EBERLINE SERVICES

0058777

January 23, 2003

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

Reference: **P.O. #630**
Eberline Services R2-11-144-7414, SDG H1996

Dear Mr. Trent:

Enclosed is the data report for four solid samples designated under SAF No. F03-005 received at Eberline Services on November 26, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

JAN 2003 RECEIVED

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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 H1996 was composed of four solid (soil) samples designated under SAF No. F03-005 with a Project Designations of: 200 Area Source Characterization 200-CS-1 OU – Waste Man. The samples in SDG H1996 (7414) were batched with the sample in SDG H1977 (7396).

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 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Uranium Analyses

Per FH's instructions, the samples in SDG H1996 (7414) were not analyzed for isotopic uranium (see e-mail attached).

2.6 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.7 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.8 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.9 Transplutonic Analyses (Am-241, Cm-242, and Cm-243/244)

No problems were encountered during the course of the analyses.

2.10 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

1/23/03

Date

Stephen_J_Trent@RL.gov
01/06/2003 01:08 PM

To: mmannion@eberlineservices.com
cc:
Subject: SDGs H1969, H1977, H1982, H1984, and H1996 total U

Melissa,

✓ 7391 ✓ 7396 ✓ 7399 ✓ ~~7402~~ 7401 ✓ 7414

We will not need to run isotopic U on SDGs SDGs H1969, H1977, H1982, H1984, and H1996.

Thanks,

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

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1996

SDG	7414
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG_H1996

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

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

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	9
Lab Control Samples	12
Duplicates	14
Data Sheets	16
Method Summaries	24
Report Guides	38
End of Section	52

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	01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

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 01/23/03

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 H1996

SDG 7414
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1996

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15Y84	SD-1	SOLID		R211144-01	F03-005	F03-005-007	11/21/02 08:36
B15Y85	SD-2	SOLID		R211144-02	F03-005	F03-005-008	11/20/02 13:25
B15YR0	SP-4	SOLID		R211144-04	F03-005	F03-005-016	11/20/02 09:11
B160N2	SD-3	SOLID		R211144-03	F03-005	F03-005-018	11/21/02 11:20
Method Blank		SOLID		R211088-03	F03-005		
Method Blank		SOLID		R211088-06	F03-005		
Lab Control Sample		SOLID		R211088-02	F03-005		
Lab Control Sample		SOLID		R211088-05	F03-005		
Duplicate (R211144-02)	SD-2	SOLID		R211144-05	F03-005		11/20/02 13:25

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

SDG 7414
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1996

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
7396		Method Blank	SOLID						R211088-03	7396-003
		Method Blank	SOLID						R211088-06	7396-006
		Lab Control Sample	SOLID						R211088-02	7396-002
		Lab Control Sample	SOLID						R211088-05	7396-005
7414	F03-005-007	B15Y84	SOLID	96.0	1058 g		11/26/02	5	R211144-01	7414-001
	F03-005-008	B15Y85	SOLID	92.6	1000 g		11/26/02	6	R211144-02	7414-002
	F03-005-016	B15YR0	SOLID	93.7	977.7 g		11/26/02	6	R211144-04	7414-004
	F03-005-018	B160N2	SOLID	97.3	1189 g		11/26/02	5	R211144-03	7414-003
		Duplicate (R211144-02)	SOLID	92.6	1000 g		11/26/02	6	R211144-05	7414-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

SDG 7414
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1996

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
NP	SOLID	Neptunium in Soil	7052-079	5.0	4			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-079	5.0	4			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-079	5.0	4			1	1	1/1		
TP	SOLID	Americium 241/Curium in Solids	7052-079	5.0	4			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-079	10.0	4			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-079	20.0	4			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-079	15.0	4			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-079	15.0	4			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-079	9.0	4			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7052-079	10.0	4			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 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

SDG 7414
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1996

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15Y84			R211144-01	7414-001	93A/93		01/16/03	01/23/03	MCM	Gross Alpha in Soil
SD-1		SOLID	11/21/02	7414-001	93B/93		01/16/03	01/23/03	MCM	Gross Beta in Soil
F03-005-007	F03-005		11/26/02	7414-001	C		12/24/02	01/23/03	MCM	Carbon 14 in Soil
				7414-001	GAM		01/20/03	01/23/03	MCM	Gamma Scan
				7414-001	NP		01/15/03	01/23/03	MCM	Neptunium in Soil
				7414-001	PU		01/15/03	01/23/03	MCM	Plutonium, Isotopic in Solids
				7414-001	SR		01/06/03	01/23/03	MCM	Total Strontium in Soil
				7414-001	TH		01/09/03	01/23/03	MCM	Thorium, Isotopic in Soil
				7414-001	TP		01/17/03	01/23/03	MCM	Americium 241/Curium in Solids
				7414-001	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15Y85			R211144-02	7414-002	93A/93		01/09/03	01/23/03	MCM	Gross Alpha in Soil
SD-2		SOLID	11/20/02	7414-002	93B/93		01/09/03	01/23/03	MCM	Gross Beta in Soil
F03-005-008	F03-005		11/26/02	7414-002	C		12/24/02	01/23/03	MCM	Carbon 14 in Soil
				7414-002	GAM		01/20/03	01/23/03	MCM	Gamma Scan
				7414-002	NP		01/15/03	01/23/03	MCM	Neptunium in Soil
				7414-002	PU		01/15/03	01/23/03	MCM	Plutonium, Isotopic in Solids
				7414-002	SR		01/06/03	01/23/03	MCM	Total Strontium in Soil
				7414-002	TH		01/09/03	01/23/03	MCM	Thorium, Isotopic in Soil
				7414-002	TP		01/17/03	01/23/03	MCM	Americium 241/Curium in Solids
				7414-002	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15YR0			R211144-04	7414-004	93A/93		01/14/03	01/23/03	MCM	Gross Alpha in Soil
SP-4		SOLID	11/20/02	7414-004	93B/93		01/09/03	01/23/03	MCM	Gross Beta in Soil
F03-005-016	F03-005		11/26/02	7414-004	C		12/24/02	01/23/03	MCM	Carbon 14 in Soil
				7414-004	GAM		01/20/03	01/23/03	MCM	Gamma Scan
				7414-004	NP		01/15/03	01/23/03	MCM	Neptunium in Soil
				7414-004	PU		01/15/03	01/23/03	MCM	Plutonium, Isotopic in Solids
				7414-004	SR		01/06/03	01/23/03	MCM	Total Strontium in Soil
				7414-004	TH		01/09/03	01/23/03	MCM	Thorium, Isotopic in Soil
				7414-004	TP		01/17/03	01/23/03	MCM	Americium 241/Curium in Solids
				7414-004	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

SDG 7414
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1996

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B160N2			R211144-03	7414-003	93A/93		01/14/03	01/23/03	MCM	Gross Alpha in Soil
SD-3		SOLID	11/21/02	7414-003	93B/93		01/09/03	01/23/03	MCM	Gross Beta in Soil
F03-005-018	F03-005		11/26/02	7414-003	C		12/24/02	01/23/03	MCM	Carbon 14 in Soil
				7414-003	GAM		01/20/03	01/23/03	MCM	Gamma Scan
				7414-003	NP		01/16/03	01/23/03	MCM	Neptunium in Soil
				7414-003	PU		01/15/03	01/23/03	MCM	Plutonium, Isotopic in Solids
				7414-003	SR		01/06/03	01/23/03	MCM	Total Strontium in Soil
				7414-003	TH		01/16/03	01/23/03	MCM	Thorium, Isotopic in Soil
				7414-003	TP		01/17/03	01/23/03	MCM	Americium 241/Curium in Solids
				7414-003	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
Method Blank			R211088-03	7396-003	93A/93		01/06/03	01/20/03	MCM	Gross Alpha in Soil
		SOLID		7396-003	93B/93		01/06/03	01/20/03	MCM	Gross Beta in Soil
	F03-005			7396-003	C		12/23/02	01/20/03	MCM	Carbon 14 in Soil
				7396-003	GAM		01/06/03	01/20/03	MCM	Gamma Scan
				7396-003	NP		01/15/03	01/20/03	MCM	Neptunium in Soil
				7396-003	PU		01/15/03	01/20/03	MCM	Plutonium, Isotopic in Solids
				7396-003	SR		01/06/03	01/20/03	MCM	Total Strontium in Soil
				7396-003	TH		01/07/03	01/20/03	MCM	Thorium, Isotopic in Soil
				7396-003	TP		01/17/03	01/20/03	MCM	Americium 241/Curium in Solids
Method Blank			R211088-06	7396-006	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-005									
Lab Control Sample			R211088-02	7396-002	93A/93		01/07/03	01/20/03	MCM	Gross Alpha in Soil
		SOLID		7396-002	93B/93		01/07/03	01/20/03	MCM	Gross Beta in Soil
	F03-005			7396-002	C		12/24/02	01/20/03	MCM	Carbon 14 in Soil
				7396-002	GAM		01/06/03	01/20/03	MCM	Gamma Scan
				7396-002	NP		01/15/03	01/20/03	MCM	Neptunium in Soil
				7396-002	PU		01/17/03	01/20/03	MCM	Plutonium, Isotopic in Solids
				7396-002	SR		01/06/03	01/20/03	MCM	Total Strontium in Soil
				7396-002	TH		01/07/03	01/20/03	MCM	Thorium, Isotopic in Soil
				7396-002	TP		01/17/03	01/20/03	MCM	Americium 241/Curium in Solids
Lab Control Sample			R211088-05	7396-005	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-005									

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

SDG 7414
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1996

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R211144-02)			R211144-05	7414-005	93A/93		01/09/03	01/23/03	MCM	Gross Alpha in Soil
SD-2		SOLID	11/20/02	7414-005	93B/93		01/09/03	01/23/03	MCM	Gross Beta in Soil
	F03-005		11/26/02	7414-005	C		12/24/02	01/23/03	MCM	Carbon 14 in Soil
				7414-005	GAM		01/20/03	01/23/03	MCM	Gamma Scan
				7414-005	NP		01/15/03	01/23/03	MCM	Neptunium in Soil
				7414-005	PU		01/15/03	01/23/03	MCM	Plutonium, Isotopic in Solids
				7414-005	SR		01/06/03	01/23/03	MCM	Total Strontium in Soil
				7414-005	TH		01/09/03	01/23/03	MCM	Thorium, Isotopic in Soil
				7414-005	TP		01/17/03	01/23/03	MCM	Americium 241/Curium in Solids
				7414-005	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	F03-005	Gross Alpha in Soil	900.0_ALPHABETA_GPC	4			1	1	1	7
93B/93	F03-005	Gross Beta in Soil	900.0_ALPHABETA_GPC	4			1	1	1	7
C	F03-005	Carbon 14 in Soil	C14_COX_LSC	4			1	1	1	7
GAM	F03-005	Gamma Scan	GAMMA_GS	4			1	1	1	7
NP	F03-005	Neptunium in Soil	NP237_LLE_PLATE_AEA	4			1	1	1	7
PU	F03-005	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	4			1	1	1	7
SR	F03-005	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	4			1	1	1	7
TH	F03-005	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	4			1	1	1	7
TP	F03-005	Americium 241/Curium in Solids	AMCMISO_IE_PLATE_AEA	4			1	1	1	7
U_T	F03-005	Uranium, Total in Soil	UTOT_KPA	4			1	1	1	7
TOTALS				40			10	10	10	70

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211088-03 Method Blank

METHOD BLANK

SDG	7414	Client/Case no	Hanford SDG H1996
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211088-03	Client sample id	Method Blank
Dept sample id	7396-003	Material/Matrix	SOLID
		SAF No	F03-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.368	0.95	2.3	10	U	93A
Gross Beta	12587-47-2	-0.624	3.1	5.5	15	U	93B
Carbon 14	14762-75-5	-2.15	1.8	3.1	50	U	C
Total Strontium	SR-RAD	-0.145	0.16	0.37	1.0	U	SR
Thorium 228	14274-82-9	0.037	0.15	0.28		U	TH
Thorium 230	14269-63-7	0.183	0.22	0.28	1.0	U	TH
Thorium 232	TH-232	0	0.073	0.28	1.0	U	TH
Neptunium 237	13994-20-2	-0.033	0.13	0.31	1.0	U	NP
Plutonium 238	13981-16-3	0.062	0.18	0.34	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.031	0.12	0.29	1.0	U	PU
Curium 242	15510-73-3	0	0.026	0.057		U	TP
Curium 243/244	CM-243/244	0.021	0.043	0.075	1.0	U	TP
Americium 241	14596-10-2	0.047	0.051	0.075	1.0	U	TP
Sodium 22	13966-32-0	U		0.014		U	GAM
Potassium 40	13966-00-2	U		0.16		U	GAM
Cobalt 60	10198-40-0	U		0.013	0.050	U	GAM
Antimony 125	14234-35-6	U		0.028		U	GAM
Tin 126	15832-50-5	U		0.017		U	GAM
Barium 133	13981-41-4	U		0.014		U	GAM
Cesium 134	13967-70-9	U		0.016		U	GAM
Cesium 137	10045-97-3	U		0.010	0.10	U	GAM
Radium 226	13982-63-3	U		0.022		U	GAM
Radium 228	15262-20-1	U		0.047		U	GAM
Europium 152	14683-23-9	U		0.034	0.10	U	GAM
Europium 154	15585-10-1	U		0.043	0.10	U	GAM
Europium 155	14391-16-3	U		0.027	0.10	U	GAM
Thorium 228	14274-82-9	U		0.016		U	GAM
Thorium 232	TH-232	U		0.047		U	GAM
Uranium 235	15117-96-1	U		0.036		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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211088-03 Method Blank

BLANK, cont.

SDG	7414	Client/Case no	Hanford	SDG H1996
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R211088-03	Client sample id	Method Blank	
Dept sample id	7396-003	Material/Matrix		SOLID
		SAF No	F03-005	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 238	U-238	U		1.4		U	GAM
Americium 241	14596-10-2	U		0.037		U	GAM

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43470

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211088-06 Method Blank

METHOD BLANK

SDG	7414	Client/Case no	Hanford SDG H1996
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211088-06	Client sample id	Method Blank
Dept sample id	7396-006	Material/Matrix	SOLID
		SAF No	F03-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Uranium (ug/g)	7440-61-1	0	0.002	0.005	0.10	U	U_T

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43431

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211088-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7414
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1996
Contract No. 630

Lab sample id R211088-02
Dept sample id 7396-002

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F03-005

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	197	14	3.5	10		93A	200	8.0	98	68-132	70-130
Gross Beta	207	11	6.5	15		93B	212	8.5	98	76-124	70-130
Carbon 14	1830	19	4.3	50		C	1910	76	96	84-116	80-120
Total Strontium	22.4	1.2	0.37	1.0		SR	21.2	0.85	106	81-119	80-120
Thorium 230	47.0	9.6	1.2	1.0		TH	40.8	1.6	115	63-137	80-120
Neptunium 237	17.6	2.0	0.36	1.0		NP	19.9	0.80	88	82-118	80-120
Plutonium 238	22.8	2.3	0.21	1.0		PU	24.4	0.98	93	83-117	80-120
Plutonium 239/240	25.9	2.6	0.21	1.0		PU	26.4	1.1	98	82-118	80-120
Curium 243/244	19.2	0.87	0.11	1.0		TP	18.8	0.75	102	88-112	80-120
Americium 241	18.5	0.85	0.10	1.0		TP	19.1	0.76	97	88-112	80-120
Cobalt 60	1.06	0.075	0.030	0.050		GAM	0.994	0.040	107	73-127	80-120
Cesium 137	1.42	0.074	0.045	0.10		GAM	1.30	0.052	109	73-127	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43469

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211088-05

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7414
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1996
Contract No. 630

Lab sample id R211088-05
Dept sample id 7396-005

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F03-005

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Uranium (ug/g)	13.6	1.5	0.045	0.10		U_T	13.2	0.53	103	77-123	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43430

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-05 B15Y85

DUPLICATE

SDG	7414			Client/Case no	Hanford SDG H1996
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211144-05	Lab sample id	R211144-02	Client sample id	B15Y85
Dept sample id	7414-005	Dept sample id	7414-002	Location/Matrix	SD-2 SOLID
		Received	11/26/02	Collected/Weight	11/20/02 13:25 1000 g
% solids	92.6	% solids	92.6	Custody/SAF No	F03-005-008 F03-005

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	2.37	2.4	3.0	10	U	93A	1.53	2.2	3.1	U	-	
Gross Beta	15.4	4.6	6.6	15		93B	15.7	4.1	5.4		2	67
Carbon 14	0.764	1.7	2.8	50	U	C	1.05	1.8	3.1	U	-	
Total Strontium	0.091	0.17	0.32	1.0	U	SR	0.210	0.15	0.26	U	-	
Thorium 228	0	0.13	0.51		U	TH	0.324	0.39	0.50	U	-	
Thorium 230	0.667	0.41	0.51	1.0		TH	0.515	0.39	0.49		26	144
Thorium 232	0.400	0.27	0.51	1.0	U	TH	0.258	0.26	0.49	U	-	
Total Uranium (ug/g)	0.040	0.014	0.005	0.10		U_T	0.036	0.012	0.005		11	75
Neptunium 237	0.138	0.11	0.083	1.0		NP	0.027	0.053	0.080	U	134	222
Plutonium 238	0.031	0.062	0.24	1.0	U	PU	0.080	0.11	0.20	U	-	
Plutonium 239/240	3.20	0.67	0.24	1.0		PU	3.24	0.63	0.20		1	44
Curium 242	0.005	0.022	0.041		U	TP	0.015	0.020	0.038	U	-	
Curium 243/244	0.004	0.025	0.047	1.0	U	TP	0	0.024	0.049	U	-	
Americium 241	0.454	0.093	0.046	1.0		TP	0.412	0.087	0.043		10	45
Sodium 22	U		0.034		U	GAM	U		0.040	U	-	
Potassium 40	12.2	0.89	0.29			GAM	12.0	0.76	0.37		2	35
Cobalt 60	U		0.036	0.050	U	GAM	U		0.041	U	-	
Antimony 125	U		0.13		U	GAM	U		0.17	U	-	
Tin 126	U		0.090		U	GAM	U		0.12	U	-	
Barium 133	U		0.050		U	GAM	U		0.060	U	-	
Cesium 134	U		0.043		U	GAM	U		0.044	U	-	
Cesium 137	9.05	0.13	0.046	0.10		GAM	9.13	0.15	0.059		1	32
Radium 226	0.457	0.078	0.080			GAM	0.526	0.099	0.10		14	50
Radium 228	0.696	0.15	0.15			GAM	0.757	0.17	0.16		8	57
Europium 152	U		0.12	0.10	U	GAM	U		0.16	U	-	
Europium 154	U		0.097	0.10	U	GAM	U		0.12	U	-	
Europium 155	U		0.087	0.10	U	GAM	U		0.16	U	-	
Thorium 228	0.662	0.047	0.055			GAM	0.608	0.060	0.077		9	37

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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-05 B15Y85

DUPLICATE, cont.

SDG	7414			Client/Case no	Hanford SDG H1996
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R211144-05	Lab sample id	R211144-02	Client sample id	B15Y85
Dept sample id	7414-005	Dept sample id	7414-002	Location/Matrix	SD-2 SOLID
		Received	11/26/02	Collected/Weight	11/20/02 13:25 1000 g
% solids	92.6	% solids	92.6	Custody/SAF No	F03-005-008 F03-005

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
Thorium 232	0.696	0.15	0.15			GAM	0.757	0.17	0.16		8	57	
Uranium 235	U		0.15		U	GAM	U		0.22	U	-		
Uranium 238	U		4.0		U	GAM	U		4.6	U	-		
Americium 241	U		0.48		U	GAM	U		0.37	U	-		

200 Area Source Chara. 200-CS-1 OU

QC-DUP#2 43451

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-01 B15Y84

DATA SHEET

SDG	7414	Client/Case no	Hanford SDG H1996
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211144-01	Client sample id	B15Y84
Dept sample id	7414-001	Location/Matrix	SD-1 SOLID
Received	11/26/02	Collected/Weight	11/21/02 08:36 1058 g
% solids	96.0	Custody/SAF No	F03-005-007 F03-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	4.22	2.9	3.8	10		93A
Gross Beta	12587-47-2	9.49	4.6	7.0	15		93B
Carbon 14	14762-75-5	0.760	1.8	2.9	50	U	C
Total Strontium	SR-RAD	0.090	0.16	0.32	1.0	U	SR
Thorium 228	14274-82-9	0.078	0.31	0.59		U	TH
Thorium 230	14269-63-7	0.462	0.31	0.59	1.0	U	TH
Thorium 232	TH-232	0.077	0.15	0.59	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.596	0.066	0.005	0.10		U_T
Neptunium 237	13994-20-2	0	0.049	0.19	1.0	U	NP
Plutonium 238	13981-16-3	0	0.050	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.223	0.15	0.19	1.0		PU
Curium 242	15510-73-3	0.026	0.031	0.040		U	TP
Curium 243/244	CM-243/244	0.016	0.033	0.055	1.0	U	TP
Americium 241	14596-10-2	0.024	0.041	0.045	1.0	U	TP
Sodium 22	13966-32-0	U		0.057		U	GAM
Potassium 40	13966-00-2	12.2	0.92	0.62			GAM
Cobalt 60	10198-40-0	U		0.051	0.050	U	GAM
Antimony 125	14234-35-6	U		0.092		U	GAM
Tin 126	15832-50-5	U		0.086		U	GAM
Barium 133	13981-41-4	U		0.041		U	GAM
Cesium 134	13967-70-9	U		0.055		U	GAM
Cesium 137	10045-97-3	0.155	0.046	0.054	0.10		GAM
Radium 226	13982-63-3	0.488	0.080	0.090			GAM
Radium 228	15262-20-1	0.735	0.19	0.21			GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.664	0.051	0.051			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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-01 B15Y84

DATA SHEET, cont

SDG	7414	Client/Case no	Hanford	SDG H1996	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211144-01	Client sample id	B15Y84		
Dept sample id	7414-001	Location/Matrix	SD-1	SOLID	
Received	11/26/02	Collected/Weight	11/21/02 08:36	1058 g	
% solids	96.0	Custody/SAF No	F03-005-007	F03-005	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 232	TH-232	0.735	0.19	0.21			GAM
Uranium 235	15117-96-1	U		0.17		U	GAM
Uranium 238	U-238	U		5.1		U	GAM
Americium 241	14596-10-2	U		0.15		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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-02 B15Y85

DATA SHEET

SDG	7414	Client/Case no	Hanford SDG H1996
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211144-02	Client sample id	B15Y85
Dept sample id	7414-002	Location/Matrix	SD-2 SOLID
Received	11/26/02	Collected/Weight	11/20/02 13:25 1000 g
% solids	92.6	Custody/SAF No	F03-005-008 F03-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.53	2.2	3.1	10	U	93A
Gross Beta	12587-47-2	15.7	4.1	5.4	15		93B
Carbon 14	14762-75-5	1.05	1.8	3.1	50	U	C
Total Strontium	SR-RAD	0.210	0.15	0.26	1.0	U	SR
Thorium 228	14274-82-9	0.324	0.39	0.50		U	TH
Thorium 230	14269-63-7	0.515	0.39	0.49	1.0		TH
Thorium 232	TH-232	0.258	0.26	0.49	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.036	0.012	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.027	0.053	0.080	1.0	U	NP
Plutonium 238	13981-16-3	0.080	0.11	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	3.24	0.63	0.20	1.0		PU
Curium 242	15510-73-3	0.015	0.020	0.038		U	TP
Curium 243/244	CM-243/244	0	0.024	0.049	1.0	U	TP
Americium 241	14596-10-2	0.412	0.087	0.043	1.0		TP
Sodium 22	13966-32-0	U		0.040		U	GAM
Potassium 40	13966-00-2	12.0	0.76	0.37			GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Antimony 125	14234-35-6	U		0.17		U	GAM
Tin 126	15832-50-5	U		0.12		U	GAM
Barium 133	13981-41-4	U		0.060		U	GAM
Cesium 134	13967-70-9	U		0.044		U	GAM
Cesium 137	10045-97-3	9.13	0.15	0.059	0.10		GAM
Radium 226	13982-63-3	0.526	0.099	0.10			GAM
Radium 228	15262-20-1	0.757	0.17	0.16			GAM
Europium 152	14683-23-9	U		0.16	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.608	0.060	0.077			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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-02 B15Y85

DATA SHEET, cont

SDG	7414	Client/Case no	Hanford	SDG_H1996	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211144-02	Client sample id	B15Y85		
Dept sample id	7414-002	Location/Matrix	SD-2	SOLID	
Received	11/26/02	Collected/Weight	11/20/02 13:25	1000 g	
% solids	92.6	Custody/SAF No	F03-005-008	F03-005	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 232	TH-232	0.757	0.17	0.16			GAM
Uranium 235	15117-96-1	U		0.22		U	GAM
Uranium 238	U-238	U		4.6		U	GAM
Americium 241	14596-10-2	U		0.37		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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-04 B15YR0

DATA SHEET

SDG	7414	Client/Case no	Hanford	SDG H1996	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211144-04	Client sample id	B15YR0		
Dept sample id	7414-004	Location/Matrix	SP-4	SOLID	
Received	11/26/02	Collected/Weight	11/20/02 09:11	977.7 g	
% solids	93.7	Custody/SAF No	F03-005-016	F03-005	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.64	2.7	2.9	10		93A
Gross Beta	12587-47-2	14.5	4.2	5.8	15		93B
Carbon 14	14762-75-5	0.908	1.7	2.8	50	U	C
Total Strontium	SR-RAD	0.366	0.17	0.26	1.0		SR
Thorium 228	14274-82-9	0.250	0.30	0.38		U	TH
Thorium 230	14269-63-7	0.298	0.30	0.38	1.0	U	TH
Thorium 232	TH-232	0.398	0.30	0.38	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.513	0.058	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.075	0.075	0.11	1.0	U	NP
Plutonium 238	13981-16-3	0	0.058	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0.086	0.12	0.22	1.0	U	PU
Curium 242	15510-73-3	0.004	0.017	0.033		U	TP
Curium 243/244	CM-243/244	-0.007	0.020	0.042	1.0	U	TP
Americium 241	14596-10-2	0.010	0.034	0.042	1.0	U	TP
Sodium 22	13966-32-0	U		0.035		U	GAM
Potassium 40	13966-00-2	12.3	0.55	0.20			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Antimony 125	14234-35-6	U		0.063		U	GAM
Tin 126	15832-50-5	U		0.062		U	GAM
Barium 133	13981-41-4	U		0.039		U	GAM
Cesium 134	13967-70-9	U		0.065		U	GAM
Cesium 137	10045-97-3	U		0.027	0.10	U	GAM
Radium 226	13982-63-3	0.537	0.054	0.049			GAM
Radium 228	15262-20-1	0.878	0.14	0.12			GAM
Europium 152	14683-23-9	U		0.070	0.10	U	GAM
Europium 154	15585-10-1	U		0.11	0.10	U	GAM
Europium 155	14391-16-3	U		0.077	0.10	U	GAM
Thorium 228	14274-82-9	0.702	0.038	0.035			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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-04 B15YR0

DATA SHEET, cont

SDG	7414	Client/Case no	Hanford	SDG H1996	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211144-04	Client sample id	B15YR0		
Dept sample id	7414-004	Location/Matrix	SP-4	SOLID	
Received	11/26/02	Collected/Weight	11/20/02 09:11	977.7 g	
% solids	93.7	Custody/SAF No	F03-005-016	F03-005	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 232	TH-232	0.878	0.14	0.12			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		3.5		U	GAM
Americium 241	14596-10-2	U		0.095		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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-03 B160N2

DATA SHEET

SDG	7414	Client/Case no	Hanford SDG_H1996
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211144-03	Client sample id	B160N2
Dept sample id	7414-003	Location/Matrix	SD-3 SOLID
Received	11/26/02	Collected/Weight	11/21/02 11:20 1189 g
% solids	97.3	Custody/SAF No	F03-005-018 F03-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	4.68	2.8	3.6	10		93A
Gross Beta	12587-47-2	11.8	4.6	6.8	15		93B
Carbon 14	14762-75-5	1.48	1.6	2.7	50	U	C
Total Strontium	SR-RAD	0.462	0.17	0.24	1.0		SR
Thorium 228	14274-82-9	0.426	0.37	0.47		U	TH
Thorium 230	14269-63-7	0.541	0.37	0.46	1.0		TH
Thorium 232	TH-232	0.541	0.37	0.46	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.557	0.061	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.039	0.078	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0	0.052	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0.078	0.10	0.20	1.0	U	PU
Curium 242	15510-73-3	0.013	0.026	0.098		U	TP
Curium 243/244	CM-243/244	0.020	0.060	0.11	1.0	U	TP
Americium 241	14596-10-2	0.020	0.060	0.096	1.0	U	TP
Sodium 22	13966-32-0	U		0.046		U	GAM
Potassium 40	13966-00-2	13.1	0.75	0.32			GAM
Cobalt 60	10198-40-0	U		0.043	0.050	U	GAM
Antimony 125	14234-35-6	U		0.077		U	GAM
Tin 126	15832-50-5	U		0.091		U	GAM
Barium 133	13981-41-4	U		0.029		U	GAM
Cesium 134	13967-70-9	U		0.066		U	GAM
Cesium 137	10045-97-3	0.046	0.033	0.040	0.10		GAM
Radium 226	13982-63-3	0.547	0.071	0.070			GAM
Radium 228	15262-20-1	0.777	0.18	0.16			GAM
Europium 152	14683-23-9	U		0.088	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Thorium 228	14274-82-9	0.659	0.045	0.043			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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

R211144-03 B160N2

DATA SHEET, cont

SDG	7414	Client/Case no	Hanford SDG_H1996
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211144-03	Client sample id	B160N2
Dept sample id	7414-003	Location/Matrix	SD-3 SOLID
Received	11/26/02	Collected/Weight	11/21/02 11:20 1189 g
% solids	97.3	Custody/SAF No	F03-005-018 F03-005

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Thorium 232	TH-232	0.777	0.18	0.16			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		4.3		U	GAM
Americium 241	14596-10-2	U		0.25		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	01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test NP Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237
Preparation batch 7052-079					
B15Y84	R211144-01			7414-001	U
B15Y85	R211144-02			7414-002	U
B15YR0	R211144-04			7414-004	U
B160N2	R211144-03			7414-003	U
BLK (QC ID=43470)	R211088-03			7396-003	U
LCS (QC ID=43469)	R211088-02			7396-002	ok
Duplicate (R211144-02)	R211144-05			7414-005	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-079	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 079											
B15Y84	R211144-01			0.19	0.500			80		137			55	01/14/03	01/15	SS-044
B15Y85	R211144-02			0.080	0.500			71		135			56	01/14/03	01/15	SS-045
B15YR0	R211144-04			0.11	0.500			59		138			56	01/14/03	01/15	SS-051
B160N2	R211144-03			0.12	0.500			69		106			56	01/14/03	01/16	SS-055
BLK (QC ID=43470)	R211088-03			0.31	0.500			67		138				01/14/03	01/15	SS-024
LCS (QC ID=43469)	R211088-02			0.36	0.500			64		137				01/14/03	01/15	SS-022
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.083	0.500			74		138			56	01/14/03	01/15	SS-052
Nominal values and limits from method				1.0	0.500			20-105		100			180			

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 FOR 7 SAMPLES
MDA 0.18 ± 0.23
YIELD 69 ± 14

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test PU Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240
Preparation batch 7052-079							
B15Y84	R211144-01			7414-001	U		0.223
B15Y85	R211144-02			7414-002	U		3.24
B15YR0	R211144-04			7414-004	U		U
B160N2	R211144-03			7414-003	U		U
BLK (QC ID=43470)	R211088-03			7396-003	U		U
LCS (QC ID=43469)	R211088-02			7396-002	ok		ok
Duplicate (R211144-02)	R211144-05			7414-005	-	U	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0
200 Area Source Chara. 200-CS-1 OU							

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-079	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 079											
B15Y84	R211144-01			0.19	0.500			95		120			55	01/14/03	01/15	SS-052
B15Y85	R211144-02			0.20	0.500			88		121			56	01/14/03	01/15	SS-055
B15YR0	R211144-04			0.22	0.500			88		121			56	01/14/03	01/15	SS-057
B160N2	R211144-03			0.20	0.500			87		121			55	01/14/03	01/15	SS-056
BLK (QC ID=43470)	R211088-03			0.34	0.500			86		120				01/14/03	01/15	SS-021
LCS (QC ID=43469)	R211088-02			0.21	0.500			89		124				01/14/03	01/17	SS-051
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.24	0.500			81		121			56	01/14/03	01/15	SS-058
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 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test PU Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

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	0.23	±	0.10
FOR 7 SAMPLES	YIELD	88	±	8

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test TH Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-079					
B15Y84	R211144-01			7414-001	U
B15Y85	R211144-02			7414-002	0.515
B15YR0	R211144-04			7414-004	U
B160N2	R211144-03			7414-003	0.541
BLK (QC ID=43470)	R211088-03			7396-003	U
LCS (QC ID=43469)	R211088-02			7396-002	ok
Duplicate (R211144-02)	R211144-05			7414-005	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-079	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 079												
B15Y84	R211144-01			0.59	0.250			49		153			49	01/06/03	01/09	SS-061
B15Y85	R211144-02			0.49	0.250			60		154			50	01/06/03	01/09	SS-062
B15YR0	R211144-04			0.38	0.250			77		154			50	01/06/03	01/09	SS-065
B160N2	R211144-03			0.46	0.250			96		106			56	01/06/03	01/16	SS-058
BLK (QC ID=43470)	R211088-03			0.28	0.250			103		156				01/06/03	01/07	SS-065
LCS (QC ID=43469)	R211088-02			1.2	0.250			26		156				01/06/03	01/07	SS-064
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.51	0.250			59		154			50	01/06/03	01/09	SS-066
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 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test TH Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

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	0.56	±	0.60
FOR 7 SAMPLES	YIELD	67	±	54

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test TP Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241/CURIUM IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Curium 243/244		Americium 241
Preparation batch 7052-079							
B15Y84	R211144-01			7414-001	U		U
B15Y85	R211144-02			7414-002	U		0.412
B15YR0	R211144-04			7414-004	U		U
B16ON2	R211144-03			7414-003	U		U
BLK (QC ID=43470)	R211088-03			7396-003	U		U
LCS (QC ID=43469)	R211088-02			7396-002	ok		ok
Duplicate (R211144-02)	R211144-05			7414-005	-	U	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0		1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-079 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 079																
B15Y84	R211144-01			0.055	0.500			69		974			57	01/17/03	01/17	SS-056
B15Y85	R211144-02			0.049	0.500			80		974			58	01/17/03	01/17	SS-057
B15YR0	R211144-04			0.042	0.500			90		974			58	01/17/03	01/17	SS-065
B16ON2	R211144-03			0.11	0.500			32		974			57	01/17/03	01/17	SS-064
BLK (QC ID=43470)	R211088-03			0.075	0.500			70		987				01/17/03	01/17	SS-024
LCS (QC ID=43469)	R211088-02			0.11	0.500			61		987				01/17/03	01/17	SS-022
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.047	0.500			75		974			58	01/17/03	01/17	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 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test TP Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

AMERICIUM 241/CURIUM IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

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	0.070	±	0.059
FOR 7 SAMPLES	YIELD	68	±	37

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test SR Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-079					
B15Y84	R211144-01			7414-001	U
B15Y85	R211144-02			7414-002	U
B15YR0	R211144-04			7414-004	0.366
B160N2	R211144-03			7414-003	0.462
BLK (QC ID=43470)	R211088-03			7396-003	U
LCS (QC ID=43469)	R211088-02			7396-002	ok
Duplicate (R211144-02)	R211144-05			7414-005	- 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 7052-079	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 079															
B15Y84	R211144-01			0.32	1.00			86		100			46	01/06/03	01/06	GRB-218
B15Y85	R211144-02			0.26	1.00			92		100			47	01/06/03	01/06	GRB-224
B15YR0	R211144-04			0.26	1.00			89		100			47	01/06/03	01/06	GRB-208
B160N2	R211144-03			0.24	1.00			88		100			46	01/06/03	01/06	GRB-207
BLK (QC ID=43470)	R211088-03			0.37	1.00			76		100				01/06/03	01/06	GRB-202
LCS (QC ID=43469)	R211088-02			0.37	1.00			84		60				01/06/03	01/06	GRB-202
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.32	1.00			94		100			47	01/06/03	01/06	GRB-229
Nominal values and limits from method				1.0	1.00			30-105		100			180			

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 FOR 7 SAMPLES
MDA 0.31 ± 0.11
YIELD 87 ± 12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test 93A Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 7052-079						
B15Y84	R211144-01	93		7414-001	4.22	
B15Y85	R211144-02	93		7414-002	U	
B15YR0	R211144-04	93		7414-004	5.64	
B160N2	R211144-03	93		7414-003	4.68	
BLK (QC ID=43470)	R211088-03	93		7396-003	U	
LCS (QC ID=43469)	R211088-02	93		7396-002	ok	
Duplicate (R211144-02)	R211144-05	93		7414-005	-	U
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 7052-079	2σ prep error 20.0 % Reference Lab Notebook 7052 pg. 079															
B15Y84	R211144-01	93		3.8	0.100			27		100			56	01/06/03	01/16	GRB-115
B15Y85	R211144-02	93		3.1	0.100			25		100			50	01/06/03	01/09	GRB-109
B15YR0	R211144-04	93		2.9	0.100			23		100			55	01/06/03	01/14	GRB-116
B160N2	R211144-03	93		3.6	0.100			24		100			54	01/06/03	01/14	GRB-115
BLK (QC ID=43470)	R211088-03	93		2.3	0.100			20		107				01/06/03	01/06	GRB-111
LCS (QC ID=43469)	R211088-02	93		3.5	0.100			21		100				01/06/03	01/07	GRB-115
Duplicate (R211144-02) (QC ID=43451)	R211144-05	93		3.0	0.100			24		100			50	01/06/03	01/09	GRB-112
Nominal values and limits from method				10	0.100			5-250		100			180			

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 FOR 7 SAMPLES				
	MDA	3.2	±	1.0
	RESIDUE	23	±	5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test 93B Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-079					
B15Y84	R211144-01	93		7414-001	9.49
B15Y85	R211144-02	93		7414-002	15.7
B15YR0	R211144-04	93		7414-004	14.5
B160N2	R211144-03	93		7414-003	11.8
BLK (QC ID=43470)	R211088-03	93		7396-003	U
LCS (QC ID=43469)	R211088-02	93		7396-002	ok
Duplicate (R211144-02)	R211144-05	93		7414-005	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	15

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 7052-079 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 079																
B15Y84	R211144-01	93		7.0	0.100			27		100			56	01/06/03	01/16	GRB-115
B15Y85	R211144-02	93		5.4	0.100			25		100			50	01/06/03	01/09	GRB-109
B15YR0	R211144-04	93		5.8	0.100			23		100			50	01/06/03	01/09	GRB-111
B160N2	R211144-03	93		6.8	0.100			24		100			49	01/06/03	01/09	GRB-110
BLK (QC ID=43470)	R211088-03	93		5.5	0.100			20		107				01/06/03	01/06	GRB-111
LCS (QC ID=43469)	R211088-02	93		6.5	0.100			21		100				01/06/03	01/07	GRB-115
Duplicate (R211144-02) (QC ID=43451)	R211144-05	93		6.6	0.100			24		100			50	01/06/03	01/09	GRB-112
Nominal values and limits from method				15	0.100			5-250		100			180			

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 FOR 7 SAMPLES				
	MDA	6.2	±	1.3
	RESIDUE	23	±	5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test GAM Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137
Preparation batch 7052-079							
B15Y84	R211144-01			7414-001	U		0.155
B15Y85	R211144-02			7414-002	U		9.13
B15YR0	R211144-04			7414-004	U		U
B160N2	R211144-03			7414-003	U		0.046
BLK (QC ID=43470)	R211088-03			7396-003	U		U
LCS (QC ID=43469)	R211088-02			7396-002	ok		ok
Duplicate (R211144-02)	R211144-05			7414-005	-	U	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	0.050		0.10

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 7052-079 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 079																
B15Y84	R211144-01			0.38	805					125			60	01/02/03	01/20	02,03,00
B15Y85	R211144-02			0.45	722					125			61	01/02/03	01/20	MB,05,00
B15YR0	R211144-04			0.26	773					122			61	01/02/03	01/20	02,04,00
B160N2	R211144-03			0.31	908					104			60	01/02/03	01/20	MB,05,00
BLK (QC ID=43470)	R211088-03			0.12	719					99				01/02/03	01/06	01,04,00
LCS (QC ID=43469)	R211088-02			0.030	719					101				01/02/03	01/06	MB,05,00
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.34	722					104			61	01/02/03	01/20	MB,07,00
Nominal values and limits from method				0.050	719					100			180			

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

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.27 ± 0.30
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test U T Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-079					
B15Y84	R211144-01			7414-001	0.596
B15Y85	R211144-02			7414-002	0.036
B15YR0	R211144-04			7414-004	0.513
B160N2	R211144-03			7414-003	0.557
BLK (QC ID=43431)	R211088-06			7396-006	U
LCS (QC ID=43430)	R211088-05			7396-005	ok
Duplicate (R211144-02)	R211144-05			7414-005	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 7052-079 2σ prep error 9.0 % Reference Lab Notebook 7052 pg. 079																
B15Y84	R211144-01			0.005	0.100								28	12/19/02	12/19	KPA-001
B15Y85	R211144-02			0.005	0.100								29	12/19/02	12/19	KPA-001
B15YR0	R211144-04			0.005	0.100								29	12/19/02	12/19	KPA-001
B160N2	R211144-03			0.005	0.100								28	12/19/02	12/19	KPA-001
BLK (QC ID=43431)	R211088-06			0.005	0.100									12/19/02	12/19	KPA-001
LCS (QC ID=43430)	R211088-05			0.045	0.100									12/19/02	12/19	KPA-001
Duplicate (R211144-02) (QC ID=43451)	R211144-05			0.005	0.100								29	12/19/02	12/19	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 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test U T Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1996

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

AVERAGES ± 2 SD FOR 7 SAMPLES				
	MDA	0.011	±	0.030
	YIELD		±	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1996

Test C Matrix SOLID
SDG 7414
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1996

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 7052-079						
B15Y84	R211144-01			7414-001	U	
B15Y85	R211144-02			7414-002	U	
B15YR0	R211144-04			7414-004	U	
B160N2	R211144-03			7414-003	U	
BLK (QC ID=43470)	R211088-03			7396-003	U	
LCS (QC ID=43469)	R211088-02			7396-002	ok	
Duplicate (R211144-02)	R211144-05			7414-005	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
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 7052-079	2σ prep error 10.0 %				Reference Lab Notebook 7052 pg. 079											
B15Y84	R211144-01			2.9	0.321			100		100			33	12/23/02	12/24	LSC-006
B15Y85	R211144-02			3.1	0.311			100		100			34	12/23/02	12/24	LSC-006
B15YR0	R211144-04			2.8	0.334			100		100			34	12/23/02	12/24	LSC-006
B160N2	R211144-03			2.7	0.344			100		100			33	12/23/02	12/24	LSC-006
BLK (QC ID=43470)	R211088-03			3.1	0.334			100		100				12/23/02	12/23	LSC-006
LCS (QC ID=43469)	R211088-02			4.3	0.334			100		44				12/23/02	12/24	LSC-006
Duplicate (R211144-02) (QC ID=43451)	R211144-05			2.8	0.333			100		100			34	12/23/02	12/24	LSC-006
Nominal values and limits from method				50	0.334					50			180			

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

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 3.1 ± 1.1
YIELD 100 ± 0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

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 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

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 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

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).

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/23/03

DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

SDG 7414
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1996

DATA SHEET

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H1996

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
Form DVD-RG
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1996

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

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 01/23/03

SDG 7414
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1996

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/23/03

SDG 7414
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1996

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 01/23/03

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.

F03-005-007

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

FH-Central Plateau Project

Collector: R. Nielson

Company Contact: Steve Trent — Telephone No.: 373-5869

Project Coordinator: TRENT, SJ

Price Code: 8N — Data Turnaround: 45 Days

Air Quality ☐

Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man

Sampling Location: SD-1 H1996 (7414)

SAF No.: F03-005

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.: A030066

Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive B15YR2 Tie To B15Y86 RE 11.25.02

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~~ aG	~~G/P~~ aG	G/P aG	~~G/P~~ aG	R.N. 11/21/02 aG	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 11-26-02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15Y84 / SOIL / 11-21-02 / 0836	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11/21/02 1515	Ref# 1B/3728	11/21/02 1515
1B 3728	11-25-02 1000	R. Fehlberg R. Fehlberg	11-25-02 1000
R. Fehlberg R. Fehlberg	11-25-02 1600	Fed Ex	
Fed Ex		[illegible]	11/26/02 9:45am

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 [illegible]

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)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F03-005-008 | Page 1 of 1

FH-Central Plateau Project

Collector: Nielson

Company Contact: Steve Trent | Telephone No.: 373-5869

Project Coordinator: TRENT, SJ

Price Code: 8N | Data Turnaround: 45 Days

Air Quality ☐

Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man

Sampling Location: SD-2 H1996 (7414)

SAF No.: F03-005

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.: R030066

Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactiv

Tiered B15Y86 RG

Special Handling and/or Storage: B15YR2 11-25-02

None

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P aG	G/P aG	G/P aG	G/P aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15Y85 / SOIL / 11/20/02 / 1325	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11/20/02 1500	Ref # 1B/3728	11/20/02 1500
1-B 3728	11.25.02 1000	R. Fehlberg / R Fehlberg	11.25.02 1000 / 11.25.02
R. Fehlberg / R Fehlberg	11.25.02 1000	FedEx	
Fed Ex		Fed Ex	11/26/02 9:05 AM

Sign/Print Names

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}

Personnel not available to relinquish samples from the 3728 Ref # 1-B on 11/25/02

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

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

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

F03-005-018

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

FLUOR Hanford Inc.

Collector	R. Nielson
Company Contact	Steve Trent
Telephone No.	373-5869
Project Coordinator	TRENT, SJ
Price Code	8N
Data Turnaround	45 Days
Air Quality	☐
Project Designation	200 Area Source Characterization 200-CS-1 OU - Waste Man
Sampling Location	SD-3 H1996 (7414)
SAF No.	F03-005
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.	A030066
Bill of Lading/Air Bill No.	SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive
Tc To B15YRs

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~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

K/N 11/21/02 RJM 11/21/02

Sample No.	Matrix *	Sample Date	Sample Time										
B160N2	SOIL	11/21/02	1120	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11/21/02 1515	Ref #163728	11/21/02 1515
115 3728	11.25.02 1000	R. Fahlberg R. Fahlberg	11.25.02 1000
ERE 11-25-02 R. Fahlberg R. Fahlberg	11-25-02 1000	Fed Ex	
Fed Ex		[illegible]	11/26/02 9:45 Am

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}

Personnel not available to relinquish samples from the 3728 Ref # 1 E on 11/25/02

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

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

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F03-005-016 | Page 1 of 1

FLUOR Hanford Inc.

Collector: R. Nielson

Company Contact: Steve Trent | Telephone No.: 373-5869

Project Coordinator: TRENT, SJ

Price Code: 8N | Data Turnaround: 45 Days

Air Quality ☐

Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man

Sampling Location: SP-4 H1996 (7414)

SAF No.: F03-005

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.: 170300066

Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

TreTo B15YR2

Special Handling and/or Storage: None

SAMPLE ANALYSIS												
Preservation				Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None
Type of Container				G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	G/P aG	G/P aG	G/P
# of Container(s)				1	1	1	1	1	1	1	1	1
Volume				60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g
				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									
B15YR0	SOIL	11-20-02	0911	X	X	X	X	X	X	X	X	

11-25-02 RJN 11/19/02

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nelson	11/20/02 1500	REF# 18/3728	11/20/02 1500
1-B 3728	11-25-02 1000	R. Fehlberg R. Fehlberg	11-25-02 1000
R. Fehlberg R. Fehlberg	11-25-02 1000	Fed Ex	
Fed Ex Mary Moran	11/26/02 10:00am		

Sign/Print Names

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Fluor Hanford FH Central Plateau Project Date/Time received 11/26/02 9:45 AM

CoC No. F03-005-007

Container I.D. No. ERC 96-040 Requested TAT (Days) _____ P.O. Received Yes [ ] No [ ]

INSPECTION

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

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 11/26/02 Time: 9:45 AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Fluor Hanford Date/Time received 11/26/02 9:45 am

CoC No. F03-005-018

Container I.D. No. ERC 96-040 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: 1
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 11/26/02 Time: 9:45 am

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

"50 years of quality nuclear services"

Form SCP-01.2, 05-03-02

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: FH - Central Plateau Project Date/Time received 11/26/02 9:45 AM

CoC No. F03-005-D08

Container I.D. No. ERC 96-042 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: 1
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 11/26/02 Time: 9:45 AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

"50 years of quality nuclear services"

Form SCP-01.2, 05-03-02

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Fluor Hanford Date/Time received 11/26/02 9:45 AM

CoC No. F03-005-016

Container I.D. No. SMC 519 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: 1
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 11/26/02 Time: 9:45 Am

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

"50 years of quality nuclear services"

Form SCP-01.2, 05-03-02

LIONVILLE LABORATORY INC.

2 January 2003

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

JAN 2003
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 #	0211L250
SDG #	H1996
SAF #	F03-005
Date Received	11-26-02
# Samples	4
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 F03-005 H1996

RFW LOT # :0211L250

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B15Y84	001	S	02LVX667	11/21/02	11/26/02	N/A	12/03/02
B15Y85	002	S	02LVX667	11/20/02	11/26/02	N/A	12/03/02
B15YR0	003	S	02LVX667	11/20/02	11/26/02	N/A	12/03/02
B160N2	004	S	02LVX667	11/21/02	11/26/02	N/A	12/03/02
B160N2	004 MS	S	02LVX667	11/21/02	11/26/02	N/A	12/03/02
B160N2	004 MSD	S	02LVX667	11/21/02	11/26/02	N/A	12/03/02
LAB QC:							
VBLKAW	MB1	S	02LVX667	N/A	N/A	N/A	12/03/02
VBLKAW	MB1 BS	S	02LVX667	N/A	N/A	N/A	12/03/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-005
LVL #: 0211L250
SDG/SAF # H1996/F03-005

W.O. #: 11343-606-001-9999-00
Date Received: 11-26-2002

GC/MS VOLATILE

Four (4) soil samples were collected on 11-20,21-2002.

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 12-03-2002.

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

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

2. The required holding time for analysis was met.

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

4. All surrogate recoveries were within EPA QC limits.

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

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

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

8. "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

12-19-02
Date

som\group\data\voa\tnu-hanford\0211-250.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 5 pages.

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

VLI
LIONVILLE LABORATORY INC.

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

VLI
LIONVILLE LABORATORY INC.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

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

RFW Batch Number: 0211L250 Client: TNUHANFORD F03-005 H1996 Work Order: 11343606001 Page: 1a Report Date: 12/17/02 10:33

	Cust ID:	B15Y84		B15Y85		B15YR0		B160N2		B160N2		B160N2	
Sample Information	RFW#:	001		002		003		004		004 MS		004 MSD	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.943		1.02		0.962		0.980		0.943		0.980	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	110	%	112	%	114	%	113	%	111	%	107	%
	Bromofluorobenzene	96	%	97	%	101	%	101	%	100	%	100	%
	1,2-Dichloroethane-d4	106	%	111	%	112	%	116	%	114	%	115	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	11	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	11	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	11	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	11	U	10	U	10	U	10	U	10	U
Methylene Chloride		9		5	J	7		5	J	11		5	
Acetone		10	U	11	U	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	6	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	6	U	5	U	5	U	104	%	96	%
1,1-Dichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	6	U	5	U	5	U	5	U	5	U
Chloroform		5	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	11	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	6	U	5	U	5	U	5	U	5	U
Bromodichloromethane		5	U	6	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	6	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	6	U	5	U	5	U	100	%	99	%
Dibromochloromethane		5	U	6	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	6	U	5	U	5	U	5	U	5	U
Benzene		5	U	6	U	5	U	5	U	104	%	104	%
Trans-1,3-Dichloropropene		5	U	6	U	5	U	5	U	5	U	5	U
Bromoform		5	U	6	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	11	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	11	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	6	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	6	U	5	U	5	U	5	U	5	U
Toluene		5	U	6	U	5	U	5	U	112	%	108	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0211L250 Client: TNUHANFORD F03-005 H1996 Work Order: 11343606001 Page: 1b

Cust ID:	B15Y84	B15Y85	B15YR0	B160N2	B160N2	B160N2
RFW#:	001	002	003	004	004 MS	004 MSD
Chlorobenzene	5 U	6 U	5 U	5 U	98 %	99 %
Ethylbenzene	5 U	6 U	5 U	5 U	5 U	5 U
Styrene	5 U	6 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	6 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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

Report Date: 12/17/02 10:33

RFW Batch Number: 0211L250 Client: TNUHANFORD F03-005 H1996 Work Order: 11343606001 Page: 2a

	Cust ID:	VBLKAW		VBLKAW BS	
Sample Information	RFW#:	02LVX667-MB1		02LVX667-MB1	
	Matrix:	SOIL		SOIL	
	D.F.:	1.00		1.00	
	Units:	ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	104	%	102	%
	Bromofluorobenzene	101	%	100	%
	1,2-Dichloroethane-d4	106	%	103	%
Chloromethane		10	U	10	U
Bromomethane		10	U	10	U
Vinyl Chloride		10	U	10	U
Chloroethane		10	U	10	U
Methylene Chloride		5	U	5	U
Acetone		10	U	10	U
Carbon Disulfide		5	U	5	U
1,1-Dichloroethene		5	U	89	%
1,1-Dichloroethane		5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U
Chloroform		5	U	5	U
1,2-Dichloroethane		5	U	5	U
2-Butanone		10	U	10	U
1,1,1-Trichloroethane		5	U	5	U
Carbon Tetrachloride		5	U	5	U
Bromodichloromethane		5	U	5	U
1,2-Dichloropropane		5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U
Trichloroethene		5	U	96	%
Dibromochloromethane		5	U	5	U
1,1,2-Trichloroethane		5	U	5	U
Benzene		5	U	98	%
Trans-1,3-Dichloropropene		5	U	5	U
Bromoform		5	U	5	U
4-Methyl-2-pentanone		10	U	10	U
2-Hexanone		10	U	10	U
Tetrachloroethene		5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U
Toluene		5	U	100	%

*= Outside of EPA CLP QC limits.

Cust ID:	VBLKAW	VBLKAW BS
RFW#:	02LVX667-MB1	02LVX667-MB1

Chlorobenzene	5	U	95	%
Ethylbenzene	5	U	5	U
Styrene	5	U	5	U
Xylene (total)	5	U	5	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

02111250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C	D	E	F	G
Refrigerator #		1	5	5	5	5	5	5
#/Type Container	Liquid							
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG
Volume	Liquid							
	Solid	60	250	250	125	500	60	250
Preservatives								
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	~~Pest~~/PCB	Herb	INORG: Metal	CN	I.C Anions / pH / Alcohol Glycol Ketones

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624 H	0625 x ODRO	OPCB					MET ① ICP6		INORG ①	IPH	OGCSC				
S - Soil	001	B15Y84			S	11-21-02	0836	1	1	1					1		1	1	1				
SE - Sediment	002	B15Y85			S	11-20-02	1325	1	1	1					1		1	1	1				
SO - Solid	003	B15YR0				⊥	0911	1	1	1					1		1	1	1				
SL - Sludge	004	B16ON2				11-21-02	1120	1	1	1					1		1	1	1				
W - Water																							
O - Oil																							
A - Air																							
DS - Drum Solids																							
DL - Drum Liquids																							
L - EP/TCLP Leachate																							
WI - Wipe																							
X - Other																							
F - Fish																							

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn, Hg

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4 ICSO4,

4. INJN2, INH3N, ISFD, ICNYO

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 2° °C

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

NOTES:

7921405594 03

9399 -2°c, 7921405594 03 -2°c

Relinquished by	Received by	Date	Time
FEDEX	Carla [illegible]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Special Handling and/or Storage: Tie To B15Y86 Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	N 11/21/02 aG	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y84	SOIL	11-21-02	0836	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref# 1B/3728	11/21/02 1515
1B 3726	11-25-02 1000	R. Fehlberg / R. Fehlberg	11-25-02 1000
R. Fehlberg / R. Fehlberg	11-25-02 1000	FedEx	
FEDEX	11-26-02 0915	Carl [illegible]	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 me

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
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By / Date/Time

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-008	Page 1 of 1

Collector: Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2	SAF No.: F03-005	
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050	Bill of Lading/Air Bill No.: SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactiv
Tiretp B15Y86

Special Handling and/or Storage
Cool 4C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y85	SOIL	11/20/02	1325	X	X	X	X	X	X	X	X		

11-25-02

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson / R Nielson	11/20/02 1500	Ref # 1B/3728	11/20/02 1500
1B 11-25-02 3728/1000		R. Fahlberg R. Fahlberg	11-25-02 1000
ERC R. Fahlberg R. Fahlberg	11-25-02 1000	Fed Ex	
FEDEX	11-26-02 0915	Cal.	11-26-02 0915

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

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	F03-005-016	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	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.: A 030 050	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Special Handling and/or Storage: Tritium B15YR2; 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~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	~~G/P~~
# of Container(s)	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11-24-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02

Sample No.	Matrix *	Sample Date	Sample Time										
B15YR0	SOIL	11-20-02	0911	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11/20/02 1500	REF# 1B/3728	11/20/02 1500
1B 3728	11-25-02 1000	R. Fohl / R. Fohl	11-25-02 1000
ERC / R. Fohl / R. Fohl	11-25-02 1000	Fed Ex	
FEDEX	11-26-02 0915	Carl Wing	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-018	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3	SAF No.: F03-005	
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.: A030 058	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; TicT. B15YR2

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3		
Sample No. / Matrix * / Sample Date / Sample Time											
B160N2 / SOIL / 11/21/02 / 1120	X	X	X	X	X	X	X	X			

KJN 11/21/02; 11/21/02; 11-25-02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11/21/02 1515	Ref #163728	11/21/02 1515
Relinquished By/Removed From	1B 3728	11-25-02 1000	R. Fellows	11-25-02 1000
Relinquished By/Removed From	ERC R. Fellows	11-25-02 1000	Received By/Stored In: FedEx	
Relinquished By/Removed From	FEDEX	11-26-02 0915	Received By/Stored In	11-26-02 0915
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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
ERC-02-404-2°c
RC-02-001-2°c
ERC-01-024-2°c
ERC-96-019-2°c

Laboratory Sample Custodian: Carl [illegible]

Laboratory Project Manager:

15

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15Y84	001	S	02LE1442	11/21/02	12/02/02	12/11/02
B15Y85	002	S	02LE1442	11/20/02	12/02/02	12/11/02
B15YR0	003	S	02LE1442	11/20/02	12/02/02	12/11/02
B160N2	004	S	02LE1442	11/21/02	12/02/02	12/11/02
B160N2	004 MS	S	02LE1442	11/21/02	12/02/02	12/11/02
B160N2	004 MSD	S	02LE1442	11/21/02	12/02/02	12/11/02
LAB QC:						
SBLKJJ	MB1	S	02LE1442	N/A	12/02/02	12/10/02
SBLKJJ	MB1 BS	S	02LE1442	N/A	12/02/02	12/10/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-005
LVL #: 0211L250
SDG/SAF #: H1996/F03-005

W.O. #: 11343-606-001-9999-00
Date Received: 11-26-2002

SEMIVOLATILE

Four (4) soil samples were collected on 11-20,21-2002.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 12-02-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 12-10,11-2002.

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. Sample B15Y85 required a 2-fold dilution due to high levels of both target and non-target compounds.
5. All surrogate recoveries were within EPA QC limits.
6. One (1) of twenty-two (22) matrix spike recoveries was outside EPA QC limits.
7. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

by

J. Michael Taylor
President
Lionville Laboratory Incorporated

12-18-02
Date

som\gorup\data\bna\tnu-hanford-0211-250.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 0 pages.

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

RFW Batch Number: **0211L250** Client: **TNUHANFORD F03-005 H1996** Work Order: 11343606001 Report Date: 12/16/02 16:02 Page: 1a

	Cust ID:	B15Y84		B15Y85		B15YR0		B160N2		B160N2		B160N2	
Sample Information	RFW#:	001		002		003		004		004 MS		004 MSD	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		2.00		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	85	%	100	%	69	%	91	%	65	%	81	%
	2-Fluorobiphenyl	85	%	106	%	72	%	91	%	70	%	85	%
	p-Terphenyl-d14	102	%	117	%	85	%	105	%	82	%	98	%
	Phenol-d5	81	%	99	%	68	%	79	%	62	%	73	%
	2-Fluorophenol	80	%	96	%	66	%	79	%	63	%	75	%
	2,4,6-Tribromophenol	94	%	108	%	80	%	95	%	74	%	93	%
			fl		fl		fl		fl		fl		fl
Phenol		350	U	740	U	360	U	340	U	59	%	70	%
bis(2-Chloroethyl)ether		350	U	740	U	360	U	340	U	340	U	340	U
2-Chlorophenol		350	U	740	U	360	U	340	U	62	%	72	%
1,3-Dichlorobenzene		350	U	740	U	360	U	340	U	340	U	340	U
1,4-Dichlorobenzene		350	U	740	U	360	U	340	U	67	%	82	%
1,2-Dichlorobenzene		350	U	740	U	360	U	340	U	340	U	340	U
2-Methylphenol		350	U	740	U	360	U	340	U	340	U	340	U
2,2'-oxybis(1-Chloropropane)		350	U	740	U	360	U	340	U	340	U	340	U
3- and/or 4-Methylphenol		350	U	740	U	360	U	340	U	340	U	340	U
N-Nitroso-Di-n-propylamine		350	U	740	U	360	U	340	U	68	%	80	%
Hexachloroethane		350	U	740	U	360	U	340	U	340	U	340	U
Nitrobenzene		350	U	740	U	360	U	340	U	340	U	340	U
Isophorone		350	U	740	U	360	U	340	U	340	U	340	U
2-Nitrophenol		350	U	740	U	360	U	340	U	340	U	340	U
2,4-Dimethylphenol		350	U	740	U	360	U	340	U	340	U	340	U
bis(2-Chloroethoxy)methane		350	U	740	U	360	U	340	U	340	U	340	U
2,4-Dichlorophenol		350	U	740	U	360	U	340	U	340	U	18	J
1,2,4-Trichlorobenzene		350	U	740	U	360	U	340	U	70	%	84	%
Naphthalene		350	U	740	U	360	U	340	U	340	U	340	U
4-Chloroaniline		350	U	740	U	360	U	340	U	340	U	340	U
Hexachlorobutadiene		350	U	740	U	360	U	340	U	340	U	340	U
4-Chloro-3-methylphenol		350	U	740	U	360	U	340	U	68	%	82	%
2-Methylnaphthalene		350	U	740	U	360	U	340	U	340	U	340	U
Hexachlorocyclopentadiene		350	U	740	U	360	U	340	U	340	U	340	U
2,4,6-Trichlorophenol		350	U	740	U	360	U	340	U	340	U	340	U
2,4,5-Trichlorophenol		870	U	1800	U	890	U	860	U	860	U	860	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L250** Client: **TNUHANFORD F03-005 H1996** Work Order: 11343606001 Page: 1b

Cust ID:	B15Y84		B15Y85		B15YR0		B160N2		B160N2		B160N2	
RFW#:	001		002		003		004		004 MS		004 MSD	
2-Chloronaphthalene	350	U	740	U	360	U	340	U	340	U	340	U
2-Nitroaniline	870	U	1800	U	890	U	860	U	860	U	860	U
Dimethylphthalate	350	U	740	U	360	U	340	U	340	U	340	U
Acenaphthylene	350	U	740	U	360	U	340	U	340	U	340	U
2,6-Dinitrotoluene	350	U	740	U	360	U	340	U	340	U	340	U
3-Nitroaniline	870	U	1800	U	890	U	860	U	860	U	860	U
Acenaphthene	350	U	61	J	360	U	340	U	69	%	84	%
2,4-Dinitrophenol	870	U	1800	U	890	U	860	U	860	U	860	U
4-Nitrophenol	870	U	1800	U	890	U	860	U	77	%	100	%
Dibenzofuran	350	U	740	U	360	U	340	U	340	U	340	U
2,4-Dinitrotoluene	350	U	740	U	360	U	340	U	77	%	95 *	%
Diethylphthalate	350	U	740	U	360	U	340	U	340	U	340	U
4-Chlorophenyl-phenylether	350	U	740	U	360	U	340	U	340	U	340	U
Fluorene	350	U	59	J	360	U	340	U	340	U	340	U
4-Nitroaniline	870	U	1800	U	890	U	860	U	860	U	860	U
4,6-Dinitro-2-methylphenol	870	U	1800	U	890	U	860	U	860	U	860	U
N-Nitrosodiphenylamine (1)	350	U	740	U	360	U	340	U	340	U	340	U
4-Bromophenyl-phenylether	350	U	740	U	360	U	340	U	340	U	340	U
Hexachlorobenzene	350	U	740	U	360	U	340	U	340	U	340	U
Pentachlorophenol	870	U	1800	U	890	U	860	U	53	%	56	%
Phenanthrene	350	U	930		360	U	340	U	340	U	340	U
Anthracene	350	U	150	J	360	U	340	U	340	U	340	U
Carbazole	350	U	97	J	360	U	340	U	340	U	340	U
Di-n-Butylphthalate	350	U	2300		360	U	52	J	340	U	340	U
Fluoranthene	350	U	1500		360	U	340	U	340	U	340	U
Pyrene	350	U	1600		360	U	340	U	77	%	95	%
Butylbenzylphthalate	350	U	580	J	360	U	340	U	340	U	340	U
3,3'-Dichlorobenzidine	350	U	740	U	360	U	340	U	340	U	340	U
Benzo(a)anthracene	350	U	550	J	360	U	340	U	340	U	340	U
Chrysene	350	U	680	J	360	U	340	U	340	U	340	U
bis(2-Ethylhexyl)phthalate	22	J	580	J	140	J	33	J	21	J	340	U
Di-n-Octyl phthalate	350	U	740	U	360	U	340	U	340	U	340	U
Benzo(b)fluoranthene	350	U	530	J	360	U	340	U	340	U	340	U
Benzo(k)fluoranthene	350	U	450	J	360	U	340	U	340	U	340	U
Benzo(a)pyrene	350	U	600	J	360	U	340	U	340	U	340	U
Indeno(1,2,3-cd)pyrene	350	U	400	J	360	U	340	U	340	U	340	U
Dibenzo(a,h)anthracene	350	U	110	J	360	U	340	U	340	U	340	U
Benzo(g,h,i)perylene	350	U	660	J	360	U	340	U	340	U	340	U
Tributylphosphate	350	U	740	U	360	U	340	U	340	U	340	U

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

RFW Batch Number: **0211L250** Client: **TNUHANFORD F03-005 H1996** Work Order: 11343606001 Report Date: 12/16/02 16:02 Page: 2a

	Cust ID:	**SBLKJJ**		**SBLKJJ BS**	
Sample Information	RFW#:	**02LE1442-MB1**		**02LE1442-MB1**	
	Matrix:	SOIL		SOIL	
	D.F.:	1.00		1.00	
	Units:	ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	80	%	82	%
	2-Fluorobiphenyl	84	%	87	%
	p-Terphenyl-d14	105	%	106	%
	Phenol-d5	77	%	79	%
	2-Fluorophenol	74	%	78	%
	2,4,6-Tribromophenol	82	%	91	%
Phenol		330	U	77	%
bis(2-Chloroethyl)ether		330	U	330	U
2-Chlorophenol		330	U	75	%
1,3-Dichlorobenzene		330	U	330	U
1,4-Dichlorobenzene		330	U	82	%
1,2-Dichlorobenzene		330	U	330	U
2-Methylphenol		330	U	330	U
2,2'-oxybis(1-Chloropropane)		330	U	330	U
3- and/or 4-Methylphenol		330	U	330	U
N-Nitroso-Di-n-propylamine		330	U	87	%
Hexachloroethane		330	U	330	U
Nitrobenzene		330	U	330	U
Isophorone		330	U	330	U
2-Nitrophenol		330	U	330	U
2,4-Dimethylphenol		330	U	330	U
bis(2-Chloroethoxy)methane		330	U	330	U
2,4-Dichlorophenol		330	U	330	U
1,2,4-Trichlorobenzene		330	U	83	%
Naphthalene		330	U	330	U
4-Chloroaniline		330	U	330	U
Hexachlorobutadiene		330	U	330	U
4-Chloro-3-methylphenol		330	U	84	%
2-Methylnaphthalene		330	U	330	U
Hexachlorocyclopentadiene		330	U	330	U
2,4,6-Trichlorophenol		330	U	330	U
2,4,5-Trichlorophenol		830	U	830	U

*= Outside of EPA CLP QC limits.

Cust ID:	SBLKJJ	SBLKJJ BS
RFW#:	02LE1442-MB1	02LE1442-MB1

2-Chloronaphthalene	330	U	330	U
2-Nitroaniline	830	U	830	U
Dimethylphthalate	330	U	330	U
Acenaphthylene	330	U	330	U
2,6-Dinitrotoluene	330	U	330	U
3-Nitroaniline	830	U	830	U
Acenaphthene	330	U	86	%
2,4-Dinitrophenol	830	U	830	U
4-Nitrophenol	830	U	92	%
Dibenzofuran	330	U	330	U
2,4-Dinitrotoluene	330	U	94 *	%
Diethylphthalate	330	U	330	U
4-Chlorophenyl-phenylether	330	U	330	U
Fluorene	330	U	330	U
4-Nitroaniline	830	U	830	U
4,6-Dinitro-2-methylphenol	830	U	830	U
N-Nitrosodiphenylamine (1)	330	U	330	U
4-Bromophenyl-phenylether	330	U	330	U
Hexachlorobenzene	330	U	330	U
Pentachlorophenol	830	U	94	%
Phenanthrene	330	U	330	U
Anthracene	330	U	330	U
Carbazole	330	U	330	U
Di-n-Butylphthalate	330	U	330	U
Fluoranthene	330	U	330	U
Pyrene	330	U	99	%
Butylbenzylphthalate	330	U	330	U
3,3'-Dichlorobenzidine	330	U	330	U
Benzo(a)anthracene	330	U	330	U
Chrysene	330	U	330	U
bis(2-Ethylhexyl)phthalate	330	U	330	U
Di-n-Octyl phthalate	330	U	330	U
Benzo(b)fluoranthene	330	U	330	U
Benzo(k)fluoranthene	330	U	330	U
Benzo(a)pyrene	330	U	330	U
Indeno(1,2,3-cd)pyrene	330	U	330	U
Dibenzo(a,h)anthracene	330	U	330	U
Benzo(g,h,i)perylene	330	U	330	U
Tributylphosphate	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.

B15Y84

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

Client: TNUHANFORD F03-005 H1996

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L250-001

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

Lab File ID: D121106

Level: (low/med) LOW

Date Received: 11/26/02

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

Date Extracted: 12/02/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/11/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-00-5	1,1,2-TRICHLOROETHANE	3.927	100	NJ
2.	UNKNOWN	3.379	200	J
3.	UNKNOWN	3.310	100	J
4.	ALDOL CONDENSATE	4.953	4000	JAB
5.	ALDOL CONDENSATE	5.605	60000	JAB
6.	ALDOL CONDENSATE	6.240	300	JAB
7.	ALDOL CONDENSATE	6.970	4000	JAB
8.	ALDOL CONDENSATE	8.274	800	JAB
9.	ALDOL CONDENSATE	8.596	90	JAB
10.	UNKNOWN	11.717	200	JB

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15Y85

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

Client: TNUHANFORD F03-005 H1996

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L250-002

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

Lab File ID: D121107

Level: (low/med) LOW

Date Received: 11/26/02

% Moisture: 10 decanted: (Y/N)__

Date Extracted: 12/02/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/11/02

Injection Volume: 2.0(uL)

Dilution Factor: 2.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	4.937	5000	JAB
2.	ALDOL CONDENSATE	5.554	80000	JAB
3.	ALDOL CONDENSATE	6.963	5000	JAB
4.	ALDOL CONDENSATE	8.275	1000	JAB
5.	HEXACHLOROBIPHENYL	23.221	700	J
6.	PENTACHLOROBIPHENYL	22.586	600	J
7.	PENTACHLOROBIPHENYL	22.300	700	J
8.	PENTACHLOROBIPHENYL	21.847	800	J
9. 149-30-4	2-MERCAPTOBENZOTHIAZOLE	20.900	800	NJ
10.	UNKNOWN	23.360	1000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YR0

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

Client: TNUHANFORD F03-005 H1996

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L250-003

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

Lab File ID: D121108

Level: (low/med) LOW

Date Received: 11/26/02

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

Date Extracted: 12/02/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/11/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.377	100	J
2.	UNKNOWN	3.307	90	J
3.	ALDOL CONDENSATE	4.985	4000	JAB
4.	ALDOL CONDENSATE	5.629	60000	JAB
5.	ALDOL CONDENSATE	6.255	300	JAB
6.	ALDOL CONDENSATE	6.976	3000	JAB
7.	ALDOL CONDENSATE	8.280	800	JAB
8.	UNKNOWN	11.723	200	JB
9.	PHTHALATE	19.957	100	J
10.	ORGANIC ACID	20.444	90	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B160N2

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

Client: TNUHANFORD F03-005 H1996

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L250-004

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

Lab File ID: D121109

Level: (low/med) LOW

Date Received: 11/26/02

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

Date Extracted: 12/02/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/11/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-00-5	1,1,2-TRICHLOROETHANE	3.951	100	NJ
2.	UNKNOWN	3.404	200	J
3.	UNKNOWN	3.334	200	J
4.	UNKNOWN	3.291	100	J
5.	ALDOL CONDENSATE	5.064	5000	JAB
6.	ALDOL CONDENSATE	5.708	70000	JAB
7.	ALDOL CONDENSATE	6.273	300	JAB
8.	ALDOL CONDENSATE	7.003	4000	JAB
9.	ALDOL CONDENSATE	8.299	900	JAB
10.	UNKNOWN	11.724	200	JB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKJJ

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

Client: TNUHANFORD F03-005 H1996

Matrix: (soil/water) SOIL

Lab Sample ID: 02LE1442-MB1

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

Lab File ID: D121003

Level: (low/med) LOW

Date Received: 12/02/02

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

Date Extracted: 12/02/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/10/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.276	4000	JA
2.	ALDOL CONDENSATE	5.954	50000	JA
3.	ALDOL CONDENSATE	6.597	200	JA
4.	ALDOL CONDENSATE	7.310	4000	JA
5.	ALDOL CONDENSATE	8.632	700	JA
6.	ALDOL CONDENSATE	8.945	80	JA
7.	UNKNOWN	12.075	200	J

Lionville Laboratory Use Only
0211L250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C					D		E	F	G			
Refrigerator #		1	5	5					5		5	5	5			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	250	250					125		500	60	250			
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	~~Pest/~~ PCB	Herb				Metal	CN	T.C Anions	pH	Alcohol Glycol Ketones			

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624 H	0625 x ODRO	OPCB					MET ① ICPL		INORG ①	IPH	OGCSC			
S - Soil	001	B15Y84			S	11-21-02	0836	1	1	1					1		1	1	1			
SE - Sediment	002	B15Y85			S	11-20-02	1325	1	1	1					1		1	1	1			
SO - Solid	003	B15YR0			⊥	⊥	0911	1	1	1					1		1	1	1			
SL - Sludge	004	B16ON2			⊥	11-21-02	1120	1	1	1					1		1	1	1			
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4 ICSO4

4. INJN2, INH3N, ISFD, ICNYO

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 2° °C

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

NOTES:

7921 4055 9403

9399 -2°c, 7921 4055 9403

Relinquished by	Received by	Date	Time
FEDEX	[signature]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA, EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15Y86

Special Handling and/or Storage
Cool 4C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y84	SOIL	11-21-02	0836	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref# 1B/3728	11/21/02 1515
1B 3728	11-25-02 1000	R. Fehlberg	11-25-02 1000
R. Fehlberg	11-25-02 1000	FedEx	
FEDEX	11-26-02 0915	Carl	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 me

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	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-008	Page 1 of 1

Collector: Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2		SAF No.: F03-005
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050		Bill of Lading/Air Bill No.: SEE OSPL

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactiv
Tiretp B15Y86

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P aG	G/P aG	G/P aG	G/P aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15Y85 / SOIL / 11/20/02 / 1325	X	X	X	X	X	X	X	X		

11-25-02

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11/20/02 1500	Ref # 18/3728	11/20/02 1500
1B	11-25-02 3728/1000	R. Fehlberg	11-25-02 1000
ERC R. Fehlberg	11-25-02 1000	Fed Ex	
Fedex	11-26-02 0915	Cal.	11-26-02 0915

SPECIAL INSTRUCTIONS
** Please see SAF for specific sampling instructions.

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

(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	F03-005-016	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	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.: A 030 050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

TreTo B15YR2

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~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	~~G/P~~ G/P	
# of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RK 11-25-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	
Sample No. / Matrix * / Sample Date / Sample Time										
B15YR0 / SOIL / 11-20-02 / 0911	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11/20/02 1500	Received By/Stored In: REF# 1B/3728	11/20/02 1500
Relinquished By/Removed From: 1B 3728	11-25-02 1000	Received By/Stored In: R. Fahlberg	11-25-02 1000
Relinquished By/Removed From: ERC R. Fahlberg	11-25-02 1000	Received By/Stored In: Fed Ex	
Relinquished By/Removed From: FEDEX	11-26-02 0915	Received By/Stored In: Carl Wy	11-26-02 0915
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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	F03-005-018	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3	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.: A030 050	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; TicTo B15YR2

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None KJN 11/21/02	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ abr	~~G/P~~ abr	~~G/P~~ abr	~~G/P~~ abr	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	RJN 11/21/02
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3 11-25-02	

Sample No.	Matrix *	Sample Date	Sample Time										
B160N2	SOIL	11/21/02	1120	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref #1B3728	11/21/02 1515
1B 3728	11-25-02 1000	R. Fellows	11-25-02 1000
ERC	1000	Fed Ex	
Fedex	11-26-02 0915		11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
ERC-02-404-2°c
ERC-02-001-2°c
ERC-01-024-2°c
ERC-96-019-2°c

Laboratory Sample Custodian: Carl Hung

Laboratory Project Manager:

20

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15Y84	001	S	02LE1443	11/21/02	12/02/02	12/11/02
B15Y85	002	S	02LE1443	11/20/02	12/02/02	12/11/02
B15YR0	003	S	02LE1443	11/20/02	12/02/02	12/11/02
B160N2	004	S	02LE1443	11/21/02	12/02/02	12/12/02
B160N2	004 MS	S	02LE1443	11/21/02	12/02/02	12/12/02
B160N2	004 MSD	S	02LE1443	11/21/02	12/02/02	12/11/02

LAB QC:

PBLKHD	MB1	S	02LE1443	N/A	12/02/02	12/11/02
PBLKHD	MB1 BS	S	02LE1443	N/A	12/02/02	12/11/02

12/13/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-005
LVL #: 0211L250
SDG/SAF #: H2008/F03-005

W.O. #: 11343-606-001-9999-00
Date Received: 11-26-02

PCB

The set of samples consisted of four (4) soil samples collected on 11-20,21-02.

The samples and their associated QC samples were extracted on 12-02-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-11,12-02. The extraction procedure was based on method 3520 and the extracts were analyzed based on method 8082 for Aroclors only.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric Acid and Sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. One (1) of fourteen (14) obtainable surrogate recoveries was outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. Sample B15Y85 required a 10-fold instrument dilution due to the high concentrations of target analytes. Reporting limits have been adjusted to reflect the necessary dilutions.
9. All initial calibrations associated with this data set were within acceptance criteria.
10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
11. Patterns for Aroclors 1254 and 1260 were identified in these samples. The reported Aroclor was chosen based on the best pattern match and fit. Quantitation was performed using congeners common to both Aroclors to give the best overall total PCB concentration.

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.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/16/02
Date

pef\r:\group\data\pest\tnu hanford\12L-250.pcb

LVLI
LIONVILLE LABORATORY INC.

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

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

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/12/02 15:41

RFW Batch Number: **0211L250** Client: **TNUHANFORD F03-005 H1996** Work Order: 11343606001 Page: 1

	Cust ID:	B15Y84	B15Y85	B15YR0	B160N2	B160N2	B160N2
Sample Information	RFW#:	001	002	003	004	004 MS	004 MSD
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	10.0	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	80 %	D %	85 %	70 %	85 %	100 %
	Decachlorobiphenyl	105 %	D %	115 %	110 %	115 %	140 * %
Aroclor-1016		35 U	370 U	35 U	34 U	87 %	114 %
Aroclor-1221		69 U	740 U	71 U	68 U	68 U	68 U
Aroclor-1232		35 U	370 U	35 U	34 U	34 U	34 U
Aroclor-1242		35 U	370 U	35 U	34 U	34 U	34 U
Aroclor-1248		35 U	370 U	35 U	34 U	34 U	34 U
Aroclor-1254		35 U	3700	35 U	34 U	34 U	34 U
Aroclor-1260		35 U	370 U	35 U	34 U	111 %	136 %

	Cust ID:	PBLKHD	PBLKHD BS
Sample Information	RFW#:	02LE1443-MB1	02LE1443-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	70 %	80 %
	Decachlorobiphenyl	100 %	100 %
Aroclor-1016		33 U	76 %
Aroclor-1221		67 U	67 U
Aroclor-1232		33 U	33 U
Aroclor-1242		33 U	33 U
Aroclor-1248		33 U	33 U
Aroclor-1254		33 U	33 U
Aroclor-1260		33 U	92 %

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

02111250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: 05

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C					D		E	F	G			
Refrigerator #		1	5	5					5		5	5	5			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	250	250					125		500	60	250			
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ PCB	Herb				Metal	CN	I.C Anions	pH	Alcohol Glycol Ketones			
Lionville Laboratory Use Only		8624 H	8625 x ODRO	OPCB					MET ICP		INORG	IPH	OGCSC			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8624 H	8625 x ODRO	OPCB					MET ICP		INORG	IPH	OGCSC			
S - Soil	001	B15Y84			S	11-21-02	0836	1	1	1					1		1	1	1			
SE - Sediment	002	B15Y85			S	11-20-02	1325	1	1	1					1		1	1	1			
SO - Solid	003	B15YR0				1	0911	1	1	1					1		1	1	1			
SL - Sludge	004	B16ON2				11-21-02	1120	1	1	1					1		1	1	1			
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn, Hg

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

4. INJN2, INH3N, ISFD, ICNMO

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 2° °C

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

NOTES:

7921 4055 9403

9399 -2°c, 7921 4055 9403 -2°c

Relinquished by	Received by	Date	Time
FEDEX	[signature]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Special Handling and/or Storage: Tie To B15Y86 Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	G/P aG	~~G/P~~ aG	N 11/21/02 aG	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y84	SOIL	11-21-02	0836	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref# 1B/3728	11/21/02 1515
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
1B 3728	11-25-02 1000	R. Fehlberg B. Fuhlberg	11-25-02 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
ERC R. Fehlberg B. Fuhlberg	11-25-02 1000	FedEx	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FEDEX	11-26-02 0915	Carl [illegible]	11-26-02 0915
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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 me

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

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

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

FH-Central Plateau Project

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F03-005-008

Collector: Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2		SAF No.: F03-005
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050		Bill of Lading/Air Bill No.: SEE OSPL

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactiv
Tiretp B15Y86

Special Handling and/or Storage
cool 4C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y85	SOIL	11/20/02	1325	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Nielson R Nielson	11/20/02 1500	Ref # 1B/3728	11/20/02 1500
1B	11-25-02 3728 1000	R. Fellows R. Fahlberg	11-25-02 1000
ERC R. Fellows R. Fahlberg	11-25-02 1000	Fed Ex	
Fedex	11-26-02 0915	Cal.	11-26-02 0915

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}

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

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	F03-005-016	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	SAF No.: F03-005	
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.: A 030 050		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TieTo B15YR2

Special Handling and/or Storage
Cool 4°C

SAMPLE ANALYSIS												
Preservation				Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None
Type of Container				G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	G/P aG	G/P RJN 11/19/02	G/P
of Container(s)				1	1	1	1	1	1	1	1	
Volume				60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g
				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. RK 11-25-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02
Sample No.	Matrix *	Sample Date	Sample Time									
B15YR0	SOIL	11-20-02	0911	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson	Date/Time: 11/20/02 1500	Received By/Stored In: REF# 1B/3728	Date/Time: 11/20/02 1500
Relinquished By/Removed From: 1B 3728	Date/Time: 11-25-02 1000	Received By/Stored In: R. Fehlberg	Date/Time: 11-25-02 1000
Relinquished By/Removed From: ERC R. Fehlberg	Date/Time: 11-25-02 1000	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: FEDEX	Date/Time: 11-26-02 0915	Received By/Stored In: Carl Wy	Date/Time: 11-26-02 0915
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
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

F03-005-018

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3		SAF No.: F03-005
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.: A030 058		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TicT- B15 YR2

Special Handling and/or Storage
Cool 4C

SAMPLE ANALYSIS												
Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None KIN 11/21/02	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1	1	RJN 11/21/02	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g		
	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 11-25-02		
Sample No.	Matrix *	Sample Date	Sample Time									
B160N2	SOIL	11/21/02	1120	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	R Nielson 11/21/02 1515	Ref #163728	11/21/02 1515
1B 3728	11-25-02 1000	R. Fellows	11-25-02 1000
ERC	1000 11-25-02	FedEx	
FEDEX	11-26-02 0915		11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
RC-02-404-2°c
RC-02-001-2°c
RC-01-024-2°c
RC-96-019-2°c

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
DRO ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15Y84	001	S	02LE1449	11/21/02	12/02/02	12/10/02
B15Y85	002	S	02LE1449	11/20/02	12/02/02	12/10/02
B15YR0	003	S	02LE1449	11/20/02	12/02/02	12/10/02
B160N2	004	S	02LE1449	11/21/02	12/02/02	12/10/02
B160N2	004 MS	S	02LE1449	11/21/02	12/02/02	12/10/02
B160N2	004 MSD	S	02LE1449	11/21/02	12/02/02	12/10/02
LAB QC:						
BLK	MB1	S	02LE1449	N/A	12/02/02	12/10/02
BLK	MB1 BS	S	02LE1449	N/A	12/02/02	12/10/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-005
LVL #: 0211L250
SDG/SAF #: H1996/F03-005

W.O. #: 11343-606-001-9999-00
Date Received: 11-26-02

DIESEL RANGE ORGANICS

The set of samples consisted of four (4) soil samples collected on 11-20,21-02.

The samples and their associated QC samples were extracted on 12-02-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-10-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8015B. The analysis met the intent of method WTPH-D.

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

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

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

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

4. All surrogate recoveries were within acceptance criteria.

5. The blank spike recovery was within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations associated with this data set were within acceptance criteria.

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

9. Non-target compound, motor oil, was identified and quantitated at 168.4 mg/kg in sample B15Y85.

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

12/16/02
Date

pef\r:\group\data\dro\tnu hanford\11L-250.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 11 pages.

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

LIONVILLE LABORATORY INC.

GLOSSARY OF DIESEL RANGE ORGANICS DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF DIESEL RANGE ORGANICS DATA

D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 12/10/02 19:19

RFW Batch Number: **0211L250** Client: **TNUHANFORD F03-005 H1996** Work Order: 11343606001 Page: 1

05

	Cust ID:	B15Y84	B15Y85	B15YR0	B160N2	B160N2	B160N2
Sample Information	RFW#:	001	002	003	004	004 MS	004 MSD
	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		86 %	84 %	86 %	80 %	85 %	81 %
Diesel Range Organics		12.5 U	31	12.8 U	12.3 U	73 %	77 %
Kerosene		12.5 U	13.3 U	12.8 U	12.3 U	12.3 U	12.3 U

	Cust ID:	BLK	BLK BS
Sample Information	RFW#:	02LE1449-MB1	02LE1449-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	mg/Kg	mg/Kg
p-Terphenyl		82 %	84 %
Diesel Range Organics		12.0 U	80 %
Kerosene		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

02111250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C	D	E	F	G
Refrigerator #		1	5	5	5	5	5	5
#/Type Container	Liquid							
	Solid	1AG	1AG	1AG	1AG	1AG	1AG	1AG
Volume	Liquid							
	Solid	60	250	250	125	500	60	250
Preservatives								
ANALYSES REQUESTED	ORGANIC: VOA							
	ORGANIC: BNA							
	ORGANIC: ~~Pest~~ PCB							
	ORGANIC: Herb							
	INORG: Metal							
	INORG: CN							
	I.C Anions					I.C		
	pH					pH		
	Alcohol Glycol Aldehydes					Alcohol Glycol Aldehydes		

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624 H	0625 x OPRO	OPCB	MET ICP	INORG	IPH	OGCSC
001	B15Y84			S	11-21-02	0836	1	1	1	1	1	1	1
002	B15Y85			S	11-20-02	1325	1	1	1	1	1	1	1
003	B15YR0					0911	1	1	1	1	1	1	1
004	B16ON2				11-21-02	1120	1	1	1	1	1	1	1

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn, Hg

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4 ICSO4,

4. IN3N2, INH3N, ISFD, ICNYO

5.

6.

Lionville Laboratory Use Only

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

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 2° °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

7921405 9403

9399 -2°c, 7921405 9403 -2°c

Relinquished by	Received by	Date	Time
FEDEX	[signature]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Special Handling and/or Storage: Tie To B15Y86 — Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RNil 11/21/02 aG	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y84	SOIL	11-21-02	0836	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11/21/02 1515	Received By/Stored In: Ref# 1B/3728	11/21/02 1515
Relinquished By/Removed From: 1B 3728	11-25-02 1000	Received By/Stored In: R. Fehlberg B. Fehlberg	11-25-02 1000
Relinquished By/Removed From: R. Fehlberg B. Fehlberg	11-25-02 1000	Received By/Stored In: FedEx	
Relinquished By/Removed From: FEDEX	11-26-02 0915	Received By/Stored In: Carl [illegible]	11-26-02 0915
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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 [illegible]

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-008	Page 1 of 1

Collector: Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2		SAF No.: F03-005
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050		Bill of Lading/Air Bill No.: SEE OSPL

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactiv Tiret B15Y86

Special Handling and/or Storage: Cool 4C

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

Sample No.	Matrix *	Sample Date	Sample Time									
B15Y85	SOIL	11/20/02	1325	X	X	X	X	X	X	X	X	

11-25

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11/20/02 1500	Ref # 1B/3728	11/20/02 1500
1B 11-25-02 3728	1000	R. Fehlberg	11-25-02 0000
ERC R. Fehlberg	11-25-02 1000	Fed Ex	
Fedex	11-26-02 0915	Cal.	11-26-02 0915

SPECIAL INSTRUCTIONS

** Please see SAF for specific sampling instructions.

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

(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	F03-005-016	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	SAF No.: F03-005	
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.: A 030 050		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

TicTo B15YR2

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~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	~~G/P~~		
# of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RK 11-25-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02		
Sample No.	Matrix *	Sample Date	Sample Time								
B15YR0	SOIL	11-20-02	0911	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11/20/02 1500	Ref# 1B/3728	11/20/02 1500
1B 3728	11-25-02 1000	R. Fohl R. Fohl	11-25-02 1000
R. Fohl R. Fohl	11-25-02 1000	Fed Ex	
FEDEX	11-26-02 0915	Carl Wy	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

FLUOR Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F03-005-018

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3		SAF No.: F03-005
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.: A030 050		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15Y/R2

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B160N2 / SOIL / 11/21/02 / 1120	X	X	X	X	X	X	X	X		

KJN 11/21/02
RJN 11/21/02
11-25-02

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref #163728	11/21/02 1515
1B 3728	11-25-02 1000	R. Fellows	11-25-02 1000
ERC	1000	FedEx	
FEDEX	11-26-02 0915		11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728
Ref # 1B on 11/25/02

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
RC-02-404-2°c
RC-02-001-2°c
RC-01-024-2°c
RC-96-019-2°c

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15Y84	001	S	02LE1466	11/21/02	12/06/02	12/07/02
B15Y84	001 MS	S	02LE1466	11/21/02	12/06/02	12/07/02
B15Y84	001 MSD	S	02LE1466	11/21/02	12/06/02	12/07/02
B15Y85	002	S	02LE1466	11/20/02	12/06/02	12/07/02
B15YR0	003	S	02LE1466	11/20/02	12/06/02	12/07/02
B160N2	004	S	02LE1466	11/21/02	12/06/02	12/07/02
LAB QC:						
BLK	MB1	S	02LE1466	N/A	12/06/02	12/07/02
BLK	MB1 BS	S	02LE1466	N/A	12/06/02	12/07/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD F03-005
LVL#: 0211L250
SDG/SAF#: H1996/F03-005

W.O.#: 11343-606-001-9999-00
Date Received: 11-26-02

GC SCAN

The set of samples consisted of four (4) soil samples collected on 11-20,21-02.

The samples and their associated QC samples were extracted on 12-06-02 and analyzed on 12-07-02 according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures based on method 8015B for n-Propyl Alcohol and Ethanol.

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

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

2. All required holding times for analysis have not been met. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

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

12/16/02
Date

r:\group\data\gcsc\12L-250.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 11 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 02GC565

Initiator: John Koch
Date: 12/6/02
Client: TNU Hanford

Batch: 02111L250, 251
Samples: All
Method: SW846/MCAWW/CLP/ 8015

Parameter: GCSC
Matrix: Soil
Prep Batch: x

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

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

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

Samples run 1 or 2 days past hold.

2. Known or Probable Causes(s)

The Instrument was unavailable for the Analysis

3. Discussion and Proposed Action

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

Other Description:

Run ASAP and Notify.

4. Project Manager Instructions...signature/date: _____ 12/6/02

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

5. Final Action...signature/date: _____ 12/9/02

Other Explanation:

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

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

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

QA-105-A-0801

GLOSSARY OF GC SCAN DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 12/12/02 15:53

RFW Batch Number: **0211L250** Client: **TNUHANFORD F03-005 H1996** Work Order: 11343606001 Page: 1

5

	Cust ID:	B15Y84	B15Y84	B15Y84	B15Y85	B15YR0	B160N2
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
n-Propyl Alcohol		23 U	93 %	94 %	30 U	24 U	22 U
Ethanol		23 U	99 %	92 %	30 U	24 U	22 U

	Cust ID:	BLK	BLK BS
Sample Information	RFW#:	02LE1466-MB1	02LE1466-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	mg/kg	mg/kg
n-Propyl Alcohol		25 U	93 %
Ethanol		25 U	101 %

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

12/13/02

Lionville Laboratory Use Only

02111250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: 05

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C					D		E	F	G			
Refrigerator #		1	5	5					5		5	5	5			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	250	250					125		500	60	250			
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	I.C Anions	PH	Alcohol Glycol Hydroxyl			
Lionville Laboratory Use Only		8624 H	8625 x ODRO	OPCB					MET ICP		INORG	IPH	OGCSC			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8624 H	8625 x ODRO	OPCB					MET ICP		INORG	IPH	OGCSC			
S - Soil	001	B15Y84			S	11-21-02	0836	1	1	1					1		1	1	1			
SE - Sediment	002	B15Y85			S	11-20-02	1325	1	1	1					1		1	1	1			
SO - Solid	003	B15YR0				⊥	0911	1	1	1					1		1	1	1			
SL - Sludge	004	B16ON2				11-21-02	1120	1	1	1					1		1	1	1			
W - Water																						
O - Oil																						
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

4. IN3N2, INH3N, ISFD, ICNIO

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 2° °C

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

NOTES: 7921 4055 9403

Relinquished by	Received by	Date	Time
FEDEX	[signature]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE			

ORIGINAL REWRITTEN

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050		Bill of Lading/Air Bill No.: SEE OSR

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

Special Handling and/or Storage: Tie To B15Y86 Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None			
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	aG		
No. of Container(s)	1	1	1	1	1	1	1	1			
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml			
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.			
Sample No. / Matrix * / Sample Date / Sample Time											
B15Y84 / SOIL / 11-21-02 / 0836	X	X	X	X	X	X	X	X			

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11/21/02 1515	Ref# IB3728	11/21/02 1515
Relinquished By/Removed From	IB3726	11-25-02 1000	R. Fehlberg	11-25-02 1000
Relinquished By/Removed From	ERC R. Fehlberg	11-25-02 1000	FedEx	
Relinquished By/Removed From	FEDEX	11-26-02 0915	Carl	11-26-02 0915
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}

Personnel not available to relinquish samples from the 3728 Ref # IB on 11/25/02 me

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	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-008	Page 1 of 1

Collector: Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050	Bill of Lading/Air Bill No.: SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive Tiered B15Y86

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P aG	G/P aG	G/P aG	G/P aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. 11-25-02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y85	SOIL	11/20/02	1325	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11/20/02 1500	RCF #18/3728	11/20/02 1500
IB	11-25-02 3728 1000	R Fehlberg	11-25-02 1000
ERC R Fehlberg	11-25-02 1000	Fed Ex	
Fedex	11-26-02 0915	Cal.	11-26-02 0915

SPECIAL INSTRUCTIONS

** Please see SAF for specific sampling instructions.

Personnel not available to relinquish samples from the 3728 Ref # IB on 11/__/__

(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	F03-005-016	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	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.: A 030 050	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
TicTo B15YR2

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~~ aG	~~G/P~~ aG	G/P aG	G/P aG RJN 11/19/02	G/P	
# of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11-26-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YR0	SOIL	11-20-02	0911	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11/20/02 1500	REF# 1B/3728	11/20/02 1500
1B 3728	11-25-02 1000	R. Fahlberg / R. Fahlberg	11-25-02 1000
R. Fahlberg / R. Fahlberg	11-25-02 1000	Fed Ex	
FEDEX	11-26-02 0915	Carl Wy	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-018	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3	SAF No.: F03-005	
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.: A030 058		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; Tie To B15Y/R2

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B160N2 / SOIL / 11/21/02 / 1120	X	X	X	X	X	X	X	X		

KJN 11/21/02; RJN 11/21/02; 11-25-02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref #163728	11/21/02 1515
163728	11-25-02 1000	R. Fellows	11-25-02 1000
ERC	1000 11-25-02	FedEx	
FEDEX	11-26-02 0915		11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 163 on 11/25/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
ERC-02-404-2°c
ERC-02-001-2°c
ERC-01-024-2°c
ERC-96-019-2°c

Laboratory Sample Custodian: Carl [illegible]

Laboratory Project Manager:

JAN 2003
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15Y84						
SILVER, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
SILVER, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
SILVER, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
ALUMINUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
ALUMINUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
ALUMINUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
ARSENIC, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
ARSENIC, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
ARSENIC, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
BORON, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
BORON, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
BORON, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
BARIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
BARIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
BARIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
BISMUTH, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
BISMUTH, TOTAL REP	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
BISMUTH, TOTAL SPIKE	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
CALCIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
CALCIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
CALCIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
CADMIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
CADMIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
CADMIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
CHROMIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
CHROMIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
CHROMIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
COPPER, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
COPPER, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
COPPER, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
IRON, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
IRON, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
MERCURY, TOTAL	001	S	02C0362	11/21/02	12/09/02	12/10/02
MERCURY, TOTAL	001 REP	S	02C0362	11/21/02	12/09/02	12/10/02
MERCURY, TOTAL	001 MS	S	02C0362	11/21/02	12/09/02	12/10/02
POTASSIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
POTASSIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
POTASSIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
MAGNESIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
MAGNESIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
MAGNESIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
MANGANESE, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
MANGANESE, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
MANGANESE, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
MOLYBDENUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
MOLYBDENUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
MOLYBDENUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
SODIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
SODIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
SODIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
NICKEL, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
NICKEL, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
NICKEL, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
LEAD, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
LEAD, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
LEAD, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
SELENIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
SELENIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
SELENIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
THALLIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
THALLIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
THALLIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
VANADIUM, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
VANADIUM, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
VANADIUM, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
ZINC, TOTAL	001	S	02L0726	11/21/02	12/11/02	12/13/02
ZINC, TOTAL	001 REP	S	02L0726	11/21/02	12/11/02	12/13/02
ZINC, TOTAL	001 MS	S	02L0726	11/21/02	12/11/02	12/13/02
B15Y85						
SILVER, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
ARSENIC, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
BORON, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
BARIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
BISMUTH, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
CALCIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
CADMIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
CHROMIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
COPPER, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
IRON, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
MERCURY, TOTAL	002	S	02C0362	11/20/02	12/09/02	12/10/02
POTASSIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
MAGNESIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
MANGANESE, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
MOLYBDENUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
SODIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
NICKEL, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
LEAD, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
SELENIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
THALLIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
VANADIUM, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
ZINC, TOTAL	002	S	02L0726	11/20/02	12/11/02	12/13/02
B15YR0						
SILVER, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
ALUMINUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
ARSENIC, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
BORON, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
BARIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
BISMUTH, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
CALCIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
CADMIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
CHROMIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
COPPER, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
IRON, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	003	S	02C0362	11/20/02	12/09/02	12/10/02
POTASSIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
MAGNESIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
MANGANESE, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
MOLYBDENUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
SODIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
NICKEL, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
LEAD, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
SELENIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
THALLIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
VANADIUM, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
ZINC, TOTAL	003	S	02L0726	11/20/02	12/11/02	12/13/02
B160N2						
SILVER, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
ALUMINUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
ARSENIC, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
BORON, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
BARIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
BISMUTH, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
CALCIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
CADMIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
CHROMIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
COPPER, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
IRON, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
MERCURY, TOTAL	004	S	02C0362	11/21/02	12/09/02	12/10/02
POTASSIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
MAGNESIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
MANGANESE, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
MOLYBDENUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
SODIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
NICKEL, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
LEAD, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
SELENIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
THALLIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02
VANADIUM, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	004	S	02L0726	11/21/02	12/11/02	12/13/02

LAB QC:

SILVER LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
SILVER, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
ALUMINUM LABORTORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
ALUMINUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
ARSENIC LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
ARSENIC, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
BORON LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
BORON, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
BARIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
BARIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
BERYLLIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
BERYLLIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
BISMUTH, LCS	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
BISMUTH, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
CALCIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
CALCIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
CADMIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
CADMIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
CHROMIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
CHROMIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
COPPER LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
COPPER, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
IRON LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
IRON, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
MERCURY LABORATORY	LC1 BS	S	02C0362	N/A	12/09/02	12/10/02
MERCURY, TOTAL	MB1	S	02C0362	N/A	12/09/02	12/10/02
POTASSIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
POTASSIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
MAGNESIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
MAGNESIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
MANGANESE LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
MANGANESE, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
MOLYBDENUM LABORATOR	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
MOLYBDENUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SODIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
SODIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
NICKEL LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
NICKEL, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
LEAD LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
LEAD, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
SELENIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
SELENIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
THALLIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
THALLIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
VANADIUM LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
VANADIUM, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02
ZINC LABORATORY	LC1 BS	S	02L0726	N/A	12/11/02	12/13/02
ZINC, TOTAL	MB1	S	02L0726	N/A	12/11/02	12/13/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-005
LVL#: 0211L250
SDG/SAF#: H1996/F03-005

W.O.#: 11343-606-001-9999-00
Date Received: 11-26-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 soil samples.

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

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

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

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

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

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

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

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

10. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

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

208 Welsh Pool Road • Exton, PA 19341-1313 • (610) 280-3000 • Fax (610) 280-3041

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B15Y84	Aluminum	20,000	103.6
	Manganese	2,000	97.6

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

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-18-02
Date

gmb/m11-250

LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0211L250

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

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

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15Y84	Silver, Total	0.45	MG/KG	0.14	1.0
		Aluminum, Total	5970	MG/KG	3.5	1.0
		Arsenic, Total	2.9	MG/KG	0.38	1.0
		Boron, Total	1.5	MG/KG	0.21	1.0
		Barium, Total	77.6	MG/KG	0.03	1.0
		Beryllium, Total	0.38	MG/KG	0.02	1.0
		Bismuth, Total	0.58 u	MG/KG	0.58	1.0
		Calcium, Total	3400	MG/KG	1.9	1.0
		Cadmium, Total	0.13	MG/KG	0.04	1.0
		Chromium, Total	36.4	MG/KG	0.1	1.0
		Copper, Total	13.0	MG/KG	0.13	1.0
		Iron, Total	24100	MG/KG	2.0	1.0
		Mercury, Total	0.1	MG/KG	0.02	1.0
		Potassium, Total	721	MG/KG	3.6	1.0
		Magnesium, Total	4250	MG/KG	0.98	1.0
		Manganese, Total	240	MG/KG	0.02	1.0
		Molybdenum, Total	0.32	MG/KG	0.17	1.0
		Sodium, Total	158	MG/KG	1.9	1.0
		Nickel, Total	8.8	MG/KG	0.13	1.0
		Lead, Total	4.3	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Thallium, Total	0.68	MG/KG	0.55	1.0
		Vanadium, Total	66.0	MG/KG	0.1	1.0
		Zinc, Total	47.2	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B15Y85	Silver, Total	30.4	MG/KG	0.15	1.0
		Aluminum, Total	10800	MG/KG	3.7	1.0
		Arsenic, Total	2.5	MG/KG	0.40	1.0
		Boron, Total	1.5	MG/KG	0.22	1.0
		Barium, Total	88.3	MG/KG	0.03	1.0
		Beryllium, Total	0.39	MG/KG	0.02	1.0
		Bismuth, Total	2.0	MG/KG	0.62	1.0
		Calcium, Total	2690	MG/KG	2.1	1.0
		Cadmium, Total	0.48	MG/KG	0.04	1.0
		Chromium, Total	815	MG/KG	0.11	1.0
		Copper, Total	244	MG/KG	0.14	1.0
		Iron, Total	28800	MG/KG	2.1	1.0
		Mercury, Total	4.3	MG/KG	0.09	5.0
		Potassium, Total	673	MG/KG	3.9	1.0
		Magnesium, Total	3810	MG/KG	1.0	1.0
		Manganese, Total	237	MG/KG	0.02	1.0
		Molybdenum, Total	0.88	MG/KG	0.18	1.0
		Sodium, Total	176	MG/KG	2.0	1.0
		Nickel, Total	20.3	MG/KG	0.14	1.0
		Lead, Total	30.0	MG/KG	0.25	1.0
		Selenium, Total	0.40 u	MG/KG	0.40	1.0
		Thallium, Total	0.99	MG/KG	0.59	1.0
		Vanadium, Total	69.3	MG/KG	0.11	1.0
		Zinc, Total	506	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YR0	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Aluminum, Total	5530	MG/KG	3.4	1.0
		Arsenic, Total	4.2	MG/KG	0.37	1.0
		Boron, Total	0.97	MG/KG	0.20	1.0
		Barium, Total	93.8	MG/KG	0.03	1.0
		Beryllium, Total	0.42	MG/KG	0.02	1.0
		Bismuth, Total	0.57 u	MG/KG	0.57	1.0
		Calcium, Total	11100	MG/KG	1.9	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	7.5	MG/KG	0.1	1.0
		Copper, Total	13.4	MG/KG	0.13	1.0
		Iron, Total	25100	MG/KG	2.0	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	964	MG/KG	3.6	1.0
		Magnesium, Total	4780	MG/KG	0.96	1.0
		Manganese, Total	386	MG/KG	0.02	1.0
		Molybdenum, Total	0.27	MG/KG	0.16	1.0
		Sodium, Total	174	MG/KG	1.8	1.0
		Nickel, Total	9.7	MG/KG	0.13	1.0
		Lead, Total	4.4	MG/KG	0.23	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Thallium, Total	0.62	MG/KG	0.54	1.0
		Vanadium, Total	65.4	MG/KG	0.1	1.0
		Zinc, Total	44.8	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B160N2	Silver, Total	0.68	MG/KG	0.14	1.0
		Aluminum, Total	5920	MG/KG	3.5	1.0
		Arsenic, Total	3.7	MG/KG	0.38	1.0
		Boron, Total	0.78	MG/KG	0.21	1.0
		Barium, Total	120	MG/KG	0.03	1.0
		Beryllium, Total	0.46	MG/KG	0.02	1.0
		Bismuth, Total	0.58 u	MG/KG	0.58	1.0
		Calcium, Total	3880	MG/KG	1.9	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	18.4	MG/KG	0.1	1.0
		Copper, Total	13.6	MG/KG	0.13	1.0
		Iron, Total	24500	MG/KG	2.0	1.0
		Mercury, Total	0.12	MG/KG	0.02	1.0
		Potassium, Total	856	MG/KG	3.6	1.0
		Magnesium, Total	4370	MG/KG	0.98	1.0
		Manganese, Total	451	MG/KG	0.02	1.0
		Molybdenum, Total	0.27	MG/KG	0.17	1.0
		Sodium, Total	129	MG/KG	1.9	1.0
		Nickel, Total	8.6	MG/KG	0.13	1.0
		Lead, Total	4.5	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Thallium, Total	0.59	MG/KG	0.55	1.0
		Vanadium, Total	61.0	MG/KG	0.1	1.0
		Zinc, Total	44.8	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0726-MB1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Aluminum, Total	3.5 u	MG/KG	3.5	1.0
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Boron, Total	0.29	MG/KG	0.21	1.0
		Barium, Total	0.05	MG/KG	0.03	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Bismuth, Total	0.59 u	MG/KG	0.59	1.0
		Calcium, Total	5.5	MG/KG	2.0	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.12	MG/KG	0.10	1.0
		Copper, Total	0.13 u	MG/KG	0.13	1.0
		Iron, Total	2.0 u	MG/KG	2.0	1.0
		Potassium, Total	3.7 u	MG/KG	3.7	1.0
		Magnesium, Total	2.1	MG/KG	0.99	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.17 u	MG/KG	0.17	1.0
		Sodium, Total	3.0	MG/KG	1.9	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
		Thallium, Total	0.56 u	MG/KG	0.56	1.0
		Vanadium, Total	0.10 u	MG/KG	0.10	1.0
		Zinc, Total	0.24	MG/KG	0.08	1.0
BLANK1	02C0362-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15Y84	Silver, Total	5.1	0.45	4.9	94.8	1.0
		Aluminum, Total	6270	5970	194	153.4*	1.0
		Arsenic, Total	191	2.9	194	96.6	1.0
		Boron, Total	91.4	1.5	97.2	92.5	1.0
		Barium, Total	296	77.6	194	112.2	1.0
		Beryllium, Total	5.1	0.38	4.9	96.3	1.0
		Bismuth, Total	464	0.58u	486	95.5	1.0
		Calcium, Total	5650	3400	2430	92.7	1.0
		Cadmium, Total	4.8	0.13	4.9	95.2	1.0
		Chromium, Total	53.8	36.4	19.4	89.7	1.0
		Copper, Total	35.9	13.0	24.3	94.2	1.0
		Iron, Total	24200	24100	97.2	99.6*	1.0
		Mercury, Total	0.25	0.1	0.16	96.3	1.0
		Potassium, Total	3160	721	2430	100.2	1.0
		Magnesium, Total	6310	4250	2430	84.8	1.0
		Manganese, Total	380	240	48.6	287.2*	1.0
		Molybdenum, Total	92.7	0.32	97.2	95.0	1.0
		Sodium, Total	2480	158	2430	95.7	1.0
		Nickel, Total	55.8	8.8	48.6	96.7	1.0
		Lead, Total	51.5	4.3	48.6	97.1	1.0
		Selenium, Total	184	0.38u	194	94.6	1.0
		Thallium, Total	186	0.68	194	95.6	1.0
		Vanadium, Total	114	66.0	48.6	98.8	1.0
		Zinc, Total	93.3	47.2	48.6	94.9	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15Y84	Silver, Total	0.45	0.49	7.3	1.0
		Aluminum, Total	5970	5570	7.0	1.0
		Arsenic, Total	2.9	2.2	27.5	1.0
		Boron, Total	1.5	0.65	78.7	1.0
		Barium, Total	77.6	70.6	9.4	1.0
		Beryllium, Total	0.38	0.37	3.2	1.0
		Bismuth, Total	0.58u	0.57u	NC	1.0
		Calcium, Total	3400	3240	4.6	1.0
		Cadmium, Total	0.13	0.12	12.8	1.0
		Chromium, Total	36.4	35.6	2.2	1.0
		Copper, Total	13.0	12.3	5.5	1.0
		Iron, Total	24100	23600	2.1	1.0
		Mercury, Total	0.1	0.09	5.3	1.0
		Potassium, Total	721	700	2.9	1.0
		Magnesium, Total	4250	3910	8.3	1.0
		Manganese, Total	240	255	5.9	1.0
		Molybdenum, Total	0.32	0.39	17.5	1.0
		Sodium, Total	158	126	22.7	1.0
		Nickel, Total	8.8	8.6	2.3	1.0
		Lead, Total	4.3	4.4	2.3	1.0
		Selenium, Total	0.38u	0.37u	NC	1.0
		Thallium, Total	0.68	0.57	16.9	1.0
		Vanadium, Total	66.0	64.5	2.3	1.0
		Zinc, Total	47.2	46.0	2.6	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/16/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0726-LC1	Silver, LCS	49.6	50.0	MG/KG	99.2
		Aluminum, LCS	493	500	MG/KG	98.6
		Arsenic, LCS	970	1000	MG/KG	97.0
		Boron, LCS	482	500	MG/KG	96.3
		Barium, LCS	492	500	MG/KG	98.5
		Beryllium, LCS	24.4	25.0	MG/KG	97.6
		Bismuth, LCS	492	500	MG/KG	98.3
		Calcium, LCS	2530	2500	MG/KG	101.1
		Cadmium, LCS	24.8	25.0	MG/KG	99.2
		Chromium, LCS	50.3	50.0	MG/KG	100.6
		Copper, LCS	124	125	MG/KG	99.0
		Iron, LCS	488	500	MG/KG	97.7
		Potassium, LCS	2460	2500	MG/KG	98.4
		Magnesium, LCS	2450	2500	MG/KG	98.1
		Manganese, LCS	76.1	75.0	MG/KG	101.5
		Molybdenum, LCS	500	500	MG/KG	99.9
		Sodium, LCS	2390	2500	MG/KG	95.7
		Nickel, LCS	199	200	MG/KG	99.6
		Lead, LCS	246	250	MG/KG	98.5
		Selenium, LCS	955	1000	MG/KG	95.5
		Thallium, LCS	1000	1000	MG/KG	100.0
		Vanadium, LCS	251	250	MG/KG	100.5
		Zinc, LCS	98.7	100	MG/KG	98.7
LCS1	02C0362-LC1	Mercury, LCS	2.1	2.5	MG/KG	85.4

Lionville Laboratory Use Only

02111250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C					D		E	F	G			
Refrigerator #		1	5	5					5		5	5	5			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	250	250					125		500	60	250			
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ PCB	Herb				Metal	CN	T.C Anions	pH	Alcohol Glycol Petroleum			
		Lionville Laboratory Use Only														
		0624 H	0625 x ODRO	OPCB					MET ICP		INORG	IPH	OGCSC			
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	0624 H	0625 x ODRO	OPCB	MET ICP	INORG	IPH	OGCSC
001	B15Y84			S	11-21-02	0836	1	1	1	1	1	1	1
002	B15Y85			S	11-20-02	1325	1	1	1	1	1	1	1
003	B15YR0			⊥	⊥	0911	1	1	1	1	1	1	1
004	B16ON2			⊥	11-21-02	1120	1	1	1	1	1	1	1

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn, Hg

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4,

4. IN3N2, INH3N, ISFD, ICNYO

5.

6.

Lionville Laboratory Use Only

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

2) Ambient or Chilled

3) Received in Good Condition ✓ or N

4) Samples Properly Preserved ✓ or N

5) Received Within Holding Times ✓ or N

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

2) Unbroken on Outer Package ✓ or N

3) Present on Sample ✓ or N

4) Unbroken on Sample ✓ or N

COC Record Present Upon Sample Rec't ✓ or N

Cooler Temp. 2° °C

Relinquished by	Received by	Date	Time
FEDEX	[signature]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

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

NOTES:

7921405 9403

9399 -2°c . 7921405 9403 -2°c

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive
Tie To B15Y86

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None			
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	G/P aG	~~G/P~~ aG	RN 11/21/02 aG		
No. of Container(s)	1	1	1	1	1	1	1	1			
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml			
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.			

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y84	SOIL	11-21-02	0836	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11/21/02 1515	Ref# 1B/3728	11/21/02 1515
1B 3728	11.25.02 1000	R. Fehlberg	11.25.02 1000
R. Fehlberg	11.25.02 1000	FedEx	
FEDEX	11-26-02 0915	Carl	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 [illegible]

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	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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

20

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-008	Page 1 of 1

Collector: Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2	SAF No.: F03-005	
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050	Bill of Lading/Air Bill No.: SEE OSPL	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactiv Tiretp B15Y80

Special Handling and/or Storage: cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P aG	G/P aG	G/P aG	G/P aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. 11-25-02		
Sample No. / Matrix * / Sample Date / Sample Time										
B15Y85 / SOIL / 11/20/02 / 1325	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson / R Nielson	11/20/02 1500	Ref # 1B/3728	11/20/02 1500
1B	11-25-02 3728 1000	R Fellows R Fishburn	11-25-02 1000
R Fellows R Fishburn	ERC 11-25-02 1000	Fed Ex	
FEDEX	11-26-02 0915	Cal.	11-26-02 0915

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}

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

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

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

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

21

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-016	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	SAF No.: F03-005	
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.: A 030 050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

TicTo B15YR2

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~~ aG	~~G/P~~ aG	G/P aG	G/P aG RJN 11/19/02	G/P	
# of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RJN 11-24-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YR0	SOIL	11-20-02	0911	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11/20/02 1500	REF# 1B/3728	11/20/02 1500
1B 3728	11-25-02 1000	R. Fohl	11-25-02 1000
ERC R. Fohl	11-25-02 1000	Fed Ex	
FEDEX	11-26-02 0915	Carl Wy	11-26-02 0915

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

22

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-018	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3	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.: A030 050	Bill of Lading/Air Bill No.: SEE OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; Tie To B159/R2

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B160N2 / SOIL / 11/21/02 / 1120	X	X	X	X	X	X	X	X		

KJN 11/21/02; RJN 11/21/02; 11-25-02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11/21/02 1515	Received By/Stored In: Ref # 1B 3728	11/21/02 1515
Relinquished By/Removed From: 1B 3728	11-25-02 1000	Received By/Stored In: R. Fellows	11-25-02 1000
Relinquished By/Removed From: ERC	1000	Received By/Stored In: FedEx	
Relinquished By/Removed From: FEDEX	11-26-02 0915	Received By/Stored In:	11-26-02 0915
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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
RC-02-404-2°c
RC-02-001-2°c
RC-01-024-2°c
RC-96-019-2°c

Laboratory Sample Custodian: Carl Hung

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15Y84						
% SOLIDS	001	S	02L%S131	11/21/02	11/27/02	12/02/02
CHLORIDE BY IC	001	S	02LIC085	11/21/02	12/19/02	12/19/02
CHLORIDE BY IC	001 REP	S	02LIC085	11/21/02	12/19/02	12/19/02
CHLORIDE BY IC	001 MS	S	02LIC085	11/21/02	12/19/02	12/19/02
FLUORIDE BY IC	001	S	02LIC085	11/21/02	12/19/02	12/19/02
FLUORIDE BY IC	001 REP	S	02LIC085	11/21/02	12/19/02	12/19/02
FLUORIDE BY IC	001 MS	S	02LIC085	11/21/02	12/19/02	12/19/02
NITRITE BY IC	001	S	02LICA85	11/21/02	12/19/02	12/19/02
NITRITE BY IC	001 REP	S	02LICA85	11/21/02	12/19/02	12/19/02
NITRITE BY IC	001 MS	S	02LICA85	11/21/02	12/19/02	12/19/02
NITRATE BY IC	001	S	02LICA85	11/21/02	12/19/02	12/19/02
NITRATE BY IC	001 REP	S	02LICA85	11/21/02	12/19/02	12/19/02
NITRATE BY IC	001 MS	S	02LICA85	11/21/02	12/19/02	12/19/02
TOTAL CYANIDE	001	S	02LC093	11/21/02	11/27/02	11/27/02
PHOSPHATE BY IC	001	S	02LICB85	11/21/02	12/19/02	12/19/02
PHOSPHATE BY IC	001 REP	S	02LICB85	11/21/02	12/19/02	12/19/02
PHOSPHATE BY IC	001 MS	S	02LICB85	11/21/02	12/19/02	12/19/02
CHROMIUM VI	001	S	02LVI040	11/21/02	12/11/02	12/12/02
SULFATE BY IC	001	S	02LICC85	11/21/02	12/19/02	12/19/02
SULFATE BY IC	001 REP	S	02LICC85	11/21/02	12/19/02	12/19/02
SULFATE BY IC	001 MS	S	02LICC87	11/21/02	12/23/02	12/23/02
NITRATE NITRITE	001	S	02LN3090	11/21/02	12/16/02	12/16/02
NITRATE NITRITE	001 REP	S	02LN3090	11/21/02	12/16/02	12/16/02
NITRATE NITRITE	001 MS	S	02LN3090	11/21/02	12/16/02	12/16/02
AMMONIA	001	S	02LAMA35	11/21/02	12/10/02	12/10/02
AMMONIA	001 REP	S	02LAMA35	11/21/02	12/10/02	12/10/02
AMMONIA	001 MS	S	02LAMA35	11/21/02	12/10/02	12/10/02
PH	001	S	02LPH097	11/21/02	11/27/02	11/27/02
PH	001 REP	S	02LPH097	11/21/02	11/27/02	11/27/02
SULFIDE	001	S	02LSD057	11/21/02	11/27/02	11/27/02
B15Y85						
% SOLIDS	002	S	02L%S131	11/20/02	11/27/02	12/02/02
CHLORIDE BY IC	002	S	02LIC085	11/20/02	12/19/02	12/19/02

JAN 2003
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	002	S	02LIC085	11/20/02	12/19/02	12/19/02
NITRITE BY IC	002	S	02LICA85	11/20/02	12/19/02	12/19/02
NITRATE BY IC	002	S	02LICB86	11/20/02	12/20/02	12/20/02
TOTAL CYANIDE	002	S	02LC093	11/20/02	11/27/02	11/27/02
PHOSPHATE BY IC	002	S	02LICB85	11/20/02	12/19/02	12/19/02
CHROMIUM VI	002	S	02LVI040	11/20/02	12/11/02	12/12/02
CHROMIUM VI	002 REP	S	02LVI040	11/20/02	12/11/02	12/12/02
CHROMIUM VI	002 MS	S	02LVI040	11/20/02	12/11/02	12/12/02
CHROMIUM VI	002 MSD	S	02LVI040	11/20/02	12/11/02	12/12/02
SULFATE BY IC	002	S	02LICC86	11/20/02	12/20/02	12/20/02
NITRATE NITRITE	002	S	02LN3090	11/20/02	12/16/02	12/16/02
AMMONIA	002	S	02LAMA35	11/20/02	12/10/02	12/10/02
PH	002	S	02LPH097	11/20/02	11/27/02	11/27/02
SULFIDE	002	S	02LSD057	11/20/02	11/27/02	11/27/02
B15YR0						
% SOLIDS	003	S	02L%S131	11/20/02	11/27/02	12/02/02
CHLORIDE BY IC	003	S	02LIC085	11/20/02	12/19/02	12/19/02
FLUORIDE BY IC	003	S	02LIC085	11/20/02	12/19/02	12/19/02
NITRITE BY IC	003	S	02LICA85	11/20/02	12/19/02	12/19/02
NITRATE BY IC	003	S	02LICA85	11/20/02	12/19/02	12/19/02
TOTAL CYANIDE	003	S	02LC093	11/20/02	11/27/02	11/27/02
PHOSPHATE BY IC	003	S	02LICB85	11/20/02	12/19/02	12/19/02
CHROMIUM VI	003	S	02LVI040	11/20/02	12/11/02	12/12/02
SULFATE BY IC	003	S	02LICC85	11/20/02	12/19/02	12/19/02
NITRATE NITRITE	003	S	02LN3090	11/20/02	12/16/02	12/16/02
AMMONIA	003	S	02LAMA35	11/20/02	12/10/02	12/10/02
PH	003	S	02LPH097	11/20/02	11/27/02	11/27/02
SULFIDE	003	S	02LSD057	11/20/02	11/27/02	11/27/02
B160N2						
% SOLIDS	004	S	02L%S131	11/21/02	11/27/02	12/02/02
% SOLIDS	004 REP	S	02L%S131	11/21/02	11/27/02	12/02/02
CHLORIDE BY IC	004	S	02LIC085	11/21/02	12/19/02	12/19/02
FLUORIDE BY IC	004	S	02LIC085	11/21/02	12/19/02	12/19/02
NITRITE BY IC	004	S	02LICA85	11/21/02	12/19/02	12/19/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	004	S	02LICA85	11/21/02	12/19/02	12/19/02
TOTAL CYANIDE	004	S	02LC093	11/21/02	11/27/02	11/27/02
TOTAL CYANIDE	004 REP	S	02LC093	11/21/02	11/27/02	11/27/02
TOTAL CYANIDE	004 MS	S	02LC093	11/21/02	11/27/02	11/27/02
PHOSPHATE BY IC	004	S	02LICA87	11/21/02	12/23/02	12/23/02
CHROMIUM VI	004	S	02LVI040	11/21/02	12/11/02	12/12/02
SULFATE BY IC	004	S	02LICC85	11/21/02	12/19/02	12/19/02
NITRATE NITRITE	004	S	02LN3090	11/21/02	12/16/02	12/16/02
AMMONIA	004	S	02LAMA35	11/21/02	12/10/02	12/10/02
PH	004	S	02LPH097	11/21/02	11/27/02	11/27/02
SULFIDE	004	S	02LSD057	11/21/02	11/27/02	11/27/02
SULFIDE	004 REP	S	02LSD057	11/21/02	11/27/02	11/27/02
SULFIDE	004 MS	S	02LSD057	11/21/02	11/27/02	11/27/02

LAB QC:

CHLORIDE BY IC	MB1	S	02LIC085	N/A	12/19/02	12/19/02
CHLORIDE BY IC	MB1 BS	S	02LIC085	N/A	12/19/02	12/19/02
FLUORIDE BY IC	MB1	S	02LIC085	N/A	12/19/02	12/19/02
FLUORIDE BY IC	MB1 BS	S	02LIC085	N/A	12/19/02	12/19/02
NITRITE BY IC	MB1	S	02LICA85	N/A	12/19/02	12/19/02
NITRITE BY IC	MB1 BS	S	02LICA85	N/A	12/19/02	12/19/02
NITRATE BY IC	MB1	S	02LICA85	N/A	12/19/02	12/19/02
NITRATE BY IC	MB1 BS	S	02LICA85	N/A	12/19/02	12/19/02
TOTAL CYANIDE	LCS L	S	02LC093	N/A	11/27/02	11/27/02
TOTAL CYANIDE	LCS L	S	02LC093	N/A	11/27/02	11/27/02
TOTAL CYANIDE	MB1	S	02LC093	N/A	11/27/02	11/27/02
PHOSPHATE BY IC	MB1	S	02LICB85	N/A	12/19/02	12/19/02
PHOSPHATE BY IC	MB1 BS	S	02LICB85	N/A	12/19/02	12/19/02
CHROMIUM VI	MB1	S	02LVI040	N/A	12/11/02	12/12/02
CHROMIUM VI	MB1 BS	S	02LVI040	N/A	12/11/02	12/12/02
CHROMIUM VI	MB1 BSD	S	02LVI040	N/A	12/11/02	12/12/02
CHROMIUM VI	MB2	S	02LVI040	N/A	12/11/02	12/12/02
CHROMIUM VI	MB2 BS	S	02LVI040	N/A	12/11/02	12/12/02
CHROMIUM VI	MB2 BSD	S	02LVI040	N/A	12/11/02	12/12/02
SULFATE BY IC	MB1	S	02LICC85	N/A	12/19/02	12/19/02
SULFATE BY IC	MB1 BS	S	02LICC85	N/A	12/19/02	12/19/02
SULFATE BY IC	MB1	S	02LICC87	N/A	12/23/02	12/23/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-005 H1996

DATE RECEIVED: 11/26/02 LVL LOT # :0211L250

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE BY IC	MB1 BS	S	02LICC87	N/A	12/23/02	12/23/02
NITRATE NITRITE	MB1	S	02LN3090	N/A	12/16/02	12/16/02
NITRATE NITRITE	MB1 BS	S	02LN3090	N/A	12/16/02	12/16/02
AMMONIA	MB1	S	02LAMA35	N/A	12/10/02	12/10/02
AMMONIA	MB1 BS	S	02LAMA35	N/A	12/10/02	12/10/02
AMMONIA	MB1 BSD	S	02LAMA35	N/A	12/10/02	12/10/02
SULFIDE	MB1	S	02LSD057	N/A	11/27/02	11/27/02
SULFIDE	MB1 BS	S	02LSD057	N/A	11/27/02	11/27/02
NITRATE BY IC	MB1	S	02LICB86	N/A	12/20/02	12/20/02
NITRATE BY IC	MB1 BS	S	02LICB86	N/A	12/20/02	12/20/02
SULFATE BY IC	MB1	S	02LICC86	N/A	12/20/02	12/20/02
SULFATE BY IC	MB1 BS	S	02LICC86	N/A	12/20/02	12/20/02
PHOSPHATE BY IC	MB1	S	02LICA87	N/A	12/23/02	12/23/02
PHOSPHATE BY IC	MB1 BS	S	02LICA87	N/A	12/23/02	12/23/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-005 H1996
LVL#: 0211L250

W.O.#: 11343-606-001-9999-00
Date Received: 11-26-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 soil samples.

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

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

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits with the exception of LCS 02LICB85-MB1 for Phosphate that was above the 90-110% control limit, however the associated sample results are less than the reporting limit or less than 2 times the reporting limit and therefore, would not be considered biased high. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

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

8. The replicate analyses for Percent Solids, Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Chromium VI, Ammonia, pH, Nitrate Nitrite, Sulfate and Sulfide 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

12-30-02
Date

njp\i11-250

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

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** ~~EPA~~ ISP 12-30-02

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 12/27/02

CLIENT: TNUHANFORD F03-005 H1996

LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15Y84	% Solids	96.2		%	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	1.30	u	MG/KG	1.30	1.0
		Nitrate by IC	16.0		MG/KG	1.30	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	1.1		MG/KG	0.42	1.0
		Sulfate by IC	36.8		MG/KG	1.3	1.0
		Nitrate Nitrite	3.8		MG/KG	0.16	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	7.4		SOIL PH	0.01	1.0
		Sulfide	39.1	u	MG/KG	39.1	1.0
-002	B15Y85	% Solids	90.2		%	0.01	1.0
		Chloride by IC	11.2		MG/KG	1.4	1.0
		Fluoride by IC	1.4	u	MG/KG	1.4	1.0
		Nitrite by IC	1.39	u	MG/KG	1.39	1.0
		Nitrate by IC	80.6		MG/KG	6.93	5.0
		Cyanide, Total	0.37	u	MG/KG	0.37	1.0
		Phosphate by IC	1.4	u	MG/KG	1.4	1.0
		Chromium VI	6.8		MG/KG	0.44	1.0
		Sulfate by IC	199		MG/KG	6.9	5.0
		Nitrate Nitrite	10.6		MG/KG	0.22	1.0
		Ammonia, as N	2.8	u	MG/KG	2.8	1.0
		pH	6.0		SOIL PH	0.01	1.0
		Sulfide	44.2	u	MG/KG	44.2	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YR0	% Solids	93.9		%	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	1.33	u	MG/KG	1.33	1.0
		Nitrate by IC	26.9		MG/KG	1.33	1.0
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.43	u	MG/KG	0.43	1.0
		Sulfate by IC	7.8		MG/KG	1.3	1.0
		Nitrate Nitrite	5.2		MG/KG	0.20	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.8		SOIL PH	0.01	1.0
		Sulfide	42.4	u	MG/KG	42.4	1.0
-004	B160N2	% Solids	97.3		%	0.01	1.0
		Chloride by IC	5.8		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	3.28		MG/KG	1.28	1.0
		Cyanide, Total	0.38	u	MG/KG	0.38	1.0
		Phosphate by IC	1.5		MG/KG	1.3	1.0
		Chromium VI	0.41	u	MG/KG	0.41	1.0
		Sulfate by IC	3.9		MG/KG	1.3	1.0
		Nitrate Nitrite	0.81		MG/KG	0.16	1.0
		Ammonia, as N	2.4	u	MG/KG	2.4	1.0
		pH	8.4		SOIL PH	0.01	1.0
		Sulfide	40.7	u	MG/KG	40.7	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/27/02

CLIENT: TNUHANFORD F03-005 H1996

LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LIC085-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
		Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK10	02LICA85-MB1	Nitrite by IC	1.25 u	MG/KG	1.25	1.0
		Nitrate by IC	1.25 u	MG/KG	1.25	1.0
BLANK1	02LC093-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	02LICB85-MB1	Phosphate by IC	1.2 u	MG/KG	1.2	1.0
BLANK10	02LVI040-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK20	02LVI040-MB2	Chromium VI	0.40 u	MG/KG	0.40	1.0
BLANK10	02LICC85-MB1	Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK10	02LICC87-MB1	Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK10	02LN3090-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	02LAMA35-MB1	Ammonia, as N	0.10 u	MG/KG	0.10	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/27/02

CLIENT: TNUHANFORD F03-005 H1996

LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LSD057-MB1	Sulfide	40.0 u	MG/KG	40.0	1.0
BLANK10	02LICB86-MB1	Nitrate by IC	1.25 u	MG/KG	1.25	1.0
BLANK10	02LICC86-MB1	Sulfate by IC	1.2 u	MG/KG	1.2	1.0
BLANK10	02LICA87-MB1	Phosphate by IC	1.2 u	MG/KG	1.2	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15Y84	Chloride by IC	57.8	1.6	52.0	108.2	2.0
		Fluoride by IC	54.0	0.69	52.0	102.5	2.0
		Nitrite by IC	50.8	1.30u	52.0	97.6	2.0
		Nitrate by IC	73.3	16.0	52.0	110.2	2.0
		Phosphate by IC	55.6	1.3 u	52.0	107.0	2.0
		Sulfate by IC	82.5	36.8	52.0	87.9	2.0
		Nitrate Nitrite	7.4	3.8	3.6	99.0	2.0
		Ammonia, as N	93.4	2.6 u	98.6	94.8	1.0
-002	B15Y85	Soluble Chromium VI	12.3	6.8	4.4	123.4	1.0
		Insoluble Chromium VI	1600	6.8	1500	106.5	100

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996

LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-004	B160N2	Cyanide, Total	3.82	0.38u	3.66	104.3	1.0
		Sulfide	434	0.02	458	94.7	1.0
BLANK10	02LIC085-MB1	Chloride by IC	23.6	1.2 u	25.0	94.5	1.0
		Fluoride by IC	26.3	1.2 u	25.0	105.2	1.0
		Sulfate by IC	23.8	1.2 u	25.0	95.4	1.0
BLANK10	02LICA85-MB1	Nitrite by IC	24.4	1.25u	25.0	97.7	1.0
		Nitrate by IC	24.0	1.25u	25.0	96.0	1.0
BLANK10	02LICB85-MB1	Phosphate by IC	28.4	1.2 u	25.0	113.6	1.0
BLANK10	02LVI040-MB1	Soluble Chromium VI	4.3	0.40u	4.0	108.4	1.0
		Insoluble Chromium VI	1100	0.40u	1030	106.8	100
BLANK20	02LVI040-MB2	Soluble Chromium VI	4.5	0.40u	4.0	112.8	1.0
		Insoluble Chromium VI	1330	0.40u	1220	109.1	100
BLANK10	02LICC85-MB1	Sulfate by IC	23.8	1.2 u	25.0	95.4	1.0
BLANK10	02LICC87-MB1	Sulfate by IC	24.5	1.2 u	25.0	98.0	1.0
BLANK10	02LN3090-MB1	Nitrate Nitrite	4.8	0.20u	5.0	96.8	1.0
BLANK10	02LAMA35-MB1	Ammonia, as N	3.9	0.10u	4.0	98.5	1.0
		Ammonia, as N MSD	4.1	0.10u	4.0	102.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
BLANK10	02LSD057-MB1	Sulfide	442	40.0 u	458	96.5	1.0
BLANK10	02LICB86-MB1	Nitrate by IC	24.7	1.25u	25.0	98.6	1.0
BLANK10	02LICC86-MB1	Sulfate by IC	24.4	1.2 u	25.0	97.4	1.0
BLANK10	02LICA87-MB1	Phosphate by IC	24.3	1.2 u	25.0	97.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	02LAMA35-MB1	Ammonia, as N	98.5	102.0	3.5

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996 LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15Y84	Chloride by IC	1.6	1.6	3.3	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrite by IC	1.30u	1.30u	NC	1.0
		Nitrate by IC	16.0	15.1	5.4	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	36.8	32.6	12.1	1.0
		Nitrate Nitrite	3.8	3.9	2.6	1.0
		Ammonia, as N	2.6 u	2.5 u	NC	1.0
		pH	7.4	7.3	0.7	1.0
-002REP	B15Y85	Chromium VI	6.8	6.8	0.18	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996

LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-004REP	B160N2	% Solids	97.3	97.4	0.092	1.0
		Cyanide, Total	0.38u	0.36u	NC	1.0
		Sulfide	40.7 u	40.9 u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/27/02

CLIENT: TNUHANFORD F03-005 H1996

LVL LOT #: 0211L250

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	02LC093-LCS1	Cyanide, Total LCS	2.04	2.0	MG/KG	102.1
LCSS2	02LC093-LCS2	Cyanide, Total LCS	9.82	10.0	MG/KG	98.2

Lionville Laboratory Use Only

02111250

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD F03-005

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-26-02 Date Due: 12-26-02

		A	B	C					D		E	F	G			
Refrigerator #		1	5	5					5		5	5	5			
#/Type Container	Liquid															
	Solid	1AG	1AG	1AG					1AG		1AG	1AG	1AG			
Volume	Liquid															
	Solid	60	250	250					125		500	60	250			
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest~~/PCB	Herb				Metal	CN	I.C Anions	pH	Alcohol Glycol Ketones			
		Lionville Laboratory Use Only														
		8624H	8625X OPRO	OPCB					MET ICP		INORG	IPH	OGCSC			

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 OPRO	OPCB					MET ICP		INORG	IPH	OGCSC			
001	B15Y84			S	11-21-02	0836	1	1	1					1		1	1	1			
002	B15Y85			S	11-20-02	1325	1	1	1					1		1	1	1			
003	B15YR0			L	⊥	0911	1	1	1					1		1	1	1			
004	B16ON2			L	11-21-02	1120	1	1	1					1		1	1	1			

Special Instructions: SAF # F03-005

Run Matrix QC

ODRO - Report KRO + DRO Compounds

DATE/REVISIONS:

MET ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Al, Be, Bi, B,

2. Ca, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Tl, V, Zn

INORG ① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4 ICSO4,

4. INJN2, INH3N, ISFD, ICNMO

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 2° °C

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

NOTES:

7921 4055 9403

9399 -2°c, 7921 4055 9403 -2°c

Relinquished by	Received by	Date	Time
FEDEX	[signature]	11-26-02	0915

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-007	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-1	SAF No.: F03-005	Air Quality ☐
Ice Chest No.: SEE OSR	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive; Tie To B15Y86

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None			
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	G/P aG	~~G/P~~ aG	R.N 11/21/02 aG		
No. of Container(s)	1	1	1	1	1	1	1	1			
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml			
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.			

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y84	SOIL	11-21-02	0836	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref# 1B/3728	11/21/02 1515
1B 3726	11-25-02 1000	R. Fuhlberg	11-25-02 1000
R. Fuhlberg	11-25-02 1000	FedEx	
FEDEX	11-26-02 0915	Carl [illegible]	11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02 me

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

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

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

FH-Central Plateau Project	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-008	Page 1 of 1

Collector: Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-2		SAF No.: F03-005
Ice Chest No.: SEE OSPL	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 050		Bill of Lading/Air Bill No.: SEE OSPL

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactiv
Trefo B15 Y86

Special Handling and/or Storage
cool 4C

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15Y85	SOIL	11/20/02	1325	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11/20/02 1500	Ref # 1B/3728	11/20/02 1500
1B	11.25.02 3728/1000	R. Fahlberg	11.25.02 1000
ERC R. Fahlberg	11.25.02 1000	Fed Ex	
FEDEX	11-26-02 0915	Cal.	11-26-02 0915

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}

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

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	F03-005-016	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-4	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.: A 030 050	Bill of Lading/Air Bill No.: SEE OSR	

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive

TicTo B15YR2

Special Handling and/or Storage: Cool 14°C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG RJN 11/19/02	~~G/P~~	
# of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. RK 11-25-02	Nickel-63; Technetium-99; Tritium - H3 RJN 11/19/02	
Sample No. / Matrix * / Sample Date / Sample Time										
B15YR0 / SOIL / 11-20-02 / 0911	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11/20/02 1500	Ref# 1B/3728	11/20/02 1500
Relinquished By/Removed From	1B 3728	11-25-02 1000	R. Fohl	11-25-02 1000
Relinquished By/Removed From	ERC R. Fohl	11-25-02 1000	Fed Ex	
Relinquished By/Removed From	FEDEX	11-26-02 0915	Carl Wy	11-26-02 0915
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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	F03-005-018	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SD-3	SAF No.: F03-005	
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.: A030 058		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: Radioactive Tie To B15Y/R2

Special Handling and/or Storage: Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g ml	250g ml	60g ml	250g ml	125g ml	500g ml	60g ml	1000g ml	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B160N2 / SOIL / 11/21/02 / 1120	X	X	X	X	X	X	X	X		

KJN 11/21/02 RJN 11/21/02 11-25-02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11/21/02 1515	Ref #1B 3728	11/21/02 1515
1B 3728	11-25-02 1000	R. Fellows	11-25-02 1000
ERC R. Fellows	11-25-02 1000	FedEx	
FEDEX	11-26-02 0915		11-26-02 0915

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}

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/25/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TNU-HANFORD

Purchase Order/Project:

DATE: 11-26-02

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

Laboratory SDG #: 0211L250

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-02-009-2°c
ERC-02-404-2°c
ERC-02-001-2°c
ERC-01-024-2°c
ERC-96-019-2°c

Laboratory Sample Custodian: Carl Hung

Laboratory Project Manager: