EBERLINE SERVICES

0058763

January 16, 2003

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

Reference: **P.O. #630**
Eberline Services R2-11-087-7395, SDG H1976

Dear Mr. Trent:

Enclosed is the data report for seven solid samples designated under SAF No. F03-003 received at Eberline Services on November 19, 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 RECEIVED

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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 H1976 was composed of seven 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.

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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

The LCS had a yield of 107%. No other problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

Per FH's instructions, sample B15YJ9 in SDG H1976 was analyzed for isotopic uranium (see e-mail attached). No problems were encountered during the course of the analyses.

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

1/16/03

Date

Stephen_J_Trent@RL.gov
01/06/2003 01:10 PM

To: mmannion@eberlineservices.com
cc:
Subject: SDG H1976 tot U

Melissa,

7395

Based on our review of the total U data, please plan to run isotopic U on sample B15YJ9.

Thanks,

Steve 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 H1976

SDG	7395
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H1976

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	01/16/03

SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

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.

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ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

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Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1976

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15YJ5	SP-1	SOLID		R211087-01	F03-003	F03-003-055	11/14/02 09:59
B15YJ6	SP-1	SOLID		R211087-02	F03-003	F03-003-056	11/14/02 10:28
B15YJ7	SP-1	SOLID		R211087-03	F03-003	F03-003-057	11/14/02 10:43
B15YJ8	SP-1	SOLID		R211087-04	F03-003	F03-003-058	11/14/02 11:02
B15YJ9	SP-1	SOLID		R211087-05	F03-003	F03-003-059	11/14/02 11:15
B15YK0	SP-1	SOLID		R211087-06	F03-003	F03-003-060	11/14/02 11:39
B15YL3	SP-1	SOLID		R211087-07	F03-003	F03-003-080	11/14/02 10:15
Method Blank		SOLID		R211087-09	F03-003		
Lab Control Sample		SOLID		R211087-08	F03-003		
Duplicate (R211087-04)	SP-1	SOLID		R211087-10	F03-003		11/14/02 11:02
Duplicate (R211087-05)	SP-1	SOLID		R211087-12	F03-003		11/14/02 11:15
Spike (R211087-04)	SP-1	SOLID		R211087-11	F03-003		11/14/02 11:02

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Protocol Hanford
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Form DVD-CS
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SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1976

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
7395	F03-003-055	B15YJ5	SOLID	95.9	866.6 g		11/19/02	5	R211087-01	7395-001
	F03-003-056	B15YJ6	SOLID	97.7	932.7 g		11/19/02	5	R211087-02	7395-002
	F03-003-057	B15YJ7	SOLID	96.5	906.1 g		11/19/02	5	R211087-03	7395-003
	F03-003-058	B15YJ8	SOLID	96.3	895.4 g		11/19/02	5	R211087-04	7395-004
	F03-003-059	B15YJ9	SOLID	97.3	884.3 g		11/19/02	5	R211087-05	7395-005
	F03-003-060	B15YK0	SOLID	94.4	810.2 g		11/19/02	5	R211087-06	7395-006
	F03-003-080	B15YL3	SOLID	96.4	934.6 g		11/19/02	5	R211087-07	7395-007
		Method Blank	SOLID						R211087-09	7395-009
		Lab Control Sample	SOLID						R211087-08	7395-008
		Duplicate (R211087-04)	SOLID	96.3	895.4 g		11/19/02	5	R211087-10	7395-010
		Duplicate (R211087-05)	SOLID	97.3	884.3 g		11/19/02	5	R211087-12	7395-012
		Spike (R211087-04)	SOLID	96.3	895.4 g		11/19/02	5	R211087-11	7395-011

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SAMPLE DELIVERY GROUP H1976

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PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1976

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	7052-071	5.0	7			1	1	1/1		
NP	SOLID	Neptunium in Soil	7052-071	5.0	7			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-071	5.0	7			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-071	5.0	7			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	7052-071	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-071	10.0	7			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7052-071	10.0	3			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-071	20.0	7			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-071	15.0	7			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-071	15.0	7			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-071	9.0	7			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	7052-071	10.0	3			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7052-071	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.

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Version Ver 1.0
Form DVD-PBS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1976

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YJ5			R211087-01	7395-001	93A/93		01/02/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-001	93B/93		01/02/03	01/16/03	MCM	Gross Beta in Soil
F03-003-055	F03-003		11/19/02	7395-001	AM		01/16/03	01/16/03	MCM	Americium 241 in Soil
				7395-001	GAM		01/07/03	01/16/03	MCM	Gamma Scan
				7395-001	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-001	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-001	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-001	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-001	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
B15YJ6			R211087-02	7395-002	93A/93		01/03/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-002	93B/93		01/02/03	01/16/03	MCM	Gross Beta in Soil
F03-003-056	F03-003		11/19/02	7395-002	AM		01/14/03	01/16/03	MCM	Americium 241 in Soil
				7395-002	GAM		01/07/03	01/16/03	MCM	Gamma Scan
				7395-002	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-002	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-002	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-002	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-002	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
B15YJ7			R211087-03	7395-003	93A/93		01/02/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-003	93B/93		01/02/03	01/16/03	MCM	Gross Beta in Soil
F03-003-057	F03-003		11/19/02	7395-003	AM		01/14/03	01/16/03	MCM	Americium 241 in Soil
				7395-003	GAM		01/07/03	01/16/03	MCM	Gamma Scan
				7395-003	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-003	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-003	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-003	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-003	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1976

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YJ8			R211087-04	7395-004	93A/93		01/03/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-004	93B/93		01/03/03	01/16/03	MCM	Gross Beta in Soil
F03-003-058	F03-003		11/19/02	7395-004	AM		01/16/03	01/16/03	MCM	Americium 241 in Soil
				7395-004	GAM		01/08/03	01/16/03	MCM	Gamma Scan
				7395-004	H		01/11/03	01/16/03	MCM	Tritium in Soil
				7395-004	NI_L		01/10/03	01/16/03	MCM	Nickel 63 in Soil
				7395-004	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-004	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-004	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-004	TC		01/14/03	01/16/03	MCM	Technetium 99 in Soil
				7395-004	TH		01/09/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-004	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
B15YJ9			R211087-05	7395-005	93A/93		01/03/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-005	93B/93		01/02/03	01/16/03	MCM	Gross Beta in Soil
F03-003-059	F03-003		11/19/02	7395-005	AM		01/13/03	01/16/03	MCM	Americium 241 in Soil
				7395-005	GAM		01/08/03	01/16/03	MCM	Gamma Scan
				7395-005	H		01/11/03	01/16/03	MCM	Tritium in Soil
				7395-005	NI_L		01/10/03	01/16/03	MCM	Nickel 63 in Soil
				7395-005	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-005	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-005	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-005	TC		01/13/03	01/16/03	MCM	Technetium 99 in Soil
				7395-005	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-005	U		01/09/03	01/16/03	MCM	Uranium, Isotopic in Soil
				7395-005	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
B15YK0			R211087-06	7395-006	93A/93		01/03/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-006	93B/93		01/03/03	01/16/03	MCM	Gross Beta in Soil
F03-003-060	F03-003		11/19/02	7395-006	AM		01/13/03	01/16/03	MCM	Americium 241 in Soil
				7395-006	GAM		01/08/03	01/16/03	MCM	Gamma Scan
				7395-006	H		01/11/03	01/16/03	MCM	Tritium in Soil
				7395-006	NI_L		01/10/03	01/16/03	MCM	Nickel 63 in Soil
				7395-006	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-006	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-006	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-006	TC		01/13/03	01/16/03	MCM	Technetium 99 in Soil
				7395-006	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-006	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1976

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YL3			R211087-07	7395-007	93A/93		01/06/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-007	93B/93		01/06/03	01/16/03	MCM	Gross Beta in Soil
F03-003-080	F03-003		11/19/02	7395-007	AM		01/13/03	01/16/03	MCM	Americium 241 in Soil
				7395-007	GAM		01/08/03	01/16/03	MCM	Gamma Scan
				7395-007	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-007	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-007	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-007	TH		01/09/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-007	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
Method Blank			R211087-09	7395-009	93A/93		01/03/03	01/16/03	MCM	Gross Alpha in Soil
		SOLID		7395-009	93B/93		01/03/03	01/16/03	MCM	Gross Beta in Soil
	F03-003			7395-009	AM		01/13/03	01/16/03	MCM	Americium 241 in Soil
				7395-009	GAM		01/09/03	01/16/03	MCM	Gamma Scan
				7395-009	H		01/11/03	01/16/03	MCM	Tritium in Soil
				7395-009	NI_L		01/11/03	01/16/03	MCM	Nickel 63 in Soil
				7395-009	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-009	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-009	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-009	TC		01/13/03	01/16/03	MCM	Technetium 99 in Soil
				7395-009	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-009	U		01/09/03	01/16/03	MCM	Uranium, Isotopic in Soil
				7395-009	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
Lab Control Sample			R211087-08	7395-008	93A/93		01/06/03	01/16/03	MCM	Gross Alpha in Soil
		SOLID		7395-008	93B/93		01/06/03	01/16/03	MCM	Gross Beta in Soil
	F03-003			7395-008	AM		01/13/03	01/16/03	MCM	Americium 241 in Soil
				7395-008	GAM		01/09/03	01/16/03	MCM	Gamma Scan
				7395-008	H		01/11/03	01/16/03	MCM	Tritium in Soil
				7395-008	NI_L		01/10/03	01/16/03	MCM	Nickel 63 in Soil
				7395-008	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-008	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-008	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-008	TC		01/13/03	01/16/03	MCM	Technetium 99 in Soil
				7395-008	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-008	U		01/09/03	01/16/03	MCM	Uranium, Isotopic in Soil
				7395-008	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil

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SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1976

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R211087-04)			R211087-10	7395-010	93A/93		01/06/03	01/16/03	MCM	Gross Alpha in Soil
SP-1		SOLID	11/14/02	7395-010	93B/93		01/06/03	01/16/03	MCM	Gross Beta in Soil
	F03-003		11/19/02	7395-010	AM		01/13/03	01/16/03	MCM	Americium 241 in Soil
				7395-010	GAM		01/09/03	01/16/03	MCM	Gamma Scan
				7395-010	H		01/11/03	01/16/03	MCM	Tritium in Soil
				7395-010	NI_L		01/11/03	01/16/03	MCM	Nickel 63 in Soil
				7395-010	NP		01/15/03	01/16/03	MCM	Neptunium in Soil
				7395-010	PU		01/10/03	01/16/03	MCM	Plutonium, Isotopic in Solids
				7395-010	SR		01/02/03	01/16/03	MCM	Total Strontium in Soil
				7395-010	TC		01/13/03	01/16/03	MCM	Technetium 99 in Soil
				7395-010	TH		01/07/03	01/16/03	MCM	Thorium, Isotopic in Soil
				7395-010	U_T		12/18/02	12/19/02	MCM	Uranium, Total in Soil
Duplicate (R211087-05)			R211087-12	7395-012	U		01/15/03	01/16/03	MCM	Uranium, Isotopic in Soil
SP-1		SOLID	11/14/02							
	F03-003		11/19/02							
Spike (R211087-04)			R211087-11	7395-011	H		01/11/03	01/16/03	MCM	Tritium in Soil
SP-1		SOLID	11/14/02							
	F03-003		11/19/02							

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

SDG 7395
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1976

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	7			1	1	1		10
93B/93	F03-003	Gross Beta in Soil	900.0_ALPHABETA_GPC	7			1	1	1		10
AM	F03-003	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	7			1	1	1		10
GAM	F03-003	Gamma Scan	GAMMA_GS	7			1	1	1		10
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	7			1	1	1		10
PU	F03-003	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	7			1	1	1		10
SR	F03-003	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	7			1	1	1		10
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	7			1	1	1		10
U	F03-003	Uranium, Isotopic in Soil	UISO_PLATE_AEA	1			1	1	1		4
U_T	F03-003	Uranium, Total in Soil	UTOT_KPA	7			1	1	1		10
TOTALS				73			13	13	13	1	113

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-09 **Method Blank**

METHOD BLANK

SDG	7395	Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211087-09	Client sample id	Method Blank
Dept sample id	7395-009	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	0.128	1.1	2.2	10	U	93A
Gross Beta	12587-47-2	-0.854	2.9	5.1	15	U	93B
Tritium	10028-17-8	0.056	0.16	0.27	400	U	H
Nickel 63	13981-37-8	-0.240	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	-0.078	0.11	0.25	1.0	U	SR
Technetium 99	14133-76-7	-0.150	0.13	0.50	15	U	TC
Thorium 228	14274-82-9	0.216	0.26	0.33		U	TH
Thorium 230	14269-63-7	0.043	0.17	0.33	1.0	U	TH
Thorium 232	TH-232	0.043	0.086	0.33	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.001	0.002	0.005	0.10	U	U_T
Uranium 233/234	U-233/234	-0.031	0.062	0.24	1.0	U	U
Uranium 235	15117-96-1	0.038	0.075	0.29	1.0	U	U
Uranium 238	U-238	0	0.062	0.24	1.0	U	U
Neptunium 237	13994-20-2	0.032	0.064	0.096	1.0	U	NP
Plutonium 238	13981-16-3	0.028	0.028	0.11	1.0	U	PU
Plutonium 239/240	PU-239/240	0.014	0.028	0.11	1.0	U	PU
Americium 241	14596-10-2	0	0.074	0.28	1.0	U	AM
Potassium 40	13966-00-2	U		0.14		U	GAM
Cobalt 60	10198-40-0	U		0.014	0.050	U	GAM
Cesium 137	10045-97-3	U		0.011	0.10	U	GAM
Radium 226	13982-63-3	U		0.018		U	GAM
Radium 228	15262-20-1	U		0.038		U	GAM
Europium 152	14683-23-9	U		0.024	0.10	U	GAM
Europium 154	15585-10-1	U		0.029	0.10	U	GAM
Europium 155	14391-16-3	U		0.021	0.10	U	GAM
Thorium 228	14274-82-9	U		0.015		U	GAM
Thorium 232	TH-232	U		0.038		U	GAM
Uranium 235	15117-96-1	U		0.036		U	GAM
Uranium 238	U-238	U		1.4		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
Report date	01/16/03

B L A N K , c o n t .

SDG 7395	Client/Case no Hanford	SDG H1976	
Contact Melissa C. Mannion	Contract No. 630		
Lab sample id R211087-09	Client sample id Method Blank		
Dept sample id 7395-009	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
Americium 241	14596-10-2	U		0.033		U	GAM

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43412

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-08 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7395 Client/Case no Hanford SDG H1976
Contact Melissa C. Mannion Contract No. 630

Lab sample id R211087-08 Client sample id Lab Control Sample
Dept sample id 7395-008 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	224	15	3.6	10		93A	214	8.6	105	66-134	70-130
Gross Beta	233	11	6.5	15		93B	234	9.4	100	76-124	70-130
Tritium	11.5	0.41	0.27	400		H	11.5	0.46	100	83-117	80-120
Nickel 63	264	4.6	2.0	30		NI_L	276	11	96	84-116	80-120
Total Strontium	23.9	0.99	0.27	1.0		SR	22.3	0.89	107	82-118	80-120
Technetium 99	119	2.7	0.48	15		TC	120	4.8	99	84-116	80-120
Thorium 230	43.8	4.3	0.28	1.0		TH	44.8	1.8	98	83-117	80-120
Total Uranium (ug/g)	18.6	2.2	0.048	0.10		U_T	18.1	0.72	103	76-124	80-120
Uranium 233/234	16.6	1.7	0.88	1.0		U	19.3	0.77	86	84-116	80-120
Uranium 235	14.0	1.6	0.22	1.0		U	15.7	0.63	89	82-118	80-120
Uranium 238	19.7	2.0	0.85	1.0		U	21.0	0.84	94	83-117	80-120
Neptunium 237	19.5	1.8	0.084	1.0		NP	21.8	0.87	89	85-115	80-120
Plutonium 238	26.0	1.8	0.12	1.0		PU	26.8	1.1	97	86-114	80-120
Plutonium 239/240	28.2	1.9	0.096	1.0		PU	29.0	1.2	97	86-114	80-120
Americium 241	21.5	2.6	0.30	1.0		AM	21.0	0.84	102	79-121	80-120
Cobalt 60	0.860	0.086	0.048	0.050		GAM	0.904	0.036	95	74-126	80-120
Cesium 137	1.14	0.075	0.047	0.10		GAM	1.19	0.048	96	76-124	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43411

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-10 B15YJ8

DUPLICATE

SDG	7395			Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R211087-10	Lab sample id	R211087-04	Client sample id	B15YJ8
Dept sample id	7395-010	Dept sample id	7395-004	Location/Matrix	SP-1 SOLID
		Received	11/19/02	Collected/Weight	11/14/02 11:02 895.4 g
% solids	96.3	% solids	96.3	Custody/SAF No	F03-003-058 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
Gross Alpha	5.15	3.0	3.6	10		93A	3.23	2.7	3.3	U	46	151	
Gross Beta	12.7	5.3	8.0	15		93B	14.9	4.1	5.5		16	80	
Tritium	0.070	0.10	0.17	400	U	H	-0.065	0.096	0.17	U	-		
Nickel 63	0.073	1.5	2.5	30	U	NI_L	0.223	1.5	2.5	U	-		
Total Strontium	0.407	0.15	0.22	1.0		SR	0.284	0.14	0.22		36	92	
Technetium 99	-0.020	0.15	0.49	15	U	TC	-0.070	0.13	0.41	U	-		
Thorium 228	0.623	0.34	0.32			TH	0.269	0.36	0.64	U	79	167	
Thorium 230	0.578	0.33	0.32	1.0		TH	0.400	0.36	0.49	U	36	150	
Thorium 232	0.289	0.25	0.32	1.0	U	TH	0.534	0.36	0.34		60	160	
Total Uranium (ug/g)	1.02	0.12	0.005	0.10		U_T	1.03	0.12	0.005		1	31	
Neptunium 237	0	0.13	0.30	1.0	U	NP	0.062	0.042	0.031		200	661	
Plutonium 238	-0.016	0.031	0.12	1.0	U	PU	-0.016	0.032	0.12	U	-		
Plutonium 239/240	0.345	0.16	0.12	1.0		PU	0.317	0.16	0.12		8	103	
Americium 241	0	0.13	0.51	1.0	U	AM	0.101	0.20	0.78	U	-		
Potassium 40	12.0	0.78	0.41			GAM	11.3	0.42	0.19		6	34	
Cobalt 60	U		0.033	0.050	U	GAM	U		0.025	U	-		
Cesium 137	0.343	0.044	0.043	0.10		GAM	0.336	0.030	0.026		2	40	
Radium 226	0.670	0.083	0.073			GAM	0.486	0.042	0.038		32	40	
Radium 228	0.820	0.17	0.16			GAM	0.749	0.094	0.093		9	49	
Europium 152	U		0.085	0.10	U	GAM	U		0.067	U	-		
Europium 154	U		0.12	0.10	U	GAM	U		0.088	U	-		
Europium 155	U		0.12	0.10	U	GAM	U		0.066	U	-		
Thorium 228	0.681	0.047	0.045			GAM	0.877	0.045	0.042		25	34	
Thorium 232	0.820	0.17	0.16			GAM	0.749	0.094	0.093		9	49	
Uranium 235	U		0.16		U	GAM	U		0.10	U	-		
Uranium 238	U		4.4		U	GAM	U		3.1	U	-		
Americium 241	U		0.26		U	GAM	U		0.092	U	-		

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-10 B15YJ8

DUPLICATE, cont.

SDG	7395			Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211087-10	Lab sample id	R211087-04	Client sample id	B15YJ8
Dept sample id	7395-010	Dept sample id	7395-004	Location/Matrix	SP-1 SOLID
		Received	11/19/02	Collected/Weight	11/14/02 11:02 895.4 g
% solids	96.3	% solids	96.3	Custody/SAF No	F03-003-058 F03-003

QC-DUP#4 43413

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-12 B15YJ9

DUPLICATE

SDG	7395			Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211087-12	Lab sample id	R211087-05	Client sample id	B15YJ9
Dept sample id	7395-012	Dept sample id	7395-005	Location/Matrix	SP-1 SOLID
		Received	11/19/02	Collected/Weight	11/14/02 11:15 884.3 g
% solids	97.3	% solids	97.3	Custody/SAF No	F03-003-059 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
Uranium 233/234	0.954	0.32	0.20	1.0		U	0.577	0.29	0.22		49	85
Uranium 235	0.031	0.062	0.24	1.0	U	U	0	0.070	0.27	U	-	
Uranium 238	0.464	0.21	0.20	1.0		U	0.548	0.23	0.22		17	93

200 Area Source Chara. 200-CS-1 OU

QC-DUP#5 43584

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-11 B15YJ8

MATRIX SPIKE

SDG	7395			Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion			Contract	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R211087-11	Lab sample id	R211087-04	Client sample id	B15YJ8
Dept sample id	7395-011	Dept sample id	7395-004	Location/Matrix	SP-1 SOLID
		Received	11/19/02	Collected/Weight	11/14/02 11:02 895.4 g
% solids	96.3	% solids	96.3	Custody/SAF No	F03-003-058 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	46.0	0.60	0.17	400	X	H	50.9	2.0	-0.065	0.096	90	85-115	60-140

200 Area Source Chara. 200-CS-1 OU

QC-MS#4 43414

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-01 **B15YJ5**

DATA SHEET

SDG	7395	Client/Case no	Hanford	SDG H1976	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211087-01	Client sample id	B15YJ5		
Dept sample id	7395-001	Location/Matrix	SP-1	SOLID	
Received	11/19/02	Collected/Weight	11/14/02 09:59	866.6 g	
% solids	95.9	Custody/SAF No	F03-003-055	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	4.79	3.0	3.7	10		93A
Gross Beta	12587-47-2	10.3	4.4	6.5	15		93B
Total Strontium	SR-RAD	0.766	0.18	0.22	1.0		SR
Thorium 228	14274-82-9	0.286	0.41	0.62		U	TH
Thorium 230	14269-63-7	0.203	0.24	0.45	1.0	U	TH
Thorium 232	TH-232	0.284	0.24	0.31	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.767	0.089	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.063	0.063	0.095	1.0	U	NP
Plutonium 238	13981-16-3	0.014	0.055	0.10	1.0	U	PU
Plutonium 239/240	PU-239/240	0.831	0.22	0.10	1.0		PU
Americium 241	14596-10-2	0.102	0.14	0.26	1.0	U	AM
Potassium 40	13966-00-2	10.7	0.71	0.45			GAM
Cobalt 60	10198-40-0	U		0.033	0.050	U	GAM
Cesium 137	10045-97-3	0.290	0.044	0.043	0.10		GAM
Radium 226	13982-63-3	0.504	0.072	0.073			GAM
Radium 228	15262-20-1	0.608	0.16	0.16			GAM
Europium 152	14683-23-9	U		0.085	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.090	0.10	U	GAM
Thorium 228	14274-82-9	0.649	0.039	0.040			GAM
Thorium 232	TH-232	0.608	0.16	0.16			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		4.2		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	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-02 B15YJ6

DATA SHEET

SDG	7395	Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211087-02	Client sample id	B15YJ6
Dept sample id	7395-002	Location/Matrix	SP-1 SOLID
Received	11/19/02	Collected/Weight	11/14/02 10:28 932.7 g
% solids	97.7	Custody/SAF No	F03-003-056 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	7.43	3.5	3.9	10		93A
Gross Beta	12587-47-2	15.0	4.1	5.5	15		93B
Total Strontium	SR-RAD	0.452	0.15	0.21	1.0		SR
Thorium 228	14274-82-9	1.45	0.68	0.62			TH
Thorium 230	14269-63-7	0.776	0.45	0.53	1.0		TH
Thorium 232	TH-232	0.831	0.45	0.42	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.715	0.082	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.012	0.048	0.092	1.0	U	NP
Plutonium 238	13981-16-3	0.016	0.031	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	0.016	0.031	0.12	1.0	U	PU
Americium 241	14596-10-2	0	0.14	0.35	1.0	U	AM
Potassium 40	13966-00-2	10.1	0.52	0.26			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.021	0.10	U	GAM
Radium 226	13982-63-3	0.348	0.045	0.043			GAM
Radium 228	15262-20-1	0.568	0.11	0.10			GAM
Europium 152	14683-23-9	U		0.059	0.10	U	GAM
Europium 154	15585-10-1	U		0.083	0.10	U	GAM
Europium 155	14391-16-3	U		0.077	0.10	U	GAM
Thorium 228	14274-82-9	0.452	0.030	0.030			GAM
Thorium 232	TH-232	0.568	0.11	0.10			GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		3.0		U	GAM
Americium 241	14596-10-2	U		0.16		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-03 **B15YJ7**

DATA SHEET

SDG	7395	Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211087-03	Client sample id	B15YJ7
Dept sample id	7395-003	Location/Matrix	SP-1 SOLID
Received	11/19/02	Collected/Weight	11/14/02 10:43 906.1 g
% solids	96.5	Custody/SAF No	F03-003-057 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	2.46	2.5	3.3	10	U	93A
Gross Beta	12587-47-2	11.4	4.6	6.8	15		93B
Total Strontium	SR-RAD	0.186	0.12	0.21	1.0	U	SR
Thorium 228	14274-82-9	0.238	0.32	0.49		U	TH
Thorium 230	14269-63-7	0.237	0.24	0.38	1.0	U	TH
Thorium 232	TH-232	0.237	0.16	0.30	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.404	0.046	0.005	0.10		U_T
Neptunium 237	13994-20-2	0	0.051	0.076	1.0	U	NP
Plutonium 238	13981-16-3	0	0.072	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	0.288	0.22	0.28	1.0		PU
Americium 241	14596-10-2	0.071	0.14	0.27	1.0	U	AM
Potassium 40	13966-00-2	11.0	0.58	0.21			GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Cesium 137	10045-97-3	0.093	0.016	0.018	0.10		GAM
Radium 226	13982-63-3	0.397	0.043	0.038			GAM
Radium 228	15262-20-1	0.607	0.093	0.093			GAM
Europium 152	14683-23-9	U		0.046	0.10	U	GAM
Europium 154	15585-10-1	U		0.068	0.10	U	GAM
Europium 155	14391-16-3	U		0.044	0.10	U	GAM
Thorium 228	14274-82-9	0.585	0.027	0.024			GAM
Thorium 232	TH-232	0.607	0.093	0.093			GAM
Uranium 235	15117-96-1	U		0.072		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Americium 241	14596-10-2	U		0.028		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	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-04 **B15YJ8**

DATA SHEET

SDG	7395	Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211087-04	Client sample id	B15YJ8
Dept sample id	7395-004	Location/Matrix	SP-1 SOLID
Received	11/19/02	Collected/Weight	11/14/02 11:02 895.4 g
% solids	96.3	Custody/SAF No	F03-003-058 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	3.23	2.7	3.3	10	U	93A
Gross Beta	12587-47-2	14.9	4.1	5.5	15		93B
Tritium	10028-17-8	-0.065	0.096	0.17	400	U	H
Nickel 63	13981-37-8	0.223	1.5	2.5	30	U	NI_L
Total Strontium	SR-RAD	0.284	0.14	0.22	1.0		SR
Technetium 99	14133-76-7	-0.070	0.13	0.41	15	U	TC
Thorium 228	14274-82-9	0.269	0.36	0.64		U	TH
Thorium 230	14269-63-7	0.400	0.36	0.49	1.0	U	TH
Thorium 232	TH-232	0.534	0.36	0.34	1.0		TH
Total Uranium (ug/g)	7440-61-1	1.03	0.12	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.062	0.042	0.031	1.0		NP
Plutonium 238	13981-16-3	-0.016	0.032	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	0.317	0.16	0.12	1.0		PU
Americium 241	14596-10-2	0.101	0.20	0.78	1.0	U	AM
Potassium 40	13966-00-2	11.3	0.42	0.19			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	0.336	0.030	0.026	0.10		GAM
Radium 226	13982-63-3	0.486	0.042	0.038			GAM
Radium 228	15262-20-1	0.749	0.094	0.093			GAM
Europium 152	14683-23-9	U		0.067	0.10	U	GAM
Europium 154	15585-10-1	U		0.088	0.10	U	GAM
Europium 155	14391-16-3	U		0.066	0.10	U	GAM
Thorium 228	14274-82-9	0.877	0.045	0.042			GAM
Thorium 232	TH-232	0.749	0.094	0.093			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.1		U	GAM
Americium 241	14596-10-2	U		0.092		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	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-05 B15YJ9

DATA SHEET

SDG	7395	Client/Case no	Hanford	SDG H1976	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211087-05	Client sample id	B15YJ9		
Dept sample id	7395-005	Location/Matrix	SP-1	SOLID	
Received	11/19/02	Collected/Weight	11/14/02 11:15	884.3 g	
% solids	97.3	Custody/SAF No	F03-003-059	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	7.27	3.1	2.8	10		93A
Gross Beta	12587-47-2	11.2	4.5	6.6	15		93B
Tritium	10028-17-8	-0.015	0.096	0.16	400	U	H
Nickel 63	13981-37-8	-0.652	1.7	2.9	30	U	NI_L
Total Strontium	SR-RAD	0.077	0.12	0.22	1.0	U	SR
Technetium 99	14133-76-7	-0.117	0.27	0.53	15	U	TC
Thorium 228	14274-82-9	1.27	0.49	0.36			TH
Thorium 230	14269-63-7	0.469	0.28	0.36	1.0		TH
Thorium 232	TH-232	0.516	0.29	0.36	1.0		TH
Total Uranium (ug/g)	7440-61-1	5.88	0.69	0.048	0.10		U_T
Uranium 233/234	U-233/234	0.577	0.29	0.22	1.0		U
Uranium 235	15117-96-1	0	0.070	0.27	1.0	U	U
Uranium 238	U-238	0.548	0.23	0.22	1.0		U
Neptunium 237	13994-20-2	0	0.057	0.086	1.0	U	NP
Plutonium 238	13981-16-3	0	0.035	0.13	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.035	0.13	1.0	U	PU
Americium 241	14596-10-2	0.178	0.53	0.98	1.0	U	AM
Potassium 40	13966-00-2	10.3	0.56	0.17			GAM
Cobalt 60	10198-40-0	U		0.019	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	0.316	0.041	0.037			GAM
Radium 228	15262-20-1	0.408	0.077	0.080			GAM
Europium 152	14683-23-9	U		0.045	0.10	U	GAM
Europium 154	15585-10-1	U		0.066	0.10	U	GAM
Europium 155	14391-16-3	U		0.041	0.10	U	GAM
Thorium 228	14274-82-9	0.459	0.024	0.022			GAM
Thorium 232	TH-232	0.408	0.077	0.080			GAM
Uranium 235	15117-96-1	U		0.066		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 H1976

R211087-05 **B15YJ9**

DATA SHEET, cont

SDG	7395	Client/Case no	Hanford	SDG H1976	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211087-05	Client sample id	B15YJ9		
Dept sample id	7395-005	Location/Matrix	SP-1	SOLID	
Received	11/19/02	Collected/Weight	11/14/02 11:15	884.3 g	
% solids	97.3	Custody/SAF No	F03-003-059	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 238	U-238	U		2.3		U	GAM
Americium 241	14596-10-2	U		0.026		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	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

R211087-06 B15YK0

DATA SHEET

SDG	7395	Client/Case no	Hanford SDG H1976
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211087-06	Client sample id	B15YK0
Dept sample id	7395-006	Location/Matrix	SP-1 SOLID
Received	11/19/02	Collected/Weight	11/14/02 11:39 810.2 g
% solids	94.4	Custody/SAF No	F03-003-060 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	0.835	2.1	3.3	10	U	93A
Gross Beta	12587-47-2	9.30	4.5	6.8	15		93B
Tritium	10028-17-8	0	0.10	0.17	400	U	H
Nickel 63	13981-37-8	-0.049	1.5	2.5	30	U	NI_L
Total Strontium	SR-RAD	0.170	0.12	0.21	1.0	U	SR
Technetium 99	14133-76-7	-0.214	0.13	0.55	15	U	TC
Thorium 228	14274-82-9	0.265	0.23	0.29		U	TH
Thorium 230	14269-63-7	0.338	0.23	0.29	1.0		TH
Thorium 232	TH-232	0.263	0.23	0.29	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.731	0.083	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.067	0.067	0.10	1.0	U	NP
Plutonium 238	13981-16-3	-0.017	0.033	0.13	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.017	0.033	0.13	1.0	U	PU
Americium 241	14596-10-2	-0.038	0.076	0.29	1.0	U	AM
Potassium 40	13966-00-2	11.5	0.46	0.22			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	U		0.027	0.10	U	GAM
Radium 226	13982-63-3	0.483	0.040	0.035			GAM
Radium 228	15262-20-1	0.654	0.13	0.12			GAM
Europium 152	14683-23-9	U		0.067	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.069	0.10	U	GAM
Thorium 228	14274-82-9	0.838	0.044	0.040			GAM
Thorium 232	TH-232	0.654	0.13	0.12			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Americium 241	14596-10-2	U		0.099		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 H1976

R211087-07 B15YL3

DATA SHEET

SDG	7395	Client/Case no	Hanford	SDG H1976	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211087-07	Client sample id	B15YL3		
Dept sample id	7395-007	Location/Matrix	SP-1	SOLID	
Received	11/19/02	Collected/Weight	11/14/02 10:15	934.6 g	
% solids	96.4	Custody/SAF No	F03-003-080	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	4.53	2.9	3.6	10		93A
Gross Beta	12587-47-2	14.0	5.4	8.0	15		93B
Total Strontium	SR-RAD	1.26	0.21	0.22	1.0		SR
Thorium 228	14274-82-9	0.230	0.28	0.51		U	TH
Thorium 230	14269-63-7	0.730	0.37	0.44	1.0		TH
Thorium 232	TH-232	0.365	0.28	0.35	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.435	0.050	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.027	0.054	0.082	1.0	U	NP
Plutonium 238	13981-16-3	0	0.028	0.11	1.0	U	PU
Plutonium 239/240	PU-239/240	0.797	0.23	0.11	1.0		PU
Americium 241	14596-10-2	0.040	0.16	0.30	1.0	U	AM
Potassium 40	13966-00-2	11.1	0.57	0.21			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	0.193	0.023	0.023	0.10		GAM
Radium 226	13982-63-3	0.437	0.046	0.043			GAM
Radium 228	15262-20-1	0.625	0.098	0.095			GAM
Europium 152	14683-23-9	U		0.050	0.10	U	GAM
Europium 154	15585-10-1	U		0.067	0.10	U	GAM
Europium 155	14391-16-3	U		0.048	0.10	U	GAM
Thorium 228	14274-82-9	0.607	0.028	0.026			GAM
Thorium 232	TH-232	0.625	0.098	0.095			GAM
Uranium 235	15117-96-1	U		0.076		U	GAM
Uranium 238	U-238	U		2.5		U	GAM
Americium 241	14596-10-2	U		0.068		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
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test AM Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 7052-071						
B15YJ5	R211087-01			7395-001	U	
B15YJ6	R211087-02			7395-002	U	
B15YJ7	R211087-03			7395-003	U	
B15YJ8	R211087-04			7395-004	U	
B15YJ9	R211087-05			7395-005	U	
B15YK0	R211087-06			7395-006	U	
B15YL3	R211087-07			7395-007	U	
BLK (QC ID=43412)	R211087-09			7395-009	U	
LCS (QC ID=43411)	R211087-08			7395-008	ok	
Duplicate (R211087-04)	R211087-10			7395-010	-	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 7052-071	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 071											
B15YJ5	R211087-01			0.26	0.500			76		105			63	01/13/03	01/16	SS-056
B15YJ6	R211087-02			0.35	0.500			65		139			61	01/13/03	01/14	SS-022
B15YJ7	R211087-03			0.27	0.500			61		140			61	01/13/03	01/14	SS-024
B15YJ8	R211087-04			0.78	0.500			29		105			63	01/13/03	01/16	SS-057
B15YJ9	R211087-05			0.98	0.500			33		108			60	01/13/03	01/13	SS-021
B15YK0	R211087-06			0.29	0.500			80		108			60	01/13/03	01/13	SS-022
B15YL3	R211087-07			0.30	0.500			70		108			60	01/13/03	01/13	SS-024
BLK (QC ID=43412)	R211087-09			0.28	0.500			76		109				01/13/03	01/13	SS-042
LCS (QC ID=43411)	R211087-08			0.30	0.500			70		108				01/13/03	01/13	SS-041
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.51	0.500			39		107			60	01/13/03	01/13	SS-043
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test	AM
Matrix	SOLID
SDG	7395
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1976

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

AVERAGES ± 2 SD FOR 10 SAMPLES	MDA	0.43	±	0.50
	YIELD	60	±	38

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test NP Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7052-071						
B15YJ5	R211087-01			7395-001	U	
B15YJ6	R211087-02			7395-002	U	
B15YJ7	R211087-03			7395-003	U	
B15YJ8	R211087-04			7395-004	0.062	
B15YJ9	R211087-05			7395-005	U	
B15YK0	R211087-06			7395-006	U	
B15YL3	R211087-07			7395-007	U	
BLK (QC ID=43412)	R211087-09			7395-009	U	
LCS (QC ID=43411)	R211087-08			7395-008	ok	
Duplicate (R211087-04)	R211087-10			7395-010	ok	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 7052-071	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 071												
B15YJ5	R211087-01			0.095	0.500			73		135			62	01/14/03	01/15	SS-003
B15YJ6	R211087-02			0.092	0.500			72		333			62	01/14/03	01/15	SS-039
B15YJ7	R211087-03			0.076	0.500			87		136			62	01/14/03	01/15	SS-008
B15YJ8	R211087-04			0.031	0.500			85		333			62	01/14/03	01/15	SS-040
B15YJ9	R211087-05			0.086	0.500			78		136			62	01/14/03	01/15	SS-011
B15YK0	R211087-06			0.10	0.500			70		136			62	01/14/03	01/15	SS-013
B15YL3	R211087-07			0.082	0.500			77		136			62	01/14/03	01/15	SS-014
BLK (QC ID=43412)	R211087-09			0.096	0.500			69		137				01/14/03	01/15	SS-016
LCS (QC ID=43411)	R211087-08			0.084	0.500			77		136				01/14/03	01/15	SS-015
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.30	0.500			75		137			62	01/14/03	01/15	SS-019
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test NP Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

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	±	0.14
FOR 10 SAMPLES	YIELD	76	±	12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test PU Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240
Preparation batch 7052-071							
B15YJ5	R211087-01			7395-001	U		0.831
B15YJ6	R211087-02			7395-002	U		U
B15YJ7	R211087-03			7395-003	U		0.288
B15YJ8	R211087-04			7395-004	U		0.317
B15YJ9	R211087-05			7395-005	U		U
B15YK0	R211087-06			7395-006	U		U
B15YL3	R211087-07			7395-007	U		0.797
BLK (QC ID=43412)	R211087-09			7395-009	U		U
LCS (QC ID=43411)	R211087-08			7395-008	ok		ok
Duplicate (R211087-04)	R211087-10			7395-010	-	U	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0		1.0

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 7052-071 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 071																
B15YJ5	R211087-01			0.10	0.500			93		228			57	01/09/03	01/10	SS-043
B15YJ6	R211087-02			0.12	0.500			72		226			57	01/09/03	01/10	SS-045
B15YJ7	R211087-03			0.28	0.500			49		165			57	01/09/03	01/10	SS-046
B15YJ8	R211087-04			0.12	0.500			79		229			57	01/09/03	01/10	SS-047
B15YJ9	R211087-05			0.13	0.500			80		229			57	01/09/03	01/10	SS-049
B15YK0	R211087-06			0.13	0.500			82		229			57	01/09/03	01/10	SS-050
B15YL3	R211087-07			0.11	0.500			95		228			57	01/09/03	01/10	SS-051
BLK (QC ID=43412)	R211087-09			0.11	0.500			90		229				01/09/03	01/10	SS-055
LCS (QC ID=43411)	R211087-08			0.12	0.500			99		228				01/09/03	01/10	SS-052
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.12	0.500			76		229			57	01/09/03	01/10	SS-056
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test	PU
Matrix	SOLID
SDG	7395
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1976

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	MDA	0.13	±	0.10
FOR 10 SAMPLES	YIELD	82	±	29

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test TH Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-071					
B15YJ5	R211087-01			7395-001	U
B15YJ6	R211087-02			7395-002	0.776
B15YJ7	R211087-03			7395-003	U
B15YJ8	R211087-04			7395-004	U
B15YJ9	R211087-05			7395-005	0.469
B15YK0	R211087-06			7395-006	0.338
B15YL3	R211087-07			7395-007	0.730
BLK (QC ID=43412)	R211087-09			7395-009	U
LCS (QC ID=43411)	R211087-08			7395-008	ok
Duplicate (R211087-04)	R211087-10			7395-010	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 7052-071	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 071												
B15YJ5	R211087-01			0.45	0.250			102		154			54	01/06/03	01/07	SS-021
B15YJ6	R211087-02			0.53	0.250			77		154			54	01/06/03	01/07	SS-022
B15YJ7	R211087-03			0.38	0.250			99		155			54	01/06/03	01/07	SS-024
B15YJ8	R211087-04			0.49	0.250			95		150			56	01/06/03	01/09	SS-021
B15YJ9	R211087-05			0.36	0.250			78		155			54	01/06/03	01/07	SS-055
B15YK0	R211087-06			0.29	0.250			94		155			54	01/06/03	01/07	SS-056
B15YL3	R211087-07			0.44	0.250			95		151			56	01/06/03	01/09	SS-022
BLK (QC ID=43412)	R211087-09			0.33	0.250			92		155				01/06/03	01/07	SS-059
LCS (QC ID=43411)	R211087-08			0.28	0.250			107		155				01/06/03	01/07	SS-058
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.32	0.250			87		156			54	01/06/03	01/07	SS-060
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test TH	Matrix SOLID
SDG 7395	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1976	

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	0.39	±	0.17
FOR 10 SAMPLES	YIELD	93	±	19

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test U Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7052-071											
B15YJ9	R211087-05			7395-005	0.577	U	0.548	105	69	0	13
BLK (QC ID=43413)	R211087-09			7395-009	U	U	U				
LCS (QC ID=43412)	R211087-08			7395-008	ok	ok	ok				
Duplicate (R211087-05)	R211087-12			7395-012	ok	- U	ok	206	116	7	14
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
200 Area Source Chara. 200-CS-1 OU								Averages 155		3	

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 7052-071 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 071																
B15YJ9	R211087-05			0.27	0.500			84		128			56	01/08/03	01/09	SS-053
BLK (QC ID=43413)	R211087-09			0.29	0.500			83		130				01/08/03	01/09	SS-063
LCS (QC ID=43412)	R211087-08			0.88	0.500			95		130				01/08/03	01/09	SS-062
Duplicate (R211087-05) (QC ID=43584)	R211087-12			0.24	0.500			85		129			62	01/08/03	01/15	SS-052
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.42 ± 0.61
YIELD 87 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test SR Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-071					
B15YJ5	R211087-01			7395-001	0.766
B15YJ6	R211087-02			7395-002	0.452
B15YJ7	R211087-03			7395-003	U
B15YJ8	R211087-04			7395-004	0.284
B15YJ9	R211087-05			7395-005	U
B15YK0	R211087-06			7395-006	U
B15YL3	R211087-07			7395-007	1.26
BLK (QC ID=43412)	R211087-09			7395-009	U
LCS (QC ID=43411)	R211087-08			7395-008	ok
Duplicate (R211087-04)	R211087-10			7395-010	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 7052-071	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 071															
B15YJ5	R211087-01			0.22	1.00			85		100			49	01/02/03	01/02	GRB-219
B15YJ6	R211087-02			0.21	1.00			84		100			49	01/02/03	01/02	GRB-220
B15YJ7	R211087-03			0.21	1.00			89		100			49	01/02/03	01/02	GRB-207
B15YJ8	R211087-04			0.22	1.00			86		100			49	01/02/03	01/02	GRB-220
B15YJ9	R211087-05			0.22	1.00			92		100			49	01/02/03	01/02	GRB-221
B15YK0	R211087-06			0.21	1.00			89		100			49	01/02/03	01/02	GRB-222
B15YL3	R211087-07			0.22	1.00			90		100			49	01/02/03	01/02	GRB-231
BLK (QC ID=43412)	R211087-09			0.25	1.00			76		100				01/02/03	01/02	GRB-224
LCS (QC ID=43411)	R211087-08			0.27	1.00			77		73				01/02/03	01/02	GRB-218
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.22	1.00			86		100			49	01/02/03	01/02	GRB-232
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test SR	Matrix SOLID
SDG 7395	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1976	

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	±	0.039
FOR 10 SAMPLES	YIELD	85	±	11

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test TC Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7052-071						
B15YJ8	R211087-04			7395-004	U	
B15YJ9	R211087-05			7395-005	U	
B15YK0	R211087-06			7395-006	U	
BLK (QC ID=43412)	R211087-09			7395-009	U	
LCS (QC ID=43411)	R211087-08			7395-008	ok	
Duplicate (R211087-04)	R211087-10			7395-010	-	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 7052-071	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 071															
B15YJ8	R211087-04			0.41	1.06			95		78			61	01/09/03	01/14	GRB-232
B15YJ9	R211087-05			0.53	1.04			91		50			60	01/09/03	01/13	GRB-218
B15YK0	R211087-06			0.55	1.01			94		50			60	01/09/03	01/13	GRB-219
BLK (QC ID=43412)	R211087-09			0.50	1.00			105		50				01/09/03	01/13	GRB-221
LCS (QC ID=43411)	R211087-08			0.48	1.00			103		50				01/09/03	01/13	GRB-220
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.49	1.06			96		50			60	01/09/03	01/13	GRB-222
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test TC	Matrix SOLID
SDG 7395	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1976	

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	0.49	±	0.097
FOR 6 SAMPLES	YIELD	97	±	11

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test 93A Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7052-071					
B15YJ5	R211087-01	93		7395-001	4.79
B15YJ6	R211087-02	93		7395-002	7.43
B15YJ7	R211087-03	93		7395-003	U
B15YJ8	R211087-04	93		7395-004	U
B15YJ9	R211087-05	93		7395-005	7.27
B15YK0	R211087-06	93		7395-006	U
B15YL3	R211087-07	93		7395-007	4.53
BLK (QC ID=43412)	R211087-09	93		7395-009	U
LCS (QC ID=43411)	R211087-08	93		7395-008	ok
Duplicate (R211087-04)	R211087-10	93		7395-010	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 7052-071	2σ prep error 20.0 %				Reference Lab Notebook 7052 pg. 071											
B15YJ5	R211087-01	93		3.7	0.100			30		100			49	01/02/03	01/02	GRB-115
B15YJ6	R211087-02	93		3.9	0.100			35		100			50	01/02/03	01/03	GRB-115
B15YJ7	R211087-03	93		3.3	0.100			28		100			49	01/02/03	01/02	GRB-110
B15YJ8	R211087-04	93		3.3	0.100			33		100			50	01/02/03	01/03	GRB-109
B15YJ9	R211087-05	93		2.8	0.100			30		100			50	01/02/03	01/03	GRB-116
B15YK0	R211087-06	93		3.3	0.100			26		100			50	01/02/03	01/03	GRB-110
B15YL3	R211087-07	93		3.6	0.100			32		100			53	01/02/03	01/06	GRB-114
BLK (QC ID=43412)	R211087-09	93		2.2	0.100			22		100				01/02/03	01/03	GRB-101
LCS (QC ID=43411)	R211087-08	93		3.6	0.100			22		100				01/02/03	01/06	GRB-115
Duplicate (R211087-04) (QC ID=43413)	R211087-10	93		3.6	0.100			33		100			53	01/02/03	01/06	GRB-114
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test 93A	Matrix SOLID
SDG 7395	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1976	

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	3.3	±	1.0
FOR 10 SAMPLES	RESIDUE	29	±	9

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test 93B Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-071					
B15YJ5	R211087-01	93		7395-001	10.3
B15YJ6	R211087-02	93		7395-002	15.0
B15YJ7	R211087-03	93		7395-003	11.4
B15YJ8	R211087-04	93		7395-004	14.9
B15YJ9	R211087-05	93		7395-005	11.2
B15YK0	R211087-06	93		7395-006	9.30
B15YL3	R211087-07	93		7395-007	14.0
BLK (QC ID=43412)	R211087-09	93		7395-009	U
LCS (QC ID=43411)	R211087-08	93		7395-008	ok
Duplicate (R211087-04)	R211087-10	93		7395-010	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 7052-071	2σ prep error 15.0 %				Reference Lab Notebook 7052 pg. 071											
B15YJ5	R211087-01	93		6.5	0.100			30		100			49	01/02/03	01/02	GRB-115
B15YJ6	R211087-02	93		5.5	0.100			35		100			49	01/02/03	01/02	GRB-109
B15YJ7	R211087-03	93		6.8	0.100			28		100			49	01/02/03	01/02	GRB-110
B15YJ8	R211087-04	93		5.5	0.100			33		100			50	01/02/03	01/03	GRB-109
B15YJ9	R211087-05	93		6.6	0.100			30		100			49	01/02/03	01/02	GRB-112
B15YK0	R211087-06	93		6.8	0.100			26		100			50	01/02/03	01/03	GRB-110
B15YL3	R211087-07	93		8.0	0.100			32		100			53	01/02/03	01/06	GRB-114
BLK (QC ID=43412)	R211087-09	93		5.1	0.100			22		100				01/02/03	01/03	GRB-101
LCS (QC ID=43411)	R211087-08	93		6.5	0.100			22		100				01/02/03	01/06	GRB-115
Duplicate (R211087-04) (QC ID=43413)	R211087-10	93		8.0	0.100			33		100			53	01/02/03	01/06	GRB-114
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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test 93B	Matrix SOLID
SDG 7395	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1976	

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	6.5	±	2.0
FOR 10 SAMPLES	RESIDUE	29	±	9

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test GAM Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137
Preparation batch 7052-071							
B15YJ5	R211087-01			7395-001	U		0.290
B15YJ6	R211087-02			7395-002	U		U
B15YJ7	R211087-03			7395-003	U		0.093
B15YJ8	R211087-04			7395-004	U		0.336
B15YJ9	R211087-05			7395-005	U		U
B15YK0	R211087-06			7395-006	U		U
B15YL3	R211087-07			7395-007	U		0.193
BLK (QC ID=43412)	R211087-09			7395-009	U		U
LCS (QC ID=43411)	R211087-08			7395-008	ok		ok
Duplicate (R211087-04)	R211087-10			7395-010	-	U	ok
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 7052-071	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 071															
B15YJ5	R211087-01			0.31	867					168			54	12/23/02	01/07	02,03,00
B15YJ6	R211087-02			0.20	933					168			54	12/23/02	01/07	MB,05,00
B15YJ7	R211087-03			0.16	906					168			54	12/23/02	01/07	MB,07,00
B15YJ8	R211087-04			0.23	895					173			55	12/23/02	01/08	02,04,00
B15YJ9	R211087-05			0.16	884					174			55	12/23/02	01/08	MB,07,00
B15YK0	R211087-06			0.22	810					154			55	12/23/02	01/08	02,04,00
B15YL3	R211087-07			0.17	935					154			55	12/23/02	01/08	MB,07,00
BLK (QC ID=43412)	R211087-09			0.081	810					101				12/23/02	01/09	01,04,00
LCS (QC ID=43411)	R211087-08			0.048	810					101				12/23/02	01/09	01,03,00
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.31	895					101			56	12/23/02	01/09	MB,05,00
Nominal values and limits from method				0.050	810					100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test GAM Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1976

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	±	0.17
FOR 10 SAMPLES	YIELD		±	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test U T Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-071					
B15YJ5	R211087-01			7395-001	0.767
B15YJ6	R211087-02			7395-002	0.715
B15YJ7	R211087-03			7395-003	0.404
B15YJ8	R211087-04			7395-004	1.03
B15YJ9	R211087-05			7395-005	5.88
B15YK0	R211087-06			7395-006	0.731
B15YL3	R211087-07			7395-007	0.435
BLK (QC ID=43412)	R211087-09			7395-009	U
LCS (QC ID=43411)	R211087-08			7395-008	ok
Duplicate (R211087-04)	R211087-10			7395-010	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 7052-071	2σ prep error 9.0 %			Reference Lab Notebook 7052 pg. 071												
B15YJ5	R211087-01			0.005	0.100								34	12/18/02	12/18	KPA-001
B15YJ6	R211087-02			0.005	0.100								34	12/18/02	12/18	KPA-001
B15YJ7	R211087-03			0.005	0.100								34	12/18/02	12/18	KPA-001
B15YJ8	R211087-04			0.005	0.100								34	12/18/02	12/18	KPA-001
B15YJ9	R211087-05			0.048	0.100								34	12/18/02	12/18	KPA-001
B15YK0	R211087-06			0.005	0.100								34	12/18/02	12/18	KPA-001
B15YL3	R211087-07			0.005	0.100								34	12/18/02	12/18	KPA-001
BLK (QC ID=43412)	R211087-09			0.005	0.100									12/18/02	12/18	KPA-001
LCS (QC ID=43411)	R211087-08			0.048	0.100									12/18/02	12/18	KPA-001
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.005	0.100								34	12/18/02	12/18	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 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test U T	Matrix SOLID
SDG 7395	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Client Hanford	
Contract No. 630	
Contract SDG H1976	

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 FOR 10 SAMPLES	MDA	0.014 ± 0.036
	YIELD	±

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test H Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7052-071						
B15YJ8	R211087-04			7395-004	U	
B15YJ9	R211087-05			7395-005	U	
B15YK0	R211087-06			7395-006	U	
BLK (QC ID=43412)	R211087-09			7395-009	U	
LCS (QC ID=43411)	R211087-08			7395-008	ok	
Duplicate (R211087-04)	R211087-10			7395-010	-	U
Spike (R211087-04)	R211087-11			7395-011	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 7052-071 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 071																
B15YJ8	R211087-04			0.17	21.2			49		120			58	01/02/03	01/11	LSC-005
B15YJ9	R211087-05			0.16	21.3			50		120			58	01/02/03	01/11	LSC-005
B15YK0	R211087-06			0.17	21.4			48		120			58	01/02/03	01/11	LSC-005
BLK (QC ID=43412)	R211087-09			0.27	20.0			33		120				01/02/03	01/11	LSC-005
LCS (QC ID=43411)	R211087-08			0.27	20.0			33		120				01/02/03	01/11	LSC-005
Duplicate (R211087-04) (QC ID=43413)	R211087-10			0.17	21.1			50		120			58	01/02/03	01/11	LSC-005
Spike (R211087-04) (QC ID=43414)	R211087-11			0.17	21.0			51		120			58	01/02/03	01/11	LSC-005
Nominal values and limits from method				400	20.0					25			180			

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

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.20 ± 0.10
YIELD 45 ± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/16/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1976

Test NI_L Matrix SOLID
SDG 7395
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1976

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 7052-071						
B15YJ8	R211087-04			7395-004	U	
B15YJ9	R211087-05			7395-005	U	
B15YK0	R211087-06			7395-006	U	
BLK (QC ID=43412)	R211087-09			7395-009	U	
LCS (QC ID=43411)	R211087-08			7395-008	ok	
Duplicate (R211087-04)	R211087-10			7395-010	-	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 7052-071 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 071																
B15YJ8	R211087-04			2.5	0.500			75		100			57	01/09/03	01/10	LSC-005
B15YJ9	R211087-05			2.9	0.500			64		100			57	01/09/03	01/10	LSC-005
B15YK0	R211087-06			2.5	0.500			74		100			57	01/09/03	01/10	LSC-005
BLK (QC ID=43412)	R211087-09			2.0	0.500			93		100				01/09/03	01/11	LSC-005
LCS (QC ID=43411)	R211087-08			2.0	0.500			94		100				01/09/03	01/10	LSC-005
Duplicate (R211087-04) (QC ID=43413)	R211087-10			2.5	0.500			76		100			58	01/09/03	01/11	LSC-005
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	2.4	±	0.69
	YIELD	79	±	24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/16/03

SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/16/03

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.

SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

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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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/16/03

SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

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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Protocol Hanford
Version Ver 1.0
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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

SDG 7395
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1976

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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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/16/03

SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

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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Protocol Hanford
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SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

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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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/16/03

DUPLICATE

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

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

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

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

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

SDG 7395
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1976

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/16/03

SDG 7395
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1976

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/16/03

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-055	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-1 H1976 (7395)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC96 035	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 051	Bill of Lading/Air Bill No.: 3E8 05PC	

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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG — RJN 11/13/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 70ml	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 AD 11/18/02	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										
B15YJ5 / SOIL / 11-14-02 / 0959	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	11-14-02 1320	Ref#1B/3728	11-14-02 1320
Ref 1B	11/18/02 1100	SJ Gaz	11/18/02 1100
SJ Gaz	11/18/02 1100	FED EX	
Fed Ex	11/19/02 9:35	Fed Ex	11/19/02 9:35am
Melissa Mann	11/19/02	for Fed Ex	MCM 11/20/02
	9:05 am		

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-056	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-1 H1976 (7395)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99 035	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 051	Bill of Lading/Air Bill No.: 562 9B7 C	

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	aG	aG	aG	aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 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.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YJ6 / SOIL / 11-14-02 / 1028	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	11-14-02 1320	Ref # 1B / 3728	11-14-02 1320
Ref 1B	111802 1100	S J Gale	111802 1100
S J Gale	11 18 02 1100	Fed Ex	
Fed Ex	11/19/02 9:35		11/19/02 9:35

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1 HA76 (7395)	SAF No.: F03-003	
Ice Chest No.: ER C 99 035	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 051	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	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 AD 11/8/02	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 MM 11/23/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ7	SOIL	11-14-02	1043	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-14-02 1320	Ref #B / 3728	11-14-02 1320
Ref 1B	111802 1100	SJGALE	111802 1100
SJGALE	111802 1100	FED EX	
FED EX	11/19/02 9:35		11/19/02 9:35

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1 H1976 (7395)	SAF No.: F03-003	
Ice Chest No.: SEE 99 035	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030051	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-13-02
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B15YJ8 / SOIL / 11-14-02 / 1102	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11-14-02 1320	REF#1B 3728	11-14-02 1320
REF 1B	111802 1100	SJOHNSON	111802 1100
SJOHNSON	111902 1100	FED EX	
FED EX	11/19/02 9:35 am		11/19/02 9:35 am

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

FHHEE-011 (03/01/2002)

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059	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-1 H1975 (7395)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99005	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 051	Bill of Lading/Air Bill No.: 5GE 05 PC	

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~~	RJN 11-13-02
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Received By/Stored In: REF #1B 3728	11-14-02 1320
Relinquished By/Removed From: REF 1B 111802	1100	Received By/Stored In: SJ Gale 111802	1100
Relinquished By/Removed From: SJ Gale 111802	1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11/19/02 9:35	Received By/Stored In:	11/19/02 9:35
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1 H1976 (7395)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC99 035	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 051	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11/13/02
No. of Container(s)	1	1	1	1	1 RJN 11-13-02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK0	SOIL	11-14-02	1139	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	11-14-02 1320	Ref # 13/3728	11-14-02 1320
REF 1B	11.18.02 1100	SJ GALE	11/18/02 1100
SJ GALE	11/18/02 1100	FED EX	
Fed Ex	11/19/02 9:35		11/19/02 9:35

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-080	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-1 H1976 (7395)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC99 035	Field Logbook No.: HNF-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030051	Bill of Lading/Air Bill No.: SEE 05 PC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	RUN 11/3/02
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g ml	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 11/18/02	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 MM 11/21/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL3	SOIL	11-14-02	1015	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	11-14-02 1320	REF #1B/3728	11-14-02 1320
REF 1B	11 18 02 1100	SJ GALLOS	11 18 02 1100
SJ GALLOS	11 18 02 1100	FED EX	
Fed Ex	11/19/02 9:35		11/19/02 9:35

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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(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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 11 18 02

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Fluor Hanford Date/Time received 11/19/02 9:35 AM

CoC No. F03-003-055, 056, 057, 058, 059, 060, 080

Container I.D. No. ERC 96-03 Requested TAT (Days) 45 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+1=7 ea
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: 11/19/02 Time: 9:35 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 D

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 #	0211L178
SDG #	H1976
SAF #	F03-003
Date Received	11-19-02
# Samples	7
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\tmu-hanford\data\fc_ltrs.doc

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

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5	001	S	02LVX657	11/14/02	N/A	11/21/02
B15YJ5	001 MS	S	02LVX658	11/14/02	N/A	11/22/02
B15YJ5	001 MSD	S	02LVX658	11/14/02	N/A	11/22/02
B15YL3	002	S	02LVX657	11/14/02	N/A	11/21/02
B15YJ6	003	S	02LVX657	11/14/02	N/A	11/21/02
B15YJ7	004	S	02LVX657	11/14/02	N/A	11/21/02
B15YJ8	005	S	02LVX657	11/14/02	N/A	11/21/02
B15YJ9	006	S	02LVX657	11/14/02	N/A	11/21/02
B15YK0	007	S	02LVX657	11/14/02	N/A	11/21/02

LAB QC:

VBLKZS	MB1	S	02LVX657	N/A	N/A	11/21/02
VBLKZS	MB1 BS	S	02LVX657	N/A	N/A	11/21/02
VBLKZT	MB1	S	02LVX658	N/A	N/A	11/22/02
VBLKZT	MB1 BS	S	02LVX658	N/A	N/A	11/22/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L178
SDG/SAF #: H1976/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-19-2002

GC/MS VOLATILE

Seven (7) soil samples were collected on 11-14-2002.

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 11-21,22-2002.

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 with the exception of a discrepancy, which has been recorded on the Sample Receipt Checklist (p-20).

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. The method blank 02LVX657-MB1 contained the common laboratory contaminant Methylene Chloride 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 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").

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

12-13-02
Date

som\group\data\voa\tnu-hanford\0211-178.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 0 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.

VLI
LIONVILLE LABORATORY INC

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

RFW Batch Number: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Page: 1a Report Date: 12/09/02 23:19

	Cust ID:	B15YJ5		B15YJ5		B15YJ5		B15YL3		B15YJ6		B15YJ7	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.09		1.06		1.04		0.980		1.09		1.06	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	96	%	105	%	101	%	104	%	100	%	101	%
	Bromofluorobenzene	93	%	99	%	94	%	102	%	102	%	101	%
	1,2-Dichloroethane-d4	99	%	100	%	99	%	106	%	104	%	108	%
			fl		fl		fl		fl		fl		fl
Chloromethane		11	U	11	U	11	U	10	U	11	U	11	U
Bromomethane		11	U	11	U	11	U	10	U	11	U	11	U
Vinyl Chloride		11	U	11	U	11	U	10	U	11	U	11	U
Chloroethane		11	U	11	U	11	U	10	U	11	U	11	U
Methylene Chloride		15	B	8		10		15	B	14	B	14	B
Acetone		11	U	11	U	11	U	10	U	11	U	11	U
Carbon Disulfide		6	U	6	U	6	U	5	U	6	U	6	U
1,1-Dichloroethene		6	U	85	%	83	%	5	U	6	U	6	U
1,1-Dichloroethane		6	U	6	U	6	U	5	U	6	U	6	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	5	U	6	U	6	U
Chloroform		6	U	6	U	6	U	5	U	6	U	6	U
1,2-Dichloroethane		6	U	6	U	6	U	5	U	6	U	6	U
2-Butanone		11	U	11	U	11	U	10	U	11	U	11	U
1,1,1-Trichloroethane		6	U	6	U	6	U	5	U	6	U	6	U
Carbon Tetrachloride		6	U	6	U	6	U	5	U	6	U	6	U
Bromodichloromethane		6	U	6	U	6	U	5	U	6	U	6	U
1,2-Dichloropropane		6	U	6	U	6	U	5	U	6	U	6	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	5	U	6	U	6	U
Trichloroethene		6	U	111	%	110	%	5	U	6	U	6	U
Dibromochloromethane		6	U	6	U	6	U	5	U	6	U	6	U
1,1,2-Trichloroethane		6	U	6	U	6	U	5	U	6	U	6	U
Benzene		6	U	98	%	95	%	5	U	6	U	6	U
Trans-1,3-Dichloropropene		6	U	6	U	6	U	5	U	6	U	6	U
Bromoform		6	U	6	U	6	U	5	U	6	U	6	U
4-Methyl-2-pentanone		11	U	11	U	11	U	10	U	11	U	11	U
2-Hexanone		11	U	11	U	11	U	10	U	11	U	11	U
Tetrachloroethene		6	U	6	U	6	U	5	U	6	U	6	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	5	U	6	U	6	U
Toluene		6	U	106	%	102	%	5	U	6	U	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L178** Client: **TNUHANFORD F03-003 H1976** Work Order: 11343606001 Page: 1b

Cust ID:	B15YJ5		B15YJ5		B15YJ5		B15YL3		B15YJ6		B15YJ7	
RFW#:	001		001 MS		001 MSD		002		003		004	
Chlorobenzene	6	U	104	%	101	%	5	U	6	U	6	U
Ethylbenzene	6	U	6	U	6	U	5	U	6	U	6	U
Styrene	6	U	6	U	6	U	5	U	6	U	6	U
Xylene (total)	6	U	6	U	6	U	5	U	6	U	6	U

*= Outside of EPA CLP QC limits.

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

RFW Batch Number: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Page: 2a Report Date: 12/09/02 23:19

	Cust ID:	B15YJ8	B15YJ9	B15YK0	VBLKZS	VBLKZS BS	VBLKZT
Sample Information	RFW#:	005	006	007	02LVX657-MB1	02LVX657-MB1	02LVX658-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.980	1.02	1.11	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	99 %	101 %	101 %	94 %	93 %	96 %
	Bromofluorobenzene	96 %	102 %	101 %	94 %	95 %	93 %
	1,2-Dichloroethane-d4	104 %	107 %	106 %	95 %	98 %	96 %
Chloromethane		10 U	11 U	12 U	10 U	10 U	10 U
Bromomethane		10 U	11 U	12 U	10 U	10 U	10 U
Vinyl Chloride		10 U	11 U	12 U	10 U	10 U	10 U
Chloroethane		10 U	11 U	12 U	10 U	10 U	10 U
Methylene Chloride		16 B	6 U	6 U	2 J	5 U	5 U
Acetone		10 U	11 U	12 U	10 U	10 U	10 U
Carbon Disulfide		5 U	6 U	6 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	6 U	6 U	5 U	91 %	5 U
1,1-Dichloroethane		5 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	6 U	6 U	5 U	5 U	5 U
Chloroform		5 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	6 U	6 U	5 U	5 U	5 U
2-Butanone		10 U	11 U	12 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	6 U	6 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	6 U	6 U	5 U	5 U	5 U
Bromodichloromethane		5 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	6 U	6 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	6 U	6 U	5 U	5 U	5 U
Trichloroethene		5 U	6 U	6 U	5 U	114 %	5 U
Dibromochloromethane		5 U	6 U	6 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	6 U	6 U	5 U	5 U	5 U
Benzene		5 U	6 U	6 U	5 U	100 %	5 U
Trans-1,3-Dichloropropene		5 U	6 U	6 U	5 U	5 U	5 U
Bromoform		5 U	6 U	6 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	11 U	12 U	10 U	10 U	10 U
2-Hexanone		10 U	11 U	12 U	10 U	10 U	10 U
Tetrachloroethene		5 U	6 U	6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	6 U	6 U	5 U	5 U	5 U
Toluene		5 U	6 U	6 U	5 U	101 %	5 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Page: 2b

Cust ID:	B15YJ8	B15YJ9	B15YK0	VBLKZS	VBLKZS BS	VBLKZT
RFW#:	005	006	007	02LVX657-MB1	02LVX657-MB1	02LVX658-MB1
Chlorobenzene	5 U	6 U	6 U	5 U	101 %	5 U
Ethylbenzene	5 U	6 U	6 U	5 U	5 U	5 U
Styrene	5 U	6 U	6 U	5 U	5 U	5 U
Xylene (total)	5 U	6 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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

Report Date: 12/09/02 23:19

RFW Batch Number: **0211L178** Client: **TNUHANFORD F03-003 H1976** Work Order: 11343606001 Page: 3a

Cust ID: **VBLKZT BS**

Sample Information

RFW#: **02LVX658-MB1**
Matrix: SOIL
D.F.: 1.00
Units: ug/Kg

Surrogate Recovery	Toluene-d8	102	%
	Bromofluorobenzene	100	%
	1,2-Dichloroethane-d4	101	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	5	U
Acetone	10	U
Carbon Disulfide	5	U
1,1-Dichloroethene	80	%
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	106	%
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	92	%
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U
Toluene	99	%

*= Outside of EPA CLP QC limits.

Cust ID: **VBLKZT BS**

RFW#: **02LVX658-MB1**

Chlorobenzene	98	%
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

02111178

Custody Transfer Record

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

HONEYWELL LABORATORIES INC

Client: TMU 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: JTD TAT: 30 / 45 Days

Date Rec'd: 11-19-02 Date Due: 12-19-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	1	4	4	4
#/Type Container (Solid)	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar
Volume (Solid)	60	250	250	60	120	500	60
Preservatives	—	—	—	—	—	—	—

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	A: TCL VOA (0624H)	B: BNA (1) (0625X)	B: Pest/PCB (ODRO)	C: Herb (OPC3)	D: Alcohols Glycols Ketones (OGCSC)	E: ICP Metal (2) (MET①)	E: CN (ICAL)	F: IC (1) Anions (INORG①)	G: pH (ZPH)
001	B15YJ5			S	11-14-02	0959	X	X	X		X	X		X	X
002	B15YL3					1015	X	X	X		X	X		X	X
003	B15YJ6					1038	X	X	X		X	X		X	X
004	B15YJ7					1043	X	X	X		X	X		X	X
005	B15YJ8					1102	X	X	X		X	X		X	X
006	B15YJ9					1115	X	X	X		X	X		X	X
007	B15YKD					1139	X	X	X		X	X	✓	X	X

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

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO = 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. 14.3 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
7912 3430 5052 / 2.4°C 7912 3430 5030
7912 3430 5074 / 2.1°C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-055	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐	Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-1		SAF No.: F03-003	
Ice Chest No.: SEE 08PC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ 11/18/02 RECRA	Offsite Property No.: A030 030		Bill of Lading/Air Bill No.: SEE 08PC	

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	aG	aG	aG	aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG RJN 11/13/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	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.		
Sample No.	Matrix *	Sample Date	Sample Time							
B15YJ5	SOIL	11-14-02	0959	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
[signature] / R Nielson	11-14-02 1320	REF #1B / 3728	11-14-02 1300
REF 1B - 111802	1100	SJ GALE [signature]	111802 1100
SJ GALE [signature]	111802 1100	FED EX	
Fed Ex	11-19-02 0910	[signature]	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-080	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	RUN 11/3/02
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL3	SOIL	11-14-02	1015	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	11-14-02 1320	Ref #1B/3728	11-14-02 1320
Relinquished By/Removed From	REF 1B	11 18 02 1100	S J Gale	11 18 02 1100
Relinquished By/Removed From	S J Gale	11 18 02 1100	FED EX	
Relinquished By/Removed From	Fed Ex	11-19-02 0910		11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 11 18 02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-056 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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 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 11/18/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	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	11-14-02 1320	Ref # 1B / 3728	11-14-02 1320
REF 1B	111802 1100	SJ GALE	111802 1100
SJ GALE	111802 1100	FED EX	
FED EX	11-19-02 0910	D. Armour	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No.: F03-003	
Ice Chest No.: SCE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA 11/18/02	Offsite Property No.: A030 030	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	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ7	SOIL	11-14-02	1043	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-14-02 1320	Received By/Stored In: Ref #B/3728	11-14-02 1320
Relinquished By/Removed From: Ref 1B	111802 1100	Received By/Stored In: SJGALE	111802 1100
Relinquished By/Removed From: SJGALE	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 09:10	Received By/Stored In: D. Ullman	11-19-02 09:10
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

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

Personnel not available to relinquish samples from the 3728
Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1	SAF No.: F03-003	
Ice Chest No.: SOE 05PC	Field Logbook No.: HNF-N-325 1	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		Bill of Lading/Air Bill No.: SOE 05PC

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~~	RJN 11-13-02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ8	SOIL	11-14-02	1102	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	11-14-02 1320	Ref #1B 3728	11-14-02 1320
REF 1B	111502 1100	SJOA	111502 1100
SJOA	111902 1100	FED EX	
FED EX	11.19.02 0910		11.19.02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059	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-1	SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251 / COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (formerly TMA)~~ RECRA	Offsite Property No. A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-19-02
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Received By/Stored In REF #18 / 3728	11-14-02 1320
Relinquished By/Removed From REF 18	111802 1100	Received By/Stored In SJGALE	111802 1100
Relinquished By/Removed From SJGALE	111802 1100	Received By/Stored In FED EX	
Relinquished By/Removed From FED EX	11-19-02 0910	Received By/Stored In	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/18/02

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)

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	None		
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11-13-02	1	1	1	1		
Volume	60gml	250gml	60mL	250gml	~~125g~~ 120 ml	500gml	60gml	1000gml	500gml		
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								
B15YK0	SOIL	11-14-02	1139	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	11-14-02 1320	Ref # 1B/3728	11-14-02 1320
Ref 1B	11.18.02 1100	SJ Gale	11/18/02 1100
SJ Gale	11/18/02 1100	FED EX	
Fed Ex	11-19-02 0910		11.19.02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

2

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: Tnu Hanford

urchase Order/Project:

DATE: 11.19.02

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

aboratory SDG #: 0211L178

OTE: 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 # 1
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 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

#1 ERC.058 = 14.3°C

Laboratory Sample Custodian: D Johnson

Laboratory Project Manager:

2P

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5	001	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YL3	002	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YL3	002 MS	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YL3	002 MSD	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YJ6	003	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YJ7	004	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YJ8	005	S	02LE1385	11/14/02	11/20/02	12/04/02
B15YJ9	006	S	02LE1385	11/14/02	11/20/02	12/05/02
B15YK0	007	S	02LE1385	11/14/02	11/20/02	12/06/02
LAB QC:						
SBLKIO	MB1	S	02LE1385	N/A	11/20/02	12/04/02
SBLKIO	MB1 BS	S	02LE1385	N/A	11/20/02	12/04/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L178
SDG/SAF #: H1976/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-19-2002

SEMIVOLATILE

Seven (7) soil samples were collected on 11-14-2002.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 11-20-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 12-04,05,06-2002.

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 with the exception of a discrepancy, which has been recorded on the Sample Receipt Checklist (p-26).

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. Internal standard area criteria were not met for several samples; however, the GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly and all surrogate recoveries were within QC limits; consequently, the samples were not reanalyzed.

8. 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").

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 _____ 12-2-02
J. Michael Taylor — Date
President
Lionville Laboratory Incorporated

som\gorup\data\bna\tnu-hanford-0211-178.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 6 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: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Report Date: 12/10/02 13:21 Page: 1a

	Cust ID:	B15YJ5		B15YL3		B15YL3		B15YL3		B15YJ6		B15YJ7	
Sample Information	RFW#:	001		002		002 MS		002 MSD		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	73	%	77	%	65	%	65	%	66	%	77	%
	2-Fluorobiphenyl	73	%	75	%	63	%	64	%	66	%	74	%
	p-Terphenyl-d14	81	%	81	%	68	%	71	%	79	%	79	%
	Phenol-d5	73	%	78	%	63	%	64	%	63	%	75	%
	2-Fluorophenol	71	%	75	%	65	%	66	%	63	%	72	%
	2,4,6-Tribromophenol	75	%	82	%	72	%	73	%	65	%	78	%
			fl		fl		fl		fl		fl		fl
Phenol		350	U	350	U	63	%	63	%	340	U	350	U
bis(2-Chloroethyl)ether		350	U	350	U	350	U	350	U	340	U	350	U
2-Chlorophenol		350	U	350	U	62	%	62	%	340	U	350	U
1,3-Dichlorobenzene		350	U	350	U	350	U	350	U	340	U	350	U
1,4-Dichlorobenzene		350	U	350	U	62	%	65	%	340	U	350	U
1,2-Dichlorobenzene		350	U	350	U	350	U	350	U	340	U	350	U
2-Methylphenol		350	U	350	U	350	U	350	U	340	U	350	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	350	U	350	U	340	U	350	U
3- and/or 4-Methylphenol		350	U	350	U	350	U	350	U	340	U	350	U
N-Nitroso-Di-n-propylamine		350	U	350	U	66	%	67	%	340	U	350	U
Hexachloroethane		350	U	350	U	350	U	350	U	340	U	350	U
Nitrobenzene		350	U	350	U	350	U	350	U	340	U	350	U
Isophorone		350	U	350	U	350	U	350	U	340	U	350	U
2-Nitrophenol		350	U	350	U	350	U	350	U	340	U	350	U
2,4-Dimethylphenol		350	U	350	U	350	U	350	U	340	U	350	U
bis(2-Chloroethoxy)methane		350	U	350	U	350	U	350	U	340	U	350	U
2,4-Dichlorophenol		350	U	350	U	350	U	350	U	340	U	350	U
1,2,4-Trichlorobenzene		350	U	350	U	72	%	72	%	340	U	350	U
Naphthalene		350	U	350	U	350	U	350	U	340	U	350	U
4-Chloroaniline		350	U	350	U	350	U	350	U	340	U	350	U
Hexachlorobutadiene		350	U	350	U	350	U	350	U	340	U	350	U
4-Chloro-3-methylphenol		350	U	350	U	73	%	71	%	340	U	350	U
2-Methylnaphthalene		350	U	350	U	350	U	350	U	340	U	350	U
Hexachlorocyclopentadiene		350	U	350	U	350	U	350	U	340	U	350	U
2,4,6-Trichlorophenol		350	U	350	U	350	U	350	U	340	U	350	U
2,4,5-Trichlorophenol		870	U	870	U	870	U	870	U	850	U	860	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Page: 1b

Cust ID:	B15YJ5		B15YL3		B15YL3		B15YL3		B15YJ6		B15YJ7	
RFW#:	001		002		002 MS		002 MSD		003		004	
2-Chloronaphthalene	350	U	350	U	350	U	350	U	340	U	350	U
2-Nitroaniline	870	U	870	U	870	U	870	U	850	U	860	U
Dimethylphthalate	350	U	350	U	350	U	350	U	340	U	350	U
Acenaphthylene	350	U	350	U	350	U	350	U	340	U	350	U
2,6-Dinitrotoluene	350	U	350	U	350	U	350	U	340	U	350	U
3-Nitroaniline	870	U	870	U	870	U	870	U	850	U	860	U
Acenaphthene	350	U	350	U	65	%	63	%	340	U	350	U
2,4-Dinitrophenol	870	U	870	U	870	U	870	U	850	U	860	U
4-Nitrophenol	870	U	870	U	75	%	74	%	850	U	860	U
Dibenzofuran	350	U	350	U	350	U	350	U	340	U	350	U
2,4-Dinitrotoluene	350	U	350	U	84	%	80	%	340	U	350	U
Diethylphthalate	350	U	350	U	350	U	350	U	340	U	350	U
4-Chlorophenyl-phenylether	350	U	350	U	350	U	350	U	340	U	350	U
Fluorene	350	U	350	U	350	U	350	U	340	U	350	U
4-Nitroaniline	870	U	870	U	870	U	870	U	850	U	860	U
4,6-Dinitro-2-methylphenol	870	U	870	U	870	U	870	U	850	U	860	U
N-Nitrosodiphenylamine (1)	350	U	350	U	350	U	350	U	340	U	350	U
4-Bromophenyl-phenylether	350	U	350	U	350	U	350	U	340	U	350	U
Hexachlorobenzene	350	U	350	U	350	U	350	U	340	U	350	U
Pentachlorophenol	870	U	870	U	62	%	63	%	850	U	860	U
Phenanthrene	350	U	350	U	350	U	350	U	340	U	350	U
Anthracene	350	U	350	U	350	U	350	U	340	U	350	U
Carbazole	350	U	350	U	350	U	350	U	340	U	350	U
Di-n-Butylphthalate	350	U	350	U	71	J	350	U	340	U	350	U
Fluoranthene	350	U	350	U	350	U	350	U	340	U	350	U
Pyrene	350	U	350	U	65	%	67	%	340	U	350	U
Butylbenzylphthalate	350	U	350	U	350	U	350	U	340	U	350	U
3,3'-Dichlorobenzidine	350	U	350	U	350	U	350	U	340	U	350	U
Benzo(a)anthracene	350	U	350	U	350	U	350	U	340	U	350	U
Chrysene	350	U	350	U	350	U	350	U	340	U	350	U
bis(2-Ethylhexyl)phthalate	350	U	350	U	23	J	350	U	340	U	350	U
Di-n-Octyl phthalate	350	U	350	U	350	U	350	U	340	U	350	U
Benzo(b)fluoranthene	350	U	350	U	350	U	350	U	340	U	350	U
Benzo(k)fluoranthene	350	U	350	U	350	U	350	U	340	U	350	U
Benzo(a)pyrene	350	U	350	U	350	U	350	U	340	U	350	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	350	U	350	U	340	U	350	U
Dibenzo(a,h)anthracene	350	U	350	U	350	U	350	U	340	U	350	U
Benzo(g,h,i)perylene	350	U	350	U	350	U	350	U	340	U	350	U
Tributylphosphate	350	U	350	U	350	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

Report Date: 12/10/02 13:21

RFW Batch Number: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Page: 2a

	Cust ID:	B15YJ8		B15YJ9		B15YK0		SBLKIO		SBLKIO BS	
Sample Information	RFW#:	005		006		007		02LE1385-MB1		02LE1385-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	79	%	68	%	76	%	72	%	81	%
	2-Fluorobiphenyl	77	%	71	%	72	%	71	%	84	%
	p-Terphenyl-d14	81	%	80	%	87	%	77	%	110	%
	Phenol-d5	79	%	67	%	70	%	72	%	72	%
	2-Fluorophenol	76	%	67	%	72	%	70	%	75	%
	2,4,6-Tribromophenol	81	%	66	%	77	%	73	%	88	%
Phenol		350	U	340	U	350	U	330	U	71	%
bis(2-Chloroethyl)ether		350	U	340	U	350	U	330	U	330	U
2-Chlorophenol		350	U	340	U	350	U	330	U	72	%
1,3-Dichlorobenzene		350	U	340	U	350	U	330	U	330	U
1,4-Dichlorobenzene		350	U	340	U	350	U	330	U	77	%
1,2-Dichlorobenzene		350	U	340	U	350	U	330	U	330	U
2-Methylphenol		350	U	340	U	350	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	340	U	350	U	330	U	330	U
3- and/or 4-Methylphenol		350	U	340	U	350	U	330	U	330	U
N-Nitroso-Di-n-propylamine		350	U	340	U	350	U	330	U	76	%
Hexachloroethane		350	U	340	U	350	U	330	U	330	U
Nitrobenzene		350	U	340	U	350	U	330	U	330	U
Isophorone		350	U	340	U	350	U	330	U	330	U
2-Nitrophenol		350	U	340	U	350	U	330	U	330	U
2,4-Dimethylphenol		350	U	340	U	350	U	330	U	330	U
bis(2-Chloroethoxy)methane		350	U	340	U	350	U	330	U	330	U
2,4-Dichlorophenol		350	U	340	U	350	U	330	U	330	U
1,2,4-Trichlorobenzene		350	U	340	U	350	U	330	U	91	%
Naphthalene		350	U	340	U	350	U	330	U	330	U
4-Chloroaniline		350	U	340	U	350	U	330	U	330	U
Hexachlorobutadiene		350	U	340	U	350	U	330	U	330	U
4-Chloro-3-methylphenol		350	U	340	U	350	U	330	U	81	%
2-Methylnaphthalene		350	U	340	U	350	U	330	U	330	U
Hexachlorocyclopentadiene		350	U	340	U	350	U	330	U	330	U
2,4,6-Trichlorophenol		350	U	340	U	350	U	330	U	330	U
2,4,5-Trichlorophenol		870	U	860	U	880	U	830	U	830	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0211L178 Client: TNUHANFORD F03-003 H1976 Work Order: 11343606001 Page: 2b

Cust ID:	B15YJ8		B15YJ9		B15YK0		SBLKIO		SBLKIO BS	
RFW#:	005		006		007		02LE1385-MB1		02LE1385-MB1	
2-Chloronaphthalene	350	U	340	U	350	U	330	U	330	U
2-Nitroaniline	870	U	860	U	880	U	830	U	830	U
Dimethylphthalate	350	U	340	U	350	U	330	U	330	U
Acenaphthylene	350	U	340	U	350	U	330	U	330	U
2,6-Dinitrotoluene	350	U	340	U	350	U	330	U	330	U
3-Nitroaniline	870	U	860	U	880	U	830	U	830	U
Acenaphthene	350	U	340	U	350	U	330	U	82	%
2,4-Dinitrophenol	870	U	860	U	880	U	830	U	830	U
4-Nitrophenol	870	U	860	U	880	U	830	U	68	%
Dibenzofuran	350	U	340	U	350	U	330	U	330	U
2,4-Dinitrotoluene	350	U	340	U	350	U	330	U	93 *	%
Diethylphthalate	350	U	340	U	350	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	340	U	350	U	330	U	330	U
Fluorene	350	U	340	U	350	U	330	U	330	U
4-Nitroaniline	870	U	860	U	880	U	830	U	830	U
4,6-Dinitro-2-methylphenol	870	U	860	U	880	U	830	U	830	U
N-Nitrosodiphenylamine (1)	350	U	340	U	350	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	340	U	350	U	330	U	330	U
Hexachlorobenzene	350	U	340	U	350	U	330	U	330	U
Pentachlorophenol	870	U	860	U	880	U	830	U	65	%
Phenanthrene	350	U	340	U	350	U	330	U	330	U
Anthracene	350	U	340	U	350	U	330	U	330	U
Carbazole	350	U	340	U	350	U	330	U	330	U
Di-n-Butylphthalate	350	U	340	U	350	U	330	U	330	U
Fluoranthene	350	U	340	U	350	U	330	U	330	U
Pyrene	350	U	340	U	350	U	330	U	104	%
Butylbenzylphthalate	350	U	340	U	350	U	330	U	330	U
3,3'-Dichlorobenzidine	350	U	340	U	350	U	330	U	330	U
Benzo(a)anthracene	350	U	340	U	350	U	330	U	330	U
Chrysene	350	U	340	U	350	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	350	U	340	U	350	U	330	U	330	U
Di-n-Octyl phthalate	350	U	340	U	350	U	330	U	330	U
Benzo(b)fluoranthene	350	U	340	U	350	U	330	U	330	U
Benzo(k)fluoranthene	350	U	340	U	350	U	330	U	330	U
Benzo(a)pyrene	350	U	340	U	350	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	340	U	350	U	330	U	330	U
Dibenzo(a,h)anthracene	350	U	340	U	350	U	330	U	330	U
Benzo(g,h,i)perylene	350	U	340	U	350	U	330	U	330	U
Tributylphosphate	350	U	340	U	350	U	330	U	330	U

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

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YJ5

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-001

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

Lab File ID: D120409

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 4 decanted: (Y/N)__

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/04/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.023	4000	JAB
2.	ALDOL CONDENSATE	6.614	40000	JAB
3.	ALDOL CONDENSATE	7.171	300	JAB
4.	ALDOL CONDENSATE	7.884	3000	JAB
5.	ALDOL CONDENSATE	9.171	800	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YL3

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-002

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

Lab File ID: D120410

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 4 decanted: (Y/N)

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/04/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.090	5000	JAB
2.	ALDOL CONDENSATE	6.655	50000	JAB
3.	ALDOL CONDENSATE	7.185	400	JAB
4.	ALDOL CONDENSATE	7.898	3000	JAB
5.	ALDOL CONDENSATE	9.185	1000	JAB

11

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YJ6

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-003

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

Lab File ID: D120413

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 2 decanted: (Y/N)__

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/04/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.994	4000	JAB
2.	ALDOL CONDENSATE	6.603	40000	JAB
3.	ALDOL CONDENSATE	7.159	300	JAB
4.	ALDOL CONDENSATE	7.881	3000	JAB
5.	ALDOL CONDENSATE	9.177	700	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YJ7

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-004

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

Lab File ID: D120414

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 3 decanted: (Y/N)__

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/04/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.160	6000	JAB
2.	ALDOL CONDENSATE	6.707	50000	JAB
3.	ALDOL CONDENSATE	7.212	400	JAB
4.	ALDOL CONDENSATE	7.925	3000	JAB
5.	ALDOL CONDENSATE	9.194	1000	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YJ8

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-005

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

Lab File ID: D120415

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 4 decanted: (Y/N)__

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/04/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.080	5000	JAB
2.	ALDOL CONDENSATE	6.654	50000	JAB
3.	ALDOL CONDENSATE	7.193	400	JAB
4.	ALDOL CONDENSATE	7.906	3000	JAB
5.	ALDOL CONDENSATE	9.193	1000	JAB

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YJ9

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-006

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

Lab File ID: D120416

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 3 decanted: (Y/N)

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/05/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.020	4000	JAB
2.	ALDOL CONDENSATE	6.620	40000	JAB
3.	ALDOL CONDENSATE	7.177	300	JAB
4.	ALDOL CONDENSATE	7.898	3000	JAB
5.	ALDOL CONDENSATE	9.185	800	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YK0

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L178-007

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

Lab File ID: A120603

Level: (low/med) LOW

Date Received: 11/19/02

% Moisture: 6 decanted: (Y/N)__

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.560	4000	JAB
2.	ALDOL CONDENSATE	3.970	50000	JAB
3.	ALDOL CONDENSATE	4.587	300	JAB
4.	ALDOL CONDENSATE	5.235	4000	JAB
5.	ALDOL CONDENSATE	6.432	700	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKIO

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

Client: TNUHANFORD F03-003 H1976

Matrix: (soil/water) SOIL

Lab Sample ID: 02LE1385-MB1

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

Lab File ID: D120407

Level: (low/med) LOW

Date Received: 11/20/02

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 11/20/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/04/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.014	4000	JA
2.	ALDOL CONDENSATE	6.605	40000	JA
3.	ALDOL CONDENSATE	7.161	300	JA
4.	ALDOL CONDENSATE	7.874	3000	JA
5.	ALDOL CONDENSATE	9.170	700	JA

Lionville Laboratory Use Only

02111178

Custody Transfer Record/Lab Work

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: 30 / 45 Days

Date Rec'd: 11-19-02 Date Due: 12-19-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	1	4	4	4
#/Type Container – Liquid							
#/Type Container – Solid	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar
Volume – Liquid							
Volume – Solid	60	250	250	60	120	500	500
Preservatives	—	—	—	—	—	—	—

ANALYSES REQUESTED →

ORGANIC					INORG			
TCL VOA	BNA (1)	Pesty PCB	Herb	Alcohols Glycols Acetone	ICP Metal (2)	CN	IC (3) Anions	pH

Lionville Laboratory Use Only

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 ODRO	OPCB		OGCSC			MET (1) ICAL		INORG (1)	IPH
001	B15YJ5			S	11-14-02	0959	X	X	X		X			X		X	X
002	B15YL3					1015	X	X	X		X			X		X	X
003	B15YJ6					1038	X	X	X		X			X		X	X
004	B15YJ7					1043	X	X	X		X			X		X	X
005	B15YJ8					1102	X	X	X		X			X		X	X
006	B15YJ9					1115	X	X	X		X			X		X	X
007	B15YKD					1139	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, 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 (N) 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. 14.3 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

7912 3430 5052 / 2.4°C 7912 3430 5030

7912 3430 5074 / 2.1°C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-055	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	~~GP~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	500g ml	60g ml	1000g ml		

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.		
B15YJ5	SOIL	11-14-02	0959	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	11-14-02 1320	REF #1B/3728	11-14-02 1320
REF 1B	11 18 02 1100	SJ GALE	11 18 02 1100
SJ GALE	11 18 02 1100	FED EX	
Fed Ex	11-19-02 0910	D. Turner	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-080	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL3	SOIL	11-14-02	1015	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	11-14-02 1320	REF 1B/3728	11-14-02 1320
REF 1B	11 18 02 1100	SJ GALOS	111802 1100
SJ GALOS	111802 1100	FED EX	
FED EX	11-19-02 0910	D. Miller	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11 18 02

Matrix *: S=Soil; SB=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	F03-003-056	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	CQA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 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.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	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	11-14-02 1320	Ref # 1B / 3728	11-14-02 1320
Ref 1B	111802 1100	SJ Gale	111802 1100
SJ Gale	11 18 02 1100	FED EX	
FED EX	11 19 02 0910	D. Armin	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ7	SOIL	11-14-02	1043	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	11-14-02 1320	Ref #B/3728	11-14-02 1320
Ref 1B	111802 1100	SJGALE	111802 1100
SJGALE	111802 1100	FED EX	
Fed Ex	11-19-02 0910	D. Mann	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SOE 03PC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ AAA 111802 RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SOE 05PC	

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~~	RJN 11-13-02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time											
B15YJ8	SOIL	11-14-02	1102	X	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	11-14-02 1320	REF 1B 3728	11-14-02 1320
REF 1B — 111802	1100	SJOA	111802 1100
SJOA	111902 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 111802

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	F03-003-059	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNE-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~LIBERTY ENG SERVICES (formerly TMA)~~ DAS 11/8/02 RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-19-02
No. of Container(s)	1	1	1	1	1 RJN 11/15/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120ml	500g ml	60g ml	1000g ml	500g 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. DAS 11/18/02	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Ref #18 / 3728	11-14-02 1320
Relinquished By/Removed From	REF 18	111802 1100	SJ Gale	111802 1100
Relinquished By/Removed From	SJ Gale	111802 1100	FED EX	
Relinquished By/Removed From	FED EX	11-19-02 0910		11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~LDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None		
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11-13-02	1	1	1			
Volume	60gml	250gml	60mL	250gml	~~125g~~ 120 ml	500gml	60gml	1000gml	500gml		

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	
B15YK0	SOIL	11-14-02	1139	X	X	X	X	X	X	X	X	X	

AD 11/18/02

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-14-02 1320	Ref # 13/3728	11-14-02 1320
Ref 13	11 18 02 1100	SJ Gale	11 18 02 1100
SJ Gale	11 18 02 1100	FED EX	
Fed Ex	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728
Ref # 13 on 11 18 02

Matrix *
S=Soil
SE=Sediment
SO=Solid
St=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: 11.19.02

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

Laboratory SDG #: 0211L178

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 # 1
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 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

#1 ERC-058 = 14.3°C

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5	001	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YJ5	001 MS	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YJ5	001 MSD	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YL3	002	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YJ6	003	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YJ7	004	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YJ8	005	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YJ9	006	S	02LE1379	11/14/02	11/20/02	11/29/02
B15YK0	007	S	02LE1379	11/14/02	11/20/02	11/29/02

LAB QC:

PBLKGE	MB1	S	02LE1379	N/A	11/20/02	11/28/02
PBLKGE	MB1 BS	S	02LE1379	N/A	11/20/02	11/28/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L178
SDG/SAF #: H1976/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-19-02

PCB

The set of samples consisted of seven (7) soil samples collected on 11-14-02.

The samples and their associated QC samples were extracted on 11-20-02 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. Please refer to the Sample Receipt Checklist for sample discrepancies in LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric Acid and a Sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. Two (2) of twenty-two (22) 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-178.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 15 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 026C557

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

Batch: 02112178
Samples: 001MS
Method: SW846/MCAWW/CLP/

Parameter: OPCB
Matrix: Soil
Prep Batch: 02LE1379

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) Surrogates elevated slightly in 001MS. All other surrogate and spike recoveries are good. All samples are clear.

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)	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/02/02 17:33

RFW Batch Number: **0211L178** Client: **TNUHANFORD F03-003 H1976** Work Order: 11343606001 Page: 1

	Cust ID:	B15YJ5	B15YJ5	B15YJ5	B15YL3	B15YJ6	B15YJ7
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 %	120 * %	85 %	90 %	85 %	95 %
	Decachlorobiphenyl	115 %	135 * %	105 %	110 %	100 %	110 %
Aroclor-1016		35 U	104 %	86 %	35 U	34 U	35 U
Aroclor-1221		69 U	69 U	69 U	69 U	68 U	69 U
Aroclor-1232		35 U	35 U	35 U	35 U	34 U	35 U
Aroclor-1242		35 U	35 U	35 U	35 U	34 U	35 U
Aroclor-1248		35 U	35 U	35 U	35 U	34 U	35 U
Aroclor-1254		35 U	35 U	35 U	35 U	34 U	35 U
Aroclor-1260		35 U	116 %	92 %	35 U	34 U	35 U

	Cust ID:	B15YJ8	B15YJ9	B15YK0	PBLKGE	PBLKGE BS
Sample Information	RFW#:	005	006	007	02LE1379-MB1	02LE1379-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	95 %	95 %	90 %	90 %
	Decachlorobiphenyl	120 %	110 %	115 %	110 %	110 %
Aroclor-1016		35 U	34 U	35 U	33 U	93 %
Aroclor-1221		70 U	69 U	71 U	67 U	67 U
Aroclor-1232		35 U	34 U	35 U	33 U	33 U
Aroclor-1242		35 U	34 U	35 U	33 U	33 U
Aroclor-1248		35 U	34 U	35 U	33 U	33 U
Aroclor-1254		35 U	34 U	35 U	33 U	33 U
Aroclor-1260		35 U	34 U	35 U	33 U	93 %

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

9

AH 2/4/

Lionville Laboratory Use Only

0211L178

Custody Transfer Record/Lab Work Order

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC

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: JTD TAT: 30 / 45 days

Date Rec'd: 11-19-02 Date Due: 12-19-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	1	4	4	4
#/Type Container – Liquid							
#/Type Container – Solid	lag	lag	lag	lag	lag	lag	lag
Volume – Liquid							
Volume – Solid	60	250	250	60	120	500	60
Preservatives	—	—	—	—	—	—	—
ANALYSES REQUESTED	ORGANIC: TCL VOA	ORGANIC: BNA (1)	ORGANIC: Pest/PCB	ORGANIC: Herb	ORGANIC: Alcohols & Glycols	INORG: ICP Metal (2)	INORG: CN
	INORG: K, Na, Ca, Mg (3)	INORG: pH					

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

Lionville Laboratory Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X ODRO	OPC3		OGCSC			MET (1) ICPL		INORG (1) ICPL	ZPH		
001	B15YJ5			S	11-14-02	0959	X	X	X		X			X		X	X		
002	B15YL3					1015	X	X	X		X			X		X	X		
003	B15YJ6					1038	X	X	X		X			X		X	X		
004	B15YJ7					1043	X	X	X		X			X		X	X		
005	B15YJ8					1102	X	X	X		X			X		X	X		
006	B15YJ9					1115	X	X	X		X			X		X	X		
007	B15YK0					1139	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, 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. 14.3 °C

Relinquished by	Received by	Date	Time
Fed Ex	D. Smith	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES: 7912 3430 5052 / 2.4°C 7912 3430 5030 7912 3430 5074 / 2.1°C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-055	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-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE 08PC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. A030 030		Bill of Lading/Air Bill No. 96E 08PC	

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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	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.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YJ5 / SOIL / 11-14-02 / 0959	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	11-14-02 1320	REF#1B/3728	11-14-02 1320
Relinquished By/Removed From	REF 1B	11/18/02 1100	SJ GALE	11/18/02 1100
Relinquished By/Removed From	SJ GALE	11/18/02 1100	FED EX	
Relinquished By/Removed From	Fed Ex	11-19-02 0910	D. Smith	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-080	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA 11 18 02	Offsite Property No.: A030 030	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	None	RUN 11/13/02
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g ml	

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
B15YL3	SOIL	11-14-02	1015	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	11-14-02 1320	REF #13 / 3728	11-14-02 1320
REF 13	11 18 02 1100	SJ GALE	11 18 02 1100
SJ GALE	11 18 02 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 13 on 11 18 02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-056	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 ml	500g ml	60g ml	100g 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 11/18/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	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	11-14-02 1320	REF # 1B / 3728	11-14-02 1320
REF 1B	111802 1100	SJ GALE	111802 1100
SJ GALE	11 18 02 1100	FED EX	
FED EX	11-19-02 0910	D. Kimmell	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formely TMA)~~ RECEA 111802	Offsite Property No.: A030 030	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	None		
Type of Container	G	aG	G	aG	~~G/P~~ 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	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ7	SOIL	11-14-02	1043	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	11-14-02 1320	Ref #13/3728	11-14-02 1320
Ref 13	111802 1100	DJGALE	111802 1100
DJGALE	111802 1100	FED EX	
Fed Ex	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728
Ref # 13 on 11/18/02

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

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

3HI-EE-011 (03/01/2002)

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-058 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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	None		
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-13-02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ8	SOIL	11-14-02	1102	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 11-14-02	1320	Ref#1B 3728 11-14-02	1320
REF1B 111802	1100	SJOAKES 111802	1100
SJOAKES 111802	1100	FED EX	
FED EX 11-19-02	0910	11-19-02	0910

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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 111802

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SEE OSPC	

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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~~	RJN 11-13-02
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120ml	500g ml	60g ml	1000g ml	500g 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. AB 11/18/02	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Ref #18 / 3728	11-14-02 1320
Ref 18	111802 1100	SJ Gale	111802 1100
SJ Gale	111802 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: AB 11/8/02 ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11/13/02
No. of Container(s)	1	1	1	1	1 RJN 11-13-02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK0	SOIL	11-14-02	1139	X	X	X	X	X	X	X	X	X	

AB 11/8/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11-14-02 1320	Ref # 13/3728	11-14-02 1320
REF 1B	11/8/02 1100	SJ Gale	11/8/02 1100
SJ Gale	11/8/02 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11.19.02

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

Laboratory SDG #: 0211L178

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 # 1
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 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

#1 ERC-058 = 14.3°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5	001	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YJ5	001 MS	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YJ5	001 MSD	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YL3	002	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YJ6	003	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YJ7	004	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YJ8	005	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YJ9	006	S	02LE1380	11/14/02	11/20/02	11/26/02
B15YK0	007	S	02LE1380	11/14/02	11/20/02	11/26/02

LAB QC:

BLK	MB1	S	02LE1380	N/A	11/20/02	11/27/02
BLK	MB1 BS	S	02LE1380	N/A	11/20/02	11/27/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L178
SDG/SAF #: H1976/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-19-02

DIESEL RANGE ORGANICS

The set of samples consisted of seven (7) soil samples collected on 11-14-02.

The samples and their associated QC samples were extracted on 11-20-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-26,27-02. 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. Please refer to the Sample Receipt Checklist for sample discrepancies in LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The 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-178.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 14 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 12:42

RFW Batch Number: **0211L178** Client: **TNUHANFORD F03-003 H1976** Work Order: 11343606001 Page: 1

	Cust ID:	B15YJ5	B15YJ5	B15YJ5	B15YL3	B15YJ6	B15YJ7
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	95 %	98 %	103 %	95 %	96 %	101 %
Diesel Range Organics		12.5 U	61 %	71 %	12.5 U	12.3 U	12.4 U
Kerosene		12.5 U	12.5 U	12.5 U	12.5 U	12.3 U	12.4 U

	Cust ID:	B15YJ8	B15YJ9	B15YK0	BLK	BLK BS
Sample Information	RFW#:	005	006	007	02LE1380-MB1	02LE1380-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
	p-Terphenyl	98 %	89 %	97 %	102 %	96 %
Diesel Range Organics		12.5 U	12.4 U	12.7 U	12.0 U	71 %
Kerosene		12.5 U	12.4 U	12.7 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

Lionville Laboratory Use Only

0211L178

Custody Transfer Record/Lab Work Request

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc.

9

Client: TMU 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: JED TAT: 30 / 45 days

Date Rec'd: 11-19-02 Date Due: 12-19-02

		A	B	C	D	E	F	G
Refrigerator #		1	4	4	1	4	4	4
#/Type Container	Liquid							
	Solid	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar
Volume	Liquid							
	Solid	60	250	250	60	120	500	60
Preservatives		—	—	—	—	—	—	—

ANALYSES REQUESTED →

ORGANIC					INORG			
TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones	ICP Metal (2)	CN	IC (3) Anions	pH

Lionville Laboratory Use Only

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	ODRO	OPC3	OGCSC	MET① ICAL	INORG①	IPH
001	B15YJ5			S	11-14-02	0959	X	X	X		X	X	X	X
002	B15YL3					1015	X	X	X		X	X	X	X
003	B15YJ6					1038	X	X	X		X	X	X	X
004	B15YJ7					1043	X	X	X		X	X	X	X
005	B15YJ8					1102	X	X	X		X	X	X	X
006	B15YJ9					1115	X	X	X		X	X	X	X
007	B15YK0					1139	X	X	X		X	X	X	X

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO = 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 # ___ Ice Packs

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'd (Y) or N

Cooler Temp. 14.3 °C

Relinquished by	Received by	Date	Time
Leo Ex	D. Smith	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES: 7912 3430 5052 / 2.4°C 7912 3430 5030

7912 3430 5074 / 2.1°C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-055	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	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.	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ5	SOIL	11-14-02	0959	X	X	X	X	X	X	X	X		

RJN 11/13/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-14-02 1320	Ref #1B/3728	11-14-02 1320
Ref 1B	11 18 02 1100	SJ Gantt	11 18 02 1100
SJ Gantt	11 18 02 1100	FED EX	
Fed Ex	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-080	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-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. A030 030		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	None	RUN 11/13/02
	Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
	No. of Container(s)	1	1	1	1	1	1	1	1	1	
	Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL3	SOIL	11-14-02	1015	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-14-02 1320	REF TB/3728	11-14-02 1320
REF TB	11 18 02 1100	SJ GALE	111802 1100
SJ GALE	111802 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref# TB on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-056	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RIN 11/13/02	
No. of Container(s)	1	1	1	1	1 RIN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 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. RIN 11/18/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	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	11-14-02 1320	Received By/Stored In: REF # 1B / 3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	111802 1100	Received By/Stored In: SJ GALE	111802 1100
Relinquished By/Removed From: SJ GALE	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 0910	Received By/Stored In: D. Smith	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No.: F03-003	
Ice Chest No.: SCE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

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	
B15YJ7	SOIL	11-14-02	1043	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-14-02 1320	Received By/Stored In: REF #B/3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	111802 1100	Received By/Stored In: J.J. GALE	111802 1100
Relinquished By/Removed From: J.J. GALE	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 0910	Received By/Stored In: D. Dillman	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE 05PC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (formerly TMA)~~ RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SEE 05PC	

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~~	RJN 11-19-02
	No. of Container(s)	1	1	1	1	1	1	1	1	1	
	Volume	60g ml	250g ml	60mL	250g ml	125g (20 ml)	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ8	SOIL	11-14-02	1102	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson 11-14-02	Date/Time: 1320	Received By/Stored In: REF#18 3728 11-14-02	Date/Time: 1320
Relinquished By/Removed From: REF 18 111802	Date/Time: 1100	Received By/Stored In: SJOAUS 111802	Date/Time: 1100
Relinquished By/Removed From: SJOAUS 111802	Date/Time: 1100	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: FED EX 11-19-02	Date/Time: 0910	Received By/Stored In: 11-19-02	Date/Time: 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059 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-1		SAF No.: F03-003
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ MS 11/18/02 RECRA	Offsite Property No.: A030 030		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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-13-02
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Ref #18 / 3728	11-14-02 1320
Ref 18	111802 1100	SJGALES	111802 1100
SJGALES	111802 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11/13/02
No. of Container(s)	1	1	1	1	1 RJN 11-13-02	1	1	1	1	
Volume	60gml	250gml	60mL	250gml	~~125g~~ 120 ml	500gml	60gml	1000gml	500gml	
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										
B15YK0	SOIL	11-14-02	1139	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	11-14-02 1320	Ref # 13/3728	11-14-02 1320
Relinquished By/Removed From: REF 13	11 18 02 1100	Received By/Stored In: SJ Gale	11 18 02 1100
Relinquished By/Removed From: SJ Gale	11 18 02 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 0910	Received By/Stored In: [illegible]	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 13 on 11 18 02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

LIENT: TMU Hanford

rchase Order/Project:

DATE: 11.19.02

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

aboratory SDG #: 0211L178

OTE: 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 # 1
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 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

#1 ERC-058 = 14.3°C

Laboratory Sample Custodian: D Johnson

Laboratory Project Manager:

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5	001	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YJ5	001 MS	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YJ5	001 MSD	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YL3	002	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YJ6	003	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YJ7	004	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YJ8	005	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YJ9	006	S	02LE1426	11/14/02	11/25/02	11/25/02
B15YK0	007	S	02LE1426	11/14/02	11/25/02	11/25/02

LAB QC:

BLK	MB1	S	02LE1426	N/A	11/25/02	11/25/02
BLK	MB1 BS	S	02LE1426	N/A	11/25/02	11/25/02
BLK	MB1 BSD	S	02LE1426	N/A	11/25/02	11/25/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD F03-003
LVL#: 0211L178
SDG/SAF#: H1976/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-19-02

GC SCAN

The set of samples consisted of seven (7) soil samples collected on 11-14-02.

The samples and their associated QC samples were analyzed on 11-25-02 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

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 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 15:07

RFW Batch Number: **0211L178** Client: **TNUHANFORD F03-003 H1976** Work Order: 11343606001 Page: 1

	Cust ID:	B15YJ5	B15YJ5	B15YJ5	B15YL3	B15YJ6	B15YJ7
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
		fl	fl	fl	fl	fl	fl
n-Propyl Alcohol		23 U	94 %	100 %	24 U	23 U	25 U
Ethanol		23 U	102 %	100 %	24 U	23 U	25 U

	Cust ID:	B15YJ8	B15YJ9	B15YK0	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	005	006	007	02LE1426-MB1	02LE1426-MB1	02LE1426-MB1
	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
		fl	fl	fl	fl	fl	fl
n-Propyl Alcohol		24 U	28 U	27 U	25 U	101 %	98 %
Ethanol		24 U	28 U	27 U	25 U	103 %	102 %

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

02111178

Custody Transfer Record

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: 30 45 Days

Date Rec'd: 11-19-02 Date Due: 12-19-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	1	4	4	4
#/Type Container – Liquid							
#/Type Container – Solid	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar
Volume – Liquid							
Volume – Solid	60	250	250	60	120	500	100
Preservatives	—	—	—	—	—	—	—

ANALYSES REQUESTED

ORGANIC					INORG			
TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols (6) Calc Ethane	ICP Metal (2)	CN	K (3) Anions	pH

Lionville Laboratory Use Only

	0624H	0625X ODRO	OPCB	OGCSC	MET (1) ICAL	INORG (1)	IPH
001 B15YJ5	X	X	X	X	X	X	X
002 B15YL3	X	X	X	X	X	X	X
003 B15YJ6	X	X	X	X	X	X	X
004 B15YJ7	X	X	X	X	X	X	X
005 B15YJ8	X	X	X	X	X	X	X
006 B15YJ9	X	X	X	X	X	X	X
007 B15YKD	X	X	X	X	X	X	X

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
001	B15YJ5			S	11-14-02	0959
002	B15YL3					1015
003	B15YJ6					1038
004	B15YJ7					1043
005	B15YJ8					1102
006	B15YJ9					1115
007	B15YKD					1139

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, IN4H3N, 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. 14.3 °C

Relinquished by	Received by	Date	Time
Fed Ex	D. Johnson	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

7912 3430 5052 / 2.4°C 7912 3430 5030

7912 3430 5074 / 2.1°C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-055	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE 03PC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ NDB 11 18 02 RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SEE 03PC	

9

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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RIN 11/15/02	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	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.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ5	SOIL	11-14-02	0959	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	11-14-02 1320	Received By/Stored In: REF #1B/3728	11-14-02 1320
Relinquished By/Removed From: REF 1B - 111802	1100	Received By/Stored In: SJ GALE	111802 1100
Relinquished By/Removed From: SJ GALE	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 0910	Received By/Stored In: [illegible]	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 111802

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		F03-003-080	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-1		SAF No.: F03-003	Data Turnaround: 45 Days
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-3251	COA: 117514ES10	Method of Shipment: Federal Express	Air Quality ☐
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ SAB 11 18 02 RECRA	Offsite Property No.: A030 030		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	None	RUN 11/13/02
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YL3	SOIL	11-14-02	1015	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	11-14-02 1320	REF 1B/3728	11-14-02 1320
REF 1B	11 18 02 1100	SJ GALE	111802 1100
SJ GALE	111802 1100	FED EX	
FED EX	11-19-02 0910	W. Miller	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 11 18 02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-056	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-1		SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 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.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-14-02 1320	Received By/Stored In: REF # 1B 3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	111802 1100	Received By/Stored In: SJ GALE	111802 1100
Relinquished By/Removed From: SJ GALE	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-19-02 0910	Received By/Stored In: D. Smith	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No. F03-003	
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express
Shipped To ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. A030 030	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	None	
	Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02
	No. of Container(s)	1	1	1	1	1	1	1	1	1	
	Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ7	SOIL	11-14-02	1043	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1320	Received By/Stored In	Date/Time 1320
R. Nielson	11-14-02	Ref #B/3728	11-14-02
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
REF 1B	111802 1100	JJGALE	111802 1100
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
JJGALE	111802 1100	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11-19-02 0910	D. Williams	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-13-02
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ8	SOIL	11-14-02	1102	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	11-14-02 1320	Received By/Stored In: REF#1B 3728	11-14-02 1320
Relinquished By/Removed From: REF1B	111802 1100	Received By/Stored In: SJOA	111802 1100
Relinquished By/Removed From: SJOA	111902 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-19-02 0910	Received By/Stored In:	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: DB 11/18/02 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-19-02
No. of Container(s)	1	1	1	1	1 RJN 11/19/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120ml	500g ml	60g ml	1000g ml	500g 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. DB 11/18/02	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Received By/Stored In: Ref #1B 3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	111802 1100	Received By/Stored In: SJ GALE	111802 1100
Relinquished By/Removed From: SJ GALE	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-19-02 0910	Received By/Stored In:	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-060	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-1		SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: AB 11/8/02 ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RIN 11/13/02
No. of Container(s)	1	1	1	1	1 RIN 11-13-02	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500g 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. AB 11/8/02	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YK0	SOIL	11-14-02	1139	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	11-14-02 1320	Ref # 13/3728	11-14-02 1320
REF 1B	11/18/02 1100	S. Galle	11/18/02 1100
S. Galle	11/18/02 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11.19.02

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

Laboratory SDG #: 0211L178

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 # 1
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 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

#1 ERC.058 = 14.3°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

DEC 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5						
SILVER, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
SILVER, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
SILVER, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
MERCURY, TOTAL	001	S	02C0357	11/14/02	12/05/02	12/05/02
MERCURY, TOTAL	001 REP	S	02C0357	11/14/02	12/05/02	12/05/02
MERCURY, TOTAL	001 MS	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
NICKEL, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
NICKEL, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	001	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	001 REP	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	001 MS	S	02L0708	11/14/02	12/04/02	12/06/02
B15YL3						
SILVER, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
MERCURY, TOTAL	002	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	002	S	02L0708	11/14/02	12/04/02	12/06/02
B15YJ6						
SILVER, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
MERCURY, TOTAL	003	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	003	S	02L0708	11/14/02	12/04/02	12/06/02
B15YJ7						
SILVER, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
MERCURY, TOTAL	004	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	004	S	02L0708	11/14/02	12/04/02	12/06/02
B15YJ8						
SILVER, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
MERCURY, TOTAL	005	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	005	S	02L0708	11/14/02	12/04/02	12/06/02
B15YJ9						
SILVER, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	006	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	006	S	02L0708	11/14/02	12/04/02	12/06/02
B15YK0						
SILVER, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
ARSENIC, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
BARIUM, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
BERYLLIUM, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
CADMIUM, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
CHROMIUM, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
COPPER, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
MERCURY, TOTAL	007	S	02C0357	11/14/02	12/05/02	12/05/02
NICKEL, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
LEAD, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
SELENIUM, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
VANADIUM, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02
ZINC, TOTAL	007	S	02L0708	11/14/02	12/04/02	12/06/02

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

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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#: 0211L178
SDG/SAF#: H1976/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-19-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 7 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. Please refer to the Sample Receipt Check List for sample discrepancies in 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. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 26 pages.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-16-02
Date

gmb/m11-178

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this
Lot#: 0211L178

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 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15YJ5	Silver, Total	0.39	MG/KG	0.13	1.0
		Arsenic, Total	3.6	MG/KG	0.35	1.0
		Barium, Total	85.0	MG/KG	0.03	1.0
		Beryllium, Total	0.26	MG/KG	0.02	1.0
		Cadmium, Total	0.05	MG/KG	0.04	1.0
		Chromium, Total	25.0	MG/KG	0.09	1.0
		Copper, Total	16.4	MG/KG	0.12	1.0
		Mercury, Total	0.12	MG/KG	0.02	1.0
		Nickel, Total	9.9	MG/KG	0.12	1.0
		Lead, Total	4.1	MG/KG	0.22	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Vanadium, Total	76.7	MG/KG	0.09	1.0
		Zinc, Total	54.8	MG/KG	0.07	1.0
-002	B15YL3	Silver, Total	0.18	MG/KG	0.13	1.0
		Arsenic, Total	3.2	MG/KG	0.36	1.0
		Barium, Total	77.0	MG/KG	0.03	1.0
		Beryllium, Total	0.23	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	16.5	MG/KG	0.09	1.0
		Copper, Total	15.5	MG/KG	0.12	1.0
		Mercury, Total	0.17	MG/KG	0.02	1.0
		Nickel, Total	10.3	MG/KG	0.12	1.0
		Lead, Total	3.9	MG/KG	0.23	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Vanadium, Total	73.6	MG/KG	0.09	1.0
		Zinc, Total	50.6	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1976

LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YJ6	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	2.1	MG/KG	0.35	1.0
		Barium, Total	65.7	MG/KG	0.03	1.0
		Beryllium, Total	0.21	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	6.6	MG/KG	0.09	1.0
		Copper, Total	11.8	MG/KG	0.12	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	7.1	MG/KG	0.12	1.0
		Lead, Total	2.9	MG/KG	0.22	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Vanadium, Total	67.9	MG/KG	0.09	1.0
		Zinc, Total	44.5	MG/KG	0.07	1.0
-004	B15YJ7	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	3.5	MG/KG	0.38	1.0
		Barium, Total	64.4	MG/KG	0.03	1.0
		Beryllium, Total	0.23	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	10.5	MG/KG	0.1	1.0
		Copper, Total	13.1	MG/KG	0.13	1.0
		Mercury, Total	0.05	MG/KG	0.01	1.0
		Nickel, Total	8.8	MG/KG	0.13	1.0
		Lead, Total	3.4	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	74.1	MG/KG	0.1	1.0
		Zinc, Total	51.6	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15YJ8	Silver, Total	0.47	MG/KG	0.14	1.0
		Arsenic, Total	3.4	MG/KG	0.37	1.0
		Barium, Total	81.1	MG/KG	0.03	1.0
		Beryllium, Total	0.26	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	19.8	MG/KG	0.1	1.0
		Copper, Total	16.1	MG/KG	0.13	1.0
		Mercury, Total	0.26	MG/KG	0.01	1.0
		Nickel, Total	10.2	MG/KG	0.13	1.0
		Lead, Total	4.4	MG/KG	0.24	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	77.3	MG/KG	0.1	1.0
		Zinc, Total	53.2	MG/KG	0.08	1.0
-006	B15YJ9	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.5	MG/KG	0.39	1.0
		Barium, Total	180	MG/KG	0.03	1.0
		Beryllium, Total	0.18	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	8.3	MG/KG	0.10	1.0
		Copper, Total	13.0	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.2	MG/KG	0.13	1.0
		Lead, Total	2.7	MG/KG	0.25	1.0
		Selenium, Total	0.39 u	MG/KG	0.39	1.0
		Vanadium, Total	76.2	MG/KG	0.10	1.0
		Zinc, Total	44.9	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B15YK0	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	2.9	MG/KG	0.36	1.0
		Barium, Total	92.8	MG/KG	0.03	1.0
		Beryllium, Total	0.27	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	10.6	MG/KG	0.09	1.0
		Copper, Total	13.3	MG/KG	0.12	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	11.7	MG/KG	0.12	1.0
		Lead, Total	4.9	MG/KG	0.23	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Vanadium, Total	64.3	MG/KG	0.09	1.0
		Zinc, Total	47.3	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/16/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15YJ5	Silver, Total	5.3	0.39	4.9	100.2	1.0
		Arsenic, Total	195	3.6	197	97.0	1.0
		Barium, Total	309	85.0	197	113.8	1.0
		Beryllium, Total	4.9	0.26	4.9	94.6	1.0
		Cadmium, Total	4.8	0.05	4.9	96.9	1.0
		Chromium, Total	42.0	25.0	19.7	86.3	1.0
		Copper, Total	39.8	16.4	24.6	95.1	1.0
		Mercury, Total	0.28	0.12	0.16	98.7	1.0
		Nickel, Total	60.4	9.9	49.3	102.4	1.0
		Lead, Total	52.2	4.1	49.3	97.6	1.0
		Selenium, Total	189	0.35u	197	95.7	1.0
		Vanadium, Total	125	76.7	49.3	97.8	1.0
		Zinc, Total	103	54.8	49.3	97.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15YJS	Silver, Total	0.39	0.49	23.4	1.0
		Arsenic, Total	3.6	3.4	5.7	1.0
		Barium, Total	85.0	88.1	3.6	1.0
		Beryllium, Total	0.26	0.28	5.6	1.0
		Cadmium, Total	0.05	0.08	43.1	1.0
		Chromium, Total	25.0	23.6	5.8	1.0
		Copper, Total	16.4	16.0	2.5	1.0
		Mercury, Total	0.12	0.17	35.6	1.0
		Nickel, Total	9.9	10.0	1.0	1.0
		Lead, Total	4.1	4.2	2.4	1.0
		Selenium, Total	0.35u	0.33u	NC	1.0
		Vanadium, Total	76.7	80.7	5.1	1.0
		Zinc, Total	54.8	56.2	2.5	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

02111178

Custody Transfer Record

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Tru 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: 30 (45 Days)

Date Rec'd: 11-19-02 Date Due: 12-19-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	1	4	4	4
#/Type Container – Solid	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar	1 jar
Volume – Solid	60	250	250	60	120	500	60
Preservatives	—	—	—	—	—	—	—

ANALYSES REQUESTED

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	A: TCL VOA (0624H)	B: BNA (1) (0625X ODRO)	C: Pest/PCB (OPCB)	D: Herb	D: Alcohols Glycols (OGCSC)	E: ICP Metal (2) (MET ICAES)	E: CN	F: IC Anions (INORG)	G: pH (IPH)
001	B15YJ5			S	11-14-02	0959	X	X	X		X	X		X	X
002	B15YL3					1015	X	X	X		X	X		X	X
003	B15YJ6					1038	X	X	X		X	X		X	X
004	B15YJ7					1043	X	X	X		X	X		X	X
005	B15YJ8					1102	X	X	X		X	X		X	X
006	B15YJ9					1115	X	X	X		X	X		X	X
007	B15YK0					1139	X	X	X		X	X	✓	X	X

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

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, 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. 14.3 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

7912 3430 5052 / 2.4°C 7912 3430 5030

7912 3430 5074 / 2.1°C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-055	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g [20ml	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.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ5	SOIL	11-14-02	0959	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R Nielson	11-14-02 1320	Received By/Stored In: REF#1B/3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	11.18.02 1100	Received By/Stored In: SJ GALE	11/18/02 1100
Relinquished By/Removed From: SJ GALE	11/18/02 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 0910	Received By/Stored In: [illegible]	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-080	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-1		SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-3251	COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030		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	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RUN 11/3/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		
Sample No. / Matrix * / Sample Date / Sample Time											
B15YL3 / SOIL / 11-14-02 / 1015	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	11-14-02 1320	Received By/Stored In: REF #13/3728	11-14-02 1320
Relinquished By/Removed From: REF 13	11 18 02 1100	Received By/Stored In: SJGALE	11/18/02 1100
Relinquished By/Removed From: SJGALE	11/18/02 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-19-02 0910	Received By/Stored In: [illegible]	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref# 13 on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-056	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 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.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	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	11-14-02 1320	REF # 1B / 3728	11-14-02 1320
REF 1B	111802 1100	SJ GALE	111802 1100
SJ GALE	111802 1100	FED EX	
FED EX	11-19-02 0910	D. Smith	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

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FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ7	SOIL	11-14-02	1043	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	1320 11-14-02	Ref #B/3728	1320 11-14-02
Ref 1B	111802 1100	SJGALE	111802 1100
SJGALE	111802 1100	FED EX	
Fed Ex	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref# 1B on 11/18/02

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

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

22

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1	SAF No.: F03-003	
Ice Chest No.: SOE 03PC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SOE 03PC	

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~~	RJN 11-19-02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		
Sample No. / Matrix * / Sample Date / Sample Time											
B15YJ8 / SOIL / 11-14-02 / 1102	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	11-14-02 1320	REFFIB 3728	11-14-02 1320
REFIB	111802 1100	SJOAKES	111802 1100
SJOAKES	111902 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 10 on 11/18/02

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

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

23

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RJN 11-19-02
No. of Container(s)	1	1	1	1	1 RJN 11/19/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Ref #1B / 3728	11-14-02 1320
REF 1B	111802 1100	SJ Gale	111802 1100
SJ Gale	111802 1100	FED EX	
Fed Ex	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~ADVANCED ENVIRONMENTAL (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RIN 11/13/02
No. of Container(s)	1	1	1	1	1 RIN 11-13-02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500gm/	
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										
B15YK0	SOIL	11-14-02	1139	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	11-14-02 1320	Ref # 13/3728	11-14-02 1320
REF 13	11.18.02 1100	SJ GALE	11/18/02 1100
SJ GALE	11/18/02 1100	FED EX	
FED EX	11-19-02 0910		11.19.02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 13 on 11/18/02

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

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

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

23

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11.19.02

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

Laboratory SDG #: 0211L178

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:

#1 ERC-058 = 14.3°C

ERC 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

DEC 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YJ5						
% SOLIDS	001	S	02L%S127	11/14/02	11/20/02	11/21/02
% SOLIDS	001 REP	S	02L%S127	11/14/02	11/20/02	11/21/02
CHLORIDE BY IC	001	S	02LICA80	11/14/02	11/26/02	11/26/02
CHLORIDE BY IC	001 REP	S	02LICA80	11/14/02	11/26/02	11/26/02
CHLORIDE BY IC	001 MS	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	001	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	001 REP	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	001 MS	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	001	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	001 REP	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	001 MS	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	001	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	001 REP	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	001 MS	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	001	S	02LCB89	11/14/02	11/21/02	11/21/02
TOTAL CYANIDE	001 REP	S	02LCA89	11/14/02	11/21/02	11/21/02
TOTAL CYANIDE	001 MS	S	02LCA89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	001	S	02LICA80	11/14/02	11/26/02	11/26/02
PHOSPHATE BY IC	001 REP	S	02LICA80	11/14/02	11/26/02	11/26/02
PHOSPHATE BY IC	001 MS	S	02LICA80	11/14/02	11/26/02	11/26/02
CHROMIUM VI	001	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	001	S	02LICA80	11/14/02	11/26/02	11/26/02
SULFATE BY IC	001 REP	S	02LICA80	11/14/02	11/26/02	11/26/02
SULFATE BY IC	001 MS	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	001	S	02LN3D85	11/14/02	11/22/02	11/22/02
NITRATE NITRITE	001 REP	S	02LN3D85	11/14/02	11/22/02	11/22/02
NITRATE NITRITE	001 MS	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	001	S	02LAMA34	11/14/02	12/02/02	12/05/02
AMMONIA	001 REP	S	02LAMA34	11/14/02	12/02/02	12/05/02
AMMONIA	001 MS	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	001	S	02LPH093	11/14/02	11/21/02	11/21/02
PH	001 REP	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	001	S	02LSD055	11/14/02	11/22/02	11/22/02
B15YL3						
% SOLIDS	002	S	02L%S127	11/14/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	002	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	002	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	002	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	002	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	002	S	02LCB89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	002	S	02LICA80	11/14/02	11/26/02	11/26/02
CHROMIUM VI	002	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	002	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	002	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	002	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	002	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	002	S	02LSD055	11/14/02	11/22/02	11/22/02
B15YJ6						
% SOLIDS	003	S	02L%S127	11/14/02	11/20/02	11/21/02
CHLORIDE BY IC	003	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	003	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	003	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	003	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	003	S	02LCB89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	003	S	02LICA80	11/14/02	11/26/02	11/26/02
CHROMIUM VI	003	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	003	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	003	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	003	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	003	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	003	S	02LSDA55	11/14/02	11/22/02	11/22/02
B15YJ7						
% SOLIDS	004	S	02L%S127	11/14/02	11/20/02	11/21/02
CHLORIDE BY IC	004	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	004	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	004	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	004	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	004	S	02LCB89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	004	S	02LICA80	11/14/02	11/26/02	11/26/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	004	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	004	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	004	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	004	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	004	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	004	S	02LSDA55	11/14/02	11/22/02	11/22/02
B15YJ8						
% SOLIDS	005	S	02L%S127	11/14/02	11/20/02	11/21/02
CHLORIDE BY IC	005	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	005	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	005	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	005	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	005	S	02LCB89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	005	S	02LICA80	11/14/02	11/26/02	11/26/02
CHROMIUM VI	005	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	005	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	005	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	005	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	005	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	005	S	02LSDA55	11/14/02	11/22/02	11/22/02
B15YJ9						
% SOLIDS	006	S	02L%S127	11/14/02	11/20/02	11/21/02
CHLORIDE BY IC	006	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	006	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	006	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	006	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	006	S	02LCB89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	006	S	02LICA80	11/14/02	11/26/02	11/26/02
CHROMIUM VI	006	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	006	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	006	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	006	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	006	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	006	S	02LSDA55	11/14/02	11/22/02	11/22/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YK0						
% SOLIDS	007	S	02L%S127	11/14/02	11/20/02	11/21/02
CHLORIDE BY IC	007	S	02LICA80	11/14/02	11/26/02	11/26/02
FLUORIDE BY IC	007	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRITE BY IC	007	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE BY IC	007	S	02LICA80	11/14/02	11/26/02	11/26/02
TOTAL CYANIDE	007	S	02LCB89	11/14/02	11/21/02	11/21/02
PHOSPHATE BY IC	007	S	02LICA80	11/14/02	11/26/02	11/26/02
CHROMIUM VI	007	S	02LVI037	11/14/02	11/22/02	11/22/02
CHROMIUM VI	007 REP	S	02LVI037	11/14/02	11/22/02	11/22/02
CHROMIUM VI	007 MS	S	02LVI037	11/14/02	11/22/02	11/22/02
CHROMIUM VI	007 MSD	S	02LVI037	11/14/02	11/22/02	11/22/02
SULFATE BY IC	007	S	02LICA80	11/14/02	11/26/02	11/26/02
NITRATE NITRITE	007	S	02LN3D85	11/14/02	11/22/02	11/22/02
AMMONIA	007	S	02LAMA34	11/14/02	12/02/02	12/05/02
PH	007	S	02LPH093	11/14/02	11/21/02	11/21/02
SULFIDE	007	S	02LSDA55	11/14/02	11/22/02	11/22/02
SULFIDE	007 REP	S	02LSDA55	11/14/02	11/22/02	11/22/02
SULFIDE	007 MS	S	02LSDA55	11/14/02	11/22/02	11/22/02

LAB QC:

CHLORIDE BY IC	MB1	S	02LICA80	N/A	11/26/02	11/26/02
CHLORIDE BY IC	MB1 BS	S	02LICA80	N/A	11/26/02	11/26/02
FLUORIDE BY IC	MB1	S	02LICA80	N/A	11/26/02	11/26/02
FLUORIDE BY IC	MB1 BS	S	02LICA80	N/A	11/26/02	11/26/02
NITRITE BY IC	MB1	S	02LICA80	N/A	11/26/02	11/26/02
NITRITE BY IC	MB1 BS	S	02LICA80	N/A	11/26/02	11/26/02
NITRATE BY IC	MB1	S	02LICA80	N/A	11/26/02	11/26/02
NITRATE BY IC	MB1 BS	S	02LICA80	N/A	11/26/02	11/26/02
TOTAL CYANIDE	LCS L	S	02LCB89	N/A	11/21/02	11/21/02
TOTAL CYANIDE	LCS L	S	02LCB89	N/A	11/21/02	11/21/02
TOTAL CYANIDE	MB1	S	02LCB89	N/A	11/21/02	11/21/02
TOTAL CYANIDE	LCS L	S	02LCA89	N/A	11/21/02	11/21/02
TOTAL CYANIDE	LCS L	S	02LCA89	N/A	11/21/02	11/21/02
TOTAL CYANIDE	MB1	S	02LCA89	N/A	11/21/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1976

DATE RECEIVED: 11/19/02 LVL LOT # :0211L178

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	MB1	S	02LICA80	N/A	11/26/02	11/26/02
PHOSPHATE BY IC	MB1 BS	S	02LICA80	N/A	11/26/02	11/26/02
CHROMIUM VI	MB1	S	02LVI037	N/A	11/22/02	11/22/02
CHROMIUM VI	MB1 BS	S	02LVI037	N/A	11/22/02	11/22/02
CHROMIUM VI	MB1 BSD	S	02LVI037	N/A	11/22/02	11/22/02
SULFATE BY IC	MB1	S	02LICA80	N/A	11/26/02	11/26/02
SULFATE BY IC	MB1 BS	S	02LICA80	N/A	11/26/02	11/26/02
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	02LSD055	N/A	11/22/02	11/22/02
SULFIDE	MB1 BS	S	02LSD055	N/A	11/22/02	11/22/02
SULFIDE	MB1	S	02LSDA55	N/A	11/22/02	11/22/02
SULFIDE	MB1 BS	S	02LSDA55	N/A	11/22/02	11/22/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003 H1976
LVL#: 0211L178

W.O.#: 11343-606-001-9999-00
Date Received: 11-19-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 7 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 with the exception of Sulfide that were analyzed past hold.

4. The results presented in this report are derived from samples that did not meet LvLI's sample acceptance policy as noted on the Sample Receipt Checklist.

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 was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Sulfate, Nitrate Nitrite, Ammonia, Chromium VI and Sulfide were within the 75-125% control limits.

8. The replicate analyses Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Sulfate, Nitrate Nitrite, Ammonia, Chromium VI, Percent Solids, pH and Sulfide were within the 20% Relative Percent Difference (RPD) control limit.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-12-02
Date

njp\i11-178

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 26 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 353.2 (mod.)

Ammonia EPA 350.3 (mod.)

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 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15YJ5	% Solids	95.7		%	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	1.31	u	MG/KG	1.31	1.0
		Nitrate by IC	12.4		MG/KG	1.31	1.0
		Cyanide, Total	0.25	u	MG/KG	0.25	1.0
		Phosphate by IC	2.0		MG/KG	1.3	1.0
		Chromium VI	2.3		MG/KG	0.42	1.0
		Sulfate by IC	3.2		MG/KG	1.3	1.0
		Nitrate Nitrite	2.8		MG/KG	0.17	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.7		SOIL PH	0.01	1.0
		Sulfide	25.2	u	MG/KG	25.2	1.0
-002	B15YL3	% Solids	96.2		%	0.01	1.0
		Chloride by IC	1.3		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	14.2		MG/KG	1.30	1.0
		Cyanide, Total	0.38	u	MG/KG	0.38	1.0
		Phosphate by IC	1.7		MG/KG	1.3	1.0
		Chromium VI	2.5		MG/KG	0.42	1.0
		Sulfate by IC	3.2		MG/KG	1.3	1.0
		Nitrate Nitrite	2.9		MG/KG	0.20	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.8		SOIL PH	0.01	1.0
		Sulfide	23.9	u	MG/KG	23.9	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YJ6	% Solids	97.6		%	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	1.28	u	MG/KG	1.28	1.0
		Nitrate by IC	8.11		MG/KG	1.28	1.0
		Cyanide, Total	0.30	u	MG/KG	0.30	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	3.0		MG/KG	1.3	1.0
		Nitrate Nitrite	2.0		MG/KG	0.16	1.0
		Ammonia, as N	2.3	u	MG/KG	2.3	1.0
		pH	8.7		SOIL PH	0.01	1.0
		Sulfide	28.4	u	MG/KG	28.4	1.0
-004	B15YJ7	% Solids	96.5		%	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	1.30	u	MG/KG	1.30	1.0
		Nitrate by IC	23.7		MG/KG	1.30	1.0
		Cyanide, Total	0.41	u	MG/KG	0.41	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.45		MG/KG	0.41	1.0
		Sulfate by IC	4.8		MG/KG	1.3	1.0
		Nitrate Nitrite	5.1		MG/KG	0.21	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.6		SOIL PH	0.01	1.0
		Sulfide	41.2	u	MG/KG	41.2	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15YJ8	% Solids	95.8		%	0.01	1.0
		Chloride by IC	1.9		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	20.4		MG/KG	1.30	1.0
		Cyanide, Total	0.45	u	MG/KG	0.45	1.0
		Phosphate by IC	2.0		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	4.1		MG/KG	1.3	1.0
		Nitrate Nitrite	4.7		MG/KG	0.17	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.8		SOIL PH	0.01	1.0
		Sulfide	41.7	u	MG/KG	41.7	1.0
-006	B15YJ9	% Solids	96.9		%	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	1.29	u	MG/KG	1.29	1.0
		Nitrate by IC	11.3		MG/KG	1.29	1.0
		Cyanide, Total	0.29	u	MG/KG	0.29	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate Nitrite	2.7		MG/KG	0.17	1.0
		Ammonia, as N	2.3	u	MG/KG	2.3	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	30.2	u	MG/KG	30.2	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	B15YK0	% Solids	94.2		%	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	1.33	u	MG/KG	1.33	1.0
		Nitrate by IC	11.1		MG/KG	1.33	1.0
		Cyanide, Total	0.33	u	MG/KG	0.33	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	2.4		MG/KG	1.3	1.0
		Nitrate Nitrite	2.5		MG/KG	0.21	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	26.7	u	MG/KG	26.7	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LICA80-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	02LCB89-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK1	02LCA89-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	02LVI037-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	02LSD055-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0
BLANK10	02LSDA55-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15YJ5	Chloride by IC	28.6	0.51	26.1	107.6	1.0
		Fluoride by IC	28.2	0.92	26.1	104.3	1.0
		Nitrite by IC	25.4	1.31u	26.1	97.1	1.0
		Nitrate by IC	38.8	12.4	26.1	101.0	1.0
		Cyanide, Total	5.08	0.25u	5.12	99.3	1.0
		Phosphate by IC	28.1	2.0	26.1	99.7	1.0
		Sulfate by IC	29.0	3.2	26.1	98.7	1.0
		Nitrate Nitrite	7.6	2.8	4.9	97.2	1.0
		Ammonia, as N	97.6	2.6 u	104	94.0	1.0
-007	B15YK0	Soluble Chromium VI	5.1	0.42u	4.2	114.6	1.0
		Chromium VI MSD	1170	0.42u	1160	100.5	100
		Sulfide	499	3.3	497	99.6	1.0
BLANK10	02LICA80-MB1	Chloride by IC	24.0	1.2 u	25.0	96.1	1.0
		Fluoride by IC	25.6	1.2 u	25.0	102.4	1.0
		Nitrite by IC	24.6	1.25u	25.0	98.2	1.0
		Nitrate by IC	23.6	1.25u	25.0	94.5	1.0
		Phosphate by IC	24.9	1.2 u	25.0	99.6	1.0
		Sulfate by IC	24.0	1.2 u	25.0	96.1	1.0
BLANK10	02LVI037-MB1	Soluble Chromium VI	4.1	0.40u	4.0	103.2	1.0
		Insoluble Chromium VI	1100	0.40u	1160	94.9	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	02LSD055-MB1	Sulfide	456	40.0 u	471	96.9	1.0
BLANK10	02LSDA55-MB1	Sulfide	472	40.0 u	471	100.3	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15YJ5	% Solids	95.7	96.0	0.30	1.0
		Chloride by IC	1.3 u	1.3	NC	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrite by IC	1.31u	1.31u	NC	1.0
		Nitrate by IC	12.4	12.7	2.4	1.0
		Cyanide, Total	0.25u	0.65u	NC	1.0
		Phosphate by IC	2.0	1.7	15.0	1.0
		Sulfate by IC	3.2	3.1	3.4	1.0
		Nitrate Nitrite	2.8	3.0	3.8	1.0
		Ammonia, as N	2.6 u	2.6 u	NC	1.0
		pH	8.7	8.7	0.2	1.0
-007REP	B15YK0	Chromium VI	0.42u	0.42u	NC	1.0
		Sulfide	26.7 u	41.4 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/11/02

CLIENT: TNUHANFORD F03-003 H1976 LVL LOT #: 0211L178

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	02LCB89-LCS1	Cyanide, Total LCS	1.90	2.0	MG/KG	94.8
LCSS2	02LCB89-LCS2	Cyanide, Total LCS	9.71	10.0	MG/KG	97.1
LCSS1	02LCA89-LCS1	Cyanide, Total LCS	2.11	2.0	MG/KG	105.4
LCSS2	02LCA89-LCS2	Cyanide, Total LCS	9.83	10.0	MG/KG	98.3

Lionville Laboratory Use Only

0211L178

Custody Transfer Record/Lab Work Req

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVL Lionville Laboratory Inc

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: 30 45 Days

Date Rec'd: 11-19-02 Date Due: 12-19-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		1			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid															
	Solid	60	250	250		60			120		500	60				
Preservatives		—	—	—		—			—		—	—				
ANALYSES REQUESTED		ORGANIC: TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			INORG: ICP Metal (2)	CN	IC (3) Anions	pH				
Lionville Laboratory Use Only		0624H	0625X ODRO	0PCB		0GCSC			MET (1) ICP/MS		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 ODRO	0PCB		0GCSC			MET (1) ICP/MS		INORG (1)	IPH				
001	B15YJ5			S	11-14-02	0959	X	X	X		X			X		X	X				
002	B15YL3					1015	X	X	X		X			X		X	X				
003	B15YJ6					1038	X	X	X		X			X		X	X				
004	B15YJ7					1043	X	X	X		X			X		X	X				
005	B15YJ8					1102	X	X	X		X			X		X	X				
006	B15YJ9					1115	X	X	X		X			X		X	X				
007	B15YK0					1139	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, 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. 14.3 °C

Relinquished by	Received by	Date	Time
Fed Ex	[signature]	11-19-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES:

7912 3430 5052 / 2.4°C 7912 3430 5030

7912 3430 5074 / 2.1°C

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-055	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE 08PC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: N/B 11 18 02 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SEE 08PC	

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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RUN 11/13/02		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120ml	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.		
Sample No.	Matrix *	Sample Date	Sample Time							
B15YJ5	SOIL	11-14-02	0959	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	11-14-02 1320	REF #1B/3728	11-14-02 1320
REF 1B	11 18 02 1100	SJ GARZ	11 18 02 1100
SJ GARZ	11 18 02 1100	FED EX	
Fed Ex	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-080	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RW 11/13/02
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60mL ml	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time											
B15YL3	SOIL	11-14-02	1015	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	11-14-02 1320	Received By/Stored In: Ref #1B/3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	11 18 02 1100	Received By/Stored In: SJ GALLO	111802 1100
Relinquished By/Removed From: SJ GALLO	111802 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11.19.02 0910	Received By/Stored In: D. Miller	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11 18 02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-056	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-1	SAF No.: F03-003	
Ice Chest No.: SEE 057C	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ MD 11/4/02 RECRA	Offsite Property No.: A030 030		Bill of Lading/Air Bill No.: SEE 057C

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	aG	aG	aG	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1		
Volume	60g ml	250g ml	60mL r	250g ml	~~125g~~ 120 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 11/18/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ6	SOIL	11-14-02	1028	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson	Date/Time: 11-14-02 1320	Received By/Stored In: Ref # 1B / 3728	Date/Time: 11-14-02 1320
Relinquished By/Removed From: REF 1B	Date/Time: 111802 1100	Received By/Stored In: SJ GALE	Date/Time: 111802 1100
Relinquished By/Removed From: SJ GALE	Date/Time: 11 18 02 1100	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 11-19-02 0910	Received By/Stored In: D. Smith	Date/Time: 11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

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FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-057	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECEA	Offsite Property No.: A030 030	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	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/13/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time											
B15YJ7	SOIL	11-14-02	1043	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	11-14-02 1320	Ref #B/3728	11-14-02 1320
Ref 1B	111802 1100	SJGALE	111802 1100
SJGALE	111802 1100	FED EX	
Fed Ex	11-19-02 0910	D. Mann	11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

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FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-058	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-1	SAF No.: F03-003	
Ice Chest No.: SOE 03PC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ AIS 111802 RECRA	Offsite Property No.: A030 030		Bill of Lading/Air Bill No.: SOE 03PC

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~~	RJN 11-19-02	
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	125g 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ8	SOIL	11-14-02	1102	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	11-14-02 1320	Received By/Stored In: Ref #18 3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	111802 1100	Received By/Stored In: SJOHNSON	111802 1100
Relinquished By/Removed From: SJOHNSON	111902 1100	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-19-02 0910	Received By/Stored In: [illegible]	11-19-02 0910
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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-059	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-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	Bill of Lading/Air Bill No.: SEE OSPC	

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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~~	RJN 11-19-02
No. of Container(s)	1	1	1	1	1 RJN 11/13/02	1	1	1	1	
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500g 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.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YJ9	SOIL	11-14-02	1115	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	11-14-02 1320	Ref #1B / 3728	11-14-02 1320
Ref 1B 111802	1100	SJ Gale	111802 1100
SJ Gale	111802 1100	FED EX	
FED EX	11-19-02 0910		11-19-02 0910

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/18/02

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-060	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-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 030	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	None		
Type of Container	G	aG	G	aG	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	~~G/P~~	RN 11/13/02	
No. of Container(s)	1	1	1	1	1 RN 11-13-02	1	1	1	1		
Volume	60g ml	250g ml	60mL	250g ml	~~125g~~ 120 ml	500g ml	60g ml	1000g ml	500gm/		
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											
B15YK0 / SOIL / 11-14-02 / 1139	X	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	Received By/Stored In: Ref # 13/3728	11-14-02 1320
Relinquished By/Removed From: REF 1B	Received By/Stored In: SJ GALE	11 18 02 1100
Relinquished By/Removed From: SJ GALE	Received By/Stored In: FED EX	11 18 02 1100
Relinquished By/Removed From: Fed Ex	Received By/Stored In:	11-19-02 0910
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
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Personnel not available to relinquish samples from the 3728
Ref # 1B on 11 18 02

Matrix *
S=Soil
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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

IENT: TMU Hanford

rchase Order/Project:

DATE: 11.19.02

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

boratory SDG #: 0211L178

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

1. Custody seals on coolers or shipping container intact, signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
2. Outside of coolers or shipping containers are free from damage?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
3. Airbill # recorded?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☒ Yes	☐ No	☐ N/A	☐ see Comment #
5. Sample containers are intact?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
6. Custody seals on sample containers intact, signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
7. All samples on coc received?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
8. All sample label information matches coc?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☐ No	☒ N/A	☐ see Comment #
10. Shipment meets LvL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☐ Yes	☒ No	☐ N/A	☒ see Comment # 1
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 99.055 / 2.1°C
ERC 99.058 / 14.3°C
ERC FS 002 / 2.4°C

#1 ERC-058 = 14.3°C

Laboratory Sample Custodian: D Johnson

Laboratory Project Manager: