,07,00
BLK (QC ID=43520)	R211098-08			0.14	759					136				01/04/03	01/13	MB,05,00
LCS (QC ID=43519)	R211098-07			0.022	759					136				01/04/03	01/13	01,04,00
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.19	864					136			59	01/04/03	01/13	MB,07,00
Nominal values and limits from method				0.050	759					100			180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test GAM	Matrix SOLID
SDG 7398	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1981	

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

AVERAGES ± 2 SD	MDA	0.19	±	0.18
FOR 9 SAMPLES	YIELD		±	

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test U T Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-086					
B15YK7	R211098-01			7398-001	0.409
B15YK8	R211098-02			7398-002	0.488
B15YK9	R211098-03			7398-003	0.415
B15YL0	R211098-04			7398-004	0.397
B15YL1	R211098-05			7398-005	0.289
B15YL2	R211098-06			7398-006	0.366
BLK (QC ID=43434)	R211098-12			7398-012	U
LCS (QC ID=43433)	R211098-11			7398-011	ok
Duplicate (R211098-05)	R211098-13			7398-013	ok
Nominal values and limits from method				RDLs (ug/g)	0.10

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 9.0 %			Reference Lab Notebook 7052 pg. 086												
B15YK7	R211098-01			0.004	0.100								38	12/23/02	12/23	KPA-001
B15YK8	R211098-02			0.004	0.100								38	12/23/02	12/23	KPA-001
B15YK9	R211098-03			0.004	0.100								38	12/23/02	12/23	KPA-001
B15YL0	R211098-04			0.004	0.100								38	12/23/02	12/23	KPA-001
B15YL1	R211098-05			0.004	0.100								38	12/23/02	12/23	KPA-001
B15YL2	R211098-06			0.004	0.100								38	12/23/02	12/23	KPA-001
BLK (QC ID=43434)	R211098-12			0.004	0.100									12/23/02	12/23	KPA-001
LCS (QC ID=43433)	R211098-11			0.040	0.100									12/23/02	12/23	KPA-001
Duplicate (R211098-05) (QC ID=43435)	R211098-13			0.004	0.100								38	12/23/02	12/23	KPA-001
Nominal values and limits from method				0.10	0.100								180			

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test U T Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1981

PROCEDURES	REFERENCE	UTOT_KPA
	CP-060	Soil Preparation, rev 4
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 5
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 4
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 5

AVERAGES ± 2 SD	MDA	0.008	±	0.024
FOR 9 SAMPLES	YIELD		±	

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test H Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7052-086						
B15YL0	R211098-04			7398-004	U	
B15YL1	R211098-05			7398-005	U	
B15YL2	R211098-06			7398-006	U	
BLK (QC ID=43520)	R211098-08			7398-008	U	
LCS (QC ID=43519)	R211098-07			7398-007	ok	
Duplicate (R211098-05)	R211098-09			7398-009	-	U
Spike (R211098-05)	R211098-10			7398-010	ok	X

Nominal values and limits from method RDLs (pCi/g) 400
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 086															
B15YL0	R211098-04			0.18	21.3			51		120			62	01/15/03	01/16	LSC-005
B15YL1	R211098-05			0.19	20.5			50		120			63	01/15/03	01/17	LSC-005
B15YL2	R211098-06			0.19	20.4			49		120			63	01/15/03	01/17	LSC-005
BLK (QC ID=43520)	R211098-08			0.29	20.0			33		120				01/15/03	01/17	LSC-005
LCS (QC ID=43519)	R211098-07			0.28	20.0			33		120				01/15/03	01/17	LSC-005
Duplicate (R211098-05) (QC ID=43521)	R211098-09			0.18	20.4			51		120			63	01/15/03	01/17	LSC-005
Spike (R211098-05) (QC ID=43522)	R211098-10			0.17	21.4			54		120			63	01/15/03	01/17	LSC-005
Nominal values and limits from method				400	20.0					25			180			

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

AVERAGES ± 2 SD MDA 0.21 ± 0.10
FOR 7 SAMPLES YIELD 46 ± 18

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1981

Test NI_L Matrix SOLID
SDG 7398
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1981

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 7052-086						
B15YL0	R211098-04			7398-004	U	
B15YL1	R211098-05			7398-005	U	
B15YL2	R211098-06			7398-006	U	
BLK (QC ID=43520)	R211098-08			7398-008	U	
LCS (QC ID=43519)	R211098-07			7398-007	ok	
Duplicate (R211098-05)	R211098-09			7398-009	-	U

Nominal values and limits from method RDLs (pCi/g) 30
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 086															
B15YL0	R211098-04			2.0	0.500			93		100			62	01/16/03	01/16	LSC-006
B15YL1	R211098-05			2.0	0.500			93		100			62	01/16/03	01/16	LSC-006
B15YL2	R211098-06			2.0	0.500			94		100			62	01/16/03	01/16	LSC-006
BLK (QC ID=43520)	R211098-08			1.9	0.500			98		100				01/16/03	01/16	LSC-006
LCS (QC ID=43519)	R211098-07			1.9	0.500			96		100				01/16/03	01/16	LSC-006
Duplicate (R211098-05) (QC ID=43521)	R211098-09			2.0	0.500			93		100			62	01/16/03	01/16	LSC-006
Nominal values and limits from method				30	0.500			30-105		50			180			

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

AVERAGES ± 2 SD FOR 6 SAMPLES				
	MDA	2.0	±	0.10
	YIELD	94	±	4

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Contract	No. 630
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SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

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Protocol	Hanford
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Form	DVD-RG
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SDG 7398
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Client Hanford
Contract No. 630
Case no SDG_H1981

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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DATA SHEET

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

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

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

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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Contact Melissa C. Mannion

REPORT GUIDE

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2 H1981 (7398)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-036	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) TMA	Offsite Property No.: A030054	Bill of Lading/Air Bill No.: 79063553 3872	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 KM 11/19/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time							
✓ B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: Kelleen Nielson / R. Nielson	11-15-02 1330	Received By/Stored In: REF #13 3728	11-15-02 1330
Relinquished By/Removed From: REF #13 3728	11/19/02 1230	Received By/Stored In: Kelleen Nielson / R Nielson	11/19/02 1230
Relinquished By/Removed From: Kelleen Nielson / R Nielson	11/19/02 1300	Received By/Stored In: Fed Ex	11/19/02 1300
Relinquished By/Removed From: Fed Ex	11/20/02 9:55	Received By/Stored In: [illegible]	11/20/02 9:55
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2 H1981 (7398)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-036	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) TMA	Offsite Property No.: A030054	Bill of Lading/Air Bill No.: 79063553 3872	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container			G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)			1	1	1	1	1	1	1	1		
Volume			60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS			VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 RJN 11/19/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time									
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-15-02 1330	Ref # 1B 3728	11-15-02 1330
Ref # 1B 3728	11/19/02 1230	R. Nielson / R. Nielson	11/19/02 1230
R. Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11/20/02 9:55	[illegible]	11/20/02 9:55

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1
Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2 H1981 (7398)	SAF No.: F03-003	
Ice Chest No.: ERC-96-036	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) TMA	Offsite Property No.: A030054	Bill of Lading/Air Bill No.: 79063553 3872	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082 RJN 11/19/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3 RJN 11/15/02	
Sample No.	Matrix *	Sample Date	Sample Time							
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson / R.Nielson	1530 11-15-02	Ref # 18/3728	11-15-02 1330
Ref # 18 3728	11/19/02 1230	R.Nielson / R.Nielson	11/19/02 1230
R.Nielson / R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11/20/02 9:55	[illegible]	11/20/02 9:55

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

10

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1

Collector: K. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2 H1981 (7398)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-036	Field Logbook No.: HNF-N3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) TMA	Offsite Property No.: A030054	Bill of Lading/Air Bill No.: 79063553 3872	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082 RJN 11/19/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
K. Nielson	11-15-02 1330	Ref # 18/3728	11-15-02 1330
Ref # 18/3728	11/19/02 1230	K. Nielson	11/19/02 1230
K. Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11/20/02 9:55	[illegible]	11/20/02 9:55

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2 H1981 (7398)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-036	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) TMA	Offsite Property No.: A030054	Bill of Lading/Air Bill No.: 79063553387 2	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082 RW 11/19/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B15YL1 / SOIL / 11-15-02 / 1050	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: Ruth Nielson / R Nielson	11-15-02 1330	Received By/Stored In: Ref #13 / 8728	11-15-02 1330
Relinquished By/Removed From: Ref #13 8728	11/19/02 1230	Received By/Stored In: Ruth Nielson / R Nielson	11-19-02 1230
Relinquished By/Removed From: Ruth Nielson / R Nielson	11/19/02 1300	Received By/Stored In: Fed Ex	11/19/02 1300
Relinquished By/Removed From: Fed Ex	11/20/02 9:55	Received By/Stored In: [illegible]	11/20/02 9:55
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2 H1981 (7398)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-036	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) TMA	Offsite Property No.: A030054	Bill of Lading/Air Bill No.: 7906 3553 3872	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082 RW 11/19/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-15-02 1330	REF # 1B/3728	11-15-02 1330
REF #1B/3728	11/19/02 1230	R. Nielson	11/19/02 1230
R. Nielson	11/19/02 1300	FedEx	11/19/02 1300
FedEx	11/20/02 9:55	[illegible]	11/20/02 9:55

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

Wes-Hanford SAMPLE RECEIPT

Client: FH - Central Plateau Project Date/Time received 11-20-02

CoC No. F03-003-067, 68, 69, 70, 71, 72

Container I.D. No. ERC-96-036 Requested TAT (Days) 45 days P.O. Received Yes [ ] No [ ]

INSPECTION

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

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 11/20/02 Time: 9:55 am

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

LvLI
LIONVILLE LABORATORY INC.

27 December 2002

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

DEC 2002
RECEIVED

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 #	0211L187
SDG #	H1981
SAF #	F03-003
Date Received	11-20-02
# Samples	6
Matrix	Soil
Volatiles	X
Semivolatiles	X
Pest/PCB	X
DRO/GRO	X
GC Scan	X
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

RFW LOT # :0211L187

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B15YK7	001	S	02LVX658	11/15/02	11/20/02	N/A	11/22/02
B15YK7	001 MS	S	02LVX660	11/15/02	11/20/02	N/A	11/25/02
B15YK7	001 MSD	S	02LVX660	11/15/02	11/20/02	N/A	11/25/02
B15YK8	002	S	02LVX658	11/15/02	11/20/02	N/A	11/22/02
B15YK9	003	S	02LVX658	11/15/02	11/20/02	N/A	11/22/02
B15YL0	004	S	02LVX658	11/15/02	11/20/02	N/A	11/22/02
B15YL1	005	S	02LVX658	11/15/02	11/20/02	N/A	11/22/02
B15YL2	006	S	02LVX658	11/15/02	11/20/02	N/A	11/22/02
LAB QC:							
VBLKZT	MB1	S	02LVX658	N/A	N/A	N/A	11/22/02
VBLKZT	MB1 BS	S	02LVX658	N/A	N/A	N/A	11/22/02
VBLKAE	MB1	S	02LVX660	N/A	N/A	N/A	11/25/02
VBLKAE	MB1 BS	S	02LVX660	N/A	N/A	N/A	11/25/02

12-12-02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B03-003
LVL #: 0211L187
SDG/SAF # H1981/B03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-20-2002

GC/MS VOLATILE

Six (6) soil samples were collected on 11-15-2002.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL volatile target compounds on 11-22,25-2002.

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

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

2. The required holding time for analysis was met.

3. Non-target compounds were not detected in the samples.

4. All surrogate recoveries were within EPA QC limits.

5. All matrix spike recoveries were within EPA QC limits.

6. All blank spike recoveries were within EPA QC limits.

7. Internal standard area and retention time criteria were met.

8. Manual integrations are performed according to OP L-QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

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."

by J. Michael Taylor
President
Lionville Laboratory Incorporated

12-13-02
Date

som\group\data\voa\tnu-hanford\0211-187.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 1 7 pages.

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection 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. This flag is also used for a TIC as well as for a positively identified TCL compound.

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

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike 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	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

MP - Missed Peak: manually added peak not found by automatic quantitation program.

PA - Peak Assignment: quantitation report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List

Report Date: 12/11/02 16:58

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 1a

	Cust ID:	B15YK7		B15YK7		B15YK7		B15YK8		B15YK9		B15YL0	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.06		1.11		1.00		1.04		1.02		1.04	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	106	%	104	%	106	%	106	%	105	%	107	%
	Bromofluorobenzene	97	%	97	%	97	%	96	%	100	%	101	%
	1,2-Dichloroethane-d4	104	%	83	%	85	%	104	%	105	%	106	%
Chloromethane		11	U	12	U	11	U	11	U	11	U	11	U
Bromomethane		11	U	12	U	11	U	11	U	11	U	11	U
Vinyl Chloride		11	U	12	U	11	U	11	U	11	U	11	U
Chloroethane		11	U	12	U	11	U	11	U	11	U	11	U
Methylene Chloride		5	J	10		8		6		6		17	
Acetone		11	U	12	U	11	U	11	U	11	U	11	U
Carbon Disulfide		6	U	6	U	6	U	6	U	6	U	6	U
1,1-Dichloroethene		6	U	89	%	95	%	6	U	6	U	6	U
1,1-Dichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	6	U	6	U	6	U
Chloroform		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
2-Butanone		11	U	12	U	11	U	11	U	11	U	11	U
1,1,1-Trichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Carbon Tetrachloride		6	U	6	U	6	U	6	U	6	U	6	U
Bromodichloromethane		6	U	6	U	6	U	6	U	6	U	6	U
1,2-Dichloropropane		6	U	6	U	6	U	6	U	6	U	6	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	6	U	6	U	6	U
Trichloroethene		6	U	110	%	113	%	6	U	6	U	6	U
Dibromochloromethane		6	U	6	U	6	U	6	U	6	U	6	U
1,1,2-Trichloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Benzene		6	U	108	%	110	%	6	U	6	U	6	U
Trans-1,3-Dichloropropene		6	U	6	U	6	U	6	U	6	U	6	U
Bromoform		6	U	6	U	6	U	6	U	6	U	6	U
4-Methyl-2-pentanone		11	U	12	U	11	U	11	U	11	U	11	U
2-Hexanone		11	U	12	U	11	U	11	U	11	U	11	U
Tetrachloroethene		6	U	6	U	6	U	6	U	6	U	6	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	6	U	6	U	6	U
Toluene		6	U	105	%	108	%	6	U	6	U	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 1b

Cust ID:	B15YK7	B15YK7	B15YK7	B15YK8	B15YK9	B15YL0
RFW#:	001	001 MS	001 MSD	002	003	004
Chlorobenzene	6 U	103 %	104 %	6 U	6 U	6 U
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	6 U	6 U	6 U	6 U	6 U	6 U
Xylene (total)	6 U	6 U	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 2a Report Date: 12/11/02 16:58

	Cust ID:	B15YL1		B15YL2		VBLKZT		VBLKZT BS		VBLKAE		VBLKAE BS	
Sample Information	RFW#:	005		006		02LVX658-MB1		02LVX658-MB1		02LVX660-MB1		02LVX660-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.11		1.09		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	108	%	106	%	96	%	102	%	108	%	105	%
	Bromofluorobenzene	103	%	98	%	93	%	100	%	102	%	99	%
	1,2-Dichloroethane-d4	108	%	103	%	96	%	101	%	89	%	86	%
		fl		fl		fl		fl		fl		fl	
Chloromethane		12	U	11	U	10	U	10	U	10	U	10	U
Bromomethane		12	U	11	U	10	U	10	U	10	U	10	U
Vinyl Chloride		12	U	11	U	10	U	10	U	10	U	10	U
Chloroethane		12	U	11	U	10	U	10	U	10	U	10	U
Methylene Chloride		17		18		5	U	5	U	5	U	5	U
Acetone		12	U	11	U	10	U	10	U	10	U	10	U
Carbon Disulfide		6	U	6	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		6	U	6	U	5	U	80	%	5	U	82	%
1,1-Dichloroethane		6	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	6	U	5	U	5	U	5	U	5	U
Chloroform		6	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	5	U	5	U	5	U	5	U
2-Butanone		12	U	11	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		6	U	6	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	5	U	5	U	5	U	5	U
Bromodichloromethane		6	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		6	U	6	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	5	U	5	U	5	U	5	U
Trichloroethene		6	U	6	U	5	U	106	%	5	U	104	%
Dibromochloromethane		6	U	6	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	5	U	5	U	5	U	5	U
Benzene		6	U	6	U	5	U	92	%	5	U	100	%
Trans-1,3-Dichloropropene		6	U	6	U	5	U	5	U	5	U	5	U
Bromoform		6	U	6	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		12	U	11	U	10	U	10	U	10	U	10	U
2-Hexanone		12	U	11	U	10	U	10	U	10	U	10	U
Tetrachloroethene		6	U	6	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	6	U	5	U	5	U	5	U	5	U
Toluene		6	U	6	U	5	U	99	%	5	U	100	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 2b

Cust ID:	B15YL1		B15YL2		VBLKZT		VBLKZT BS		VBLKAE		VBLKAE BS	
RFW#:	005		006		02LVX658-MB1		02LVX658-MB1		02LVX660-MB1		02LVX660-MB1	
Chlorobenzene	6	U	6	U	5	U	98	%	5	U	97	%
Ethylbenzene	6	U	6	U	5	U	5	U	5	U	5	U
Styrene	6	U	6	U	5	U	5	U	5	U	5	U
Xylene (total)	6	U	6	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

0211L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratories

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: ~~25~~ 30 days

Date Rec'd: 11-20-02 Date Due: 12-20-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	bag	bag	bag		bag			bag		bag	bag				
Volume	Liquid	g	g	g		g			g		g	g				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—	—		—			—		—	—				
ANALYSES REQUESTED		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			TCLP Metal (2)	CN	Anions (3)	pH				
		Lionville Laboratory Use Only														
		0624H	0625X 0DRO	OPCB		OGCSC			METO ZCRL		INORG①	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0DRO	OPCB		OGCSC			METO ZCRL		INORG①	IPH				
001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X				
002	B15YK8					1002	X	X	X		X			X		X	X				
003	B15YK9					1020	X	X	X		X			X		X	X				
004	B15YL0					1043	X	X	X		X			X		X	X				
005	B15YL1					1060	X	X	X		X			X		X	X				
006	B15YL2					1100	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

METO 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG① 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. IN3N2, INH3N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # see below

2) Ambient or Chilled

3) Received In Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 19 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 7901 4356 9959/09 7901 4356 9992

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11-20-02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

C-5 - 5.5

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/19/02	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renee Nielson / R. Nielson	11-15-02 1330	REF # 18/3728	11-15-02 1930
REF # 18/3728	11/19/02 1230	Renee Nielson / R Nielson	11/19/02 1230
Renee Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

5-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RCRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renee Nielson / R. Nielson 11-15-02	1330	Ref # 1B / 3728 11-15-02	1330
Ref # 1B / 3728 11/19/02	1230	Renee Nielson / R. Nielson 11/19/02	1230
Renee Nielson / R. Nielson 11/19/02	1300	Ref Exp 11/19/02	1300
Ref Exp 11.20.02	0920	D. Smith 11.20.02	0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

7 5 - 0 3

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1
Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-15-02 1330	Ref # 18/3728	11-15-02 1330
Ref#18 3728	11/19/02 1230	R.Nielson	11/19/02 1230
R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

10 - 11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1

Collector: K. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-NL-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECLA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Greenlee / R. Nielson	11-15-02 1330	REF# 1B/3728	11-15-02 1330
REF# 1B/3728	11/19/02 1230	Greenlee / R. Nielson	11-19-02 1230
Greenlee / R Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

CU-C1

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL1	SOIL	11-15-02	1050	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Gene Nielsen / R. Nielson	1330 11-15-02	Ref #1B / 3728	1330 11-15-02
Ref #1B 11/19/02	1230	Gene Nielsen / R. Nielson 11/19/02	1230
Gene Nielsen / R. Nielson 11/19/02	1300	Fed Ex 11/19/02	1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-423	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECLA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson 11-15-02	1330	REF # 1B/3728	11-15-02 1330
REF # 1B/3728	11/19/02 1230	R. Nielson R. Nielson	11/19/02 1230
R. Nielson R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	D. Johnson	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

Matrix *
S=Soil
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A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 11.20.02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02111187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-606 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

17

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK7	001	S	02LE1393	11/15/02	11/21/02	11/27/02
B15YK7	001 MS	S	02LE1393	11/15/02	11/21/02	11/27/02
B15YK7	001 MSD	S	02LE1393	11/15/02	11/21/02	11/27/02
B15YK8	002	S	02LE1393	11/15/02	11/21/02	11/30/02
B15YK9	003	S	02LE1393	11/15/02	11/21/02	11/30/02
B15YL0	004	S	02LE1393	11/15/02	11/21/02	11/30/02
B15YL1	005	S	02LE1393	11/15/02	11/21/02	11/30/02
B15YL2	006	S	02LE1393	11/15/02	11/21/02	11/30/02
LAB QC:						
SBLKIM	MB1	S	02LE1393	N/A	11/21/02	11/25/02
SBLKIM	MB1 BS	S	02LE1393	N/A	11/21/02	11/25/02

12-04-02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L187
SDG/SAF #: H1981/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-20-2002

SEMIVOLATILE

Six (6) soil samples were collected on 11-15-2002.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 11-21-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 11-25,27,30-2002.

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 samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.
7. The method blank contained the common laboratory contaminant Di-n-butylphthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
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 data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

by J. Michael Taylor
President
Lionville Laboratory Incorporated

12-05-02
Date

som\group\data\bna\tnu-hanford-0211-187.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 2 4 pages.

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

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection 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. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	*Indicates that a TIC is a suspected aldol-condensation product.*
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	*Additional qualifiers used as required are explained in the case narrative.*

GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike 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	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Report Date: 12/02/02 08:56 Page: 1a

	Cust ID:	B15YK7		B15YK7		B15YK7		B15YK8		B15YK9		B15YL0	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	61	%	68	%	65	%	86	%	72	%	71	%
	2-Fluorobiphenyl	62	%	71	%	67	%	80	%	73	%	77	%
	p-Terphenyl-d14	71	%	76	%	73	%	87	%	75	%	77	%
	Phenol-d5	63	%	62	%	63	%	79	%	75	%	74	%
	2-Fluorophenol	64	%	65	%	66	%	78	%	72	%	73	%
	2,4,6-Tribromophenol	62	%	73	%	69	%	70	%	60	%	66	%
		fl		fl		fl		fl		fl		fl	
Phenol		360	U	66	%	68	%	350	U	340	U	350	U
bis(2-Chloroethyl)ether		360	U	360	U	360	U	350	U	340	U	350	U
2-Chlorophenol		360	U	64	%	63	%	350	U	340	U	350	U
1,3-Dichlorobenzene		360	U	360	U	360	U	350	U	340	U	350	U
1,4-Dichlorobenzene		360	U	65	%	65	%	350	U	340	U	350	U
1,2-Dichlorobenzene		360	U	360	U	360	U	350	U	340	U	350	U
2-Methylphenol		360	U	360	U	360	U	350	U	340	U	350	U
2,2'-oxybis(1-Chloropropane)		360	U	360	U	360	U	350	U	340	U	350	U
3- and/or 4-Methylphenol		360	U	360	U	360	U	350	U	340	U	350	U
N-Nitroso-Di-n-propylamine		360	U	72	%	72	%	350	U	340	U	350	U
Hexachloroethane		360	U	360	U	360	U	350	U	340	U	350	U
Nitrobenzene		360	U	360	U	360	U	350	U	340	U	350	U
Isophorone		360	U	360	U	360	U	350	U	340	U	350	U
2-Nitrophenol		360	U	360	U	360	U	350	U	340	U	350	U
2,4-Dimethylphenol		360	U	360	U	360	U	350	U	340	U	350	U
bis(2-Chloroethoxy)methane		360	U	360	U	360	U	350	U	340	U	350	U
2,4-Dichlorophenol		360	U	360	U	360	U	350	U	340	U	350	U
1,2,4-Trichlorobenzene		360	U	68	%	63	%	350	U	340	U	350	U
Naphthalene		360	U	360	U	360	U	350	U	340	U	350	U
4-Chloroaniline		360	U	360	U	360	U	350	U	340	U	350	U
Hexachlorobutadiene		360	U	360	U	360	U	350	U	340	U	350	U
4-Chloro-3-methylphenol		360	U	72	%	67	%	350	U	340	U	350	U
2-Methylnaphthalene		360	U	360	U	360	U	350	U	340	U	350	U
Hexachlorocyclopentadiene		360	U	360	U	360	U	350	U	340	U	350	U
2,4,6-Trichlorophenol		360	U	360	U	360	U	350	U	340	U	350	U
2,4,5-Trichlorophenol		900	U	900	U	900	U	860	U	860	U	880	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0211L187 Client: TNUHANFORD F03-003 H1981 Work Order: 11343606001 Page: 1b

Cust ID:	B15YK7		B15YK7		B15YK7		B15YK8		B15YK9		B15YL0	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	360	U	360	U	360	U	350	U	340	U	350	U
2-Nitroaniline	900	U	900	U	900	U	860	U	860	U	880	U
Dimethylphthalate	360	U	360	U	360	U	350	U	340	U	350	U
Acenaphthylene	360	U	360	U	360	U	350	U	340	U	350	U
2,6-Dinitrotoluene	360	U	360	U	360	U	350	U	340	U	350	U
3-Nitroaniline	900	U	900	U	900	U	860	U	860	U	880	U
Acenaphthene	360	U	77	%	69	%	350	U	340	U	350	U
2,4-Dinitrophenol	900	U	900	U	900	U	860	U	860	U	880	U
4-Nitrophenol	900	U	95	%	82	%	860	U	860	U	880	U
Dibenzofuran	360	U	360	U	360	U	350	U	340	U	350	U
2,4-Dinitrotoluene	360	U	82	%	73	%	350	U	340	U	350	U
Diethylphthalate	360	U	360	U	360	U	350	U	340	U	350	U
4-Chlorophenyl-phenylether	360	U	360	U	360	U	350	U	340	U	350	U
Fluorene	360	U	360	U	360	U	350	U	340	U	350	U
4-Nitroaniline	900	U	900	U	900	U	860	U	860	U	880	U
4,6-Dinitro-2-methylphenol	900	U	900	U	900	U	860	U	860	U	880	U
N-Nitrosodiphenylamine (1)	360	U	360	U	360	U	350	U	340	U	350	U
4-Bromophenyl-phenylether	360	U	360	U	360	U	350	U	340	U	350	U
Hexachlorobenzene	360	U	360	U	360	U	350	U	340	U	350	U
Pentachlorophenol	900	U	72	%	66	%	860	U	860	U	880	U
Phenanthrene	360	U	360	U	360	U	350	U	340	U	350	U
Anthracene	360	U	360	U	360	U	350	U	340	U	350	U
Carbazole	360	U	360	U	360	U	350	U	340	U	350	U
Di-n-Butylphthalate	360	U	360	U	360	U	350	U	340	U	350	U
Fluoranthene	360	U	360	U	360	U	350	U	340	U	350	U
Pyrene	360	U	74	%	68	%	350	U	340	U	350	U
Butylbenzylphthalate	360	U	360	U	360	U	350	U	340	U	350	U
3,3'-Dichlorobenzidine	360	U	360	U	360	U	350	U	340	U	350	U
Benzo(a)anthracene	360	U	360	U	360	U	350	U	340	U	350	U
Chrysene	360	U	360	U	360	U	350	U	340	U	350	U
bis(2-Ethylhexyl)phthalate	360	U	360	U	360	U	350	U	35	J	350	U
Di-n-Octyl phthalate	360	U	360	U	360	U	350	U	340	U	350	U
Benzo(b)fluoranthene	360	U	360	U	360	U	350	U	340	U	350	U
Benzo(k)fluoranthene	360	U	360	U	360	U	350	U	340	U	350	U
Benzo(a)pyrene	360	U	360	U	360	U	350	U	340	U	350	U
Indeno(1,2,3-cd)pyrene	360	U	360	U	360	U	350	U	340	U	350	U
Dibenzo(a,h)anthracene	360	U	360	U	360	U	350	U	340	U	350	U
Benzo(g,h,i)perylene	360	U	360	U	360	U	350	U	340	U	350	U
Tributylphosphate	360	U	360	U	360	U	350	U	340	U	350	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Report Date: 12/02/02 08:56 Page: 2a

	Cust ID:	B15YL1		B15YL2		SBLKIM		SBLKIM BS	
Sample Information	RFW#:	005		006		02LE1393-MB1		02LE1393-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	74	%	66	%	69	%	79	%
	2-Fluorobiphenyl	78	%	72	%	77	%	82	%
	p-Terphenyl-d14	81	%	73	%	78	%	80	%
	Phenol-d5	72	%	68	%	68	%	71	%
	2-Fluorophenol	73	%	68	%	74	%	81	%
	2,4,6-Tribromophenol	66	%	58	%	67	%	91	%
Phenol		350	U	350	U	330	U	74	%
bis(2-Chloroethyl)ether		350	U	350	U	330	U	330	U
2-Chlorophenol		350	U	350	U	330	U	77	%
1,3-Dichlorobenzene		350	U	350	U	330	U	330	U
1,4-Dichlorobenzene		350	U	350	U	330	U	79	%
1,2-Dichlorobenzene		350	U	350	U	330	U	330	U
2-Methylphenol		350	U	350	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	330	U	330	U
3- and/or 4-Methylphenol		350	U	350	U	330	U	330	U
N-Nitroso-Di-n-propylamine		350	U	350	U	330	U	87	%
Hexachloroethane		350	U	350	U	330	U	330	U
Nitrobenzene		350	U	350	U	330	U	330	U
Isophorone		350	U	350	U	330	U	330	U
2-Nitrophenol		350	U	350	U	330	U	330	U
2,4-Dimethylphenol		350	U	350	U	330	U	330	U
bis(2-Chloroethoxy)methane		350	U	350	U	330	U	330	U
2,4-Dichlorophenol		350	U	350	U	330	U	330	U
1,2,4-Trichlorobenzene		350	U	350	U	330	U	86	%
Naphthalene		350	U	350	U	330	U	330	U
4-Chloroaniline		350	U	350	U	330	U	330	U
Hexachlorobutadiene		350	U	350	U	330	U	330	U
4-Chloro-3-methylphenol		350	U	350	U	330	U	82	%
2-Methylnaphthalene		350	U	350	U	330	U	330	U
Hexachlorocyclopentadiene		350	U	350	U	330	U	330	U
2,4,6-Trichlorophenol		350	U	350	U	330	U	330	U
2,4,5-Trichlorophenol		880	U	880	U	840	U	840	U

*= Outside of EPA CLP QC limits.

Cust ID:	B15YL1		B15YL2		SBLKIM		SBLKIM BS	
RFW#:	005		006		02LE1393-MB1		02LE1393-MB1	
2-Chloronaphthalene	350	U	350	U	330	U	330	U
2-Nitroaniline	880	U	880	U	840	U	840	U
Dimethylphthalate	350	U	350	U	330	U	330	U
Acenaphthylene	350	U	350	U	330	U	330	U
2,6-Dinitrotoluene	350	U	350	U	330	U	330	U
3-Nitroaniline	880	U	880	U	840	U	840	U
Acenaphthene	350	U	350	U	330	U	82	%
2,4-Dinitrophenol	880	U	880	U	840	U	840	U
4-Nitrophenol	880	U	880	U	840	U	97	%
Dibenzofuran	350	U	350	U	330	U	330	U
2,4-Dinitrotoluene	350	U	350	U	330	U	90 *	%
Diethylphthalate	350	U	350	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	350	U	330	U	330	U
Fluorene	350	U	350	U	330	U	330	U
4-Nitroaniline	880	U	880	U	840	U	840	U
4,6-Dinitro-2-methylphenol	880	U	880	U	840	U	840	U
N-Nitrosodiphenylamine (1)	350	U	350	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	350	U	330	U	330	U
Hexachlorobenzene	350	U	350	U	330	U	330	U
Pentachlorophenol	880	U	880	U	840	U	93	%
Phenanthrene	350	U	350	U	330	U	330	U
Anthracene	350	U	350	U	330	U	330	U
Carbazole	350	U	350	U	330	U	330	U
Di-n-Butylphthalate	350	U	350	U	21	J	330	U
Fluoranthene	350	U	350	U	330	U	330	U
Pyrene	350	U	350	U	330	U	72	%
Butylbenzylphthalate	350	U	350	U	330	U	330	U
3,3'-Dichlorobenzidine	350	U	350	U	330	U	330	U
Benzo(a)anthracene	350	U	350	U	330	U	330	U
Chrysene	350	U	350	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	350	U	350	U	330	U	330	U
Di-n-Octyl phthalate	350	U	350	U	330	U	330	U
Benzo(b)fluoranthene	350	U	350	U	330	U	330	U
Benzo(k)fluoranthene	350	U	350	U	330	U	330	U
Benzo(a)pyrene	350	U	350	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	330	U	330	U
Dibenzo(a,h)anthracene	350	U	350	U	330	U	330	U
Benzo(g,h,i)perylene	350	U	350	U	330	U	330	U
Tributylphosphate	350	U	350	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YK7

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL Lab Sample ID: 0211L187-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C112714

Level: (low/med) LOW Date Received: 11/20/02

% Moisture: not dec. 7 dec. Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/27/02

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.500

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.404	2000	JAB
2.	ALDOL CONDENSATE	6.010	30000	JAB
3.	ALDOL CONDENSATE	7.457	2000	JAB
4.	ALDOL CONDENSATE	8.791	400	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YK8

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL Lab Sample ID: 0211L187-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C113005

Level: (low/med) LOW Date Received: 11/20/02

% Moisture: not dec. 4 dec. Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/30/02

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.500

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.491	3000	JAB
2.	ALDOL CONDENSATE	6.140	80000	JAB
3.	ALDOL CONDENSATE	7.517	3000	JAB
4.	ALDOL CONDENSATE	8.843	600	JAB
5.	UNKNOWN	12.037	80	J

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YK9

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL Lab Sample ID: 0211L187-003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C113006

Level: (low/med) LOW Date Received: 11/20/02

% Moisture: not dec. 3 dec. Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/30/02

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.500

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.465	3000	JAB
2.	ALDOL CONDENSATE	6.115	70000	JAB
3.	ALDOL CONDENSATE	7.509	3000	JAB
4.	ALDOL CONDENSATE	8.843	500	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YL0

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL

Lab Sample ID: 0211L187-004

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C113007

Level: (low/med) LOW

Date Received: 11/20/02

% Moisture: not dec. 5 dec.

Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 11/30/02

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.500

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.491	3000	JAB
2.	ALDOL CONDENSATE	6.132	80000	JAB
3.	ALDOL CONDENSATE	7.518	3000	JAB
4.	ALDOL CONDENSATE	8.843	600	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YL1

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL

Lab Sample ID: 0211L187-005

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C113008

Level: (low/med) LOW

Date Received: 11/20/02

% Moisture: not dec. 5 dec.

Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 11/30/02

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.500

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.474	2000	JAB
2.	ALDOL CONDENSATE	6.080	60000	JAB
3.	ALDOL CONDENSATE	7.509	2000	JAB
4.	ALDOL CONDENSATE	8.834	500	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YL2

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL

Lab Sample ID: 0211L187-006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: C113009

Level: (low/med) LOW

Date Received: 11/20/02

% Moisture: not dec. 5 dec.

Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 11/30/02

GPC Cleanup: (Y/N) N pH: 7.0

Dilution Factor: 0.500

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.474	2000	JAB
2.	ALDOL CONDENSATE	6.123	70000	JAB
3.	ALDOL CONDENSATE	7.509	3000	JAB
4.	ALDOL CONDENSATE	8.834	500	JAB

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKIM

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F03-003 H1981

Matrix: SOIL Lab Sample ID: 02LE1393-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: C112515

Level: (low/med) LOW Date Received: 11/21/02

% Moisture: not dec. 0 dec. Date Extracted: 11/21/02

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 11/25/02

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 0.500

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.238	100	JA
2.	ALDOL CONDENSATE	5.757	2000	JA
3.	ALDOL CONDENSATE	6.390	50000	JA
4.	ALDOL CONDENSATE	7.784	2000	JA
5.	ALDOL CONDENSATE	9.109	500	JA

Lionville Laboratory Use Only

02 11L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: ~~25~~ 30 days

Date Rec'd: 11-20-02 Date Due: 12-20-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	bag	bag	bag		bag			bag		bag	bag				
Volume	Liquid	g	g	g		g			g		g	g				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—	—		—			—		—	—				
ANALYSES REQUESTED		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			ICP Metal (2)	CN	Anions (3)	pH				
		Lionville Laboratory Use Only														
		0624H	0625X 0RRO	OPCB		OGCJC			MET ① ZCRL		INORG①	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0RRO	OPCB		OGCJC			MET ① ZCRL		INORG①	IPH				
001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X				
002	B15YK8					1002	X	X	X		X			X		X	X				
003	B15YK9					1020	X	X	X		X			X		X	X				
004	B15YL0					1043	X	X	X		X			X		X	X				
005	B15YL1					1050	X	X	X		X			X		X	X				
006	B15YL2					1100	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ORRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG① 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. IN3N2, INH3N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See below

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 19 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 7901 4356 9959/09 7901 4356 9992

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.20.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

2.5 - 5.5

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: Renee Nielson / R. Nielson	11-15-02 1330	Received By/Stored In: REF # 1B/3728	11-15-02 1330
Relinquished By/Removed From: REF # 1B/3728	11/19/02 1230	Received By/Stored In: Renee Nielson / R Nielson	11/19/02 1230
Relinquished By/Removed From: Renee Nielson / R. Nielson	11/19/02 1300	Received By/Stored In: Fed Ex	11/19/02 1300
Relinquished By/Removed From: Fed Ex	11.20.02 0920	Received By/Stored In: D. Mullen	11.20.02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

5-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-15-02 1330	Ref #1B / 3728	11-15-02 1330
Ref #1B / 3728	11/19/02 1230	R. Nielson / R. Nielson	11/19/02 1230
R. Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11.20.02 0920	D. Smith	11.20.02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

75-8.3

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1
Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact Steve Trent / Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N / Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location SP-2	SAF No. F03-003	Air Quality ☐
Ice Chest No. ERC-02-006 / ERC-02-403	Field Logbook No. HNF-N-3251 / COA 117514ES10	Method of Shipment Federal Express	
Shipped To EBERLINE SERVICES (Formerly TMA) RECAP	Offsite Property No. A030042	Bill of Lading/Air Bill No. SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3 RJN 11/15/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-15-02 1530	Ref # 18/3728	11-15-02 1330
Ref #18 3728	11/19/02 1230	R.Nielson	11/19/02 1230
R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0930	[illegible]	11-20-02 0930
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

10 - 11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1

Collector: K. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-325	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Bluewell R. Nielson	Date/Time: 1330 11-15-02	Received By/Stored In: REF # 1B/3728	Date/Time: 11-15-02 1330
Relinquished By/Removed From: REF # 1B/3728	Date/Time: 11/19/02 1230	Received By/Stored In: Bluewell / R. Nielson	Date/Time: 11-19-02 1230
Relinquished By/Removed From: Bluewell / R Nielson	Date/Time: 11/19/02 1300	Received By/Stored In: Fed Ex	Date/Time: 11/19/02 1300
Relinquished By/Removed From: Fed Ex	Date/Time: 11-20-02 0920	Received By/Stored In: [illegible]	Date/Time: 11-20-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R-Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSRC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02
B15YL1	SOIL	11-15-02	1050	X	X	X	X	X	X	X	~~X~~	~~X~~

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Gueenlich / R Nielson	1330 11-15-02	Ref #1B / 3728	1330 11-15-02
Ref #1B 11/19/02	1230	Gueenlich / R-Nielson	1230 11/19/02
Gueenlich / R Nielson	1300 11/19/02	Fed Ex 11/19/02	1300
Fed Ex	11-20-02 0920	D. Smith	11-20-02 0920

Sign/Print Names

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

CO - CC

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-15-02 1330	Received By/Stored In: REF # 1B/3728	11-15-02 1330
Relinquished By/Removed From: REF # 1B/3728		11/19/02 1230	Received By/Stored In: R. Nielson	11/19/02 1230
Relinquished By/Removed From: R. Nielson		11/19/02 1800	Received By/Stored In: Fed Ex	11/19/02 1300
Relinquished By/Removed From: Fed Ex		11-20-02 0920	Received By/Stored In: D. Johnson	11-20-02 0920
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
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Matrix *
S=Soil
SE=Sediment
SO=Solid
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W = Water
O=Oil
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DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 11.20.02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02111187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-606 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: D. Smith

Laboratory Project Manager:

24

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK7	001	S	02LE1394	11/15/02	11/21/02	11/28/02
B15YK7	001 MS	S	02LE1394	11/15/02	11/21/02	11/28/02
B15YK7	001 MSD	S	02LE1394	11/15/02	11/21/02	11/28/02
B15YK8	002	S	02LE1394	11/15/02	11/21/02	11/28/02
B15YK9	003	S	02LE1394	11/15/02	11/21/02	11/28/02
B15YL0	004	S	02LE1394	11/15/02	11/21/02	11/29/02
B15YL1	005	S	02LE1394	11/15/02	11/21/02	11/29/02
B15YL2	006	S	02LE1394	11/15/02	11/21/02	11/29/02

LAB QC:

PBLKGK	MB1	S	02LE1394	N/A	11/21/02	11/28/02
PBLKGK	MB1 BS	S	02LE1394	N/A	11/21/02	11/28/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L187
SDG/SAF #: H1981/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-20-02

PCB

The set of samples consisted of six (6) water samples collected on 11-15-02.

The samples and their associated QC samples were extracted on 11-21-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-28,29-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric Acid and a Sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. Three (3) of twenty (20) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/6/02
Date

pef\r:\group\data\pest\tnu hanford\11L-187.pcb

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 026C558

Initiator: Bryce Santoro
Date: 12/3/02
Client: DOV

Batch: 02112168, 186, 187
Samples: See below
Method: SW846/MCAWW/CLP/

Parameter: OPCB
Matrix: Soil
Prep Batch: 02LB1394

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) High surrogate recoveries in the following samples: 168-001, 186-001MS, 186-001MSD, 187-006. All other surrogate and spike recoveries are good. All samples are clean.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description: None

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

4. Project Manager Instructions...signature/date: [signature] 12/3/02

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

5. Final Action...signature/date: [signature] 12/3/02 Other Explanation:

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

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

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

QA-105-A-0801

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.

A

GLOSSARY OF PESTICIDE/PCB DATA

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

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/02/02 17:30

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 1

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	Cust ID:	B15YK7	B15YK7	B15YK7	B15YK8	B15YK9	B15YL0
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	95 %	90 %	115 %	90 %	85 %	80 %
	Decachlorobiphenyl	110 %	105 %	130 * %	110 %	100 %	100 %
Aroclor-1016		36 U	91 %	114 %	35 U	34 U	35 U
Aroclor-1221		71 U	71 U	71 U	69 U	69 U	70 U
Aroclor-1232		36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1242		36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1248		36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1254		36 U	36 U	36 U	35 U	34 U	35 U
Aroclor-1260		36 U	91 %	115 %	35 U	34 U	35 U

	Cust ID:	B15YL1	B15YL2	PBLKGK	PBLKGK BS
Sample Information	RFW#:	005	006	02LE1394-MB1	02LE1394-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	130 * %	90 %	95 %
	Decachlorobiphenyl	115 %	165 * %	100 %	105 %
Aroclor-1016		35 U	35 U	33 U	92 %
Aroclor-1221		70 U	70 U	67 U	67 U
Aroclor-1232		35 U	35 U	33 U	33 U
Aroclor-1242		35 U	35 U	33 U	33 U
Aroclor-1248		35 U	35 U	33 U	33 U
Aroclor-1254		35 U	35 U	33 U	33 U
Aroclor-1260		35 U	35 U	33 U	90 %

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

Lionville Laboratory Use Only

02 11L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 25 30 Day

Date Rec'd: 11-20-02 Date Due: 12-20-02

	A	B	C		D			E		F	G				
Refrigerator #	1	4	4		4			4		4	4				
#Type Container – Liquid															
#Type Container – Solid	bag	bag	bag		bag			bag		bag	bag				
Volume – Liquid	g	g	g		g			g		g	g				
Volume – Solid	60	250	250		60			125		500	60				
Preservatives	—	—	—		—			—		—	—				
ANALYSES REQUESTED →	ORGANIC: TCL VOA	ORGANIC: BNA (1)	ORGANIC: Pest/PCB	ORGANIC: Herb	ORGANIC: Alcohols Glycols Ketones			INORG: TCLP Metal (2)	INORG: CN	INORG: Anions (3)	pH				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0DRO	OPCB		OGCFC			MET (1) ICRL		INORG (1)	IPH
S - Soil	001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X
SE - Sediment	002	B15YK8					1002	X	X	X		X			X		X	X
SO - Solid	003	B15YK9					1020	X	X	X		X			X		X	X
SL - Sludge	004	B15YL0					1043	X	X	X		X			X		X	X
W - Water	005	B15YL1					1050	X	X	X		X			X		X	X
O - Oil	006	B15YL2					1100	X	X	X		X			X		X	X
A - Air																		
DS - Drum Solids																		
DL - Drum Liquids																		
L - EP/TCLP Leachate																		
WI - Wipe																		
X - Other																		
F - Fish																		

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET (1) 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG (1) 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. INO3N2, INH3N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 000 bellens
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

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

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 19 °C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.20.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES:

7901 4356 9959/09 7901 4356 9992

2.5 - 3.5

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R.Nielson 11-15-02	1330	Received By/Stored In: Ref #18/3728 11-15-02	1330
Relinquished By/Removed From: Ref# 18/3728 11/19/02	1230	Received By/Stored In: R Nielson 11/19/02	1230
Relinquished By/Removed From: R Nielson 11/19/02	1300	Received By/Stored In: Fed Ex 11/19/02	1300
Relinquished By/Removed From: Fed Ex 11.20.02	0920	Received By/Stored In: 11.20.02	0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

5-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RLCMX	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renewich / R. Nielson	11-15-02 1330	Ref #1B / 3728	11-15-02 1330
Ref #1B / 3728	11/19/02 1230	Renewich / R. Nielson	11/19/02 1230
Renewich / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11.2002 0920	D. Smith	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1
Collector RJN 11/18/02 HNF-N R.Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: 4030042	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R.Nielson	11-15-02 1530	Ref # 18/3728	11-15-02 1330
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Ref # 18 3728 /	11/19/02 1230	[signature] / R.Nielson	11/19/02 1230
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11-20-02 0920	[signature]	11-20-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

10 - 11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECLA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	~~X~~	X	11/19

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-15-02 1330	Ref # 183728	11-15-02 1330
Ref # 183728	11/19/02 1230	R. Nielson	11-19-02 1230
R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** *Please check the SAF for specific sampling instructions.*

(1) *Semi*-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - *Add-on* {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

CU-21

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-325	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSRC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL1	SOIL	11-15-02	1050	✓	✓	✓	✓	✓	✓	✓	~~✓~~	✓	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Lynee Nielsen / R. Nielson 11-15-02	1330	Received By/Stored In: Ref # 18 / 3728 11-15-02	1330
Relinquished By/Removed From: Ref # 18 11/19/02	1230	Received By/Stored In: Lynee Nielsen / R. Nielson 11/19/02	1230
Relinquished By/Removed From: Lynee Nielsen / R. Nielson 11/19/02	1300	Received By/Stored In: Fed Ex 11/19/02	1300
Relinquished By/Removed From: Fed Ex 11-20-02	0920	Received By/Stored In: D. Smith 11-20-02	0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson R. Nielson 11-15-02	1330	Received By/Stored In: REF # 18/3728	11-15-02 1330
Relinquished By/Removed From: REF # 18/3728	11/19/02 1230	Received By/Stored In: R. Nielson R. Nielson	11/19/02 1230
Relinquished By/Removed From: R. Nielson R. Nielson	11/19/02 1300	Received By/Stored In: Fed Ex	11/19/02 1300
Relinquished By/Removed From: Fed Ex	11-20-02 0920	Received By/Stored In: D. Johnson	11-20-02 0920
Relinquished By/Removed From:		Received By/Stored In:	
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 11-20-02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02112187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-606 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: D. Smith

Laboratory Project Manager:

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK7	001	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YK7	001 MS	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YK7	001 MSD	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YK8	002	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YK9	003	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YL0	004	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YL1	005	S	02LE1395	11/15/02	11/21/02	11/27/02
B15YL2	006	S	02LE1395	11/15/02	11/21/02	11/27/02
LAB QC:						
BLK	MB1	S	02LE1395	N/A	11/21/02	11/27/02
BLK	MB1 BS	S	02LE1395	N/A	11/21/02	11/27/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L187
SDG/SAF #: H1981/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-20-02

DIESEL RANGE ORGANICS

The set of samples consisted of six (6) soil samples collected on 11-15-02.

The samples and their associated QC samples were extracted on 11-21-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-27-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8015B. The analysis met the intent of method WTPH-D.

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 samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. The blank spike recovery was 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

12/6/02
Date

pef\r:\group\data\dro\tnu hanford\11L-187.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.

GLOSSARY OF DIESEL RANGE ORGANICS 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 DIESEL RANGE ORGANICS DATA

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.

DIESEL RANGE ORGANICS BY GC

Report Date: 12/03/02 13:05

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 1

	Cust ID:	B15YK7	B15YK7	B15YK7	B15YK8	B15YK9	B15YL0
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
	p-Terphenyl	85 %	95 %	91 %	97 %	93 %	114 %
Diesel Range Organics		12.9 U	67 %	64 %	12.5 U	12.4 U	12.6 U
Kerosene		12.9 U	12.9 U	12.9 U	12.5 U	12.4 U	12.6 U

	Cust ID:	B15YL1	B15YL2	BLK	BLK BS
Sample Information	RFW#:	005	006	02LE1395-MB1	02LE1395-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
	p-Terphenyl	88 %	71 %	90 %	91 %
Diesel Range Organics		12.6 U	12.6 U	12.0 U	65 %
Kerosene		12.6 U	12.6 U	12.0 U	12.0 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

5

12/4/02

Lionville Laboratory Use Only

0211L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI 9

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 7 Days 30

Date Rec'd: 11-20-02 Date Due: 12-20-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—	—		—			—		—	—				
ANALYSES REQUESTED →		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			ICP Metal (2)	CN	IC Anions (3)	pH				
		Lionville Laboratory Use Only														
		0624H	0625X 0BRO	OPCB		OGCJC			MET ICRL		INORG	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0BRO	OPCB		OGCJC			MET ICRL		INORG	IPH				
001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X				
002	B15YK8					1002	X	X	X		X			X		X	X				
003	B15YK9					1020	X	X	X		X			X		X	X				
004	B15YL0					1043	X	X	X		X			X		X	X				
005	B15YL1					1050	X	X	X		X			X		X	X				
006	B15YL2					1100	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

OBRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET (1) 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG (1) 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. IN3N2, IN43N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

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

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

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 19 °C

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.20.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES:

7901 4356 9959/09 7901 4356 9992

2-5 - 5.5

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE COSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/19/02	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson / R. Nielson	11-15-02 1330	Ref #1B3728	11-15-02 1330
Ref # 1B3728	11/19/02 1230	R Nielson / R Nielson	11/19/02 1230
R Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11.20.02 0920	[illegible]	11.20.02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
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(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

Matrix *
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A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

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

J-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RL CRAX	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renee Nielson / R. Nielson	11-15-02 1330	Ref # 1B / 3728	11-15-02 1330
Ref # 1B / 3728	11/19/02 1230	Renee Nielson / R. Nielson	11/19/02 1230
Renee Nielson / R. Nielson	11/19/02 1300	Ref Exc	11/19/02 1300
Ref Exc	11.20.02 0920	D. Smith	11.20.02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1
Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECAA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3 RJN 11/15/02

Sample No.	Matrix *	Sample Date	Sample Time									
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02	

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: R.Nielson 11-15-02	Date/Time: 1530	Received By/Stored In: Ref # 18/9728 11-15-02
Date/Time: 1330	Relinquished By/Removed From: Ref #18 9728 11/19/02	Date/Time: 1230
Received By/Stored In: R.Nielson 11/19/02	Date/Time: 1230	Relinquished By/Removed From: R.Nielson 11/19/02
Date/Time: 1300	Received By/Stored In: Fed Ex 11/19/02	Date/Time: 1300
Relinquished By/Removed From: Fed Ex 11-20-02	Date/Time: 0930	Received By/Stored In: [illegible] 11-20-02
Date/Time: 0930	Relinquished By/Removed From:	Date/Time:
Received By/Stored In:	Date/Time:	Relinquished By/Removed From:
Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

10 - 11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECLA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	~~X~~	~~X~~	11/19

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-15-02 1530	Ref # 1B3728	11-15-02 1530
Relinquished By/Removed From	Ref # 1B3728	11/19/02 1230	R. Nielson	11-19-02 1230
Relinquished By/Removed From	R Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Relinquished By/Removed From	Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL1	SOIL	11-15-02	1050	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Gene Nielson / R. Nielson 11-15-02	1330	Ref # 13 / 8728	11-15-02 1330
Ref # 13 11/19/02	1230	Gene Nielson / R. Nielson 11/19/02	1230
Gene Nielson / R. Nielson 11/19/02	1300	Fed Ex 11/19/02	1300
Fed Ex 11.20.02	0920	D. Mingh 11.20.02	0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-423	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RCCA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson R. Nielson 11-15-02	Date/Time: 1330	Received By/Stored In: REF # 1B/3728 11-15-02	Date/Time: 1330
Relinquished By/Removed From: REF # 1B/3728 11/19/02	Date/Time: 1230	Received By/Stored In: R. Nielson R. Nielson 11/19/02	Date/Time: 1230
Relinquished By/Removed From: R. Nielson R. Nielson 11/19/02	Date/Time: 1300	Received By/Stored In: Fed Ex 11/19/02	Date/Time: 1300
Relinquished By/Removed From: Fed Ex 11-20-02	Date/Time: 0920	Received By/Stored In: D. Johnson 11-20-02	Date/Time: 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 11.20.02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02111187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-606 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK7	001	S	02LE1427	11/15/02	11/25/02	11/25/02
B15YK7	001 MS	S	02LE1427	11/15/02	11/25/02	11/25/02
~~B15YK7~~	001 MSD	S	02LE1427	11/15/02	11/25/02	11/25/02
B15YK8	002	S	02LE1427	11/15/02	11/25/02	11/25/02
B15YK9	003	S	02LE1427	11/15/02	11/25/02	11/25/02
B15YL0	004	S	02LE1427	11/15/02	11/25/02	11/26/02
B15YL1	005	S	02LE1427	11/15/02	11/25/02	11/26/02
B15YL2	006	S	02LE1427	11/15/02	11/25/02	11/26/02
LAB QC:						
BLK	MB1	S	02LE1427	N/A	11/25/02	11/25/02
BLK	MB1 BS	S	02LE1427	N/A	11/25/02	11/25/02
BLK	MB1 BSD	S	02LE1427	N/A	11/25/02	11/25/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD F03-003
LVL#: 0211L187
SDG/SAF#: H1981/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-20-02

GC SCAN

The set of samples consisted of six (6) soil samples collected on 11-15-02.

The samples and their associated QC samples were extracted on 11-25-02 and analyzed on 11-25,26-02 according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures based on method 8015B for n-propyl Alcohol and Ethanol.

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

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

2. All required holding times for analysis have been met.

3. The method blank was below the reporting limits for all target compounds.

4. Surrogates are not currently employed in the methodology.

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations 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

12/6/02
Date

r:\group\data\gcsc\11L-187.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 12 pages.

GLOSSARY OF GC SCAN 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.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 12/03/02 15:09

RFW Batch Number: **0211L187** Client: **TNUHANFORD F03-003 H1981** Work Order: 11343606001 Page: 1

	Cust ID:	B15YK7	B15YK7	B15YK7	B15YK8	B15YK9	B15YL0
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
n-Propyl Alcohol		28 U	96 %	100 %	23 U	21 U	22 U
Ethanol		28 U	99 %	102 %	23 U	21 U	22 U

	Cust ID:	B15YL1	B15YL2	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	005	006	02LE1427-MB1	02LE1427-MB1	02LE1427-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
n-Propyl Alcohol		22 U	22 U	25 U	100 %	100 %
Ethanol		22 U	22 U	25 U	102 %	103 %

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

Lionville Laboratory Use Only

0211L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Delotte Johnson

QC: SPEC Del: Std TAT: 7 Sch 30

Date Rec'd: 11-20-02 Date Due: 12-20-02

	A	B	C		D			E		F	G				
Refrigerator #	1	4	4		4			4		4	4				
#/Type Container – Liquid															
#/Type Container – Solid	1oz	1oz	1oz		1oz			1oz		1oz	1oz				
Volume – Liquid															
Volume – Solid	60	250	250		60			125		500	60				
Preservatives	—	—	—		—			—		—	—				
ANALYSES REQUESTED	ORGANIC: TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			INORG: ICP Metal (2)	CN	Cr Acids (3)	pH				
Lionville Laboratory Use Only	0624H	0625X 0DRO	OPCB		OGCJC			MET ICRL		INORG	IPH				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0DRO	OPCB		OGCJC			MET ICRL		INORG	IPH				
S - Soil	001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X				
SE - Sediment	002	B15YK8					1002	X	X	X		X			X		X	X				
SO - Solid	003	B15YK9					1020	X	X	X		X			X		X	X				
SL - Sludge	004	B15YL0					1043	X	X	X		X			X		X	X				
W - Water	005	B15YL1					1050	X	X	X		X			X		X	X				
O - Oil	006	B15YL2					1100	X	X	X		X			X		X	X				
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: SAF # F03-003

Run Matrix QC

0DRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET (1) 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG (1) 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. IN3N2, INH3N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See below

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 19 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 7901 4356 9959 109 7901 4356 9992

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11-20-02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

2.5 - 3.5

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renee Nielson / R. Nielson	11-15-02 1330	REF# 1B/3728	11-15-02 1330
REF# 1B/3728	11/19/02 1230	Renee Nielson / R Nielson	11/19/02 1230
Renee Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11.20.02 0920	D. [illegible]	11.20.02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

5-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RCRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Reference IB / R Nielson	11-15-02 1330	Ref # IB / 3728	11-15-02 1330
Ref # IB / 3728	11/19/02 1230	Reference IB / R Nielson	11/19/02 1230
Reference IB / R. Nielson	11/19/02 1300	Ref Exc	11/19/02 1300
Ref Exc	11.20.02 0920	D. Smith	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

15-03

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1

Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location SP-2		SAF No. F03-003	Air Quality ☐	
Ice Chest No. ERC-02-006 / ERC-02-403	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express		
Shipped To EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No. A030042		Bill of Lading/Air Bill No. SEE OSR		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02		

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	1530 11-15-02	Ref # 1B 5728	11-15-02 1330
Ref #1B 5728	11/19/02 1230	R.Nielson	11/19/02 1230
R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920		11-20-02 0920

Sign/Print Names

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

10 - 11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-325	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) PECLA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-15-02 1330	REF # 183728	11-15-02 1330
REF # 183728	11/19/02 1230	R. Nielson	11-19-02 1230
R Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920		11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

CU-11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSRC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL1	SOIL	11-15-02	1050	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Gene Nielson / R. Nielson	11-15-02 1330	Ref #18 / 8728	11-15-02 1330
Ref #18	11/19/02 1230	Gene Nielson / R. Nielson	11/19/02 1230
Gene Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

CO - CC

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RCCA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	X	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson 11-15-02	1330	REF # 1B/3728 11-15-02	1330
REF # 1B/3728 11/19/02	1230	R. Nielson R. Nielson 11/19/02	1230
R. Nielson R. Nielson 11/19/02	1300	Fed Ex 11/19/02	1300
Fed Ex 11-20-02	0920	D Johnson 11-20-02	0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hanford

Purchase Order/Project:

DATE: 11.20.02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02111187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-006 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK7						
SILVER, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
SILVER, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
SILVER, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
MERCURY, TOTAL	001	S	02C0357	11/15/02	12/05/02	12/05/02
MERCURY, TOTAL	001 REP	S	02C0357	11/15/02	12/05/02	12/05/02
MERCURY, TOTAL	001 MS	S	02C0357	11/15/02	12/05/02	12/05/02
NICKEL, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
NICKEL, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
NICKEL, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02

DEC 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	001	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	001 REP	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	001 MS	S	02L0708	11/15/02	12/04/02	12/12/02
B15YK8						
SILVER, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
MERCURY, TOTAL	002	S	02C0357	11/15/02	12/05/02	12/05/02
NICKEL, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	002	S	02L0708	11/15/02	12/04/02	12/12/02
B15YK9						
SILVER, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
MERCURY, TOTAL	003	S	02C0357	11/15/02	12/05/02	12/05/02
NICKEL, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	003	S	02L0708	11/15/02	12/04/02	12/12/02
B15YL0						
SILVER, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
MERCURY, TOTAL	004	S	02C0357	11/15/02	12/05/02	12/05/02
NICKEL, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	004	S	02L0708	11/15/02	12/04/02	12/12/02
B15YL1						
SILVER, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
MERCURY, TOTAL	005	S	02C0357	11/15/02	12/05/02	12/05/02
NICKEL, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	005	S	02L0708	11/15/02	12/04/02	12/12/02
B15YL2						
SILVER, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
ARSENIC, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
BARIUM, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
BERYLLIUM, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
CADMIUM, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
CHROMIUM, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
COPPER, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	006	S	02C0357	11/15/02	12/05/02	12/05/02
NICKEL, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
LEAD, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
SELENIUM, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
VANADIUM, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02
ZINC, TOTAL	006	S	02L0708	11/15/02	12/04/02	12/12/02

LAB QC:

SILVER LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
SILVER, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
ARSENIC LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
ARSENIC, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
BARIUM LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
BARIUM, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
BERYLLIUM LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
BERYLLIUM, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
CADMIUM LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
CADMIUM, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
CHROMIUM LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
CHROMIUM, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
COPPER LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
COPPER, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
MERCURY LABORATORY	LC1 BS	S	02C0357	N/A	12/05/02	12/05/02
MERCURY, TOTAL	MB1	S	02C0357	N/A	12/05/02	12/05/02
NICKEL LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
NICKEL, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
LEAD LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
LEAD, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
SELENIUM LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
SELENIUM, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
VANADIUM LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
VANADIUM, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02
ZINC LABORATORY	LC1 BS	S	02L0708	N/A	12/04/02	12/12/02
ZINC, TOTAL	MB1	S	02L0708	N/A	12/04/02	12/12/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL#: 0211L187
SDG/SAF#: H1981/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-20-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 6 soil samples.

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

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

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

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

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

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

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

9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Mercury (74.0%). The Mercury LCS was within the Manufacturer's Perfomance Limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration level for the following analytes:

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 23 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B15YK7	Silver	200	99.4

12. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-16-02
Date

gmb/m11-187

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0211L187

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

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

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15YK7	Silver, Total	8.3	MG/KG	0.13	1.0
		Arsenic, Total	4.0	MG/KG	0.35	1.0
		Barium, Total	83.4	MG/KG	0.03	1.0
		Beryllium, Total	0.31	MG/KG	0.02	1.0
		Cadmium, Total	0.20	MG/KG	0.04	1.0
		Chromium, Total	26.2	MG/KG	0.09	1.0
		Copper, Total	14.5	MG/KG	0.12	1.0
		Mercury, Total	0.03	MG/KG	0.02	1.0
		Nickel, Total	9.6	MG/KG	0.12	1.0
		Lead, Total	5.1	MG/KG	0.22	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Vanadium, Total	69.1	MG/KG	0.09	1.0
		Zinc, Total	51.3	MG/KG	0.07	1.0
-002	B15YK8	Silver, Total	0.22	MG/KG	0.13	1.0
		Arsenic, Total	2.7	MG/KG	0.35	1.0
		Barium, Total	74.7	MG/KG	0.03	1.0
		Beryllium, Total	0.24	MG/KG	0.02	1.0
		Cadmium, Total	0.17	MG/KG	0.04	1.0
		Chromium, Total	25.7	MG/KG	0.09	1.0
		Copper, Total	15.2	MG/KG	0.12	1.0
		Mercury, Total	0.43	MG/KG	0.02	1.0
		Nickel, Total	8.5	MG/KG	0.12	1.0
		Lead, Total	4.6	MG/KG	0.22	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Vanadium, Total	73.2	MG/KG	0.09	1.0
		Zinc, Total	51.6	MG/KG	0.07	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YK9	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.9	MG/KG	0.37	1.0
		Barium, Total	103	MG/KG	0.03	1.0
		Beryllium, Total	0.23	MG/KG	0.02	1.0
		Cadmium, Total	0.14	MG/KG	0.04	1.0
		Chromium, Total	11.5	MG/KG	0.1	1.0
		Copper, Total	12.7	MG/KG	0.13	1.0
		Mercury, Total	0.07	MG/KG	0.02	1.0
		Nickel, Total	10.6	MG/KG	0.13	1.0
		Lead, Total	3.4	MG/KG	0.24	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	66.5	MG/KG	0.1	1.0
		Zinc, Total	45.7	MG/KG	0.08	1.0
-004	B15YL0	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	3.2	MG/KG	0.38	1.0
		Barium, Total	96.9	MG/KG	0.03	1.0
		Beryllium, Total	0.29	MG/KG	0.02	1.0
		Cadmium, Total	0.15	MG/KG	0.04	1.0
		Chromium, Total	10.6	MG/KG	0.1	1.0
		Copper, Total	13.3	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	11.7	MG/KG	0.13	1.0
		Lead, Total	4.5	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	57.8	MG/KG	0.1	1.0
		Zinc, Total	46.4	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15YL1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	2.0	MG/KG	0.38	1.0
		Barium, Total	105	MG/KG	0.03	1.0
		Beryllium, Total	0.25	MG/KG	0.02	1.0
		Cadmium, Total	0.14	MG/KG	0.04	1.0
		Chromium, Total	10.3	MG/KG	0.1	1.0
		Copper, Total	12.3	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	11.8	MG/KG	0.13	1.0
		Lead, Total	3.8	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	52.9	MG/KG	0.1	1.0
		Zinc, Total	43.7	MG/KG	0.08	1.0
-006	B15YL2	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.7	MG/KG	0.38	1.0
		Barium, Total	104	MG/KG	0.03	1.0
		Beryllium, Total	0.29	MG/KG	0.02	1.0
		Cadmium, Total	0.13	MG/KG	0.04	1.0
		Chromium, Total	11.7	MG/KG	0.1	1.0
		Copper, Total	12.7	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	12.2	MG/KG	0.13	1.0
		Lead, Total	4.5	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	58.8	MG/KG	0.1	1.0
		Zinc, Total	46.4	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/16/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0708-MB1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Barium, Total	0.04	MG/KG	0.03	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.22	MG/KG	0.10	1.0
		Copper, Total	0.30	MG/KG	0.13	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	0.10 u	MG/KG	0.10	1.0
		Zinc, Total	0.12	MG/KG	0.08	1.0
BLANK1	02C0357-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1981

LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15YK7	Silver, Total	7.9	8.3	5.3	-7.5	1.0
		Arsenic, Total	203	4.0	210	94.8	1.0
		Barium, Total	284	83.4	210	95.5	1.0
		Beryllium, Total	5.2	0.31	5.3	92.3	1.0
		Cadmium, Total	5.1	0.20	5.3	92.4	1.0
		Chromium, Total	42.4	26.2	21.0	77.1	1.0
		Copper, Total	38.7	14.5	26.3	92.0	1.0
		Mercury, Total	0.20	0.03	0.17	98.8	1.0
		Nickel, Total	59.5	9.6	52.5	95.0	1.0
		Lead, Total	54.4	5.1	52.5	93.9	1.0
		Selenium, Total	196	0.35u	210	93.4	1.0
		Vanadium, Total	117	69.1	52.5	92.0	1.0
		Zinc, Total	97.2	51.3	52.5	87.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15YK7	Silver, Total	8.3	2.4	110.3	1.0
		Arsenic, Total	4.0	3.8	5.1	1.0
		Barium, Total	83.4	84.4	1.2	1.0
		Beryllium, Total	0.31	0.29	6.6	1.0
		Cadmium, Total	0.20	0.13	41.9	1.0
		Chromium, Total	26.2	20.7	23.5	1.0
		Copper, Total	14.5	13.1	10.1	1.0
		Mercury, Total	0.03	0.04	19.2	1.0
		Nickel, Total	9.6	11.3	16.3	1.0
		Lead, Total	5.1	4.5	12.5	1.0
		Selenium, Total	0.35u	0.40u	NC	1.0
		Vanadium, Total	69.1	68.9	0.29	1.0
		Zinc, Total	51.3	47.8	7.1	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0708-LC1	Silver, LCS	49.7	50.0	MG/KG	99.4
		Arsenic, LCS	949	1000	MG/KG	94.9
		Barium, LCS	493	500	MG/KG	98.6
		Beryllium, LCS	23.9	25.0	MG/KG	95.6
		Cadmium, LCS	24.5	25.0	MG/KG	98.0
		Chromium, LCS	50.6	50.0	MG/KG	101.2
		Copper, LCS	126	125	MG/KG	100.6
		Nickel, LCS	197	200	MG/KG	98.6
		Lead, LCS	244	250	MG/KG	97.6
		Selenium, LCS	925	1000	MG/KG	92.5
		Vanadium, LCS	252	250	MG/KG	100.8
		Zinc, LCS	98.0	100	MG/KG	98.0
LCS1	02C0357-LC1	Mercury, LCS	1.8	2.5	MG/KG	74.0

Lionville Laboratory Use Only

02 11L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 25 30 day

Date Rec'd: 11-20-02 Date Due: 12-20-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	bag	bag	bag		bag			bag		bag	bag				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—	—		—			—		—	—				
ANALYSES REQUESTED →		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			ICP Metal (2)	CN	Cl Anions (3)	pH				
		Lionville Laboratory Use Only														
		0624H	0625X 0DRO	OPCB		OGCIC			MET ① 2CRL		INORG ①	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0DRO	OPCB		OGCIC			MET ① 2CRL		INORG ①	IPH				
001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X				
002	B15YK8					1002	X	X	X		X			X		X	X				
003	B15YK9					1020	X	X	X		X			X		X	X				
004	B15YL0					1043	X	X	X		X			X		X	X				
005	B15YL1					1050	X	X	X		X			X		X	X				
006	B15YL2					1100	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG ① 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. IN3N2, IN43N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 19 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7901 4356 9959 109 7901 4356 9992

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.20.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG RJN 11/19/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renee Nielson / R. Nielson	11-15-02 1330	Ref # 18/3728	11-15-02 1330
Ref # 18/3728	11/19/02 1230	Renee Nielson / R Nielson	11/19/02 1230
Renee Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11.20.02 0920	D. [illegible]	11.20.02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

5-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RCRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YK8 / SOIL / 11-15-02 / 1002	X	X	X	X	X	X	X	X		

RN 11/19/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-15-02 1330	Ref #1B / 3728	11-15-02 1330
Ref #1B / 3728	11/19/02 1230	R. Nielson / R. Nielson	11/19/02 1230
R. Nielson / R. Nielson	11/19/02 1300	Ref Exp	11/19/02 1300
Neo E	11-20-02 0920	D. Smith	11-20-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

18

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1
Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 / ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium-H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-15-02 1530	Ref # 18/3728	11-15-02 1330
Ref #18 3728	11/19/02 1230	R.Nielson	11/19/02 1230
R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 – Total Sr; Total Uranium

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

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

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

10 - 11

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-NL3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECLA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-15-02 1330	REF# 183728	11-15-02 1330
REF# 183728	11/19/02 1230	R. Nielson	11-19-02 1230
R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920		11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) *ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}*; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; *Neptunium-237; Strontium-89,90* -- Total Sr; Total Uranium

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

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

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

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CU-21

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL1	SOIL	11-15-02	1050	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Gene Nielson / R. Nielson 11-15-02	1330	Ref #18 / 3728	11-15-02 1330
Ref #18 11/19/02	1230	Gene Nielson / R. Nielson 11/19/02	1230
Gene Nielson / R. Nielson 11/19/02	1300	Fed Ex 11/19/02	1300
Fed Ex 11.20.02	0920	D. Smith	11.20.02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

21

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) PGCM	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	~~X~~	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-15-02 1330	Received By/Stored In: REF # 18/3728	11-15-02 1330
Relinquished By/Removed From: REF # 18/3728	11/19/02 1230	Received By/Stored In: R. Nielson	11/19/02 1230
Relinquished By/Removed From: R. Nielson	11/19/02 1300	Received By/Stored In: Fed Ex	11/19/02 1300
Relinquished By/Removed From: Fed Ex	11-20-02 0920	Received By/Stored In: D Simon	11-20-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) (Tributyl phosphate); TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Radium-228); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

22

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11-20-02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02111187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-606 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: D. Ymt

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK7						
% SOLIDS	001	S	02L%S128	11/15/02	11/21/02	11/22/02
% SOLIDS	001 REP	S	02L%S128	11/15/02	11/21/02	11/22/02
CHLORIDE BY IC	001	S	02LICB81	11/15/02	11/27/02	11/27/02
CHLORIDE BY IC	001 REP	S	02LICB81	11/15/02	11/27/02	11/27/02
CHLORIDE BY IC	001 MS	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	001	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	001 REP	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	001 MS	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	001	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	001 REP	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	001 MS	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	001	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	001 REP	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	001 MS	S	02LICB81	11/15/02	11/27/02	11/27/02
TOTAL CYANIDE	001	S	02LC090	11/15/02	11/24/02	11/24/02
TOTAL CYANIDE	001 REP	S	02LC090	11/15/02	11/24/02	11/24/02
TOTAL CYANIDE	001 MS	S	02LC090	11/15/02	11/24/02	11/24/02
PHOSPHATE BY IC	001	S	02LICB81	11/15/02	11/27/02	11/27/02
PHOSPHATE BY IC	001 REP	S	02LICB81	11/15/02	11/27/02	11/27/02
PHOSPHATE BY IC	001 MS	S	02LICB81	11/15/02	11/27/02	11/27/02
CHROMIUM VI	001	S	02LVI038	11/15/02	12/05/02	12/05/02
SULFATE BY IC	001	S	02LICB81	11/15/02	11/27/02	11/27/02
SULFATE BY IC	001 REP	S	02LICB81	11/15/02	11/27/02	11/27/02
SULFATE BY IC	001 MS	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE NITRITE	001	S	02LN3D85	11/15/02	11/22/02	11/22/02
NITRATE NITRITE	001 REP	S	02LN3D85	11/15/02	11/22/02	11/22/02
NITRATE NITRITE	001 MS	S	02LN3D85	11/15/02	11/22/02	11/22/02
AMMONIA	001	S	02LAMA34	11/15/02	12/02/02	12/05/02
AMMONIA	001 REP	S	02LAMA34	11/15/02	12/02/02	12/05/02
AMMONIA	001 MS	S	02LAMA34	11/15/02	12/02/02	12/05/02
PH	001	S	02LPH093	11/15/02	11/21/02	11/21/02
PH	001 REP	S	02LPH093	11/15/02	11/21/02	11/21/02
SULFIDE	001	S	02LSDB55	11/15/02	11/22/02	11/22/02
B15YK8						
% SOLIDS	002	S	02L%S128	11/15/02	11/21/02	11/22/02

DEC 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	002	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	002	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	002	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	002	S	02LICB81	11/15/02	11/27/02	11/27/02
TOTAL CYANIDE	002	S	02LC090	11/15/02	11/24/02	11/24/02
PHOSPHATE BY IC	002	S	02LICB81	11/15/02	11/27/02	11/27/02
CHROMIUM VI	002	S	02LVI038	11/15/02	12/05/02	12/05/02
SULFATE BY IC	002	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE NITRITE	002	S	02LN3D85	11/15/02	11/22/02	11/22/02
AMMONIA	002	S	02LAMA34	11/15/02	12/02/02	12/05/02
PH	002	S	02LPH093	11/15/02	11/21/02	11/21/02
SULFIDE	002	S	02LSDB55	11/15/02	11/22/02	11/22/02
B15YK9						
% SOLIDS	003	S	02L%S128	11/15/02	11/21/02	11/22/02
CHLORIDE BY IC	003	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	003	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	003	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	003	S	02LICB81	11/15/02	11/27/02	11/27/02
TOTAL CYANIDE	003	S	02LC090	11/15/02	11/24/02	11/24/02
PHOSPHATE BY IC	003	S	02LICB81	11/15/02	11/27/02	11/27/02
CHROMIUM VI	003	S	02LVI038	11/15/02	12/05/02	12/05/02
SULFATE BY IC	003	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE NITRITE	003	S	02LN3D85	11/15/02	11/22/02	11/22/02
AMMONIA	003	S	02LAMA34	11/15/02	12/02/02	12/05/02
PH	003	S	02LPH093	11/15/02	11/21/02	11/21/02
SULFIDE	003	S	02LSDB55	11/15/02	11/22/02	11/22/02
B15YL0						
% SOLIDS	004	S	02L%S128	11/15/02	11/21/02	11/22/02
CHLORIDE BY IC	004	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	004	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	004	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	004	S	02LICB81	11/15/02	11/27/02	11/27/02
TOTAL CYANIDE	004	S	02LC090	11/15/02	11/24/02	11/24/02
PHOSPHATE BY IC	004	S	02LICB81	11/15/02	11/27/02	11/27/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	004	S	02LVI038	11/15/02	12/05/02	12/05/02
SULFATE BY IC	004	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE NITRITE	004	S	02LN3D85	11/15/02	11/22/02	11/22/02
AMMONIA	004	S	02LAMA34	11/15/02	12/02/02	12/05/02
PH	004	S	02LPH093	11/15/02	11/21/02	11/21/02
SULFIDE	004	S	02LSDB55	11/15/02	11/22/02	11/22/02
B15YL1						
% SOLIDS	005	S	02L%S128	11/15/02	11/21/02	11/22/02
CHLORIDE BY IC	005	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	005	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	005	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	005	S	02LICB81	11/15/02	11/27/02	11/27/02
TOTAL CYANIDE	005	S	02LC090	11/15/02	11/24/02	11/24/02
PHOSPHATE BY IC	005	S	02LICB81	11/15/02	11/27/02	11/27/02
CHROMIUM VI	005	S	02LVI038	11/15/02	12/05/02	12/05/02
SULFATE BY IC	005	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE NITRITE	005	S	02LN3D85	11/15/02	11/22/02	11/22/02
AMMONIA	005	S	02LAMA34	11/15/02	12/02/02	12/05/02
PH	005	S	02LPH093	11/15/02	11/21/02	11/21/02
SULFIDE	005	S	02LSDB55	11/15/02	11/22/02	11/22/02
B15YL2						
% SOLIDS	006	S	02L%S128	11/15/02	11/21/02	11/22/02
CHLORIDE BY IC	006	S	02LICB81	11/15/02	11/27/02	11/27/02
FLUORIDE BY IC	006	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRITE BY IC	006	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE BY IC	006	S	02LICB81	11/15/02	11/27/02	11/27/02
TOTAL CYANIDE	006	S	02LC090	11/15/02	11/24/02	11/24/02
PHOSPHATE BY IC	006	S	02LICB81	11/15/02	11/27/02	11/27/02
CHROMIUM VI	006	S	02LVI038	11/15/02	12/05/02	12/05/02
CHROMIUM VI	006 REP	S	02LVI038	11/15/02	12/05/02	12/05/02
CHROMIUM VI	006 MS	S	02LVI038	11/15/02	12/05/02	12/05/02
CHROMIUM VI	006 MSD	S	02LVI038	11/15/02	12/05/02	12/05/02
SULFATE BY IC	006	S	02LICB81	11/15/02	11/27/02	11/27/02
NITRATE NITRITE	006	S	02LN3D85	11/15/02	11/22/02	11/22/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1981

DATE RECEIVED: 11/20/02 LVL LOT # :0211L187

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
AMMONIA	006	S	02LAMA34	11/15/02	12/02/02	12/05/02
PH	006	S	02LPH093	11/15/02	11/21/02	11/21/02
SULFIDE	006	S	02LSDB55	11/15/02	11/22/02	11/22/02
SULFIDE	006 REP	S	02LSDB55	11/15/02	11/22/02	11/22/02
SULFIDE	006 MS	S	02LSDB55	11/15/02	11/22/02	11/22/02

LAB QC:

CHLORIDE BY IC	MB1	S	02LICB81	N/A	11/27/02	11/27/02
CHLORIDE BY IC	MB1 BS	S	02LICB81	N/A	11/27/02	11/27/02
FLUORIDE BY IC	MB1	S	02LICB81	N/A	11/27/02	11/27/02
FLUORIDE BY IC	MB1 BS	S	02LICB81	N/A	11/27/02	11/27/02
NITRITE BY IC	MB1	S	02LICB81	N/A	11/27/02	11/27/02
NITRITE BY IC	MB1 BS	S	02LICB81	N/A	11/27/02	11/27/02
NITRATE BY IC	MB1	S	02LICB81	N/A	11/27/02	11/27/02
NITRATE BY IC	MB1 BS	S	02LICB81	N/A	11/27/02	11/27/02
TOTAL CYANIDE	LCS L	S	02LC090	N/A	11/24/02	11/24/02
TOTAL CYANIDE	LCS L	S	02LC090	N/A	11/24/02	11/24/02
TOTAL CYANIDE	MB1	S	02LC090	N/A	11/24/02	11/24/02
PHOSPHATE BY IC	MB1	S	02LICB81	N/A	11/27/02	11/27/02
PHOSPHATE BY IC	MB1 BS	S	02LICB81	N/A	11/27/02	11/27/02
CHROMIUM VI	MB1	S	02LVI038	N/A	12/05/02	12/05/02
CHROMIUM VI	MB1 BS	S	02LVI038	N/A	12/05/02	12/05/02
CHROMIUM VI	MB1 BSD	S	02LVI038	N/A	12/05/02	12/05/02
SULFATE BY IC	MB1	S	02LICB81	N/A	11/27/02	11/27/02
SULFATE BY IC	MB1 BS	S	02LICB81	N/A	11/27/02	11/27/02
NITRATE NITRITE	MB1	S	02LN3D85	N/A	11/22/02	11/22/02
NITRATE NITRITE	MB1 BS	S	02LN3D85	N/A	11/22/02	11/22/02
AMMONIA	MB1	S	02LAMA34	N/A	12/02/02	12/05/02
AMMONIA	MB1 BS	S	02LAMA34	N/A	12/02/02	12/05/02
AMMONIA	MB1 BSD	S	02LAMA34	N/A	12/02/02	12/05/02
SULFIDE	MB1	S	02LSDB55	N/A	11/22/02	11/22/02
SULFIDE	MB1 BS	S	02LSDB55	N/A	11/22/02	11/22/02
SULFIDE	MB1 BSD	S	02LSDB55	N/A	11/22/02	11/22/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003 H1981
LVL#: 0211L187

W.O.#: 11343-606-001-9999-00
Date Received: 11-20-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 6 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 for Ammonia and Sulfide were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike (MS) recoveries for Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Sulfate, Nitrate Nitrite, Ammonia, Chromium VI and Sulfide were within the 75-125% control limits, however MS recovery for Chloride was above the control limits that may be attributed to sample inhomogeneity.

8. The replicate analyses Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Sulfate, Nitrate Nitrite, Ammonia, Chromium VI, Percent Solids, pH and Sulfide were within the 20% RPD control limit, however replicate analysis for Chloride was outside the control limit that may be attributed to sample inhomogeneity.

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

12-13-02
Date

njp\i11-187

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 23 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

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

Other: Chloride, Fluoride, Nitrate } **Method:** EPA 300.0 (mod.)

Other: Nitrite, Phosphate, Sulfate } **Method**

Nitrate Nitrite EPA ~~300~~ 353.2 (mod.)

Ammonia EPA 350.3 (mod.)

L-WI-034/B-01/01

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 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15YK7	% Solids	93.3		%	0.01	1.0
		Chloride by IC	2.0		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.34	u	MG/KG	1.34	1.0
		Nitrate by IC	14.2		MG/KG	1.34	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	1.5		MG/KG	0.43	1.0
		Sulfate by IC	4.7		MG/KG	1.3	1.0
		Nitrate Nitrite	3.0		MG/KG	0.19	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	29.3	u	MG/KG	29.3	1.0
-002	B15YK8	% Solids	96.1		%	0.01	1.0
		Chloride by IC	1.3	u	MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.30	u	MG/KG	1.30	1.0
		Nitrate by IC	12.8		MG/KG	1.30	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	3.8		MG/KG	1.3	1.0
		Chromium VI	1.6		MG/KG	0.42	1.0
		Sulfate by IC	3.9		MG/KG	1.3	1.0
		Nitrate Nitrite	3.3		MG/KG	0.18	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	29.6	u	MG/KG	29.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YK9	% Solids	96.8		%	0.01	1.0
		Chloride by IC	1.6		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.29	u	MG/KG	1.29	1.0
		Nitrate by IC	4.23		MG/KG	1.29	1.0
		Cyanide, Total	0.51	u	MG/KG	0.51	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.51		MG/KG	0.41	1.0
		Sulfate by IC	2.5		MG/KG	1.3	1.0
		Nitrate Nitrite	1.0		MG/KG	0.20	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	40.2	u	MG/KG	40.2	1.0
-004	B15YL0	% Solids	94.9		%	0.01	1.0
		Chloride by IC	2.0		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.32	u	MG/KG	1.32	1.0
		Nitrate by IC	34.1		MG/KG	1.32	1.0
		Cyanide, Total	0.52	u	MG/KG	0.52	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.45		MG/KG	0.42	1.0
		Sulfate by IC	7.4		MG/KG	1.3	1.0
		Nitrate Nitrite	7.3		MG/KG	0.21	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.4		SOIL PH	0.01	1.0
		Sulfide	42.0	u	MG/KG	42.0	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15YL1	% Solids	95.4		%	0.01	1.0
		Chloride by IC	1.8		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.31	u	MG/KG	1.31	1.0
		Nitrate by IC	34.2		MG/KG	1.31	1.0
		Cyanide, Total	0.43	u	MG/KG	0.43	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	5.2		MG/KG	1.3	1.0
		Nitrate Nitrite	6.9		MG/KG	0.21	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	41.3	u	MG/KG	41.3	1.0
-006	B15YL2	% Solids	95.3		%	0.01	1.0
		Chloride by IC	1.7		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.31	u	MG/KG	1.31	1.0
		Nitrate by IC	15.8		MG/KG	1.31	1.0
		Cyanide, Total	0.36	u	MG/KG	0.36	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42		MG/KG	0.42	1.0
		Sulfate by IC	2.8		MG/KG	1.3	1.0
		Nitrate Nitrite	3.9		MG/KG	0.16	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	41.7	u	MG/KG	41.7	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LICB81-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	1.2	u	MG/KG	1.2	1.0
		Nitrite by IC	1.25	u	MG/KG	1.25	1.0
		Nitrate by IC	1.25	u	MG/KG	1.25	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK1	02LC090-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	02LVI038-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	02LN3D85-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	02LAMA34-MB1	Ammonia, as N	2.5	u	MG/KG	2.5	1.0
BLANK10	02LSDB55-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15YK7	Chloride by IC	42.0	2.0	26.8	149.2	1.0
		Fluoride by IC	28.5	0.79	26.8	103.4	1.0
		Nitrite by IC	26.9	1.34u	26.8	100.6	1.0
		Nitrate by IC	43.3	14.2	26.8	108.6	1.0
		Cyanide, Total	5.51	0.52u	5.32	103.4	1.0
		Phosphate by IC	30.6	1.3 u	26.8	114.3	1.0
		Sulfate by IC	31.6	4.7	26.8	100.7	1.0
		Nitrate Nitrite	7.5	3.0	4.9	92.0	1.0
		Ammonia, as N	96.8	2.6 u	98.0	98.8	1.0
-006	B15YL2	Soluble Chromium VI	5.6	0.42	4.2	122.3	1.0
		Insoluble Chromium VI	1390	0.42	1220	114.2	100
		Sulfide	504	17.7	507	95.9	1.0
BLANK10	02LICB81-MB1	Chloride by IC	24.3	1.2 u	25.0	97.1	1.0
		Fluoride by IC	24.6	1.2 u	25.0	98.4	1.0
		Nitrite by IC	24.2	1.25u	25.0	96.7	1.0
		Nitrate by IC	23.7	1.25u	25.0	94.7	1.0
		Phosphate by IC	24.1	1.2 u	25.0	96.3	1.0
		Sulfate by IC	23.7	1.2 u	25.0	94.9	1.0
BLANK10	02LVI038-MB1	Soluble Chromium VI	4.2	0.40u	4.0	104.6	1.0
		Insoluble Chromium VI	1320	0.40u	1220	108.3	100
BLANK10	02LN3D85-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.0	1.0
BLANK10	02LAMA34-MB1	Ammonia, as N	102	2.5 u	100	102.0	1.0
		Ammonia, as N MSD	104	2.5 u	100	103.8	1.0
BLANK10	02LSDB55-MB1	Sulfide	464	40.0 u	467	99.3	1.0
		Sulfide MSD	440	40.0 u	467	94.2	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	02LAMA34-MB1	Ammonia, as N	102.0	103.8	1.7
BLANK10	02LSDB55-MB1	Sulfide	99.3	94.2	5.3

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15YK7	% Solids	93.3	93.6	0.35	1.0
		Chloride by IC	2.0	1.6	21.6	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrite by IC	1.34u	1.34u	NC	1.0
		Nitrate by IC	14.2	14.8	3.9	1.0
		Cyanide, Total	0.52u	0.53u	NC	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	4.7	4.7	0.58	1.0
		Nitrate Nitrite	3.0	3.6	16.2	1.0
		Ammonia, as N	2.6 u	2.4 u	NC	1.0
		pH	8.5	8.6	0.2	1.0
-006REP	B15YL2	Chromium VI	0.42	0.45	5.5	1.0
		Sulfide	41.7 u	42.0 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/10/02

CLIENT: TNUHANFORD F03-003 H1981 LVL LOT #: 0211L187

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	02LC090-LCS1	Cyanide, Total LCS	2.14	2.0	MG/KG	106.8
LCSS2	02LC090-LCS2	Cyanide, Total LCS	10.1	10.0	MG/KG	101.2

Lionville Laboratory Use Only

02 11L187

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Delette Johnson

QC: SPEC Del: STD TAT: ~~15~~ 30 days

Date Rec'd: 11-20-02 Date Due: 12-20-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	bag	bag	bag		bag			bag		bag	bag				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—	—		—			—		—	—				
ANALYSES REQUESTED →		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			ICP Metal (2)	CN	Anions (3)	pH				
		Lionville Laboratory Use Only														
		0624H	0625X 0RO	OPCB		OGCJC			MET ① ICPL		INORG ①	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X 0RO	OPCB		OGCJC			MET ① ICPL		INORG ①	IPH				
001	B15YK7			S	11-15-02	0952	X	X	X		X			X		X	X				
002	B15YK8					1002	X	X	X		X			X		X	X				
003	B15YK9					1020	X	X	X		X			X		X	X				
004	B15YL0					1043	X	X	X		X			X		X	X				
005	B15YL1					1050	X	X	X		X			X		X	X				
006	B15YL2					1100	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ORO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn, Hg

INORG ① 2. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

3. IN3N2, INH3N, ICNTO, ISFD

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # See below

2) Ambient or (Chilled)

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1.9 °C

Relinquished by	Received by	Date	Time
[illegible]	D. Smith	11.20.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 7901 4356 9959 109 7901 4356 9992

2.5 - 5.5

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-067	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		
Sample No.	Matrix *	Sample Date	Sample Time							
B15YK7	SOIL	11-15-02	0952	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Renee Nielson / R. Nielson	11-15-02 1330	Ref # 18/3728	11-15-02 1330
Ref # 18/3728	11/19/02 1230	Renee Nielson / R Nielson	11/19/02 1230
Renee Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11.20.02 0920	D. Johnson	11.20.02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

5-6

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-068	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RCRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g ml	500g ml	60g ml	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11/19/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK8	SOIL	11-15-02	1002	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-15-02 1330	Ref #1B / 3728	11-15-02 1330
Relinquished By/Removed From	Ref #1B / 3728	11/19/02 1230	R. Nielson	11/19/02 1230
Relinquished By/Removed From	R. Nielson	11/19/02 1300	Ref Exp	11/19/02 1300
Relinquished By/Removed From	Geo E	11.20.02 0920	D. Smith	11-20-02 0920
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

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FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-069	Page 1 of 1

Collector RJN 11/15/02 HNF-N R.Nielson	Company Contact Steve Trent / Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N / Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location SP-2	SAF No. F03-003	Air Quality ☐
Ice Chest No. ERC-02-006 / ERC-02-403	Field Logbook No. HNF-N-3251 / COA 117514ES10	Method of Shipment Federal Express	
Shipped To EBERLINE SERVICES (Formerly TMA) RECAA	Offsite Property No. A030042	Bill of Lading/Air Bill No. SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63, Technetium-99, Tritium-H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK9	SOIL	11-15-02	1020	X	X	X	X	X	X	X	X RJN 11/19/02		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-15-02 1530	Ref # 18/5728	11-15-02 1330
Ref #18 5728	11/19/02 1230	R.Nielson	11/19/02 1230
R.Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	[illegible]	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

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FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-070	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-325	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA) RECLA	Offsite Property No.: A030042		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	
B15YL0	SOIL	11-15-02	1043	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-15-02 1330	REF # 1B/3728	11-15-02 1330
REF # 1B/3728	11/19/02 1230	R. Nielson	11-19-02 1230
R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920		11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

CU-21

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-071	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECRA	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time											
B15YL1	SOIL	11-15-02	1050	X	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-15-02 1330	Ref #1B / 3728	11-15-02 1330
Relinquished By/Removed From	Ref #1B	11/19/02 1230	R. Nielson	11/19/02 1230
Relinquished By/Removed From	R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Relinquished By/Removed From	Fed Ex	11.20.02 0920	D. Smith	11.20.02 092[illegible]
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

CO - 66

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-072	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-006 & ERC-02-403	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA) RECEIVED	Offsite Property No.: A030042	Bill of Lading/Air Bill No.: SEE OSPR	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/19/02	None
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P
No. of Container(s)	1	1	1	1	1	1	1	1	1
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {I-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02
B15YL2	SOIL	11-15-02	1100	X	X	X	X	X	X	X	~~X~~	~~X~~

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-15-02 1330	REF # 1B/3728	11-15-02 1330
REF # 1B/3728	11/19/02 1230	R. Nielson / R. Nielson	11/19/02 1230
R. Nielson / R. Nielson	11/19/02 1300	Fed Ex	11/19/02 1300
Fed Ex	11-20-02 0920	D. Johnson	11-20-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO2/NO3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; Sulfides - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11-20-02

SAF# / SOW# / Release #: F03-003

Laboratory SDG #: 02111187

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

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

Cooler # / temp (°C) and Comments:

ERC-02-006 / 0.9°C

ERC-02-403 / 1.9°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager: