EBERLINE SERVICES

0059600

January 13, 2003

JAN 2003
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Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R2-11-064-7388, SDG H1966

Dear Mr. Trent:

Enclosed is the data report for six solid samples designated under SAF No. F03-003 received at Eberline Services on November 14, 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

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JUN 09 2003
EDMC

MCM

Enclosure: Data Package

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 H1966 was composed of six solid (soil) samples designated under SAF No. F03-003 with a Project Designations of: 200 Area Source Characterization 200-CS-1 OU – Soil Sampling.

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

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

There was contamination in the method blank (0.728 pCi/g). The activity was below the RDL (15 pCi/g) for Tc-99. The activity in the method blank is probably from a long-lived isotope in the tracer. All client samples were non-detect for Tc-99. No other problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

The following samples had yields above the limit of 105%: B15XK0 (107%), method blank (113%), and LCS (109%). No other problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

Per FH's instructions, samples in SDG H1966 were not analyzed for isotopic uranium (see e-mail attached).

2.8 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.9 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.12 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

1/13/03

Date

Stephen_J_Trent@RL.gov
12/16/2002 11:57 AM

To: mmannion@eberlineservices.com
cc:
Subject: Isotopic Uranium Analysis on SDGs H1966, H1968, and H1970 7388 7390 7392

Melissa,

Our project client has reviewed the preliminary total uranium data submitted under SDGs H1966, H1968 7388 7390 and H1970. Based on his review, no additional isotopic uranium analyses will be required for samples contained in these SDGs. 7392

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 H1966

SDG	7388
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_H1966

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	01/13/03

SDG 7388
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1966

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/13/03

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

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

MATRIX SPIKES

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

DATA SHEETS

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

METHOD SUMMARIES

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

REPORT GUIDES

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

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1966

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15XJ7	BT-2	SOLID		R211064-01	F03-003	F03-003-003	11/11/02 10:07
B15XJ8	BT-2	SOLID		R211064-02	F03-003	F03-003-003	11/11/02 10:25
B15XJ9	BT-2	SOLID		R211064-03	F03-003	F03-003-003	11/11/02 10:45
B15XK0	BT-2	SOLID		R211064-06	F03-003	F03-003-003	11/11/02 11:00
B15XK1	BT-2	SOLID		R211064-05	F03-003	F03-003-003	11/11/02 11:25
B15XK2	BT-2	SOLID		R211064-04	F03-003	F03-003-003	11/11/02 11:50
Method Blank		SOLID		R211064-08	F03-003		
Lab Control Sample		SOLID		R211064-07	F03-003		
Duplicate (R211064-05)	BT-2	SOLID		R211064-09	F03-003		11/11/02 11:25
Spike (R211064-06)	BT-2	SOLID		R211064-10	F03-003		11/11/02 11:00

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1966

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
7388	F03-003-003	B15XJ7	SOLID	97.3	1356 g		11/14/02	3	R211064-01	7388-001
		B15XJ8	SOLID	97.4	1275 g		11/14/02	3	R211064-02	7388-002
		B15XJ9	SOLID	97.9	1333 g		11/14/02	3	R211064-03	7388-003
		B15XK0	SOLID	98.1	2156 g		11/14/02	3	R211064-06	7388-006
		B15XK1	SOLID	97.7	2174 g		11/14/02	3	R211064-05	7388-005
		B15XK2	SOLID	98.1	2039 g		11/14/02	3	R211064-04	7388-004
		Method Blank	SOLID						R211064-08	7388-008
		Lab Control Sample	SOLID						R211064-07	7388-007
		Duplicate (R211064-05)	SOLID	97.7	2174 g		11/14/02	3	R211064-09	7388-009
		Spike (R211064-06)	SOLID	98.1	2156 g		11/14/02	3	R211064-10	7388-010

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1966

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	7052-040	5.0	6			1	1	1/1		
NP	SOLID	Neptunium in Soil	7052-040	5.0	6			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-040	5.0	6			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-040	5.0	6			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-040	10.0	6			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7052-040	10.0	3			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-040	20.0	6			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-040	15.0	6			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-040	15.0	6			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-040	9.0	6			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	7052-040	10.0	3			1	1	1/1	1/1	X
NI_L	SOLID	Nickel 63 in Soil	7052-040	10.0	3			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1966

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15XJ7			R211064-01	7388-001	93A/93		12/18/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-001	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
F03-003-003	F03-003		11/14/02	7388-001	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-001	GAM		12/24/02	01/12/03	MCM	Gamma Scan
				7388-001	NP		12/27/02	01/12/03	MCM	Neptunium in Soil
				7388-001	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-001	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-001	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-001	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil
B15XJ8			R211064-02	7388-002	93A/93		12/19/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-002	93B/93		12/19/02	01/12/03	MCM	Gross Beta in Soil
F03-003-003	F03-003		11/14/02	7388-002	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-002	GAM		12/24/02	01/12/03	MCM	Gamma Scan
				7388-002	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-002	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-002	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-002	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-002	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil
B15XJ9			R211064-03	7388-003	93A/93		12/20/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-003	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
F03-003-003	F03-003		11/14/02	7388-003	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-003	GAM		12/24/02	01/12/03	MCM	Gamma Scan
				7388-003	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-003	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-003	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-003	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-003	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1966

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15XK0			R211064-06	7388-006	93A/93		12/23/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-006	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
F03-003-003	F03-003		11/14/02	7388-006	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-006	GAM		12/26/02	01/12/03	MCM	Gamma Scan
				7388-006	H		12/30/02	01/12/03	MCM	Tritium in Soil
				7388-006	NI_L		12/19/02	01/12/03	MCM	Nickel 63 in Soil
				7388-006	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-006	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-006	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-006	TC		01/09/03	01/12/03	MCM	Technetium 99 in Soil
				7388-006	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-006	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil
B15XK1			R211064-05	7388-005	93A/93		12/20/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-005	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
F03-003-003	F03-003		11/14/02	7388-005	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-005	GAM		12/26/02	01/12/03	MCM	Gamma Scan
				7388-005	H		12/30/02	01/12/03	MCM	Tritium in Soil
				7388-005	NI_L		12/19/02	01/12/03	MCM	Nickel 63 in Soil
				7388-005	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-005	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-005	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-005	TC		01/07/03	01/12/03	MCM	Technetium 99 in Soil
				7388-005	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-005	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil
B15XK2			R211064-04	7388-004	93A/93		12/20/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-004	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
F03-003-003	F03-003		11/14/02	7388-004	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-004	GAM		12/24/02	01/12/03	MCM	Gamma Scan
				7388-004	H		12/30/02	01/12/03	MCM	Tritium in Soil
				7388-004	NI_L		12/19/02	01/12/03	MCM	Nickel 63 in Soil
				7388-004	NP		12/27/02	01/12/03	MCM	Neptunium in Soil
				7388-004	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-004	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-004	TC		01/07/03	01/12/03	MCM	Technetium 99 in Soil
				7388-004	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-004	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1966

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R211064-08	7388-008	93A/93		12/18/02	01/12/03	MCM	Gross Alpha in Soil
		SOLID		7388-008	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
	F03-003			7388-008	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-008	GAM		12/26/02	01/12/03	MCM	Gamma Scan
				7388-008	H		12/30/02	01/12/03	MCM	Tritium in Soil
				7388-008	NI_L		12/19/02	01/12/03	MCM	Nickel 63 in Soil
				7388-008	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-008	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-008	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-008	TC		01/09/03	01/12/03	MCM	Technetium 99 in Soil
				7388-008	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-008	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil
Lab Control Sample			R211064-07	7388-007	93A/93		12/23/02	01/12/03	MCM	Gross Alpha in Soil
		SOLID		7388-007	93B/93		12/18/02	01/12/03	MCM	Gross Beta in Soil
	F03-003			7388-007	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-007	GAM		12/26/02	01/12/03	MCM	Gamma Scan
				7388-007	H		12/30/02	01/12/03	MCM	Tritium in Soil
				7388-007	NI_L		12/19/02	01/12/03	MCM	Nickel 63 in Soil
				7388-007	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-007	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-007	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-007	TC		01/07/03	01/12/03	MCM	Technetium 99 in Soil
				7388-007	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-007	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil
Duplicate (R211064-05)			R211064-09	7388-009	93A/93		12/23/02	01/12/03	MCM	Gross Alpha in Soil
BT-2		SOLID	11/11/02	7388-009	93B/93		12/23/02	01/12/03	MCM	Gross Beta in Soil
	F03-003		11/14/02	7388-009	AM		12/26/02	01/12/03	MCM	Americium 241 in Soil
				7388-009	GAM		12/26/02	01/12/03	MCM	Gamma Scan
				7388-009	H		12/31/02	01/12/03	MCM	Tritium in Soil
				7388-009	NI_L		12/19/02	01/12/03	MCM	Nickel 63 in Soil
				7388-009	NP		12/26/02	01/12/03	MCM	Neptunium in Soil
				7388-009	PU		12/24/02	01/12/03	MCM	Plutonium, Isotopic in Solids
				7388-009	SR		12/19/02	01/12/03	MCM	Total Strontium in Soil
				7388-009	TC		01/09/03	01/12/03	MCM	Technetium 99 in Soil
				7388-009	TH		12/20/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7388-009	U_T		12/13/02	12/13/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

SDG 7388
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1966

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Spike (R211064-06)			R211064-10	7388-010	H		12/31/02	01/12/03	MCM	Tritium in Soil
BT-2		SOLID	11/11/02							
	F03-003		11/14/02							

COUNTS OF TESTS BY SAMPLE TYPE

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

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-08 Method Blank

METHOD BLANK

SDG	7388	Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211064-08	Client sample id	Method Blank
Dept sample id	7388-008	Material/Matrix	SOLID
		SAF No	F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-1.10	1.1	2.9	10	U	93A
Gross Beta	12587-47-2	-2.79	3.8	6.8	15	U	93B
Tritium	10028-17-8	0.064	0.15	0.26	400	U	H
Nickel 63	13981-37-8	0.112	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	-0.082	0.11	0.26	1.0	U	SR
Technetium 99	14133-76-7	0.728	0.25	0.53	15		TC
Thorium 228	14274-82-9	0	0.063	0.24		U	TH
Thorium 230	14269-63-7	0.094	0.13	0.24	1.0	U	TH
Thorium 232	TH-232	0	0.063	0.24	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0	0.002	0.005	0.10	U	U_T
Neptunium 237	13994-20-2	0.078	0.079	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0	0.059	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0.029	0.059	0.22	1.0	U	PU
Americium 241	14596-10-2	0	0.10	0.39	1.0	U	AM
Potassium 40	13966-00-2	U		0.12		U	GAM
Cobalt 60	10198-40-0	U		0.014	0.050	U	GAM
Cesium 137	10045-97-3	U		0.008	0.10	U	GAM
Radium 226	13982-63-3	U		0.019		U	GAM
Radium 228	15262-20-1	U		0.042		U	GAM
Europium 152	14683-23-9	U		0.027	0.10	U	GAM
Europium 154	15585-10-1	U		0.031	0.10	U	GAM
Europium 155	14391-16-3	U		0.022	0.10	U	GAM
Thorium 228	14274-82-9	U		0.015		U	GAM
Thorium 232	TH-232	U		0.042		U	GAM
Uranium 235	15117-96-1	U		0.035		U	GAM
Uranium 238	U-238	U		1.3		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	01/13/03

B L A N K , c o n t .

SDG	7388	Client/Case no	Hanford	SDG H1966	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211064-08	Client sample id	Method Blank		
Dept sample id	7388-008	Material/Matrix		SOLID	
		SAF No	F03-003		

QC-BLANK 43359

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7388
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1966
Contract No. 630

Lab sample id R211064-07
Dept sample id 7388-007

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

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	213	15	3.1	10		93A	191	7.6	112	64-136	70-130
Gross Beta	216	11	5.4	15		93B	212	8.5	102	75-125	70-130
Tritium	13.7	0.44	0.26	400		H	13.3	0.53	103	83-117	80-120
Nickel 63	218	4.2	2.0	30		NI_L	230	9.2	95	84-116	80-120
Total Strontium	23.1	0.91	0.28	1.0		SR	21.2	0.85	109	81-119	80-120
Technetium 99	139	3.0	0.53	15	B	TC	141	5.6	99	84-116	80-120
Thorium 230	41.4	4.2	0.27	1.0		TH	40.8	1.6	102	82-118	80-120
Total Uranium (ug/g)	13.5	1.5	0.049	0.10		U_T	13.2	0.53	102	77-123	80-120
Neptunium 237	18.7	1.9	0.12	1.0		NP	19.9	0.80	94	83-117	80-120
Plutonium 238	26.2	3.2	0.32	1.0		PU	24.4	0.98	107	78-122	80-120
Plutonium 239/240	24.5	3.0	0.32	1.0		PU	26.4	1.1	93	81-119	80-120
Americium 241	17.8	1.9	0.21	1.0		AM	19.1	0.76	93	82-118	80-120
Cobalt 60	1.23	0.059	0.023	0.050		GAM	1.18	0.047	104	75-125	80-120
Cesium 137	1.32	0.052	0.032	0.10		GAM	1.23	0.049	107	74-126	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43358

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-09 B15XK1

DUPLICATE

SDG	7388			Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R211064-09	Lab sample id	R211064-05	Client sample id	B15XK1
Dept sample id	7388-009	Dept sample id	7388-005	Location/Matrix	BT-2 SOLID
		Received	11/14/02	Collected/Weight	11/11/02 11:25 2174 g
% solids	97.7	% solids	97.7	Custody/SAF No	F03-003-003 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	4.27	3.0	4.0	10		93A	4.51	2.8	3.5		5	146	
Gross Beta	16.0	4.7	6.5	15		93B	12.4	4.7	6.9		25	77	
Tritium	0.078	0.096	0.16	400	U	H	0.044	0.097	0.16	U	-		
Nickel 63	-0.738	1.2	2.1	30	U	NI_L	-0.724	1.3	2.2	U	-		
Total Strontium	0.030	0.12	0.23	1.0	U	SR	-0.008	0.11	0.24	U	-		
Technetium 99	0.236	0.20	0.64	15	U	TC	0.506	0.21	0.62	U	-		
Thorium 228	0.153	0.15	0.59		U	TH	0.258	0.26	0.41	U	-		
Thorium 230	0.612	0.46	0.59	1.0		TH	1.33	0.53	0.33		74	109	
Thorium 232	0.459	0.31	0.59	1.0	U	TH	0.429	0.26	0.33		7	137	
Total Uranium (ug/g)	0.371	0.042	0.005	0.10		U_T	0.341	0.044	0.005		8	32	
Neptunium 237	-0.034	0.068	0.26	1.0	U	NP	-0.044	0.088	0.34	U	-		
Plutonium 238	0	0.078	0.30	1.0	U	PU	0	0.074	0.28	U	-		
Plutonium 239/240	0	0.078	0.30	1.0	U	PU	0	0.074	0.28	U	-		
Americium 241	0	0.052	0.20	1.0	U	AM	0.038	0.076	0.29	U	-		
Potassium 40	11.8	0.52	0.25			GAM	12.7	0.71	0.30		7	34	
Cobalt 60	U		0.028	0.050	U	GAM	U		0.034	U	-		
Cesium 137	U		0.025	0.10	U	GAM	U		0.030	U	-		
Radium 226	0.373	0.051	0.046			GAM	0.495	0.066	0.063		28	43	
Radium 228	0.592	0.093	0.086			GAM	0.591	0.14	0.14		0	53	
Europium 152	U		0.062	0.10	U	GAM	U		0.078	U	-		
Europium 154	U		0.10	0.10	U	GAM	U		0.12	U	-		
Europium 155	U		0.066	0.10	U	GAM	U		0.10	U	-		
Thorium 228	0.698	0.046	0.044			GAM	0.564	0.040	0.039		21	35	
Thorium 232	0.592	0.093	0.086			GAM	0.591	0.14	0.14		0	53	
Uranium 235	U		0.10		U	GAM	U		0.14	U	-		
Uranium 238	U		3.3		U	GAM	U		4.2	U	-		
Americium 241	U		0.082		U	GAM	U		0.22	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	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

DUPLICATE, cont.

SDG	7388		Client/Case no	Hanford	SDG H1966
Contact	Melissa C. Mannion		Contract	No. 630	
	DUPLICATE	ORIGINAL			
Lab sample id	R211064-09	Lab sample id R211064-05	Client sample id	B15XK1	
Dept sample id	7388-009	Dept sample id 7388-005	Location/Matrix	BT-2	SOLID
		Received 11/14/02	Collected/Weight	11/11/02 11:25	2174 g
% solids	97.7	% solids 97.7	Custody/SAF No	F03-003-003	F03-003

QC-DUP#5 43360

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-10

B15XK0

MATRIX SPIKE

SDG	7388			Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion			Contract	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R211064-10	Lab sample id	R211064-06	Client sample id	B15XK0
Dept sample id	7388-010	Dept sample id	7388-006	Location/Matrix	BT-2 SOLID
		Received	11/14/02	Collected/Weight	11/11/02 11:00 2156 g
% solids	98.1	% solids	98.1	Custody/SAF No	F03-003-003 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	47.7	0.60	0.16	400	X	H	50.2	2.0	0.054	0.098	95	84-116	60-140

200 Area Source Chara. 200-CS-1 OU

QC-MS#6 43361

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-01 **B15XJ7**

DATA SHEET

SDG	7388	Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211064-01	Client sample id	B15XJ7
Dept sample id	7388-001	Location/Matrix	BT-2 SOLID
Received	11/14/02	Collected/Weight	11/11/02 10:07 1356 g
% solids	97.3	Custody/SAF No	F03-003-003 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	2.65	2.4	2.8	10	U	93A
Gross Beta	12587-47-2	17.2	4.1	5.2	15		93B
Total Strontium	SR-RAD	0.260	0.13	0.22	1.0		SR
Thorium 228	14274-82-9	0.110	0.22	0.45		U	TH
Thorium 230	14269-63-7	0.256	0.22	0.28	1.0	U	TH
Thorium 232	TH-232	0.438	0.22	0.28	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.244	0.046	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.041	0.083	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0.063	0.13	0.30	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.063	0.24	1.0	U	PU
Americium 241	14596-10-2	0	0.18	0.36	1.0	U	AM
Potassium 40	13966-00-2	10.9	0.88	0.43			GAM
Cobalt 60	10198-40-0	U		0.047	0.050	U	GAM
Cesium 137	10045-97-3	U		0.035	0.10	U	GAM
Radium 226	13982-63-3	0.469	0.080	0.077			GAM
Radium 228	15262-20-1	0.492	0.16	0.17			GAM
Europium 152	14683-23-9	U		0.099	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.099	0.10	U	GAM
Thorium 228	14274-82-9	0.516	0.043	0.043			GAM
Thorium 232	TH-232	0.492	0.16	0.17			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		5.1		U	GAM
Americium 241	14596-10-2	U		0.14		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 H1966

R211064-02 **B15XJ8**

DATA SHEET

SDG	7388	Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211064-02	Client sample id	B15XJ8
Dept sample id	7388-002	Location/Matrix	BT-2 SOLID
Received	11/14/02	Collected/Weight	11/11/02 10:25 1275 g
% solids	97.4	Custody/SAF No	F03-003-003 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	5.35	3.0	3.4	10		93A
Gross Beta	12587-47-2	18.2	5.5	7.9	15		93B
Total Strontium	SR-RAD	-0.022	0.12	0.25	1.0	U	SR
Thorium 228	14274-82-9	0.448	0.30	0.36			TH
Thorium 230	14269-63-7	0.298	0.22	0.28	1.0		TH
Thorium 232	TH-232	0.335	0.22	0.28	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.625	0.070	0.005	0.10		U_T
Neptunium 237	13994-20-2	0	0.075	0.29	1.0	U	NP
Plutonium 238	13981-16-3	0.034	0.14	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.069	0.26	1.0	U	PU
Americium 241	14596-10-2	0.031	0.12	0.30	1.0	U	AM
Potassium 40	13966-00-2	12.7	0.54	0.22			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	U		0.024	0.10	U	GAM
Radium 226	13982-63-3	0.446	0.044	0.038			GAM
Radium 228	15262-20-1	0.533	0.12	0.12			GAM
Europium 152	14683-23-9	U		0.058	0.10	U	GAM
Europium 154	15585-10-1	U		0.086	0.10	U	GAM
Europium 155	14391-16-3	U		0.067	0.10	U	GAM
Thorium 228	14274-82-9	0.573	0.031	0.030			GAM
Thorium 232	TH-232	0.533	0.12	0.12			GAM
Uranium 235	15117-96-1	U		0.098		U	GAM
Uranium 238	U-238	U		3.0		U	GAM
Americium 241	14596-10-2	U		0.082		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-03 **B15XJ9**

DATA SHEET

SDG	7388	Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211064-03	Client sample id	B15XJ9
Dept sample id	7388-003	Location/Matrix	BT-2 SOLID
Received	11/14/02	Collected/Weight	11/11/02 10:45 1333 g
% solids	97.9	Custody/SAF No	F03-003-003 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	3.37	2.6	3.4	10	U	93A
Gross Beta	12587-47-2	16.5	4.8	6.6	15		93B
Total Strontium	SR-RAD	-0.147	0.11	0.26	1.0	U	SR
Thorium 228	14274-82-9	0.482	0.43	0.51		U	TH
Thorium 230	14269-63-7	0.321	0.32	0.41	1.0	U	TH
Thorium 232	TH-232	0.375	0.32	0.41	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.349	0.056	0.005	0.10		U_T
Neptunium 237	13994-20-2	0	0.058	0.086	1.0	U	NP
Plutonium 238	13981-16-3	0.063	0.13	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.062	0.24	1.0	U	PU
Americium 241	14596-10-2	0.029	0.11	0.27	1.0	U	AM
Potassium 40	13966-00-2	12.8	0.92	0.53			GAM
Cobalt 60	10198-40-0	U		0.046	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	0.462	0.075	0.075			GAM
Radium 228	15262-20-1	0.556	0.17	0.19			GAM
Europium 152	14683-23-9	U		0.097	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.546	0.042	0.044			GAM
Thorium 232	TH-232	0.556	0.17	0.19			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		4.6		U	GAM
Americium 241	14596-10-2	U		0.14		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	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-06 **B15XK0**

DATA SHEET

SDG	7388	Client/Case no	Hanford	SDG H1966	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211064-06	Client sample id	B15XK0		
Dept sample id	7388-006	Location/Matrix	BT-2	SOLID	
Received	11/14/02	Collected/Weight	11/11/02 11:00	2156 g	
% solids	98.1	Custody/SAF No	F03-003-003	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	4.10	2.9	3.9	10		93A
Gross Beta	12587-47-2	14.6	4.6	6.6	15		93B
Tritium	10028-17-8	0.054	0.098	0.16	400	U	H
Nickel 63	13981-37-8	-0.179	1.3	2.1	30	U	NI_L
Total Strontium	SR-RAD	-0.013	0.11	0.23	1.0	U	SR
Technetium 99	14133-76-7	0.577	0.27	0.59	15	U	TC
Thorium 228	14274-82-9	0.442	0.22	0.28			TH
Thorium 230	14269-63-7	0.294	0.22	0.28	1.0		TH
Thorium 232	TH-232	0.478	0.30	0.28	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.336	0.038	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.101	0.13	0.26	1.0	U	NP
Plutonium 238	13981-16-3	0	0.070	0.27	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.069	0.27	1.0	U	PU
Americium 241	14596-10-2	0.026	0.10	0.20	1.0	U	AM
Potassium 40	13966-00-2	12.9	0.91	0.46			GAM
Cobalt 60	10198-40-0	U		0.045	0.050	U	GAM
Cesium 137	10045-97-3	U		0.037	0.10	U	GAM
Radium 226	13982-63-3	0.426	0.075	0.079			GAM
Radium 228	15262-20-1	0.630	0.17	0.17			GAM
Europium 152	14683-23-9	U		0.097	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.098	0.10	U	GAM
Thorium 228	14274-82-9	0.496	0.041	0.042			GAM
Thorium 232	TH-232	0.630	0.17	0.17			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.2		U	GAM
Americium 241	14596-10-2	U		0.14		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	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-05 B15XK1

DATA SHEET

SDG	7388	Client/Case no	Hanford	SDG H1966	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211064-05	Client sample id	B15XK1		
Dept sample id	7388-005	Location/Matrix	BT-2	SOLID	
Received	11/14/02	Collected/Weight	11/11/02 11:25	2174 g	
% solids	97.7	Custody/SAF No	F03-003-003	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	4.51	2.8	3.5	10		93A
Gross Beta	12587-47-2	12.4	4.7	6.9	15		93B
Tritium	10028-17-8	0.044	0.097	0.16	400	U	H
Nickel 63	13981-37-8	-0.724	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.008	0.11	0.24	1.0	U	SR
Technetium 99	14133-76-7	0.506	0.21	0.62	15	U	TC
Thorium 228	14274-82-9	0.258	0.26	0.41		U	TH
Thorium 230	14269-63-7	1.33	0.53	0.33	1.0		TH
Thorium 232	TH-232	0.429	0.26	0.33	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.341	0.044	0.005	0.10		U_T
Neptunium 237	13994-20-2	-0.044	0.088	0.34	1.0	U	NP
Plutonium 238	13981-16-3	0	0.074	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.074	0.28	1.0	U	PU
Americium 241	14596-10-2	0.038	0.076	0.29	1.0	U	AM
Potassium 40	13966-00-2	12.7	0.71	0.30			GAM
Cobalt 60	10198-40-0	U		0.034	0.050	U	GAM
Cesium 137	10045-97-3	U		0.030	0.10	U	GAM
Radium 226	13982-63-3	0.495	0.066	0.063			GAM
Radium 228	15262-20-1	0.591	0.14	0.14			GAM
Europium 152	14683-23-9	U		0.078	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.564	0.040	0.039			GAM
Thorium 232	TH-232	0.591	0.14	0.14			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		0.22		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	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

R211064-04 **B15XK2**

DATA SHEET

SDG	7388	Client/Case no	Hanford SDG H1966
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211064-04	Client sample id	B15XK2
Dept sample id	7388-004	Location/Matrix	BT-2 SOLID
Received	11/14/02	Collected/Weight	11/11/02 11:50 2039 g
% solids	98.1	Custody/SAF No	F03-003-003 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	8.11	3.4	3.4	10		93A
Gross Beta	12587-47-2	18.4	4.3	5.5	15		93B
Tritium	10028-17-8	0.050	0.094	0.16	400	U	H
Nickel 63	13981-37-8	-0.283	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.072	0.11	0.25	1.0	U	SR
Technetium 99	14133-76-7	0.510	0.26	0.66	15	U	TC
Thorium 228	14274-82-9	0.667	0.36	0.34			TH
Thorium 230	14269-63-7	0.932	0.45	0.34	1.0		TH
Thorium 232	TH-232	0.844	0.36	0.34	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.486	0.054	0.005	0.10		U_T
Neptunium 237	13994-20-2	-0.044	0.087	0.33	1.0	U	NP
Plutonium 238	13981-16-3	0	0.069	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.069	0.26	1.0	U	PU
Americium 241	14596-10-2	0	0.11	0.22	1.0	U	AM
Potassium 40	13966-00-2	13.2	0.55	0.27			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.025	0.10	U	GAM
Radium 226	13982-63-3	0.386	0.048	0.046			GAM
Radium 228	15262-20-1	0.603	0.11	0.10			GAM
Europium 152	14683-23-9	U		0.061	0.10	U	GAM
Europium 154	15585-10-1	U		0.094	0.10	U	GAM
Europium 155	14391-16-3	U		0.071	0.10	U	GAM
Thorium 228	14274-82-9	0.606	0.035	0.033			GAM
Thorium 232	TH-232	0.603	0.11	0.10			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.3		U	GAM
Americium 241	14596-10-2	U		0.085		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	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test AM Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 7052-040						
B15XJ7	R211064-01			7388-001	U	
B15XJ8	R211064-02			7388-002	U	
B15XJ9	R211064-03			7388-003	U	
B15XK0	R211064-06			7388-006	U	
B15XK1	R211064-05			7388-005	U	
B15XK2	R211064-04			7388-004	U	
BLK (QC ID=43359)	R211064-08			7388-008	U	
LCS (QC ID=43358)	R211064-07			7388-007	ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 040												
B15XJ7	R211064-01			0.36	0.500			90		122			45	12/24/02	12/26	SS-021
B15XJ8	R211064-02			0.30	0.500			87		122			45	12/24/02	12/26	SS-022
B15XJ9	R211064-03			0.27	0.500			85		122			45	12/24/02	12/26	SS-024
B15XK0	R211064-06			0.20	0.500			88		124			45	12/24/02	12/26	SS-052
B15XK1	R211064-05			0.29	0.500			68		124			45	12/24/02	12/26	SS-051
B15XK2	R211064-04			0.22	0.500			87		124			45	12/24/02	12/26	SS-042
BLK (QC ID=43359)	R211064-08			0.39	0.500			46		123				12/24/02	12/26	SS-060
LCS (QC ID=43358)	R211064-07			0.21	0.500			95		123				12/24/02	12/26	SS-059
Duplicate (R211064-05) (QC ID=43360)	R211064-09			0.20	0.500			93		123			45	12/24/02	12/26	SS-062
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test AM Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

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

AVERAGES ± 2 SD	MDA	0.27	±	0.14
FOR 9 SAMPLES	YIELD	82	±	31

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test NP Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7052-040						
B15XJ7	R211064-01			7388-001	U	
B15XJ8	R211064-02			7388-002	U	
B15XJ9	R211064-03			7388-003	U	
B15XK0	R211064-06			7388-006	U	
B15XK1	R211064-05			7388-005	U	
B15XK2	R211064-04			7388-004	U	
BLK (QC ID=43360)	R211064-08			7388-008	U	
LCS (QC ID=43358)	R211064-07			7388-007	ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 040											
B15XJ7	R211064-01			0.12	0.500			62		113			46	12/23/02	12/27	SS-031
B15XJ8	R211064-02			0.29	0.500			60		124			45	12/23/02	12/26	SS-039
B15XJ9	R211064-03			0.086	0.500			80		124			45	12/23/02	12/26	SS-039
B15XK0	R211064-06			0.26	0.500			74		124			45	12/23/02	12/26	SS-053
B15XK1	R211064-05			0.34	0.500			53		124			45	12/23/02	12/26	SS-041
B15XK2	R211064-04			0.33	0.500			56		114			46	12/23/02	12/27	SS-032
BLK (QC ID=43360)	R211064-08			0.12	0.500			63		124				12/23/02	12/26	SS-066
LCS (QC ID=43358)	R211064-07			0.12	0.500			60		124				12/23/02	12/26	SS-065
Duplicate (R211064-05) (QC ID=43361)	R211064-09			0.26	0.500			68		120			45	12/23/02	12/26	SS-039
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test NP	Matrix SOLID
SDG 7388	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1966	

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	0.21	±	0.20
FOR 9 SAMPLES	YIELD	64	±	17

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test PU Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 7052-040								
B15XJ7	R211064-01			7388-001	U		U	
B15XJ8	R211064-02			7388-002	U		U	
B15XJ9	R211064-03			7388-003	U		U	
B15XK0	R211064-06			7388-006	U		U	
B15XK1	R211064-05			7388-005	U		U	
B15XK2	R211064-04			7388-004	U		U	
BLK (QC ID=43358)	R211064-08			7388-008	U		U	
LCS (QC ID=43358)	R211064-07			7388-007	ok		ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U	-	U
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 7052-040 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 040																
B15XJ7	R211064-01			0.30	0.500			94		97			43	12/23/02	12/24	SS-031
B15XJ8	R211064-02			0.26	0.500			89		97			43	12/23/02	12/24	SS-033
B15XJ9	R211064-03			0.24	0.500			92		101			43	12/23/02	12/24	SS-041
B15XK0	R211064-06			0.27	0.500			88		103			43	12/23/02	12/24	SS-058
B15XK1	R211064-05			0.28	0.500			77		102			43	12/23/02	12/24	SS-048
B15XK2	R211064-04			0.26	0.500			89		101			43	12/23/02	12/24	SS-042
BLK (QC ID=43358)	R211064-08			0.22	0.500			98		103				12/23/02	12/24	SS-065
LCS (QC ID=43358)	R211064-07			0.32	0.500			77		103				12/23/02	12/24	SS-063
Duplicate (R211064-05) (QC ID=43358)	R211064-09			0.30	0.500			76		103			43	12/23/02	12/24	SS-066
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test	PU
Matrix	SOLID
SDG	7388
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1966

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	0.27	±	0.063
FOR 9 SAMPLES	YIELD	87	±	16

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test TH Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-040					
B15XJ7	R211064-01			7388-001	U
B15XJ8	R211064-02			7388-002	0.298
B15XJ9	R211064-03			7388-003	U
B15XK0	R211064-06			7388-006	0.294
B15XK1	R211064-05			7388-005	1.33
B15XK2	R211064-04			7388-004	0.932
BLK (QC ID=43359)	R211064-08			7388-008	U
LCS (QC ID=43358)	R211064-07			7388-007	ok
Duplicate (R211064-05)	R211064-09			7388-009	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	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 7052-040	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 040											
B15XJ7	R211064-01			0.28	0.250			104		152			39	12/20/02	12/20	SS-031
B15XJ8	R211064-02			0.28	0.250			105		152			39	12/20/02	12/20	SS-033
B15XJ9	R211064-03			0.41	0.250			71		152			39	12/20/02	12/20	SS-041
B15XK0	R211064-06			0.28	0.250			107		161			39	12/20/02	12/20	SS-058
B15XK1	R211064-05			0.33	0.250			87		152			39	12/20/02	12/20	SS-048
B15XK2	R211064-04			0.34	0.250			84		152			39	12/20/02	12/20	SS-047
BLK (QC ID=43359)	R211064-08			0.24	0.250			113		161				12/20/02	12/20	SS-060
LCS (QC ID=43358)	R211064-07			0.27	0.250			109		161				12/20/02	12/20	SS-059
Duplicate (R211064-05) (QC ID=43360)	R211064-09			0.59	0.250			47		161			39	12/20/02	12/20	SS-061
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test TH	Matrix SOLID
SDG 7388	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1966	

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	0.34	±	0.22
FOR 9 SAMPLES	YIELD	92	±	44

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test SR Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 7052-040						
B15XJ7	R211064-01			7388-001	0.260	
B15XJ8	R211064-02			7388-002	U	
B15XJ9	R211064-03			7388-003	U	
B15XK0	R211064-06			7388-006	U	
B15XK1	R211064-05			7388-005	U	
B15XK2	R211064-04			7388-004	U	
BLK (QC ID=43360)	R211064-08			7388-008	U	
LCS (QC ID=43358)	R211064-07			7388-007	ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 040															
B15XJ7	R211064-01			0.22	1.00			86		100			38	12/19/02	12/19	GRB-219
B15XJ8	R211064-02			0.25	1.00			84		100			38	12/19/02	12/19	GRB-229
B15XJ9	R211064-03			0.26	1.00			86		100			38	12/19/02	12/19	GRB-230
B15XK0	R211064-06			0.23	1.00			87		100			38	12/19/02	12/19	GRB-221
B15XK1	R211064-05			0.24	1.00			85		100			38	12/19/02	12/19	GRB-232
B15XK2	R211064-04			0.25	1.00			85		100			38	12/19/02	12/19	GRB-231
BLK (QC ID=43360)	R211064-08			0.26	1.00			72		100				12/19/02	12/19	GRB-222
LCS (QC ID=43358)	R211064-07			0.28	1.00			70		100				12/19/02	12/19	GRB-221
Duplicate (R211064-05) (QC ID=43361)	R211064-09			0.23	1.00			89		100			38	12/19/02	12/19	GRB-223
Nominal values and limits from method				1.0	1.00			30-105		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test SR Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

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	0.25	±	0.037
FOR 9 SAMPLES	YIELD	83	±	14

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test TC Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7052-040						
B15XK0	R211064-06			7388-006	U	
B15XK1	R211064-05			7388-005	U	
B15XK2	R211064-04			7388-004	U	
BLK (QC ID=43360)	R211064-08			7388-008	0.728	
LCS (QC ID=43358)	R211064-07			7388-007	ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 040															
B15XK0	R211064-06			0.59	1.02			85		50			59	01/07/03	01/09	GRB-203
B15XK1	R211064-05			0.62	1.04			78		50			57	01/07/03	01/07	GRB-218
B15XK2	R211064-04			0.66	1.03			76		50			57	01/07/03	01/07	GRB-217
BLK (QC ID=43360)	R211064-08			0.53	1.00			96		50				01/07/03	01/09	GRB-217
LCS (QC ID=43358)	R211064-07			0.53	1.00			93		50				01/07/03	01/07	GRB-220
Duplicate (R211064-05) (QC ID=43361)	R211064-09			0.64	1.04			74		50			59	01/07/03	01/09	GRB-218
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test TC	Matrix SOLID
SDG 7388	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1966	

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	0.60	±	0.11
FOR 6 SAMPLES	YIELD	84	±	18

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test 93A Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7052-040					
B15XJ7	R211064-01	93		7388-001	U
B15XJ8	R211064-02	93		7388-002	5.35
B15XJ9	R211064-03	93		7388-003	U
B15XK0	R211064-06	93		7388-006	4.10
B15XK1	R211064-05	93		7388-005	4.51
B15XK2	R211064-04	93		7388-004	8.11
BLK (QC ID=43359)	R211064-08	93		7388-008	U
LCS (QC ID=43358)	R211064-07	93		7388-007	ok
Duplicate (R211064-05)	R211064-09	93		7388-009	ok

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

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 20.0 % Reference Lab Notebook 7052 pg. 040															
B15XJ7	R211064-01	93		2.8	0.100			32		100			37	12/18/02	12/18	GRB-101
B15XJ8	R211064-02	93		3.4	0.100			31		100			38	12/18/02	12/19	GRB-114
B15XJ9	R211064-03	93		3.4	0.100			30		100			39	12/18/02	12/20	GRB-113
B15XK0	R211064-06	93		3.9	0.100			29		100			42	12/18/02	12/23	GRB-113
B15XK1	R211064-05	93		3.5	0.100			32		100			39	12/18/02	12/20	GRB-113
B15XK2	R211064-04	93		3.4	0.100			31		100			39	12/18/02	12/20	GRB-114
BLK (QC ID=43359)	R211064-08	93		2.9	0.100			19		100				12/18/02	12/18	GRB-110
LCS (QC ID=43358)	R211064-07	93		3.1	0.100			18		100				12/18/02	12/23	GRB-114
Duplicate (R211064-05) (QC ID=43360)	R211064-09	93		4.0	0.100			32		100			42	12/18/02	12/23	GRB-115
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test 93A	Matrix SOLID
SDG 7388	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1966	

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

AVERAGES ± 2 SD	MDA	3.4	±	0.81
FOR 9 SAMPLES	RESIDUE	28	±	11

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test 93B Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-040					
B15XJ7	R211064-01	93		7388-001	17.2
B15XJ8	R211064-02	93		7388-002	18.2
B15XJ9	R211064-03	93		7388-003	16.5
B15XK0	R211064-06	93		7388-006	14.6
B15XK1	R211064-05	93		7388-005	12.4
B15XK2	R211064-04	93		7388-004	18.4
BLK (QC ID=43358)	R211064-08	93		7388-008	U
LCS (QC ID=43358)	R211064-07	93		7388-007	ok
Duplicate (R211064-05)	R211064-09	93		7388-009	ok
Nominal values and limits from method				RDLs (pCi/g)	15

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 040															
B15XJ7	R211064-01	93		5.2	0.100			32		100			37	12/18/02	12/18	GRB-101
B15XJ8	R211064-02	93		7.9	0.100			31		100			38	12/18/02	12/19	GRB-114
B15XJ9	R211064-03	93		6.6	0.100			30		100			37	12/18/02	12/18	GRB-105
B15XK0	R211064-06	93		6.6	0.100			29		100			37	12/18/02	12/18	GRB-112
B15XK1	R211064-05	93		6.9	0.100			32		100			37	12/18/02	12/18	GRB-110
B15XK2	R211064-04	93		5.5	0.100			31		100			37	12/18/02	12/18	GRB-109
BLK (QC ID=43358)	R211064-08	93		6.8	0.100			19		100				12/18/02	12/18	GRB-110
LCS (QC ID=43358)	R211064-07	93		5.4	0.100			18		100				12/18/02	12/18	GRB-109
Duplicate (R211064-05) (QC ID=43390)	R211064-09	93		6.5	0.100			32		100			42	12/18/02	12/23	GRB-115
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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test 93B Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

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	6.4	±	1.7
FOR 9 SAMPLES	RESIDUE	28	±	11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test GAM Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 7052-040								
B15XJ7	R211064-01			7388-001	U		U	
B15XJ8	R211064-02			7388-002	U		U	
B15XJ9	R211064-03			7388-003	U		U	
B15XK0	R211064-06			7388-006	U		U	
B15XK1	R211064-05			7388-005	U		U	
B15XK2	R211064-04			7388-004	U		U	
BLK (QC ID=43359)	R211064-08			7388-008	U		U	
LCS (QC ID=43358)	R211064-07			7388-007	ok		ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10	
200 Area Source Chara. 200-CS-1 OU								

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 040															
B15XJ7	R211064-01			0.32	764					126			43	12/17/02	12/24	02,03,00
B15XJ8	R211064-02			0.20	869					126			43	12/17/02	12/24	02,04,00
B15XJ9	R211064-03			0.35	810					125			43	12/17/02	12/24	02,03,00
B15XK0	R211064-06			0.37	899					113			45	12/17/02	12/26	02,03,00
B15XK1	R211064-05			0.28	898					114			45	12/17/02	12/26	MB,05,00
B15XK2	R211064-04			0.20	828					125			43	12/17/02	12/24	02,04,00
BLK (QC ID=43359)	R211064-08			0.085	764					113				12/17/02	12/26	01,04,00
LCS (QC ID=43358)	R211064-07			0.023	764					114				12/17/02	12/26	MB,07,00
Duplicate (R211064-05) (QC ID=43360)	R211064-09			0.21	898					122			45	12/17/02	12/26	02,04,00
Nominal values and limits from method				0.050	764					100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test GAM Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1966

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

AVERAGES ± 2 SD	MDA	0.23	±	0.24
FOR 9 SAMPLES	YIELD		±	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test U_T Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-040					
B15XJ7	R211064-01			7388-001	0.244
B15XJ8	R211064-02			7388-002	0.625
B15XJ9	R211064-03			7388-003	0.349
B15XK0	R211064-06			7388-006	0.336
B15XK1	R211064-05			7388-005	0.341
B15XK2	R211064-04			7388-004	0.486
BLK (QC ID=43359)	R211064-08			7388-008	U
LCS (QC ID=43358)	R211064-07			7388-007	ok
Duplicate (R211064-05)	R211064-09			7388-009	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (ug/g)	0.10

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 7052-040 2σ prep error 9.0 % Reference Lab Notebook 7052 pg. 040																
B15XJ7	R211064-01			0.005	0.100								32	12/13/02	12/13	KPA-001
B15XJ8	R211064-02			0.005	0.100								32	12/13/02	12/13	KPA-001
B15XJ9	R211064-03			0.005	0.100								32	12/13/02	12/13	KPA-001
B15XK0	R211064-06			0.005	0.100								32	12/13/02	12/13	KPA-001
B15XK1	R211064-05			0.005	0.100								32	12/13/02	12/13	KPA-001
B15XK2	R211064-04			0.005	0.100								32	12/13/02	12/13	KPA-001
BLK (QC ID=43359)	R211064-08			0.005	0.100									12/13/02	12/13	KPA-001
LCS (QC ID=43358)	R211064-07			0.049	0.100									12/13/02	12/13	KPA-001
Duplicate (R211064-05) (QC ID=43360)	R211064-09			0.005	0.100								32	12/13/02	12/13	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 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test U T Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1966

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

AVERAGES ± 2 SD	MDA	0.010 ± 0.029
FOR 9 SAMPLES	YIELD	±

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test H Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7052-040						
B15XK0	R211064-06			7388-006	U	
B15XK1	R211064-05			7388-005	U	
B15XK2	R211064-04			7388-004	U	
BLK (QC ID=43359)	R211064-08			7388-008	U	
LCS (QC ID=43358)	R211064-07			7388-007	ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U
Spike (R211064-06)	R211064-10			7388-010	ok	X
Nominal values and limits from method				RDLs (pCi/g)	400	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 040																
B15XK0	R211064-06			0.16	21.5			51		120			49	12/30/02	12/30	LSC-005
B15XK1	R211064-05			0.16	21.8			50		120			49	12/30/02	12/30	LSC-005
B15XK2	R211064-04			0.16	21.1			50		120			49	12/30/02	12/30	LSC-005
BLK (QC ID=43359)	R211064-08			0.26	20.0			33		120				12/30/02	12/30	LSC-005
LCS (QC ID=43358)	R211064-07			0.26	20.0			33		120				12/30/02	12/30	LSC-005
Duplicate (R211064-05) (QC ID=43360)	R211064-09			0.16	21.3			51		120			50	12/30/02	12/31	LSC-005
Spike (R211064-06) (QC ID=43361)	R211064-10			0.16	21.3			51		120			50	12/30/02	12/31	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 0.19 ± 0.098
YIELD 46 ± 17

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1966

Test NI_L Matrix SOLID
SDG 7388
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1966

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 7052-040						
B15XK0	R211064-06			7388-006	U	
B15XK1	R211064-05			7388-005	U	
B15XK2	R211064-04			7388-004	U	
BLK (QC ID=43359)	R211064-08			7388-008	U	
LCS (QC ID=43358)	R211064-07			7388-007	ok	
Duplicate (R211064-05)	R211064-09			7388-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-040	2σ prep error 10.0 %				Reference Lab Notebook 7052 pg. 040											
B15XK0	R211064-06			2.1	0.500			89		100			38	12/19/02	12/19	LSC-007
B15XK1	R211064-05			2.2	0.500			87		100			38	12/19/02	12/19	LSC-007
B15XK2	R211064-04			2.2	0.500			88		100			38	12/19/02	12/19	LSC-007
BLK (QC ID=43359)	R211064-08			2.0	0.500			95		100				12/19/02	12/19	LSC-007
LCS (QC ID=43358)	R211064-07			2.0	0.500			94		100				12/19/02	12/19	LSC-007
Duplicate (R211064-05) (QC ID=43360)	R211064-09			2.1	0.500			88		100			38	12/19/02	12/19	LSC-007
Nominal values and limits from method				30	0.500			30-105		50			180			

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

AVERAGES ± 2 SD	MDA 2.1 ± 0.18
FOR 6 SAMPLES	YIELD 90 ± 7

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/13/03

SDG 7388
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1966

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 01/13/03

SDG 7388
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1966

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/13/03

SDG 7388
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1966

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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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1966

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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GUIDE, cont.

Client Hanford
Contract No. 630
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DATA SHEET

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

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

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

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Version Ver 1.0
Form DVD-RG
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REPORT GUIDE

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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Protocol Hanford
Version Ver 1.0
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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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GUIDE, cont.

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DUPLICATE

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

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/13/03

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Contact Melissa C. Mannion

GUIDE, cont.

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Contract No. 630
Case no SDG H1966

MATRIX SPIKE

for the recovery.

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

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

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Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/13/03

SDG 7388
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H1966

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'

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/13/03

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.

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	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: BT-2	SAF No.: F03-003	
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030039		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
None

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15XJ7	SOIL	11/11/02	1007								X		
B15XJ8	Soil	11.11.02	1025								X		
B15XJ9	Soil	11.11.02	1045								X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

11.11.02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Fahlberg R. Fahlberg	11.11.02 1400	Received By/Stored In: Ref 1-B 3728	11.11.02 1400
Relinquished By/Removed From: Ref 1-B 3728		11.13.02 1000	Received By/Stored In: R. Fahlberg R. Fahlberg	11.13.02 1000
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg		11.13.02 1000	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex		11/14/02 12:00	Received By/Stored In: Fed Ex	11/14/02 10:30A
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

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

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-008	Page 1 of 1

Collector: Fahlberg	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: BT-2	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)	Offsite Property No.: A030038	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; Tie To B15XL9

Special Handling and/or Storage: None

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 11-11-02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B15XK2 / SOIL / 11-11-02 / 1150								X	X	
B15XK1 / Soil / 11-11-02 / 1125								X	X	
B15XK0 / Soil / 11-11-02 / 1100								X	X	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: Rafael R. Fahlberg	Received By/Stored In: Fed Ex	11-11-02 1400
Relinquished By/Removed From: Fed Ex	Received By/Stored In: Fed Ex	11/14/02 10:00
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford (6) Date/Time received 11/14/02 10:00 AM (1)

CoC No. F03-003-008 & F03-005

Container I.D. No. ERC 96-019 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~~ 6 + 1 = 7
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: 11/14/02 Time: 10:00 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 _____

LIONVILLE LABORATORY INC.

11 December 2002

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

DEC 2002
RECEIVED

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:

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

LvLI Batch #	0211L126
SDG #	H1966
SAF #	F03-003
Date Received	11-14-02
# 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\tnu-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 H1966

RFW LOT # :0211L126

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B15XK0	001	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XK1	002	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XK2	003	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XJ7	005	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XJ8	006	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XJ9	007	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XJ9	007 MS	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
B15XJ9	007 MSD	S	02LVH459	11/11/02	11/14/02	N/A	11/19/02
LAB QC:							
VBLKXV	MB1	S	02LVH459	N/A	N/A	N/A	11/19/02
VBLKXV	MB1 BS	S	02LVH459	N/A	N/A	N/A	11/19/02

12-0-02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L126
SDG/SAF #: H1966/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-14-2002

GC/MS VOLATILE

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

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 11-19-2002.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. The required holding time for analysis was met.
3. Non-target compounds were not detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminant Acetone 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

12-05-02
Date

som\group\data\voa\tnu-hanford\0211-126.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 4 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
UCONVILLE 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

Report Date: 12/02/02 08:18

RFW Batch Number: **0211L126** Client: **TNUHANFORD F03-003 H1966** Work Order: 11343606001 Page: 1a

	Cust ID:	B15XK0		B15XK1		B15XK2		B15XJ7		B15XJ8		B15XJ9	
Sample Information	RFW#:	001		002		003		005		006		007	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.962		1.06		0.893		0.926		0.980		1.04	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	92	%	94	%	93	%	93	%	98	%	89	%
	Bromofluorobenzene	87	%	86	%	86	%	86	%	86	%	81	%
	1,2-Dichloroethane-d4	75	%	75	%	77	%	74	%	76	%	72	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	11	U	9	U	10	U	10	U	11	U
Bromomethane		10	U	11	U	9	U	10	U	10	U	11	U
Vinyl Chloride		10	U	11	U	9	U	10	U	10	U	11	U
Chloroethane		10	U	11	U	9	U	10	U	10	U	11	U
Methylene Chloride		5	U	6	U	5	U	5	U	5	U	6	U
Acetone		5	JB	5	JB	5	JB	4	JB	5	JB	6	JB
Carbon Disulfide		5	U	6	U	5	U	5	U	5	U	6	U
1,1-Dichloroethene		5	U	6	U	5	U	5	U	5	U	6	U
1,1-Dichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
1,2-Dichloroethene (total)		5	U	6	U	5	U	5	U	5	U	6	U
Chloroform		5	U	6	U	5	U	5	U	5	U	6	U
1,2-Dichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
2-Butanone		10	U	11	U	9	U	10	U	10	U	11	U
1,1,1-Trichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
Carbon Tetrachloride		5	U	6	U	5	U	5	U	5	U	6	U
Bromodichloromethane		5	U	6	U	5	U	5	U	5	U	6	U
1,2-Dichloropropane		5	U	6	U	5	U	5	U	5	U	6	U
cis-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	6	U
Trichloroethene		5	U	6	U	5	U	5	U	5	U	6	U
Dibromochloromethane		5	U	6	U	5	U	5	U	5	U	6	U
1,1,2-Trichloroethane		5	U	6	U	5	U	5	U	5	U	6	U
Benzene		5	U	6	U	5	U	5	U	5	U	6	U
Trans-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	6	U
Bromoform		5	U	6	U	5	U	5	U	5	U	6	U
4-Methyl-2-pentanone		10	U	11	U	9	U	10	U	10	U	11	U
2-Hexanone		10	U	11	U	9	U	10	U	10	U	11	U
Tetrachloroethene		5	U	6	U	5	U	5	U	5	U	6	U
1,1,2,2-Tetrachloroethane		5	U	6	U	5	U	5	U	5	U	6	U
Toluene		5	U	6	U	5	U	5	U	5	U	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L126** Client: **TNUHANFORD F03-003 H1966** Work Order: 11343606001 Page: 1b

Cust ID:	B15XK0	B15XK1	B15XK2	B15XJ7	B15XJ8	B15XJ9
RFW#:	001	002	003	005	006	007
Chlorobenzene	5 U	6 U	5 U	5 U	5 U	6 U
Ethylbenzene	5 U	6 U	5 U	5 U	5 U	6 U
Styrene	5 U	6 U	5 U	5 U	5 U	6 U
Xylene (total)	5 U	6 U	5 U	5 U	5 U	6 U

*= Outside of EPA CLP QC limits.

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

Report Date: 12/02/02 08:18

RFW Batch Number: **0211L126** Client: **TNUHANFORD F03-003 H1966** Work Order: 11343606001 Page: 2a

	Cust ID:	B15XJ9		B15XJ9		VBLKXV		VBLKXV BS	
Sample Information	RFW#:	007 MS		007 MSD		02LVH459-MB1		02LVH459-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.962		0.909		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	93	%	93	%	94	%	91	%
	Bromofluorobenzene	91	%	88	%	90	%	89	%
	1,2-Dichloroethane-d4	75	%	74	%	83	%	76	%
Chloromethane		10	U	9	U	10	U	10	U
Bromomethane		10	U	9	U	10	U	10	U
Vinyl Chloride		10	U	9	U	10	U	10	U
Chloroethane		10	U	9	U	10	U	10	U
Methylene Chloride		5	U	5	U	5	U	5	U
Acetone		4	JB	4	JB	3	J	4	JB
Carbon Disulfide		5	U	5	U	5	U	5	U
1,1-Dichloroethene		92	%	97	%	5	U	90	%
1,1-Dichloroethane		5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U
2-Butanone		10	U	9	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U
Trichloroethene		110	%	114	%	5	U	111	%
Dibromochloromethane		5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U
Benzene		101	%	102	%	5	U	100	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	9	U	10	U	10	U
2-Hexanone		10	U	9	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U
Toluene		101	%	105	%	5	U	102	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L126** Client: **TNUHANFORD F03-003 H1966** Work Order: 11343606001 Page: 2b

Cust ID:	B15XJ9		B15XJ9		VBLKXV		VBLKXV BS	
RFW#:	007 MS		007 MSD		02LVH459-MB1		02LVH459-MB1	
Chlorobenzene	107	%	108	%	5	U	108	%
Ethylbenzene	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U
Xylene (total)	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

(8) VOA BNA PIPCB Fro INORG DRO INORG

Lionville Laboratory Use Only

0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVL

Client: TNU-HANFORD SAF # F03-003

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

Lionville Laboratory Project Manager:

QC: SPEC Del: STD TAT: 30 day

Date Rec'd: 11-14-02 Date Due: 12-14-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	4	4	4	4
#/Type Container							
Volume							
Preservatives							
ANALYSES REQUESTED	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	INORG: Metal	INORG: CN	
Lionville Laboratory Use Only	0624H	0625X ODRO	OPCB	OGCSC	MET① ICRC	INORG①	IPH

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
001	B15 x KQ					
002	1 2					
003						
004						
005	B15X 1 7					
006	1 8					
007	1 9					

Special instructions: SAF # F03-~~005~~ 003

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Rec'd Ambient

001-007A-D 2. Rec'd Chilled

MET① 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG① 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ISFD

11-18-02 6. SAF # = F03-003 Sample -004 written to 0211L148

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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. 14.4 °C 3.2

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 791978174136

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1

Collector: Fahlberg	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: BT-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514 ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g A	250g B	60mL D	250g C	125g E	500g F	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time							
B15XK0	SOIL	11/11/02	1100	X	X	X	X	X	X	X
B15XK1	Soil	11/11/02	1125	X	X	X	X	X	X	X
B15XK2	Soil	11/11/02	1150	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Date/Time: 1400 11-11-02	Received By/Stored In: RCF 1-B 3728	Date/Time: 1400 11-11-0
Relinquished By/Removed From: 1-B 3728	Date/Time: 1000 11-13-02	Received By/Stored In: R. Fahlberg R. Fahlberg	Date/Time: 1000 11-13-02
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg	Date/Time: 1000 11-13-02	Received By/Stored In: Fed Ex	Date/Time
Relinquished By/Removed From: Fed Ex	Date/Time: 11/14/02 0945	Received By/Stored In: [illegible]	Date/Time: 11-14-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

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

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1
Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: MNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X			
~~B15XJ7~~	~~SOIL~~	~~11/11/02~~	~~1007~~										
~~B15XJ8~~													

11-11-02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	11-11-02 1400	Received By/Stored In: Ref 1-B 3728	11-11-02 1400
Relinquished By/Removed From: Ref 1-B 3728	11-13-02 1000	Received By/Stored In: R. Fahlberg R. Fahlberg	11-13-02 1000
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg	11-13-02 1000	Received By/Stored In: FedEx	
Relinquished By/Removed From: Fed Ex	11/14/02 0945	Received By/Stored In: [illegible]	11-14-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS
** Please see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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)

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	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: BT-2	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: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TiCTO B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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									
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X	
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X	
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X	
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~									
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~									

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From	R. Fahlberg	11.11.02 1400
Received By/Stored In	Ref 1-B 3728	11.11.02 1400
Relinquished By/Removed From	Ref 1-B 3728	11.12.02 1000
Received By/Stored In	R. Fahlberg R. Fahlberg	11.13.02 1000
Relinquished By/Removed From	R. Fahlberg R. Fahlberg	11.13.02 1000
Received By/Stored In	Fed Ex	
Relinquished By/Removed From	Fed Ex	11/14/02 0945
Received By/Stored In		11-14-02 0945
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		

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

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

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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

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

Cooler # / temp (°C) and Comments:

ERC-02-104 3.2°C — 001-007 A-D Rec'd chilled

ERC-96-052 14.4°C — 001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager: [signature]

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK0	001	S	02LE1351	11/11/02	11/15/02	11/22/02
B15XK0	001 MS	S	02LE1351	11/11/02	11/15/02	11/22/02
B15XK0	001 MSD	S	02LE1351	11/11/02	11/15/02	11/22/02
B15XK1	002	S	02LE1351	11/11/02	11/15/02	11/22/02
B15XK2	003	S	02LE1351	11/11/02	11/15/02	11/23/02
B15XJ7	005	S	02LE1351	11/11/02	11/15/02	11/23/02
B15XJ8	006	S	02LE1351	11/11/02	11/15/02	11/25/02
B15XJ9	007	S	02LE1351	11/11/02	11/15/02	11/25/02
LAB QC:						
SBLKIB	MB1	S	02LE1351	N/A	11/15/02	11/19/02
SBLKIB	MB1 BS	S	02LE1351	N/A	11/15/02	11/19/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L126
SDG/SAF #: H1966/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-14-2002

SEMIVOLATILE

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

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 11-15-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 11-19,22,23,25-2002.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. Two (2) of eleven (11) blank spike recoveries were outside EPA QC limits.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

By Steven Webb
J. Michael Taylor
President
Lionville Laboratory Incorporated

12-05-02
Date

som\gorup\data\bna\tnu-hanford-0211-126.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 1 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 — Report Date: 11/27/02 15:09

RFW Batch Number: **0211L126** — Client: **TNUHANFORD F03-003 H1966** — Work Order: 11343606001 — Page: 1a

	Cust ID:	B15XK0		B15XK0		B15XK0		B15XK1		B15XK2		B15XJ7	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		005	
	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	79	%	69	%	82	%	72	%	82	%	73	%
	2-Fluorobiphenyl	80	%	78	%	82	%	76	%	87	%	76	%
	p-Terphenyl-d14	104	%	96	%	98	%	98	%	101	%	99	%
	Phenol-d5	78	%	75	%	77	%	70	%	83	%	74	%
	2-Fluorophenol	83	%	76	%	79	%	72	%	81	%	78	%
	2,4,6-Tribromophenol	76	%	84	%	84	%	68	%	74	%	68	%
			fl		fl		fl		fl		fl		fl
Phenol		340	U	70	%	76	%	340	U	340	U	350	U
bis(2-Chloroethyl)ether		340	U	340	U	340	U	340	U	340	U	350	U
2-Chlorophenol		340	U	77	%	81	%	340	U	340	U	350	U
1,3-Dichlorobenzene		340	U	340	U	340	U	340	U	340	U	350	U
1,4-Dichlorobenzene		340	U	74	%	83	%	340	U	340	U	350	U
1,2-Dichlorobenzene		340	U	340	U	340	U	340	U	340	U	350	U
2-Methylphenol		340	U	340	U	340	U	340	U	340	U	350	U
2,2'-oxybis(1-Chloropropane)		340	U	340	U	340	U	340	U	340	U	350	U
3- and/or 4-Methylphenol		340	U	340	U	340	U	340	U	340	U	350	U
N-Nitroso-Di-n-propylamine		340	U	75	%	79	%	340	U	340	U	350	U
Hexachloroethane		340	U	340	U	340	U	340	U	340	U	350	U
Nitrobenzene		340	U	340	U	340	U	340	U	340	U	350	U
Isophorone		340	U	340	U	340	U	340	U	340	U	350	U
2-Nitrophenol		340	U	340	U	340	U	340	U	340	U	350	U
2,4-Dimethylphenol		340	U	340	U	340	U	340	U	340	U	350	U
bis(2-Chloroethoxy)methane		340	U	340	U	340	U	340	U	340	U	350	U
2,4-Dichlorophenol		340	U	340	U	340	U	340	U	340	U	350	U
1,2,4-Trichlorobenzene		340	U	73	%	86	%	340	U	340	U	350	U
Naphthalene		340	U	340	U	340	U	340	U	340	U	350	U
4-Chloroaniline		340	U	340	U	340	U	340	U	340	U	350	U
Hexachlorobutadiene		340	U	340	U	340	U	340	U	340	U	350	U
4-Chloro-3-methylphenol		340	U	77	%	89	%	340	U	340	U	350	U
2-Methylnaphthalene		340	U	340	U	340	U	340	U	340	U	350	U
Hexachlorocyclopentadiene		340	U	340	U	340	U	340	U	340	U	350	U
2,4,6-Trichlorophenol		340	U	340	U	340	U	340	U	340	U	350	U
2,4,5-Trichlorophenol		860	U	860	U	860	U	860	U	850	U	870	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L126** Client: **TNUHANFORD F03-003 H1966** Work Order: 11343606001 Page: 1b

Cust ID:	B15XK0		B15XK0		B15XK0		B15XK1		B15XK2		B15XJ7	
RFW#:	001		001 MS		001 MSD		002		003		005	
2-Chloronaphthalene	340	U	340	U	340	U	340	U	340	U	350	U
2-Nitroaniline	860	U	860	U	860	U	860	U	850	U	870	U
Dimethylphthalate	340	U	340	U	340	U	340	U	340	U	350	U
Acenaphthylene	340	U	340	U	340	U	340	U	340	U	350	U
2,6-Dinitrotoluene	340	U	340	U	340	U	340	U	340	U	350	U
3-Nitroaniline	860	U	860	U	860	U	860	U	850	U	870	U
Acenaphthene	340	U	78	%	85	%	340	U	340	U	350	U
2,4-Dinitrophenol	860	U	860	U	860	U	860	U	850	U	870	U
4-Nitrophenol	860	U	79	%	77	%	860	U	850	U	870	U
Dibenzofuran	340	U	340	U	340	U	340	U	340	U	350	U
2,4-Dinitrotoluene	340	U	83	%	87	%	340	U	340	U	350	U
Diethylphthalate	340	U	340	U	340	U	340	U	340	U	350	U
4-Chlorophenyl-phenylether	340	U	340	U	340	U	340	U	340	U	350	U
Fluorene	340	U	340	U	340	U	340	U	340	U	350	U
4-Nitroaniline	860	U	860	U	860	U	860	U	850	U	870	U
4,6-Dinitro-2-methylphenol	860	U	860	U	860	U	860	U	850	U	870	U
N-Nitrosodiphenylamine (1)	340	U	340	U	340	U	340	U	340	U	350	U
4-Bromophenyl-phenylether	340	U	340	U	340	U	340	U	340	U	350	U
Hexachlorobenzene	340	U	340	U	340	U	340	U	340	U	350	U
Pentachlorophenol	860	U	87	%	89	%	860	U	850	U	870	U
Phenanthrene	340	U	340	U	340	U	340	U	340	U	350	U
Anthracene	340	U	340	U	340	U	340	U	340	U	350	U
Carbazole	340	U	340	U	340	U	340	U	340	U	350	U
Di-n-Butylphthalate	340	U	340	U	340	U	340	U	340	U	350	U
Fluoranthene	340	U	340	U	340	U	340	U	340	U	350	U
Pyrene	340	U	95	%	101	%	340	U	340	U	350	U
Butylbenzylphthalate	340	U	340	U	340	U	340	U	340	U	350	U
3,3'-Dichlorobenzidine	340	U	340	U	340	U	340	U	340	U	350	U
Benzo(a)anthracene	340	U	340	U	340	U	340	U	340	U	350	U
Chrysene	340	U	340	U	340	U	340	U	340	U	350	U
bis(2-Ethylhexyl)phthalate	23	JB	21	JB	26	JB	21	JB	54	JB	21	JB
Di-n-Octyl phthalate	340	U	340	U	340	U	340	U	340	U	350	U
Benzo(b)fluoranthene	340	U	340	U	340	U	340	U	340	U	350	U
Benzo(k)fluoranthene	340	U	340	U	340	U	340	U	340	U	350	U
Benzo(a)pyrene	340	U	340	U	340	U	340	U	340	U	350	U
Indeno(1,2,3-cd)pyrene	340	U	340	U	340	U	340	U	340	U	350	U
Dibenzo(a,h)anthracene	340	U	340	U	340	U	340	U	340	U	350	U
Benzo(g,h,i)perylene	340	U	340	U	340	U	340	U	340	U	350	U
Tributylphosphate	340	U	340	U	340	U	340	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: 11/27/02 15:09

RFW Batch Number: **0211L126** Client: **TNUHANFORD F03-003 H1966** Work Order: 11343606001 Page: 2a

	Cust ID:	B15XJ8		B15XJ9		SBLKIB		SBLKIB BS	
Sample Information	RFW#:	006		007		02LE1351-MB1		02LE1351-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	71	%	75	%	88	%	86	%
	2-Fluorobiphenyl	77	%	78	%	82	%	81	%
	p-Terphenyl-d14	80	%	80	%	84	%	83	%
	Phenol-d5	65	%	68	%	78	%	77	%
	2-Fluorophenol	73	%	72	%	77	%	78	%
	2,4,6-Tribromophenol	75	%	71	%	80	%	84	%
Phenol		340	U	340	U	330	U	80	%
bis(2-Chloroethyl)ether		340	U	340	U	330	U	330	U
2-Chlorophenol		340	U	340	U	330	U	80	%
1,3-Dichlorobenzene		340	U	340	U	330	U	330	U
1,4-Dichlorobenzene		340	U	340	U	330	U	80	%
1,2-Dichlorobenzene		340	U	340	U	330	U	330	U
2-Methylphenol		340	U	340	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		340	U	340	U	330	U	330	U
3- and/or 4-Methylphenol		340	U	340	U	330	U	330	U
N-Nitroso-Di-n-propylamine		340	U	340	U	330	U	86	%
Hexachloroethane		340	U	340	U	330	U	330	U
Nitrobenzene		340	U	340	U	330	U	330	U
Isophorone		340	U	340	U	330	U	330	U
2-Nitrophenol		340	U	340	U	330	U	330	U
2,4-Dimethylphenol		340	U	340	U	330	U	330	U
bis(2-Chloroethoxy)methane		340	U	340	U	330	U	330	U
2,4-Dichlorophenol		340	U	340	U	330	U	330	U
1,2,4-Trichlorobenzene		340	U	340	U	330	U	79	%
Naphthalene		340	U	340	U	330	U	330	U
4-Chloroaniline		340	U	340	U	330	U	330	U
Hexachlorobutadiene		340	U	340	U	330	U	330	U
4-Chloro-3-methylphenol		340	U	340	U	330	U	88	%
2-Methylnaphthalene		340	U	340	U	330	U	330	U
Hexachlorocyclopentadiene		340	U	340	U	330	U	330	U
2,4,6-Trichlorophenol		340	U	340	U	330	U	330	U
2,4,5-Trichlorophenol		860	U	860	U	830	U	830	U

*= Outside of EPA CLP QC limits.

Cust ID:	B15XJ8		B15XJ9		SBLKIB		SBLKIB BS	
RFW#:	006		007		02LE1351-MB1		02LE1351-MB1	
2-Chloronaphthalene	340	U	340	U	330	U	330	U
2-Nitroaniline	860	U	860	U	830	U	830	U
Dimethylphthalate	340	U	340	U	330	U	330	U
Acenaphthylene	340	U	340	U	330	U	330	U
2,6-Dinitrotoluene	340	U	340	U	330	U	330	U
3-Nitroaniline	860	U	860	U	830	U	830	U
Acenaphthene	340	U	340	U	330	U	85	%
2,4-Dinitrophenol	860	U	860	U	830	U	830	U
4-Nitrophenol	860	U	860	U	830	U	133 *	%
Dibenzofuran	340	U	340	U	330	U	330	U
2,4-Dinitrotoluene	340	U	340	U	330	U	94 *	%
Diethylphthalate	340	U	340	U	330	U	330	U
4-Chlorophenyl-phenylether	340	U	340	U	330	U	330	U
Fluorene	340	U	340	U	330	U	330	U
4-Nitroaniline	860	U	860	U	830	U	830	U
4,6-Dinitro-2-methylphenol	860	U	860	U	830	U	830	U
N-Nitrosodiphenylamine (1)	340	U	340	U	330	U	330	U
4-Bromophenyl-phenylether	340	U	340	U	330	U	330	U
Hexachlorobenzene	340	U	340	U	330	U	330	U
Pentachlorophenol	860	U	860	U	830	U	106	%
Phenanthrene	340	U	340	U	330	U	330	U
Anthracene	340	U	340	U	330	U	330	U
Carbazole	340	U	340	U	330	U	330	U
Di-n-Butylphthalate	340	U	340	U	330	U	330	U
Fluoranthene	340	U	340	U	330	U	330	U
Pyrene	340	U	340	U	330	U	77	%
Butylbenzylphthalate	340	U	340	U	330	U	330	U
3,3'-Dichlorobenzidine	340	U	340	U	330	U	330	U
Benzo(a)anthracene	340	U	340	U	330	U	330	U
Chrysene	340	U	340	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	340	U	340	U	20	J	120	JB
Di-n-Octyl phthalate	340	U	340	U	330	U	330	U
Benzo(b)fluoranthene	340	U	340	U	330	U	330	U
Benzo(k)fluoranthene	340	U	340	U	330	U	330	U
Benzo(a)pyrene	340	U	340	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	340	U	340	U	330	U	330	U
Dibenzo(a,h)anthracene	340	U	340	U	330	U	330	U
Benzo(g,h,i)perylene	340	U	340	U	330	U	330	U
Tributylphosphate	340	U	340	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.

B15XK0

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L126-001

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

Lab File ID: A112213

Level: (low/med) LOW

Date Received: 11/14/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/22/02

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	3.768	6000	JAB
2.	ALDOL CONDENSATE	4.026	40000	JAB
3.	ALDOL CONDENSATE	4.718	300	JA
4.	ALDOL CONDENSATE	5.381	6000	JAB
5.	ALDOL CONDENSATE	6.575	1000	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XK1

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L126-002

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

Lab File ID: A112216

Level: (low/med) LOW

Date Received: 11/14/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/22/02

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	3.621	5000	JAB
2.	ALDOL CONDENSATE	4.012	40000	JAB
3.	ALDOL CONDENSATE	4.681	300	JA
4.	ALDOL CONDENSATE	5.343	5000	JAB
5.	ALDOL CONDENSATE	6.548	900	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XK2

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L126-003

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

Lab File ID: A112217

Level: (low/med) LOW

Date Received: 11/14/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

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	3.688	6000	JAB
2.	ALDOL CONDENSATE	4.006	40000	JAB
3.	ALDOL CONDENSATE	4.694	300	JA
4.	ALDOL CONDENSATE	5.357	6000	JAB
5.	ALDOL CONDENSATE	6.556	1000	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XJ7

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L126-005

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

Lab File ID: A112218

Level: (low/med) LOW

Date Received: 11/14/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

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	3.654	6000	JAB
2.	ALDOL CONDENSATE	4.005	40000	JAB
3.	ALDOL CONDENSATE	4.681	300	JA
4.	ALDOL CONDENSATE	5.343	6000	JAB
5.	ALDOL CONDENSATE	6.541	1000	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XJ8

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L126-006

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

Lab File ID: C112503

Level: (low/med) LOW

Date Received: 11/14/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/02

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.	UNKNOWN	5.247	100	JB
2.	ALDOL CONDENSATE	5.766	3000	JAB
3.	ALDOL CONDENSATE	6.398	70000	JAB
4.	ALDOL CONDENSATE	7.802	3000	JAB
5.	ALDOL CONDENSATE	9.118	500	JAB

14

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XJ9

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L126-007

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

Lab File ID: C112504

Level: (low/med) LOW

Date Received: 11/14/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/02

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.	UNKNOWN	5.238	90	JB
2.	ALDOL CONDENSATE	5.741	2000	JAB
3.	ALDOL CONDENSATE	6.382	60000	JAB
4.	ALDOL CONDENSATE	7.785	3000	JAB
5.	ALDOL CONDENSATE	9.119	500	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKIB

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

Client: TNUHANFORD F03-003 H1966

Matrix: (soil/water) SOIL

Lab Sample ID: 02LE1351-MB1

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

Lab File ID: C111903

Level: (low/med) LOW

Date Received: 11/15/02

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

Date Extracted: 11/15/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/19/02

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.	UNKNOWN	5.251	100	J
2.	ALDOL CONDENSATE	5.779	4000	JA
3.	ALDOL CONDENSATE	6.420	50000	JA
4.	ALDOL CONDENSATE	7.806	3000	JA
5.	ALDOL CONDENSATE	9.112	700	JA

(8) VOA BNA P/PCB From Metals DIG Nick

Lionville Laboratory Use Only

0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	4	4	4	4
#/Type Container							
Volume							
Preservatives							

Client: [redacted]

QC: [redacted]

Date Rec'd 11-14-02 Date Due 12-14-02

ANALYSES REQUESTED → TCL

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	TCL Metal	CN

Lionville Laboratory Use Only

MATRIX CODES: S - Soil, SE - Sediment, SD - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EPA/CLP 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			MET① ICRG		INORG①	IPH				
001	B15 X [illegible]																				
002	[illegible]																				
003	[illegible]																				
004	[illegible]																				
005	B15 [illegible]																				
006	[illegible]																				
007	[illegible]																				

Special Instructions: SAF # F03-~~005~~ 003

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Rec'd Ambient

001-007A-D 2. Rec'd Chilled

MET① 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG① 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ISFD

11-18-02 6. SAF #: F03-003 Sample-004 was Hold to 0211L168

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

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

NOTES: 7919781741 36

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. 14.4 °C

3-2

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1

Collector: Fahlberg	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: BT-2	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: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Tie To B15XL9

Special Handling and/or Storage: Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g A	250g B	60mL D	250g C	125g E	500g F	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time								
B15XK0	SOIL	11/11/02	1100	X	X	X	X	X	X	X	
B15XK1	Soil	11/11/02	1125	X	X	X	X	X	X	X	
B15XK2	Soil	11/11/02	1150	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. Fahlberg R. Fahlberg	11-11-02 1400	Received By/Stored In: R. Fahlberg R. Fahlberg 1-B 3728	11-11-0 1400
Relinquished By/Removed From: 1-B 3728	R. Fahlberg R. Fahlberg	11-13-02 1000	Received By/Stored In: R. Fahlberg R. Fahlberg	11-13-02 1000
Relinquished By/Removed From: ERC	R. Fahlberg R. Fahlberg	11-13-02 1000	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex		11/14/02 0945	Received By/Stored In: [illegible]	11-14-02 0945
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1

Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSRC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X			
~~B15XJ7~~	~~SOIL~~	~~11/11/02~~	~~1007~~										
~~B15XJ8~~													

11-11-02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1400	Received By/Stored In	Date/Time 1400
R. Fahlberg R. Fahlberg	11-11-02	RCF 1-B 3728	11-11-02
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
RCF 1-B 3728	11-13-02	R. Fahlberg R. Fahlberg	11-13-02
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	11-13-02	FedEx	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FedEx	11/14/02 0945	[illegible]	11-14-02 0945
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 see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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)

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	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: BT-2	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TI<TO B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. 11-14		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X		
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X		
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From	R. Fahlberg	11.11.02 1400
Received By/Stored In	Ref 1-B 3728	11.11.02 1400
Relinquished By/Removed From	Ref 1-B 3728	11.12.02 1000
Received By/Stored In	R. Fahlberg R. Fahlberg	11.13.02 1000
Relinquished By/Removed From	R. Fahlberg R. Fahlberg	11.13.02 1000
Received By/Stored In	Fed Ex	
Relinquished By/Removed From	Fed Ex	11/14/02 0945
Received By/Stored In		11-14-02 0945
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		

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

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

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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:

RC-02-104 3.2°C
RC-96-052 14.4°C

001-007 A-D Rec'd chilled
001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

21

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK0	001	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XK0	001 MS	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XK0	001 MSD	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XK1	002	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XK2	003	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XJ7	005	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XJ8	006	S	02LE1352	11/11/02	11/15/02	11/16/02
B15XJ9	007	S	02LE1352	11/11/02	11/15/02	11/16/02
LAB QC:						
PBLKFW	MB1	S	02LE1352	N/A	11/15/02	11/15/02
PBLKFW	MB1 BS	S	02LE1352	N/A	11/15/02	11/15/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L126
SDG/SAF #: H1966/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-14-02

PCB

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

The samples and their associated QC samples were extracted on 11-15-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-15,16-02. The extraction procedure was based on method 3550 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
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

12/2/02
Date

pef\r:\group\data\pest\tnu hanford\11L-126.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 10 pages.

GLOSSARY OF PESTICIDE/PCB DATA

ATA 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 1 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: 11/20/02 10:07

RFW Batch Number: **0211L126** Client: **TNU-HANFORD F03-003** Work Order: 11343606001 Page: 1

	Cust ID:	B15XK0	B15XK0	B15XK0	B15XK1	B15XK2	B15XJ7
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	005
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	85 %	90 %	75 %	80 %	70 %	85 %
	Decachlorobiphenyl	100 %	105 %	100 %	100 %	95 %	100 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		34 U	83 %	77 %	34 U	34 U	35 U
Aroclor-1221		68 U	68 U	68 U	69 U	68 U	69 U
Aroclor-1232		34 U	34 U	34 U	34 U	34 U	35 U
Aroclor-1242		34 U	34 U	34 U	34 U	34 U	35 U
Aroclor-1248		34 U	34 U	34 U	34 U	34 U	35 U
Aroclor-1254		34 U	34 U	34 U	34 U	34 U	35 U
Aroclor-1260		34 U	86 %	83 %	34 U	34 U	35 U

	Cust ID:	B15XJ8	B15XJ9	PBLKFW	PBLKFW BS
Sample Information	RFW#:	006	007	02LE1352-MB1	02LE1352-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	80 %	75 %	85 %	80 %
	Decachlorobiphenyl	100 %	95 %	95 %	95 %
		fl	fl	fl	fl
Aroclor-1016		34 U	34 U	33 U	75 %
Aroclor-1221		69 U	69 U	67 U	67 U
Aroclor-1232		34 U	34 U	33 U	33 U
Aroclor-1242		34 U	34 U	33 U	33 U
Aroclor-1248		34 U	34 U	33 U	33 U
Aroclor-1254		34 U	34 U	33 U	33 U
Aroclor-1260		34 U	34 U	33 U	76 %

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

(8) VOA BNA P/PCB From Metals DIG Nick.

Lionville Laboratory Use Only

0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Hanford SAF # F03-~~005~~ 003

Est. Final Rep. Shipping Date:

Project #: Hanford Leachate Test #2

Project Contact/Phone #:

Lionville Laboratory Project Manager: 03

QC: SAEC Del: JM TAT: 30 day

Date Rec'd: 11-14-02 Date Due: 12-14-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	4	4	4	4
#/Type Container							
Volume							
Preservatives							
ANALYSES REQUESTED	ORGANIC				INORG		
	VOA	BNA	Pest/PCB	Herb	Metal	CN	

Lionville Laboratory Use Only

MATRIX CODES: S - Soil; SE - Sediment; SQ - 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	0624	0625 X ODRO	OPC13		OG GSC		MCT ICRC		INORG	IPH			
001	B15 x KO						1		1		1		1		1	1			
002	1 1						1		1		1		1		1	1			
003	1 2						1		1		1		1		1	1			
004	B15 x 3						1		1		1		1		1	1			
005	B15 x 3 7						1		1		1		1		1	1			
006	1 8						1		1		1		1		1	1			
007	1 9						1		1		1		1		1	1			

Special Instructions: SAF # F03-~~005~~ 003

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Rec'd Ambient

001-007A-D 2. Rec'd Chilled

MCT① 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG① 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ISFD

11-18-02 6. SAF #: F03-003 Sample -004 was lost to 0211L168

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. 14.4 °C

3.2

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

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

NOTES: 7919781741 36

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1

Collector: Fahlberg	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: BT-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSRC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Tie To B15XL9

Special Handling and/or Storage: Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK0	SOIL	11/11/02	1100	X	X	X	X	X	X	X			
B15XK1	Soil	11/11/02	1125	X	X	X	X	X	X	X			
B15XK2	Soil	11/11/02	1150	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1400	Received By/Stored In	Date/Time 1400
R. Fahlberg R. Fahlberg	11-11-02	RCF 1-B 3728	11-11-0
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
1-B 3728	11-13-02	R. Fahlberg R. Fahlberg	11-13-02
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	11-13-02	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11/14/02 0945	[illegible]	11-14-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1

Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; Tie To B15XL9

Special Handling and/or Storage: Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X			
~~B15XJ7~~	~~SOIL~~	~~11/11/02~~	~~1007~~										
~~B15XJ8~~													

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Fields R. Fahlberg	11-11-02 1400	Received By/Stored In: R. Fields 1-B 3728	11-11-02 1400
Relinquished By/Removed From: R. Fields 1-B 3728	11-13-02 1000	Received By/Stored In: R. Fields R. Fahlberg	11-13-02 1000
Relinquished By/Removed From: ERC R. Fields R. Fahlberg	11-13-02 1000	Received By/Stored In: FedEx	
Relinquished By/Removed From: Fed Ex	11/14/02 0945	Received By/Stored In: [illegible]	11-14-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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)

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	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: BT-2	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: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TI<TO B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X		
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X		
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg / R. Fahlberg	1400 11.11.02	Ref 1-B 3728	1400 11.11.02
Ref 1-B 3728	1000 11.12.02	R. Fahlberg / R. Fahlberg	1000 11.13.02
R. Fahlberg / R. Fahlberg	1000 11.13.02	Fed Ex	
Fed Ex	11/14/02 0945	[signature]	11-14-02 0945

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

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

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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

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

Cooler # / temp (°C) and Comments:

ERC-02-104 3.2°C — 001-007A-D Rec'd chilled

ERC-96-052 14.4°C — 001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK0	001	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XK0	001 MS	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XK0	001 MSD	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XK1	002	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XK2	003	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XJ7	005	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XJ8	006	S	02LE1362	11/11/02	11/18/02	11/20/02
B15XJ9	007	S	02LE1362	11/11/02	11/18/02	11/20/02
LAB QC:						
BLK	MB1	S	02LE1362	N/A	11/18/02	11/19/02
BLK	MB1 BS	S	02LE1362	N/A	11/18/02	11/20/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L126
SDG/SAF #: H1966/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-14-02

DIESEL RANGE ORGANICS

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

The samples and their associated QC samples were extracted on 11-18-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-19,20-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8015B.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/2/02
Date

pef\r:\group\data\dro\tnu hanford\11L-126.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

GLOSSARY OF 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.

A

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 11/24/02 18:47

RFW Batch Number: **0211L126** Client: **TNU-HANFORD F03-003** Work Order: 11343606001 Page: 1

15

	Cust ID:	B15XK0	B15XK0	B15XK0	B15XK1	B15XK2	B15XJ7
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	005
	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	70 %	69 %	62 %	69 %	63 %	85 %
Diesel Range Organics		12.3 U	59 %	54 %	12.4 U	12.3 U	12.5 U
Kerosene		12.3 U	12.3 U	12.3 U	12.4 U	12.3 U	12.5 U

	Cust ID:	B15XJ8	B15XJ9	BLK	BLK BS
Sample Information	RFW#:	006	007	02LE1362-MB1	02LE1362-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
	p-Terphenyl	77 %	80 %	72 %	69 %
Diesel Range Organics		12.4 U	12.4 U	12.0 U	63 %
Kerosene		12.4 U	12.4 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

0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratories, Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TWU-HANFORD SAF # F03-~~005~~ 003

Est. Final Proj. Sampling Date:

Project #:

Project Contact/Phone #:

Lionville Laboratory Project Manager: 03

QC: SPEC Del: 5 TAT: 30 day

Date Rec'd: 11-14-02 Date Due: 12-14-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	4	4	4	4
#/Type Container							
Volume							
Preservatives							
ANALYSES REQUESTED	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	ORGANIC: KRO	INORG: TCL Metal	INORG: CN
Lionville Laboratory Use Only	8624H	8625X-ODRO	OPC13		OGCSC	METO ICAL	INORG1
							ZPH

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	8624H	8625X-ODRO	OPC13		OGCSC			METO ICAL		INORG1	ZPH				
001	B15X KO			S			1	1	1		1			1		1	1				
002	1 1																				
003	1 2																				
004	[illegible]																				
005	B15X 3 7																				
006	1 8																				
007	1 9																				

Special Instructions:

SAF # F03-~~005~~ 003

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Rec'd Ambient

001-007A-D 2. Rec'd Chilled

METO 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG1 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ZSFD

11-18-02 6. SAF # = F03-003 Sample -004 written to 0211L168

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. 14.4 °C

3-2

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7919781741 36

7919 7817 4136

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1

Collector: Fahlberg	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: BT-2	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: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK0	SOIL	11/11/02	1100	X	X	X	X	X	X	X			
B15XK1	Soil	11/11/02	1125	X	X	X	X	X	X	X			
B15XK2	Soil	11/11/02	1150	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. Fahlberg R. Fahlberg	11-11-02 1400	Rec 1-B 3728	11-11-0 1400
Relinquished By/Removed From	1-B 3728	11-13-02 1000	R. Fahlberg R. Fahlberg	11-13-02 1000
Relinquished By/Removed From	ERC R. Fahlberg R. Fahlberg	11-13-02 1000	Received By/Stored In: Fed Ex	Date/Time
Relinquished By/Removed From	Fed Ex	11/14/02 0945	Received By/Stored In	11-14-02 0945
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1

Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	
Ice Chest No.: SEE OSRC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X			
~~B15XJ7~~	~~SOIL~~	~~11/11/02~~	~~1007~~										
~~B15XJ8~~													

11-14-02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Received By/Stored In: Ref 1-B 3728	11-11-02 1400
Relinquished By/Removed From: Ref 1-B 3728	Received By/Stored In: R. Fahlberg R. Fahlberg	11-13-02 1000
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg	Received By/Stored In: FedEx	11-13-02 1000
Relinquished By/Removed From: FedEx	Received By/Stored In:	11-14-02 0945
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS
** Please see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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)

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	Comoany Contact: Steve Trent	Telenhone 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: BT-2	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tl<To B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X		
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X		
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: R.Fahlberg 11.11.02	Date/Time 1400	Received By/Stored In: Ref 1-B 3728 11.11.02
Date/Time 1400
Relinquished By/Removed From: Ref 1-B 3728 11.12.02	Date/Time 1000	Received By/Stored In: R.Fahlberg 11.13.02
Date/Time 1000
Relinquished By/Removed From: R.Fahlberg 11.13.02	Date/Time 1000	Received By/Stored In: Fed Ex
Date/Time
Relinquished By/Removed From: Fed Ex 11/14/02 0945	Date/Time	Received By/Stored In: 11-14-02 0945
Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In
Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In
Date/Time

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

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
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: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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

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

Cooler # / temp (°C) and Comments:

ERC-02-104 3.2°C
ERC-96-052 14.4°C

001-007A-D Rec'd chilled
001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

12

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK0	001	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XK0	001 MS	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XK0	001 MSD	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XK1	002	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XK2	003	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XJ7	005	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XJ8	006	S	02LE1381	11/11/02	11/20/02	11/20/02
B15XJ9	007	S	02LE1381	11/11/02	11/20/02	11/20/02
LAB QC:						
BLK	MB1	S	02LE1381	N/A	11/20/02	11/20/02
BLK	MB1 BS	S	02LE1381	N/A	11/20/02	11/20/02
BLK	MB1 BSD	S	02LE1381	N/A	11/20/02	11/20/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD F03-003
LVL#: 0211L126
SDG/SAF#: H1966/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-14-02

GC SCAN

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

The sample and its associated QC samples were analyzed on 11-20-02 according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures based on method 8015 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

12/2/02
Date

r:\group\data\gcsc\11L-126.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

GLOSSARY OF GC SCAN DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF GC SCAN DATA

P = This flag is used for an GC SCAN 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 SCAN.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 11/24/02 18:13

RFW Batch Number: **0211L126** Client: **TNU-HANFORD F03-003** Work Order: 11343606001 Page: 1

	Cust ID:	B15XK0	B15XK0	B15XK0	B15XK1	B15XK2	B15XJ7
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	005
	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	==========fl
n-Propyl Alcohol		26 U	89 %	91 %	28 U	20 U	22 U
Ethanol		26 U	100 %	101 %	28 U	20 U	22 U

	Cust ID:	B15XJ8	B15XJ9	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	006	007	02LE1381-MB1	02LE1381-MB1	02LE1381-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
==========fl		==========fl	==========fl	==========fl	==========fl	==========fl
n-Propyl Alcohol		27 U	23 U	25 U	92 %	88 %
Ethanol		27 U	23 U	25 U	103 %	99 %

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

(8) VOA BNA P/PCB Fuel DIG NRK.

Lionville Laboratory Use Only
0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORIES INC

FIELD PERSONNel: COMPLETE ONLY SHADED AREAS

Client: TWU-HANFORD SAF # F03-~~005~~ 003

Est. Final Rep. Sampling date:

Project #: [illegible]

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Bal: 5% TAT: 30 day

Date Rec'd: 11-14-02 Date Due: 12-14-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	4	4	4	4
#/Type Container							
Volume							
Preservatives							
ANALYSES REQUESTED	ORGANIC: VOA	BNA	PCB	Herb		INORG: Metal	CN
				KRO			pH
Lionville Laboratory Use Only	8624H	8625X ODRO	OPC13	OG GSC	MET① ICRC	INORG①	IPH

MATRIX CODES: S - Soil; SE - Sediment; SD - 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	8624H	8625X ODRO	OPC13	OG GSC	MET① ICRC	INORG①	IPH
001	B15X KO			S			1	1	1	1	1	1	1
002	L 1												
003	L 2												
004	[illegible]												
005	B15X 7												
006	L 8												
007	L 9												

Special Instructions: SAF # F03-~~005~~ 003

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Recd Ambient

001-007A-D 2. Recd Chilled

MET① 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG① 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ISFD

11-18-02 6. SAF # = F03-003 Sample -004 written to 0211L148

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. 14.4 °C

3-2

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

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

NOTES: 7919781741 36

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1

Collector: Fahlberg	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: BT-2	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514 ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Tie To B15XL9

Special Handling and/or Storage: Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK0	SOIL	11/11/02	1100	X	X	X	X	X	X	X			
B15XK1	Soil	11/11/02	1125	X	X	X	X	X	X	X			
B15XK2	Soil	11/11/02	1150	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. Fahlberg R. Fahlberg	1400 11-11-02	Received By/Stored In: R. Fahlberg 1-B 3728	1400 11-11-0
Relinquished By/Removed From: 1-B 3728	1000 11-13-02	Received By/Stored In: R. Fahlberg R. Fahlberg	1000 11-13-02
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg	1000 11-13-02	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: Fed Ex	11/14/02 0945	Received By/Stored In: [signature]	11-14-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1

Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Tie To B15XL9

Special Handling and/or Storage: Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time											
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X				
~~B15XM7~~	~~SOIL~~	~~11/11/02~~	~~1007~~											
~~B15XM8~~														

11-11-02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	11-11-02 1400	R. Fahlberg 1-B 3728	11-11-02 1400
R. Fahlberg R. Fahlberg	11-13-02 1000	R. Fahlberg 1-B 3728	11-13-02 1000
R. Fahlberg R. Fahlberg	11-13-02 1000	R. Fahlberg R. Fahlberg	11-13-02
Fed Ex	11/14/02 0945	Fed Ex	
		[illegible]	11-14-02 0945
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 see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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)

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	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: BT-2	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TICTO B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X		
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X		
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From	R. Fahlberg	11.11.02 1400
Received By/Stored In	Ref 1-B 3728	11.11.02 1400
Relinquished By/Removed From	Ref 1-B 3728	11.12.02 1000
Received By/Stored In	R. Fahlberg R. Fahlberg	11.13.02 1000
Relinquished By/Removed From	R. Fahlberg R. Fahlberg	11.13.02 1000
Received By/Stored In	Fed Ex	
Relinquished By/Removed From	Fed Ex	11/14/02 0945
Received By/Stored In		11-14-02 0945
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		

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

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

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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

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

Cooler # / temp (°C) and Comments:

ERC-02-104 3.2°C
ERC-96-052 14.4°C

001-007 A-D Rec'd chilled
001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

DEC 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK0						
SILVER, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
SILVER, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
SILVER, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
SILVER, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
MERCURY, TOTAL	001	S	02C0350	11/11/02	11/26/02	11/27/02
MERCURY, TOTAL	001 REP	S	02C0350	11/11/02	11/26/02	11/27/02
MERCURY, TOTAL	001 MS	S	02C0350	11/11/02	11/26/02	11/27/02
NICKEL, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
NICKEL, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
NICKEL, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
NICKEL, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	001	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	001 REP	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	001 MS	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	001 MSD	S	02L0679	11/11/02	11/20/02	11/21/02
B15XK1						
SILVER, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
MERCURY, TOTAL	002	S	02C0350	11/11/02	11/26/02	11/27/02
NICKEL, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	002	S	02L0679	11/11/02	11/20/02	11/21/02
B15XK2						
SILVER, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
MERCURY, TOTAL	003	S	02C0350	11/11/02	11/26/02	11/27/02
NICKEL, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	003	S	02L0679	11/11/02	11/20/02	11/21/02
B15XJ7						
SILVER, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
MERCURY, TOTAL	005	S	02C0350	11/11/02	11/26/02	11/27/02
NICKEL, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	005	S	02L0679	11/11/02	11/20/02	11/21/02
B15XJ8						
SILVER, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
MERCURY, TOTAL	006	S	02C0350	11/11/02	11/26/02	11/27/02
NICKEL, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	006	S	02L0679	11/11/02	11/20/02	11/21/02
B15XJ9						
SILVER, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
ARSENIC, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
BARIUM, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
CADMIUM, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
CHROMIUM, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
COPPER, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
MERCURY, TOTAL	007	S	02C0350	11/11/02	11/26/02	11/27/02
NICKEL, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
LEAD, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
SELENIUM, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
VANADIUM, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02
ZINC, TOTAL	007	S	02L0679	11/11/02	11/20/02	11/21/02

LAB QC:

SILVER LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
SILVER, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
ARSENIC LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
ARSENIC, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
BARIUM LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
BARIUM, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
BERYLLIUM LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
BERYLLIUM, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
CADMIUM LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
CADMIUM, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
CHROMIUM LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
CHROMIUM, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
COPPER LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
COPPER, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
MERCURY LABORATORY	LC1 BS	S	02C0350	N/A	11/26/02	11/27/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	MB1	S	02C0350	N/A	11/26/02	11/27/02
NICKEL LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
NICKEL, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
LEAD LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
LEAD, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
SELENIUM LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
SELENIUM, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
VANADIUM LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
VANADIUM, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02
ZINC LABORATORY	LC1 BS	S	02L0679	N/A	11/20/02	11/21/02
ZINC, TOTAL	MB1	S	02L0679	N/A	11/20/02	11/21/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL#: 0211L126
SDG/SAF#: H1966/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-14-02

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.

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. The preparation/method blank for 1 analyte was outside 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.

   a). The MB result for Copper was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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

10. The matrix spike (MS) and matrix spike duplicate (MSD) recoveries for 1 analyte were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 22 pages.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B15XKO	Silver		

12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-9-02
Date

gmb/m11-126

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

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

Lot#: 0211L126

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:_____

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 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15XK0	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.4	MG/KG	0.37	1.0
		Barium, Total	46.5	MG/KG	0.03	1.0
		Beryllium, Total	0.18	MG/KG	0.02	1.0
		Cadmium, Total	0.04	MG/KG	0.04	1.0
		Chromium, Total	9.0	MG/KG	0.1	1.0
		Copper, Total	11.4	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.1	MG/KG	0.13	1.0
		Lead, Total	2.5	MG/KG	0.23	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	31.2	MG/KG	0.1	1.0
		Zinc, Total	30.0	MG/KG	0.08	1.0
-002	B15XK1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.9	MG/KG	0.39	1.0
		Barium, Total	43.9	MG/KG	0.03	1.0
		Beryllium, Total	0.25	MG/KG	0.02	1.0
		Cadmium, Total	0.08	MG/KG	0.04	1.0
		Chromium, Total	6.2	MG/KG	0.10	1.0
		Copper, Total	10.9	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.9	MG/KG	0.13	1.0
		Lead, Total	2.5	MG/KG	0.25	1.0
		Selenium, Total	0.39 u	MG/KG	0.39	1.0
		Vanadium, Total	39.8	MG/KG	0.10	1.0
		Zinc, Total	35.6	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15XK2	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Arsenic, Total	4.5	MG/KG	0.27	1.0
		Barium, Total	43.1	MG/KG	0.02	1.0
		Beryllium, Total	0.17	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	7.6	MG/KG	0.07	1.0
		Copper, Total	12.0	MG/KG	0.09	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	13.2	MG/KG	0.09	1.0
		Lead, Total	2.3	MG/KG	0.17	1.0
		Selenium, Total	0.27 u	MG/KG	0.27	1.0
		Vanadium, Total	29.3	MG/KG	0.07	1.0
		Zinc, Total	24.7	MG/KG	0.06	1.0
-005	B15XJ7	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.6	MG/KG	0.37	1.0
		Barium, Total	49.8	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	7.2	MG/KG	0.1	1.0
		Copper, Total	11.2	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	7.5	MG/KG	0.13	1.0
		Lead, Total	2.6	MG/KG	0.24	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	46.7	MG/KG	0.1	1.0
		Zinc, Total	37.8	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B15XJ8	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	1.6	MG/KG	0.36	1.0
		Barium, Total	48.0	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	5.2	MG/KG	0.09	1.0
		Copper, Total	11.9	MG/KG	0.12	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	6.0	MG/KG	0.12	1.0
		Lead, Total	2.5	MG/KG	0.23	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Vanadium, Total	35.4	MG/KG	0.09	1.0
		Zinc, Total	33.3	MG/KG	0.08	1.0
-007	B15XJ9	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	2.2	MG/KG	0.36	1.0
		Barium, Total	46.1	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	4.9	MG/KG	0.1	1.0
		Copper, Total	10.5	MG/KG	0.12	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	10.4	MG/KG	0.12	1.0
		Lead, Total	2.6	MG/KG	0.23	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Vanadium, Total	40.1	MG/KG	0.1	1.0
		Zinc, Total	30.6	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0679-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	0.05	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	0.17	MG/KG	0.10	1.0
		Copper, Total	0.84	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	0.39	MG/KG	0.08	1.0
BLANK1	02C0350-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15XK0	Silver, Total	2.3	0.14u	5.1	45.1	1.0
		Silver, Total MSD	2.4	0.14u	4.8	50.0	1.0
		Arsenic, Total	191	1.4	206	92.4	1.0
		Arsenic, Total MSD	182	1.4	192	94.2	1.0
		Barium, Total	234	46.5	206	91.0	1.0
		Barium, Total MSD	235	46.5	192	97.9	1.0
		Beryllium, Total	4.8	0.18	5.1	90.6	1.0
		Beryllium, Total MSD	4.6	0.18	4.8	92.1	1.0
		Cadmium, Total	4.8	0.04	5.1	93.4	1.0
		Cadmium, Total MSD	4.6	0.04	4.8	95.0	1.0
		Chromium, Total	26.4	9.0	20.6	84.5	1.0
		Chromium, Total MSD	27.3	9.0	19.2	95.3	1.0
		Copper, Total	34.0	11.4	25.7	87.9	1.0
		Copper, Total MSD	33.6	11.4	24.0	92.5	1.0
		Mercury, Total	0.15	0.02u	0.16	96.2	1.0
		Nickel, Total	53.8	9.1	51.4	87.0	1.0
		Nickel, Total MSD	55.5	9.1	48.0	96.7	1.0
		Lead, Total	49.6	2.5	51.4	91.6	1.0
		Lead, Total MSD	48.2	2.5	48.0	95.2	1.0
		Selenium, Total	191	0.37u	206	92.9	1.0
		Selenium, Total MSD	183	0.37u	192	95.2	1.0
		Vanadium, Total	79.2	31.2	51.4	93.4	1.0
		Vanadium, Total MSD	75.8	31.2	48.0	92.9	1.0
		Zinc, Total	75.1	30.0	51.4	87.7	1.0
		Zinc, Total MSD	75.4	30.0	48.0	94.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B15XK0	Silver, Total	45.1	50.0	10.3
		Arsenic, Total	92.4	94.2	1.9
		Barium, Total	91.0	97.9	7.3
		Beryllium, Total	90.6	92.1	1.6
		Cadmium, Total	93.4	95.0	1.8
		Chromium, Total	84.5	95.3	12.1
		Copper, Total	87.9	92.5	5.1
		Nickel, Total	87.0	96.7	10.6
		Lead, Total	91.6	95.2	3.8
		Selenium, Total	92.9	95.2	2.4
		Vanadium, Total	93.4	92.9	0.50
		Zinc, Total	87.7	94.6	7.5

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/06/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15XK0	Silver, Total	0.14u	0.13u	NC	1.0
		Arsenic, Total	1.4	1.7	19.4	1.0
		Barium, Total	46.5	32.5	35.4	1.0
		Beryllium, Total	0.18	0.17	9.1	1.0
		Cadmium, Total	0.04	0.04	9.9	1.0
		Chromium, Total	9.0	5.7	44.9	1.0
		Copper, Total	11.4	9.2	21.4	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Nickel, Total	9.1	6.1	39.5	1.0
		Lead, Total	2.5	2.1	17.4	1.0
		Selenium, Total	0.37u	0.36u	NC	1.0
		Vanadium, Total	31.2	31.4	0.64	1.0
		Zinc, Total	30.0	26.2	13.5	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/06/02

CLIENT: TNUHANFORD F03-003 H1966

LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0679-LC1	Silver, LCS	47.3	50.0	MG/KG	94.6
		Arsenic, LCS	898	1000	MG/KG	89.8
		Barium, LCS	467	500	MG/KG	93.5
		Beryllium, LCS	22.2	25.0	MG/KG	88.8
		Cadmium, LCS	23.1	25.0	MG/KG	92.4
		Chromium, LCS	47.1	50.0	MG/KG	94.2
		Copper, LCS	118	125	MG/KG	94.6
		Nickel, LCS	186	200	MG/KG	92.8
		Lead, LCS	231	250	MG/KG	92.3
		Selenium, LCS	892	1000	MG/KG	89.2
		Vanadium, LCS	235	250	MG/KG	93.9
		Zinc, LCS	92.3	100	MG/KG	92.3
LCS1	02C0350-LC1	Mercury, LCS	2.3	2.5	MG/KG	92.4

Lionville Laboratory Use Only

0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD SAF # F03-005

Est. Final Proj. Sampling Date:

Project #: 11347-606-001-9999.00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 day

Date Rec'd: 11-14-02 Date Due: 12-14-02

		A	B	C	D	E	F	G
Refrigerator #		1	4	4	4	4	4	4
#/Type Container	Liquid							
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG
Volume	Liquid							
	Solid	60	250	250	60	125	500	60
Preservatives		—	—	—	—	—	—	—
ANALYSES REQUESTED		TPH VOA	BNA	Pest/PCB	Herb	ALC Glyc Ket	TCLP Metal L	CN
			ORGANIC				INORG	

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	0625 X ODRO	OPC13	OGCSC	MET① ICRC	INORG①	IPH
001	B15 X K0			S	11/11/02	1100	1	1	1	1	1	1	1
002	1 1					1125	1	1	1	1	1	1	1
003	1 2					1150	1	1	1	1	1	1	1
004	B15 X M1					0930	1	1	1	1	1	1	1
005	B15 X I7					1007	1	1	1	1	1	1	1
006	1 8					1025	1	1	1	1	1	1	1
007	1 9			1	1	1045	1	1	1	1	1	1	1

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Rec'd Ambient

001-007A-D 2. Rec'd Chilled

MET① 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG① 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ISFD

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. 14.4 °C 3.2

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0745

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

7919781741 36

7919781741 41

18

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1
Collector: Fohlberg	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: BT-2	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: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK0	SOIL	11/11/02	1100	X	X	X	X	X	X	X			
B15XK1	Soil	11/11/02	1125	X	X	X	X	X	X	X			
B15XK2	Soil	11/11/02	1150	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. Fohlberg R. Fohlberg	1400 11-11-02	RCF 1-B 3728	1400 11-11-0
1-B 3728	1000 11-13-02	R. Fohlberg R. Fohlberg	1000 11-13-02
R. Fohlberg R. Fohlberg	ERC 1000 11-13-02	Fed Ex	
Fed Ex	11/14/02 0945	[illegible]	11-14-02 0945

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

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1

Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15XL9

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X			
~~B15XJ7~~	~~soil~~	~~11/11/02~~	~~1027~~										
~~B15XJ8~~													

11-11-02

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: R. Fields R. Fahlberg; Date/Time: 11-11-02 1400	Received By/Stored In: Ref 1-B 3728; Date/Time: 11-11-02 1400	
Relinquished By/Removed From: Ref 1-B 3728; Date/Time: 11-13-02 1000	Received By/Stored In: R. Fields R. Fahlberg; Date/Time: 11-13-02 1000	
Relinquished By/Removed From: ERC R. Fields R. Fahlberg; Date/Time: 11-13-02 1000	Received By/Stored In: FedEx; Date/Time:	
Relinquished By/Removed From: FedEx; Date/Time: 11/14/02 0945	Received By/Stored In: [illegible]; Date/Time: 11-14-02 0945	
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS
** Please see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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

20

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003

Collector: Fahlberg	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: BT-2		SAF No.: F03-003
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TI<TO B15XL9

Special Handling and/or Storage
Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. 11-14-02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X		
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X		
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From	R. Fahlberg / R. Fahlberg	11.11.02 1400
Received By/Stored In	Ref 1-B 3728	11.11.02 1400
Relinquished By/Removed From	Ref 1-B 3728	11-12-02 1000
Received By/Stored In	R. Fahlberg / R. Fahlberg	11.13.02 1000
Relinquished By/Removed From	R. Fahlberg / R. Fahlberg	11.13.02 1000
Received By/Stored In	Fed Ex	
Relinquished By/Removed From	Fed Ex	11/14/02 0945
Received By/Stored In	[illegible]	11-14-02 0945
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		

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

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

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

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

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

21

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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:

RC-02-104 3.2°C
IC-96-052 14.4°C

001-007A-D Rec'd chilled
001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK0						
% SOLIDS	001	S	02L%S125	11/11/02	11/18/02	11/19/02
CHLORIDE BY IC	001	S	02LIC077	11/11/02	11/21/02	11/21/02
CHLORIDE BY IC	001 REP	S	02LIC077	11/11/02	11/21/02	11/21/02
CHLORIDE BY IC	001 MS	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	001	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	001 REP	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	001 MS	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	001	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	001 REP	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	001 MS	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	001	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	001 REP	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	001 MS	S	02LIC077	11/11/02	11/21/02	11/21/02
TOTAL CYANIDE	001	S	02LC087	11/11/02	11/18/02	11/18/02
PHOSPHATE BY IC	001	S	02LIC077	11/11/02	11/21/02	11/21/02
PHOSPHATE BY IC	001 REP	S	02LIC077	11/11/02	11/21/02	11/21/02
PHOSPHATE BY IC	001 MS	S	02LIC077	11/11/02	11/21/02	11/21/02
CHROMIUM VI	001	S	02LVI036	11/11/02	11/21/02	11/21/02
CHROMIUM VI	001 REP	S	02LVI036	11/11/02	11/21/02	11/21/02
CHROMIUM VI	001 MS	S	02LVI036	11/11/02	11/21/02	11/21/02
CHROMIUM VI	001 MSD	S	02LVI036	11/11/02	11/21/02	11/21/02
SULFATE BY IC	001	S	02LIC077	11/11/02	11/21/02	11/21/02
SULFATE BY IC	001 REP	S	02LIC077	11/11/02	11/21/02	11/21/02
SULFATE BY IC	001 MS	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE NITRITE	001	S	02LN3C84	11/11/02	11/20/02	11/20/02
NITRATE NITRITE	001 REP	S	02LN3C84	11/11/02	11/20/02	11/20/02
NITRATE NITRITE	001 MS	S	02LN3C84	11/11/02	11/20/02	11/20/02
AMMONIA	001	S	02LAM033	11/11/02	11/18/02	11/19/02
AMMONIA	001 REP	S	02LAM033	11/11/02	11/18/02	11/19/02
AMMONIA	001 MS	S	02LAM033	11/11/02	11/18/02	11/19/02
PH	001	S	02LPH090	11/11/02	11/15/02	11/15/02
PH	001 REP	S	02LPH090	11/11/02	11/15/02	11/15/02
SULFIDE	001	S	02LSDA51	11/11/02	11/15/02	11/15/02
SULFIDE	001 REP	S	02LSDA51	11/11/02	11/15/02	11/15/02
SULFIDE	001 MS	S	02LSDA51	11/11/02	11/15/02	11/15/02

DEC 2002
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XK1						
% SOLIDS	002	S	02L%S125	11/11/02	11/18/02	11/19/02
CHLORIDE BY IC	002	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	002	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	002	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	002	S	02LIC077	11/11/02	11/21/02	11/21/02
TOTAL CYANIDE	002	S	02LC087	11/11/02	11/18/02	11/18/02
PHOSPHATE BY IC	002	S	02LIC077	11/11/02	11/21/02	11/21/02
CHROMIUM VI	002	S	02LVI036	11/11/02	11/21/02	11/21/02
SULFATE BY IC	002	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE NITRITE	002	S	02LN3C84	11/11/02	11/20/02	11/20/02
AMMONIA	002	S	02LAM033	11/11/02	11/18/02	11/19/02
PH	002	S	02LPH090	11/11/02	11/15/02	11/15/02
SULFIDE	002	S	02LSDA51	11/11/02	11/15/02	11/15/02
B15XK2						
% SOLIDS	003	S	02L%S125	11/11/02	11/18/02	11/19/02
CHLORIDE BY IC	003	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	003	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	003	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	003	S	02LIC077	11/11/02	11/21/02	11/21/02
TOTAL CYANIDE	003	S	02LC087	11/11/02	11/18/02	11/18/02
PHOSPHATE BY IC	003	S	02LIC077	11/11/02	11/21/02	11/21/02
CHROMIUM VI	003	S	02LVI036	11/11/02	11/21/02	11/21/02
SULFATE BY IC	003	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE NITRITE	003	S	02LN3C84	11/11/02	11/20/02	11/20/02
AMMONIA	003	S	02LAM033	11/11/02	11/18/02	11/19/02
PH	003	S	02LPH090	11/11/02	11/15/02	11/15/02
SULFIDE	003	S	02LSD052	11/11/02	11/18/02	11/18/02
B15XJ7						
% SOLIDS	005	S	02L%S125	11/11/02	11/18/02	11/19/02
CHLORIDE BY IC	005	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	005	S	02LIC077	11/11/02	11/21/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	005	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	005	S	02LIC077	11/11/02	11/21/02	11/21/02
TOTAL CYANIDE	005	S	02LC087	11/11/02	11/18/02	11/18/02
PHOSPHATE BY IC	005	S	02LIC077	11/11/02	11/21/02	11/21/02
CHROMIUM VI	005	S	02LVI036	11/11/02	11/21/02	11/21/02
SULFATE BY IC	005	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE NITRITE	005	S	02LN3C84	11/11/02	11/20/02	11/20/02
AMMONIA	005	S	02LAM033	11/11/02	11/18/02	11/19/02
PH	005	S	02LPH090	11/11/02	11/15/02	11/15/02
SULFIDE	005	S	02LSD052	11/11/02	11/18/02	11/18/02
B15XJ8						
% SOLIDS	006	S	02L%S125	11/11/02	11/18/02	11/19/02
CHLORIDE BY IC	006	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	006	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	006	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	006	S	02LIC077	11/11/02	11/21/02	11/21/02
TOTAL CYANIDE	006	S	02LC087	11/11/02	11/18/02	11/18/02
PHOSPHATE BY IC	006	S	02LIC077	11/11/02	11/21/02	11/21/02
CHROMIUM VI	006	S	02LVI036	11/11/02	11/21/02	11/21/02
SULFATE BY IC	006	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE NITRITE	006	S	02LN3C84	11/11/02	11/20/02	11/20/02
AMMONIA	006	S	02LAM033	11/11/02	11/18/02	11/19/02
PH	006	S	02LPH090	11/11/02	11/15/02	11/15/02
SULFIDE	006	S	02LSD052	11/11/02	11/18/02	11/18/02
B15XJ9						
% SOLIDS	007	S	02L%S125	11/11/02	11/18/02	11/19/02
% SOLIDS	007 REP	S	02L%S125	11/11/02	11/18/02	11/19/02
CHLORIDE BY IC	007	S	02LIC077	11/11/02	11/21/02	11/21/02
FLUORIDE BY IC	007	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRITE BY IC	007	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE BY IC	007	S	02LIC077	11/11/02	11/21/02	11/21/02
TOTAL CYANIDE	007	S	02LC087	11/11/02	11/18/02	11/18/02
TOTAL CYANIDE	007 REP	S	02LC087	11/11/02	11/18/02	11/18/02
TOTAL CYANIDE	007 MS	S	02LC087	11/11/02	11/18/02	11/18/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1966

DATE RECEIVED: 11/14/02 LVL LOT # :0211L126

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
PHOSPHATE BY IC	007	S	02LIC077	11/11/02	11/21/02	11/21/02
CHROMIUM VI	007	S	02LVI036	11/11/02	11/21/02	11/21/02
SULFATE BY IC	007	S	02LIC077	11/11/02	11/21/02	11/21/02
NITRATE NITRITE	007	S	02LN3C84	11/11/02	11/20/02	11/20/02
AMMONIA	007	S	02LAM033	11/11/02	11/18/02	11/19/02
PH	007	S	02LPH090	11/11/02	11/15/02	11/15/02
SULFIDE	007	S	02LSD052	11/11/02	11/18/02	11/18/02

LAB QC:

CHLORIDE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
CHLORIDE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
FLUORIDE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
FLUORIDE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
NITRITE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
NITRITE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
NITRATE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
NITRATE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
TOTAL CYANIDE	LCS L	S	02LC087	N/A	11/18/02	11/18/02
TOTAL CYANIDE	LCS L	S	02LC087	N/A	11/18/02	11/18/02
TOTAL CYANIDE	MB1	S	02LC087	N/A	11/18/02	11/18/02
PHOSPHATE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
PHOSPHATE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
CHROMIUM VI	MB1	S	02LVI036	N/A	11/21/02	11/21/02
CHROMIUM VI	MB1 BS	S	02LVI036	N/A	11/21/02	11/21/02
CHROMIUM VI	MB1 BSD	S	02LVI036	N/A	11/21/02	11/21/02
SULFATE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
SULFATE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
NITRATE NITRITE	MB1	S	02LN3C84	N/A	11/20/02	11/20/02
NITRATE NITRITE	MB1 BS	S	02LN3C84	N/A	11/20/02	11/20/02
AMMONIA	MB1	S	02LAM033	N/A	11/18/02	11/18/02
AMMONIA	MB1 BS	S	02LAM033	N/A	11/18/02	11/18/02
AMMONIA	MB1 BSD	S	02LAM033	N/A	11/18/02	11/18/02
SULFIDE	MB1	S	02LSDA51	N/A	11/15/02	11/15/02
SULFIDE	MB1 BS	S	02LSDA51	N/A	11/15/02	11/15/02
SULFIDE	MB1	S	02LSD052	N/A	11/18/02	11/18/02
SULFIDE	MB1 BS	S	02LSD052	N/A	11/18/02	11/18/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003 H1966
LVL#: 0211L126

W.O.#: 11343-606-001-9999-00
Date Received: 11-14-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 6 soil samples.

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

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that 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, Nitrate, Nitrite, Phosphate, Chromium VI, Sulfate, Nitrate Nitrite, Ammonia, Sulfide and Total Cyanide were within the 75-125% control limits.

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-10-02
Date

njp\i11-126

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 20 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 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15XK0	% Solids	97.3		%	0.01	1.0
		Chloride by IC	2.2		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	11.3		MG/KG	1.28	1.0
		Cyanide, Total	0.36	u	MG/KG	0.36	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	2.7		MG/KG	1.3	1.0
		Nitrate Nitrite	3.3		MG/KG	0.20	1.0
		Ammonia, as N	4.4	u	MG/KG	4.4	1.0
		pH	9.0		SOIL PH	0.01	1.0
		Sulfide	19.9	u	MG/KG	19.9	1.0
-002	B15XK1	% Solids	96.9		%	0.01	1.0
		Chloride by IC	2.3		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	13.9		MG/KG	1.29	1.0
		Cyanide, Total	0.32	u	MG/KG	0.32	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	16.0		MG/KG	1.3	1.0
		Nitrate Nitrite	3.3		MG/KG	0.20	1.0
		Ammonia, as N	4.7	u	MG/KG	4.7	1.0
		pH	8.9		SOIL PH	0.01	1.0
		Sulfide	20.6	u	MG/KG	20.6	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15XK2	% 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	1.73		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	3.3		MG/KG	1.3	1.0
		Nitrate Nitrite	0.51		MG/KG	0.16	1.0
		Ammonia, as N	5.0	u	MG/KG	5.0	1.0
		pH	9.0		SOIL PH	0.01	1.0
		Sulfide	27.9	u	MG/KG	27.9	1.0
-005	B15XJ7	% Solids	96.0		%	0.01	1.0
		Chloride by IC	2.1		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	9.42		MG/KG	1.30	1.0
		Cyanide, Total	0.27	u	MG/KG	0.27	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	5.6		MG/KG	1.3	1.0
		Nitrate Nitrite	2.4		MG/KG	0.17	1.0
		Ammonia, as N	4.6	u	MG/KG	4.6	1.0
		pH	8.4		SOIL PH	0.01	1.0
		Sulfide	23.9	u	MG/KG	23.9	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	B15XJ8	% Solids	96.8		%	0.01	1.0
		Chloride by IC	1.6		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.29	u	MG/KG	1.29	1.0
		Nitrate by IC	13.0		MG/KG	1.29	1.0
		Cyanide, Total	0.32	u	MG/KG	0.32	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	4.6		MG/KG	1.3	1.0
		Nitrate Nitrite	3.5		MG/KG	0.15	1.0
		Ammonia, as N	4.3	u	MG/KG	4.3	1.0
		pH	9.0		SOIL PH	0.01	1.0
		Sulfide	43.8		MG/KG	25.7	1.0
-007	B15XJ9	% Solids	96.8		%	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	12.7		MG/KG	1.29	1.0
		Cyanide, Total	0.27	u	MG/KG	0.27	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	4.0		MG/KG	1.3	1.0
		Nitrate Nitrite	3.5		MG/KG	0.18	1.0
		Ammonia, as N	4.7	u	MG/KG	4.7	1.0
		pH	8.9		SOIL PH	0.01	1.0
		Sulfide	22.1	u	MG/KG	22.1	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LIC077-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	02LC087-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	02LVI036-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	02LN3C84-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	02LAM033-MB1	Ammonia, as N	5.0	u	MG/KG	5.0	1.0
BLANK10	02LSDA51-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0
BLANK10	02LSD052-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15XK0	Chloride by IC	26.2	2.2	26.0	92.1	1.0
		Fluoride by IC	27.0	0.0	26.0	104.0	1.0
		Nitrite by IC	24.8	1.28u	26.0	95.5	1.0
		Nitrate by IC	38.4	11.3	26.0	103.9	1.0
		Phosphate by IC	25.1	1.3 u	26.0	96.6	1.0
		Soluble Chromium VI	4.4	0.41u	4.1	102.9	1.0
		Insoluble Chromium VI	1250	0.41u	1120	111.5	100
		Sulfate by IC	27.7	2.7	26.0	96.2	1.0
		Nitrate Nitrite	8.5	3.3	5.1	101.4	1.0
		Ammonia, as N	150	4.4 u	183	81.7	1.0
		Sulfide	217	6.9	223	94.4	1.0
-007	B15XJ9	Cyanide, Total	2.77	0.27u	2.86	96.8	1.0
BLANK10	02LIC077-MB1	Chloride by IC	22.8	1.2 u	25.0	91.3	1.0
		Fluoride by IC	26.0	1.2 u	25.0	103.9	1.0
		Nitrite by IC	23.8	1.25u	25.0	95.1	1.0
		Nitrate by IC	24.0	1.25u	25.0	95.9	1.0
		Phosphate by IC	24.0	1.2 u	25.0	96.0	1.0
		Sulfate by IC	23.8	1.2 u	25.0	95.4	1.0
BLANK10	02LVI036-MB1	Soluble Chromium VI	4.2	0.40u	4.0	105.0	1.0
		Insoluble Chromium VI	1100	0.40u	1090	100.9	100
BLANK10	02LN3C84-MB1	Nitrate Nitrite	5.3	0.20u	5.0	105.8	1.0
BLANK10	02LAM033-MB1	Ammonia, as N	192	5.0 u	200	96.2	1.0
		Ammonia, as N MSD	214	5.0 u	200	107.0	1.0
BLANK10	02LSDA51-MB1	Sulfide	415	40.0 u	434	95.7	1.0
BLANK10	02LSD052-MB1	Sulfide	408	40.0 u	424	96.2	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	02LAM033-MB1	Ammonia, as N	96.2	107.0	10.6

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15XK0	Chloride by IC	2.2	2.1	4.9	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrite by IC	1.28u	1.28u	NC	1.0
		Nitrate by IC	11.3	11.0	3.1	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Chromium VI	0.41u	0.41u	NC	1.0
		Sulfate by IC	2.7	2.7	1.9	1.0
		Nitrate Nitrite	3.3	3.6	7.2	1.0
		Ammonia, as N	4.4 u	4.7 u	NC	1.0
		pH	9.0	8.8	2.1	1.0
		Sulfide	19.9 u	20.1 u	NC	1.0
-007REP	B15XJ9	% Solids	96.8	97.2	0.45	1.0
		Cyanide, Total	0.27u	0.27u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/09/02

CLIENT: TNUHANFORD F03-003 H1966 LVL LOT #: 0211L126

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	02LC087-LCS1	Cyanide, Total LCS	1.97	2.0	MG/KG	98.4
LCSS2	02LC087-LCS2	Cyanide, Total LCS	10.1	10.0	MG/KG	101.3

(8) VOA BNA P/PCB Free Metals DIG Nick.

16

Lionville Laboratory Use Only
0211L126

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY, INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMC-HANFORD SAF # F03-~~005~~ 003

Est. Final PAH Sampling Date:

Project #:

Project Contact/Phone #:

Lionville Laboratory Project Manager: DT

QC: SPEC Del: 30 TAT: 30 Days

Date Rec'd: 11-14-02 Date Due: 12-14-02

	A	B	C	D	E	F	G
Refrigerator #	1	4	4	4	4	4	4
#/Type Container							
Volume							
Preservatives							
ANALYSES REQUESTED	ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb	ORGANIC: ABC Pest/Herb	INORG: TCL Metal	INORG: CN

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	OPC13		OGCSC			MET ICRC		INORG	IPH				
001	B15 x KO			S	11/14/02	1100	1	1	1		1			1		1	1				
002	1 1					1125	1	1	1		1			1		1	1				
003	1 2					1150	1	1	1		1					1	1				
004	B15 x [illegible]					[illegible]															
005	B15 x 17					1215	1	1	1		1			1		1	1				
006	1 8					1025	1	1	1		1			1		1	1				
007	1 9					1045	1	1	1		1			1		1	1				

Lionville Laboratory Use Only

Special Instructions:

SAF # F03-~~005~~ 003

Run Matrix QC

ODRO - Report KRO + DRO compounds

DATE/REVISIONS:

001-007E-G 1. Rec'd AMBIENT

001-007A-D 2. Rec'd Chilled

MET① 3. Be, Cu, Ni, V, Zn, Hg, As, Ba, Cd, Cr, Pb, Se, Ag

INORG① 4. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

5. INH3N, ICNTO, ISFD

11-18-02 6. SAF #: F03-003 Sample -004 was lost to 0211L168

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. 14.4 °C 3.2

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11/14/02	0745

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

79197817413 6

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-006	Page 1 of 1

Collector: Fahlberg	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: BT-2	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: RECRA, EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; Tie To B15XL9

Special Handling and/or Storage: Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g A	250g B	60mL D	250g C	125g E	500g F	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15XK0 / SOIL / 11/11/02 / 1100	X	X	X	X	X	X	X			
B15XK1 / Soil / 11/11/02 / 1125	X	X	X	X	X	X	X			
B15XK2 / Soil / 11/11/02 / 1150	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Received By/Stored In: R. Fahlberg 1-B 3728	11-11-02 1400
Relinquished By/Removed From: 1-B 3728	Received By/Stored In: R. Fahlberg R. Fahlberg	11-13-02 1000
Relinquished By/Removed From: ERC R. Fahlberg R. Fahlberg	Received By/Stored In: Fed Ex	11-13-02 1000
Relinquished By/Removed From: Fed Ex	Received By/Stored In: [illegible]	11/14/02 0945
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-001	Page 1 of 1

Collector: Fahlberg	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 - Waste Man	Sampling Location: BT-2 0-1.0 ft BTS	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSRC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15X49

Special Handling and/or Storage
Cool 4°C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM1	SOIL	11/11/02	0930	X	X	X	X	X	X	X			
~~B15XJ7~~	~~SOIL~~	~~11/11/02~~	~~1007~~										
~~B15XJ8~~													

11-11-02

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: R. Fields R. Fahlberg; Date/Time: 11-11-02 1400	Received By/Stored In: RCF 1-B 3728; Date/Time: 11-11-02 1400
Relinquished By/Removed From: ~~R. Fields~~ RCF 1-B 3728; Date/Time: 11-13-02 1000	Received By/Stored In: R. Fields R. Fahlberg; Date/Time: 11-13-02 1000
Relinquished By/Removed From: ERC R. Fields R. Fahlberg; Date/Time: 11-13-02 1000	Received By/Stored In: FedEx; Date/Time:
Relinquished By/Removed From: FedEx; Date/Time: 11/14/02 0945	Received By/Stored In: [illegible]; Date/Time: 11-14-02 0945
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 see 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) {Aluminum, Beryllium, Bismuth, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Thallium, 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; Sulfides - 9030; Total Cyanide - 9010
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Antimony-125, Barium-133, Cesium-134, Radium-226, Radium-228, Sodium-22, Tin-126}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Strontium-89,90 -- Total Sr; Carbon-14; Neptunium-237; Total Uranium; Americium-241; Americium-241/Curium-244 (Add-on) {Curium-242}

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)

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-003	Page 1 of 1

Collector: Fahlberg	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: BT-2	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: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030028	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive TI<TO B15XL9

Special Handling and/or Storage: Cool 4°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15XJ7	SOIL	11/11/02	1007	X	X	X	X	X	X	X	X		
B15XJ8	Soil	11.11.02	1025	X	X	X	X	X	X	X	X		
B15XJ9	Soil	11.11.02	1045	X	X	X	X	X	X	X	X		
~~B15XK0~~	~~Soil~~	~~11.11.02~~	~~1100~~										
~~B15XK1~~	~~Soil~~	~~11.11.02~~	~~1125~~										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From	R. Fahlberg	11.11.02 1400
Received By/Stored In	Ref 1-B 3728	11.11.02 1400
Relinquished By/Removed From	Ref 1-B 3728	11.12.02 1000
Received By/Stored In	R. Fahlberg R. Fahlberg	11.13.02 1000
Relinquished By/Removed From	R. Fahlberg R. Fahlberg	11.13.02 1000
Received By/Stored In	Fed Ex	
Relinquished By/Removed From	Fed Ex	11/14/02 0945
Received By/Stored In		11-14-02 0945
Relinquished By/Removed From		
Received By/Stored In		
Relinquished By/Removed From		
Received By/Stored In		

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: HANFORD

Purchase Order/Project: N/A

DATE: 11-14-02

SAF# / SOW# / Release #: F03-005

Laboratory SDG #: 0211L126

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

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

Cooler # / temp (°C) and Comments:

ERC-02-104 3.2°C — 001-007 A-D Rec'd chilled

ERC-96-052 14.4°C — 001-007 E-G Rec'd Ambient

Laboratory Sample Custodian: [signature]

Laboratory Project Manager: