EBERLINE SERVICES

0059591

February 3, 2003

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

FEB 2003 RECEIVED

Reference: **P.O. #630**
Eberline Services R2-11-100-7400, SDG H1983

Dear Mr. Trent:

Enclosed is the data report for six solid samples designated under SAF No. F03-003 received at Eberline Services on November 21, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

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JUN 09 2003
EDMC

MCM

Enclosure: Data Package

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

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H1983 was composed of six solid (soil) samples designated under SAF No. F03-003 with a Project Designations of: 200 Area Source Characterization 200-CS-1 OU – Soil Sampling.

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

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

The RPD between sample B15YM6 and its sample duplicate was 200%, greater the 3σ total of 100%. The activity difference between sample B15YM6 and its sample duplicate was significantly less than the RDL (400 pCi/g) for H3. No other problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

There was Th-230 contamination in the method blank (0.244 pCi/g). The activity was less than the RDL (1.0 pCi/g) for Th-230 and less than 5-times the MDA (0.22 pCi/g). The Th-230 results for the client samples were above the sample specific MDAs for Th-230. No other problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

Per FH's instructions, the samples in SDG H1983 were not analyzed for isotopic uranium (see e-mail attached).

2.8 Total Uranium Analyses

The total uranium samples in SDG H1983 (7400) were batched with the total uranium samples in SDG H1981 (7398). No problems were encountered during the course of the analyses.

2.9 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.12 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

2/3/3

Date

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

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

Melissa,

We will not need to run isotopic U on either SDGs H1981 or H1983, 7398 7400 7413 H1995 &

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

Alex: FYI

MLM
1/15/03

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 H1983

SDG	7400
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H1983

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

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	02/03/03

SDG 7400
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1983

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 02/03/03

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 H1983

SDG 7400
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1983

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15YM1	SP-3	SOLID		R211100-01	F03-003	F03-003-081	11/18/02 09:15
B15YM2	SP-3	SOLID		R211100-02	F03-003	F03-003-082	11/18/02 09:23
B15YM3	SP-3	SOLID		R211100-03	F03-003	F03-003-083	11/18/02 09:32
B15YM4	SP-3	SOLID		R211100-04	F03-003	F03-003-084	11/18/02 09:43
B15YM5	SP-3	SOLID		R211100-05	F03-003	F03-003-085	11/18/02 09:56
B15YM6	SP-3	SOLID		R211100-06	F03-003	F03-003-086	11/18/02 10:06
Method Blank		SOLID		R211098-12	F03-003		
Method Blank		SOLID		R211100-08	F03-003		
Lab Control Sample		SOLID		R211098-11	F03-003		
Lab Control Sample		SOLID		R211100-07	F03-003		
Duplicate (R211100-06)	SP-3	SOLID		R211100-09	F03-003		11/18/02 10:06
Duplicate (R211100-06)	SP-3	SOLID		R211100-13	F03-003		11/18/02 10:06
Spike (R211100-06)	SP-3	SOLID		R211100-10	F03-003		11/18/02 10:06

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1983

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7398		Method Blank	SOLID						R211098-12	7398-012
		Lab Control Sample	SOLID						R211098-11	7398-011
7400	F03-003-081	B15YM1	SOLID	95.0	1052 g		11/21/02	3	R211100-01	7400-001
	F03-003-082	B15YM2	SOLID	97.4	1170 g		11/21/02	3	R211100-02	7400-002
	F03-003-083	B15YM3	SOLID	97.4	1210 g		11/21/02	3	R211100-03	7400-003
	F03-003-084	B15YM4	SOLID	92.2	1336 g		11/21/02	3	R211100-04	7400-004
	F03-003-085	B15YM5	SOLID	94.5	1393 g		11/21/02	3	R211100-05	7400-005
	F03-003-086	B15YM6	SOLID	95.9	1466 g		11/21/02	3	R211100-06	7400-006
		Method Blank	SOLID						R211100-08	7400-008
		Lab Control Sample	SOLID						R211100-07	7400-007
		Duplicate (R211100-06)	SOLID	95.9	1466 g		11/21/02	3	R211100-09	7400-009
		Duplicate (R211100-06)	SOLID	95.9	1466 g		11/21/02	3	R211100-13	7400-013
		Spike (R211100-06)	SOLID	95.9	1466 g		11/21/02	3	R211100-10	7400-010

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1983

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7052-096	5.0	6			1	1	1/1		
NP	SOLID	Neptunium in Soil	7052-096	5.0	6			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-096	5.0	6			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-096	5.0	6			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-096	10.0	6			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7052-096	10.0	3			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-096	20.0	6			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-096	15.0	6			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-096	15.0	6			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-086	9.0	6			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	7052-096	10.0	3			1	1	1/1	1/1	
NI_L	SOLID	Nickel 63 in Soil	7052-096	10.0	3			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1983

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YM1			R211100-01	7400-001	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-001	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
F03-003-081	F03-003		11/21/02	7400-001	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-001	GAM		01/13/03	02/03/03	MCM	Gamma Scan
				7400-001	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-001	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-001	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-001	TH		01/21/03	02/03/03	MCM	Thorium, Isotopic in Soil
				7400-001	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YM2			R211100-02	7400-002	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-002	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
F03-003-082	F03-003		11/21/02	7400-002	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-002	GAM		01/13/03	02/03/03	MCM	Gamma Scan
				7400-002	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-002	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-002	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-002	TH		01/22/03	02/03/03	MCM	Thorium, Isotopic in Soil
				7400-002	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YM3			R211100-03	7400-003	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-003	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
F03-003-083	F03-003		11/21/02	7400-003	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-003	GAM		01/13/03	02/03/03	MCM	Gamma Scan
				7400-003	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-003	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-003	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-003	TH		01/22/03	02/03/03	MCM	Thorium, Isotopic in Soil
				7400-003	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1983

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15YM4			R211100-04	7400-004	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-004	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
F03-003-084	F03-003		11/21/02	7400-004	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-004	GAM		01/13/03	02/03/03	MCM	Gamma Scan
				7400-004	H		01/24/03	02/03/03	MCM	Tritium in Soil
				7400-004	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
				7400-004	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-004	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-004	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-004	TC		01/31/03	02/03/03	MCM	Technetium 99 in Soil
				7400-004	TH		01/22/03	02/03/03	MCM	Thorium, Isotopic in Soil
				7400-004	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YM5			R211100-05	7400-005	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-005	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
F03-003-085	F03-003		11/21/02	7400-005	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-005	GAM		01/13/03	02/03/03	MCM	Gamma Scan
				7400-005	H		01/24/03	02/03/03	MCM	Tritium in Soil
				7400-005	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
				7400-005	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-005	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-005	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-005	TC		02/03/03	02/03/03	MCM	Technetium 99 in Soil
				7400-005	TH		01/22/03	02/03/03	MCM	Thorium, Isotopic in Soil
				7400-005	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
B15YM6			R211100-06	7400-006	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-006	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
F03-003-086	F03-003		11/21/02	7400-006	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-006	GAM		01/15/03	02/03/03	MCM	Gamma Scan
				7400-006	H		01/24/03	02/03/03	MCM	Tritium in Soil
				7400-006	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
				7400-006	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-006	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-006	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-006	TC		02/03/03	02/03/03	MCM	Technetium 99 in Soil
				7400-006	TH		01/22/03	02/03/03	MCM	Thorium, Isotopic in Soil
				7400-006	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1983

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			R211098-12	7398-012	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									
Method Blank			R211100-08	7400-008	93A/93		01/20/03	02/03/03	MCM	Gross Alpha in Soil
		SOLID		7400-008	93B/93		01/20/03	02/03/03	MCM	Gross Beta in Soil
	F03-003			7400-008	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-008	GAM		01/15/03	02/03/03	MCM	Gamma Scan
				7400-008	H		01/27/03	02/03/03	MCM	Tritium in Soil
				7400-008	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
				7400-008	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-008	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-008	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-008	TC		01/31/03	02/03/03	MCM	Technetium 99 in Soil
				7400-008	TH		01/21/03	02/03/03	MCM	Thorium, Isotopic in Soil
Lab Control Sample			R211098-11	7398-011	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									
Lab Control Sample			R211100-07	7400-007	93A/93		01/17/03	02/03/03	MCM	Gross Alpha in Soil
		SOLID		7400-007	93B/93		01/17/03	02/03/03	MCM	Gross Beta in Soil
	F03-003			7400-007	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-007	GAM		01/15/03	02/03/03	MCM	Gamma Scan
				7400-007	H		01/24/03	02/03/03	MCM	Tritium in Soil
				7400-007	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
				7400-007	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-007	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-007	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-007	TC		02/03/03	02/03/03	MCM	Technetium 99 in Soil
				7400-007	TH		01/21/03	02/03/03	MCM	Thorium, Isotopic in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1983

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R211100-06)			R211100-09	7400-009	93A/93		01/20/03	02/03/03	MCM	Gross Alpha in Soil
SP-3		SOLID	11/18/02	7400-009	93B/93		01/20/03	02/03/03	MCM	Gross Beta in Soil
	F03-003		11/21/02	7400-009	AM		01/21/03	02/03/03	MCM	Americium 241 in Soil
				7400-009	GAM		01/15/03	02/03/03	MCM	Gamma Scan
				7400-009	H		01/24/03	02/03/03	MCM	Tritium in Soil
				7400-009	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
				7400-009	NP		01/21/03	02/03/03	MCM	Neptunium in Soil
				7400-009	PU		01/22/03	02/03/03	MCM	Plutonium, Isotopic in Solids
				7400-009	SR		01/22/03	02/03/03	MCM	Total Strontium in Soil
				7400-009	TC		02/03/03	02/03/03	MCM	Technetium 99 in Soil
				7400-009	TH		01/21/03	02/03/03	MCM	Thorium, Isotopic in Soil
Duplicate (R211100-06)			R211100-13	7400-013	U_T		12/23/02	12/24/02	MCM	Uranium, Total in Soil
SP-3		SOLID	11/18/02							
	F03-003		11/21/02							
Spike (R211100-06)			R211100-10	7400-010	H		01/24/03	02/03/03	MCM	Tritium in Soil
SP-3		SOLID	11/18/02							
	F03-003		11/21/02							

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

SDG 7400
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1983

COUNTS OF TESTS BY SAMPLE TYPE

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

Lab id EBRLNE
Protocol Hanford
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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 H1983

R211098-12 Method Blank

M E T H O D B L A N K

SDG	7400	Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211098-12	Client sample id	Method Blank
Dept sample id	7398-012	Material/Matrix	SOLID
		SAF No	F03-003

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

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43434

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/03/03

METHOD BLANK

SDG 7400 Client/Case no Hanford SDG H1983
Contact Melissa C. Mannion Contract No. 630

Lab sample id R211100-08 Client sample id Method Blank
Dept sample id 7400-008 Material/Matrix SOLID
SAF No F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.870	0.99	2.7	10	U	93A
Gross Beta	12587-47-2	0.994	3.1	5.2	15	U	93B
Tritium	10028-17-8	0.027	0.17	0.29	400	U	H
Nickel 63	13981-37-8	0.294	1.0	1.7	30	U	NI_L
Total Strontium	SR-RAD	0.085	0.16	0.32	1.0	U	SR
Technetium 99	14133-76-7	0.365	0.22	0.55	15	U	TC
Thorium 228	14274-82-9	0.042	0.056	0.086		U	TH
Thorium 230	14269-63-7	0.244	0.13	0.22	1.0		TH
Thorium 232	TH-232	0	0.014	0.053	1.0	U	TH
Neptunium 237	13994-20-2	0.041	0.083	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0	0.041	0.16	1.0	U	PU
Plutonium 239/240	PU-239/240	0.021	0.041	0.16	1.0	U	PU
Americium 241	14596-10-2	-0.036	0.072	0.27	1.0	U	AM
Potassium 40	13966-00-2	U		1.9		U	GAM
Cobalt 60	10198-40-0	U		0.11	0.050	U	GAM
Cesium 137	10045-97-3	U		0.10	0.10	U	GAM
Radium 226	13982-63-3	U		0.18		U	GAM
Radium 228	15262-20-1	U		0.35		U	GAM
Europium 152	14683-23-9	U		0.26	0.10	U	GAM
Europium 154	15585-10-1	U		0.35	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	U		0.13		U	GAM
Thorium 232	TH-232	U		0.35		U	GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.29		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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B L A N K , c o n t .

SDG	7400	Client/Case no	Hanford	SDG H1983	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211100-08	Client sample id	Method Blank		
Dept sample id	7400-008	Material/Matrix		SOLID	
		SAF No	F03-003		

QC-BLANK 43533

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211098-11

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7400
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1983
Contract No. 630

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

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

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Uranium (ug/g)	16.6	2.0	0.040	0.10		U_T	16.5	0.66	101	77-123	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43433

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7400
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1983
Contract No. 630

Lab sample id R211100-07
Dept sample id 7400-007

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

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	208	15	3.0	10		93A	200	8.0	104	66-134	70-130
Gross Beta	219	11	7.6	15		93B	212	8.5	103	75-125	70-130
Tritium	10.9	0.40	0.33	400		H	11.0	0.44	99	83-117	80-120
Nickel 63	217	4.2	1.7	30		NI_L	228	9.1	95	84-116	80-120
Total Strontium	22.7	0.91	0.29	1.0		SR	21.2	0.85	107	82-118	80-120
Technetium 99	118	2.4	0.58	15		TC	109	4.4	108	82-118	80-120
Thorium 230	43.7	2.0	0.24	1.0	B	TH	40.8	1.6	107	88-112	80-120
Neptunium 237	16.9	1.8	0.12	1.0		NP	19.9	0.80	85	84-116	80-120
Plutonium 238	22.5	2.0	0.16	1.0		PU	24.4	0.98	92	85-115	80-120
Plutonium 239/240	23.6	2.1	0.16	1.0		PU	26.4	1.1	89	85-115	80-120
Americium 241	19.8	2.9	0.43	1.0		AM	19.1	0.76	104	75-125	80-120
Cobalt 60	4.60	0.26	0.13	0.050		GAM	4.51	0.18	102	75-125	80-120
Cesium 137	6.33	0.25	0.15	0.10		GAM	5.92	0.24	107	74-126	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43532

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-09 B15YM6

DUPLICATE

SDG	7400			Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R211100-09	Lab sample id	R211100-06	Client sample id	B15YM6
Dept sample id	7400-009	Dept sample id	7400-006	Location/Matrix	SP-3 SOLID
		Received	11/21/02	Collected/Weight	11/18/02 10:06 1466 g
% solids	95.9	% solids	95.9	Custody/SAF No	F03-003-086 F03-003

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	0.607	2.6	4.4	10	U	93A	1.18	2.6	4.5	U	-	
Gross Beta	13.0	4.2	5.8	15		93B	12.6	5.2	7.8		3	85
Tritium	-0.104	0.13	0.22	400	U	H	0.512	0.15	0.23		200	100
Nickel 63	0.187	1.1	1.8	30	U	NI_L	0.060	1.1	1.8	U	-	
Total Strontium	0.097	0.17	0.32	1.0	U	SR	0.210	0.16	0.28	U	-	
Technetium 99	0.235	0.50	0.74	15	U	TC	0.150	0.49	0.58	U	-	
Thorium 228	0.309	0.089	0.070			TH	0.137	0.14	0.26	U	77	112
Thorium 230	0.352	0.14	0.23	1.0	B	TH	0.651	0.35	0.26		60	113
Thorium 232	0.327	0.089	0.048	1.0		TH	0.514	0.28	0.26		44	105
Neptunium 237	0.035	0.070	0.11	1.0	U	NP	0.042	0.083	0.13	U	-	
Plutonium 238	0.021	0.041	0.16	1.0	U	PU	0	0.088	0.24	U	-	
Plutonium 239/240	0.020	0.041	0.16	1.0	U	PU	0.044	0.044	0.17	U	-	
Americium 241	0.066	0.13	0.25	1.0	U	AM	0.075	0.15	0.29	U	-	
Potassium 40	12.5	0.59	0.26			GAM	13.2	0.83	0.26		5	34
Cobalt 60	U		0.033	0.050	U	GAM	U		0.030	U	-	
Cesium 137	U		0.027	0.10	U	GAM	U		0.027	U	-	
Radium 226	0.407	0.060	0.054			GAM	0.361	0.054	0.049		12	45
Radium 228	0.548	0.11	0.11			GAM	0.600	0.13	0.13		9	55
Europium 152	U		0.068	0.10	U	GAM	U		0.063	U	-	
Europium 154	U		0.11	0.10	U	GAM	U		0.091	U	-	
Europium 155	U		0.072	0.10	U	GAM	U		0.057	U	-	
Thorium 228	0.538	0.035	0.032			GAM	0.576	0.035	0.031		7	35
Thorium 232	0.548	0.11	0.11			GAM	0.600	0.13	0.13		9	55
Uranium 235	U		0.11		U	GAM	U		0.092	U	-	
Uranium 238	U		3.8		U	GAM	U		3.3	U	-	
Americium 241	U		0.088		U	GAM	U		0.037	U	-	

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/03/03

DUPLICATE, cont.

SDG	7400		Client/Case no	Hanford	SDG H1983
Contact	Melissa C. Mannion		Contract	No. 630	
DUPLICATE		ORIGINAL			
Lab sample id	R211100-09	Lab sample id	R211100-06	Client sample id	B15YM6
Dept sample id	7400-009	Dept sample id	7400-006	Location/Matrix	SP-3 SOLID
		Received	11/21/02	Collected/Weight	11/18/02 10:06 1466 g
% solids	95.9	% solids	95.9	Custody/SAF No	F03-003-086 F03-003

QC-DUP#6 43534

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-13 B15YM6

DUPLICATE

SDG	7400			Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211100-13	Lab sample id	R211100-06	Client sample id	B15YM6
Dept sample id	7400-013	Dept sample id	7400-006	Location/Matrix	SP-3 SOLID
		Received	11/21/02	Collected/Weight	11/18/02 10:06 1466 g
% solids	95.9	% solids	95.9	Custody/SAF No	F03-003-086 F03-003

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Total Uranium (ug/g)	0.320	0.036	0.004	0.10		U_T	0.322	0.037	0.004		1	31	

200 Area Source Chara. 200-CS-1 OU

QC-DUP#6 43438

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-10 B15YM6

MATRIX SPIKE

SDG	7400			Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion			Contract	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R211100-10	Lab sample id	R211100-06	Client sample id	B15YM6
Dept sample id	7400-010	Dept sample id	7400-006	Location/Matrix	SP-3 SOLID
		Received	11/21/02	Collected/Weight	11/18/02 10:06 1466 g
% solids	95.9	% solids	95.9	Custody/SAF No	F03-003-086 F03-003

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	44.0	0.58	0.21	400		H	46.8	1.9	0.512	0.15	93	85-115	60-140

200 Area Source Chara. 200-CS-1 OU

QC-MS#6 43535

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-01 **B15YM1**

DATA SHEET

SDG	7400	Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211100-01	Client sample id	B15YM1
Dept sample id	7400-001	Location/Matrix	SP-3 SOLID
Received	11/21/02	Collected/Weight	11/18/02 09:15 1052 g
% solids	95.0	Custody/SAF No	F03-003-081 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	3.48	3.7	4.8	10	U	93A
Gross Beta	12587-47-2	10.2	4.0	5.7	15		93B
Total Strontium	SR-RAD	0.045	0.15	0.30	1.0	U	SR
Thorium 228	14274-82-9	0.377	0.12	0.11			TH
Thorium 230	14269-63-7	0.410	0.15	0.24	1.0	B	TH
Thorium 232	TH-232	0.284	0.093	0.051	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.486	0.055	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.066	0.099	1.0	U	NP
Plutonium 238	13981-16-3	0	0.041	0.16	1.0	U	PU
Plutonium 239/240	PU-239/240	0.142	0.12	0.15	1.0	U	PU
Americium 241	14596-10-2	0.100	0.20	0.32	1.0	U	AM
Potassium 40	13966-00-2	12.0	0.53	0.22			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Cesium 137	10045-97-3	0.117	0.030	0.030	0.10		GAM
Radium 226	13982-63-3	0.420	0.052	0.046			GAM
Radium 228	15262-20-1	0.720	0.12	0.10			GAM
Europium 152	14683-23-9	U		0.070	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.071	0.10	U	GAM
Thorium 228	14274-82-9	0.649	0.034	0.032			GAM
Thorium 232	TH-232	0.720	0.12	0.10			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.1		U	GAM
Americium 241	14596-10-2	U		0.087		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	02/03/03

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 H1983

R211100-02 B15YM2

D A T A S H E E T

SDG	7400	Client/Case no	Hanford	SDG H1983	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211100-02	Client sample id	B15YM2		
Dept sample id	7400-002	Location/Matrix	SP-3	SOLID	
Received	11/21/02	Collected/Weight	11/18/02 09:23	1170 g	
% solids	97.4	Custody/SAF No	F03-003-082	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.32	2.7	3.6	10	U	93A
Gross Beta	12587-47-2	8.33	4.0	6.0	15		93B
Total Strontium	SR-RAD	-0.005	0.14	0.29	1.0	U	SR
Thorium 228	14274-82-9	0.314	0.28	0.33		U	TH
Thorium 230	14269-63-7	0.453	0.28	0.27	1.0		TH
Thorium 232	TH-232	0.279	0.21	0.27	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.391	0.045	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.071	0.11	1.0	U	NP
Plutonium 238	13981-16-3	0	0.046	0.18	1.0	U	PU
Plutonium 239/240	PU-239/240	0.023	0.046	0.18	1.0	U	PU
Americium 241	14596-10-2	0.098	0.13	0.25	1.0	U	AM
Potassium 40	13966-00-2	11.6	0.64	0.20			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Cesium 137	10045-97-3	U		0.029	0.10	U	GAM
Radium 226	13982-63-3	0.323	0.049	0.048			GAM
Radium 228	15262-20-1	0.450	0.14	0.14			GAM
Europium 152	14683-23-9	U		0.072	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.093	0.10	U	GAM
Thorium 228	14274-82-9	0.499	0.036	0.037			GAM
Thorium 232	TH-232	0.450	0.14	0.14			GAM
Uranium 235	15117-96-1	U		0.12		U	GAM
Uranium 238	U-238	U		3.7		U	GAM
Americium 241	14596-10-2	U		0.20		U	GAM

200 Area Source Chara. 200-CS-1 OU

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

SAMPLE DELIVERY GROUP H1983

R211100-03 B15YM3

DATA SHEET

SDG	7400	Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211100-03	Client sample id	B15YM3
Dept sample id	7400-003	Location/Matrix	SP-3 SOLID
Received	11/21/02	Collected/Weight	11/18/02 09:32 1210 g
% solids	97.4	Custody/SAF No	F03-003-083 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.24	3.1	4.9	10	U	93A
Gross Beta	12587-47-2	8.96	4.4	6.8	15		93B
Total Strontium	SR-RAD	-0.061	0.14	0.31	1.0	U	SR
Thorium 228	14274-82-9	0.130	0.17	0.33		U	TH
Thorium 230	14269-63-7	1.59	0.54	0.33	1.0		TH
Thorium 232	TH-232	0.172	0.17	0.33	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.295	0.034	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.078	0.12	1.0	U	NP
Plutonium 238	13981-16-3	-0.026	0.052	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0.026	0.052	0.20	1.0	U	PU
Americium 241	14596-10-2	-0.081	0.082	0.31	1.0	U	AM
Potassium 40	13966-00-2	11.5	0.81	0.23			GAM
Cobalt 60	10198-40-0	U		0.029	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.10	U	GAM
Radium 226	13982-63-3	0.325	0.049	0.044			GAM
Radium 228	15262-20-1	0.535	0.12	0.13			GAM
Europium 152	14683-23-9	U		0.061	0.10	U	GAM
Europium 154	15585-10-1	U		0.087	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Thorium 228	14274-82-9	0.531	0.035	0.032			GAM
Thorium 232	TH-232	0.535	0.12	0.13			GAM
Uranium 235	15117-96-1	U		0.093		U	GAM
Uranium 238	U-238	U		3.3		U	GAM
Americium 241	14596-10-2	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	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-04 B15YM4

DATA SHEET

SDG	7400	Client/Case no	Hanford	SDG H1983	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211100-04	Client sample id	B15YM4		
Dept sample id	7400-004	Location/Matrix	SP-3	SOLID	
Received	11/21/02	Collected/Weight	11/18/02 09:43	1336 g	
% solids	92.2	Custody/SAF No	F03-003-084	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	6.08	4.1	4.7	10		93A
Gross Beta	12587-47-2	12.9	4.7	6.8	15		93B
Tritium	10028-17-8	1.53	0.17	0.23	400		H
Nickel 63	13981-37-8	0.082	1.1	1.8	30	U	NI_L
Total Strontium	SR-RAD	0.151	0.15	0.27	1.0	U	SR
Technetium 99	14133-76-7	0.409	0.56	0.57	15	U	TC
Thorium 228	14274-82-9	0.433	0.37	0.47		U	TH
Thorium 230	14269-63-7	0.678	0.38	0.47	1.0		TH
Thorium 232	TH-232	0.308	0.25	0.47	1.0	U	TH
Total Uranium (ug/g)	7440-61-1	0.465	0.053	0.004	0.10		U_T
Neptunium 237	13994-20-2	0.037	0.074	0.11	1.0	U	NP
Plutonium 238	13981-16-3	0.092	0.093	0.18	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.046	0.18	1.0	U	PU
Americium 241	14596-10-2	-0.044	0.088	0.34	1.0	U	AM
Potassium 40	13966-00-2	12.3	0.65	0.31			GAM
Cobalt 60	10198-40-0	U		0.037	0.050	U	GAM
Cesium 137	10045-97-3	U		0.035	0.10	U	GAM
Radium 226	13982-63-3	0.739	0.076	0.063			GAM
Radium 228	15262-20-1	0.938	0.16	0.16			GAM
Europium 152	14683-23-9	U		0.086	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.093	0.10	U	GAM
Thorium 228	14274-82-9	0.979	0.047	0.043			GAM
Thorium 232	TH-232	0.938	0.16	0.16			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		3.9		U	GAM
Americium 241	14596-10-2	U		0.12		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	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-05 B15YM5

DATA SHEET

SDG	7400	Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211100-05	Client sample id	B15YM5
Dept sample id	7400-005	Location/Matrix	SP-3 SOLID
Received	11/21/02	Collected/Weight	11/18/02 09:56 1393 g
% solids	94.5	Custody/SAF No	F03-003-085 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.66	3.4	4.7	10	U	93A
Gross Beta	12587-47-2	12.9	4.7	6.8	15		93B
Tritium	10028-17-8	1.02	0.16	0.22	400		H
Nickel 63	13981-37-8	0	1.1	1.9	30	U	NI_L
Total Strontium	SR-RAD	0.293	0.16	0.26	1.0		SR
Technetium 99	14133-76-7	0.217	0.32	0.57	15	U	TC
Thorium 228	14274-82-9	0.460	0.27	0.25			TH
Thorium 230	14269-63-7	0.721	0.33	0.25	1.0		TH
Thorium 232	TH-232	0.459	0.26	0.25	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.351	0.040	0.004	0.10		U_T
Neptunium 237	13994-20-2	0	0.094	0.14	1.0	U	NP
Plutonium 238	13981-16-3	0.027	0.053	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0.053	0.053	0.20	1.0	U	PU
Americium 241	14596-10-2	0.075	0.15	0.29	1.0	U	AM
Potassium 40	13966-00-2	10.3	0.68	0.28			GAM
Cobalt 60	10198-40-0	U		0.038	0.050	U	GAM
Cesium 137	10045-97-3	U		0.028	0.10	U	GAM
Radium 226	13982-63-3	0.421	0.066	0.062			GAM
Radium 228	15262-20-1	0.593	0.14	0.14			GAM
Europium 152	14683-23-9	U		0.074	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.540	0.040	0.040			GAM
Thorium 232	TH-232	0.593	0.14	0.14			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		4.0		U	GAM
Americium 241	14596-10-2	U		0.21		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	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

R211100-06 B15YM6

DATA SHEET

SDG	7400	Client/Case no	Hanford SDG H1983
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211100-06	Client sample id	B15YM6
Dept sample id	7400-006	Location/Matrix	SP-3 SOLID
Received	11/21/02	Collected/Weight	11/18/02 10:06 1466 g
% solids	95.9	Custody/SAF No	F03-003-086 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.18	2.6	4.5	10	U	93A
Gross Beta	12587-47-2	12.6	5.2	7.8	15		93B
Tritium	10028-17-8	0.512	0.15	0.23	400		H
Nickel 63	13981-37-8	0.060	1.1	1.8	30	U	NI_L
Total Strontium	SR-RAD	0.210	0.16	0.28	1.0	U	SR
Technetium 99	14133-76-7	0.150	0.49	0.58	15	U	TC
Thorium 228	14274-82-9	0.137	0.14	0.26		U	TH
Thorium 230	14269-63-7	0.651	0.35	0.26	1.0		TH
Thorium 232	TH-232	0.514	0.28	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.322	0.037	0.004	0.10		U_T
Neptunium 237	13994-20-2	0.042	0.083	0.13	1.0	U	NP
Plutonium 238	13981-16-3	0	0.088	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0.044	0.044	0.17	1.0	U	PU
Americium 241	14596-10-2	0.075	0.15	0.29	1.0	U	AM
Potassium 40	13966-00-2	13.2	0.83	0.26			GAM
Cobalt 60	10198-40-0	U		0.030	0.050	U	GAM
Cesium 137	10045-97-3	U		0.027	0.10	U	GAM
Radium 226	13982-63-3	0.361	0.054	0.049			GAM
Radium 228	15262-20-1	0.600	0.13	0.13			GAM
Europium 152	14683-23-9	U		0.063	0.10	U	GAM
Europium 154	15585-10-1	U		0.091	0.10	U	GAM
Europium 155	14391-16-3	U		0.057	0.10	U	GAM
Thorium 228	14274-82-9	0.576	0.035	0.031			GAM
Thorium 232	TH-232	0.600	0.13	0.13			GAM
Uranium 235	15117-96-1	U		0.092		U	GAM
Uranium 238	U-238	U		3.3		U	GAM
Americium 241	14596-10-2	U		0.037		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	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test AM Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 7052-096						
B15YM1	R211100-01			7400-001	U	
B15YM2	R211100-02			7400-002	U	
B15YM3	R211100-03			7400-003	U	
B15YM4	R211100-04			7400-004	U	
B15YM5	R211100-05			7400-005	U	
B15YM6	R211100-06			7400-006	U	
BLK (QC ID=43533)	R211100-08			7400-008	U	
LCS (QC ID=43532)	R211100-07			7400-007	ok	
Duplicate (R211100-06)	R211100-09			7400-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 096											
B15YM1	R211100-01			0.32	0.500			83		104			64	01/21/03	01/21	SS-031
B15YM2	R211100-02			0.25	0.500			81		104			64	01/21/03	01/21	SS-032
B15YM3	R211100-03			0.31	0.500			69		105			64	01/21/03	01/21	SS-041
B15YM4	R211100-04			0.34	0.500			67		105			64	01/21/03	01/21	SS-042
B15YM5	R211100-05			0.29	0.500			71		106			64	01/21/03	01/21	SS-043
B15YM6	R211100-06			0.29	0.500			68		106			64	01/21/03	01/21	SS-044
BLK (QC ID=43533)	R211100-08			0.27	0.500			74		106				01/21/03	01/21	SS-052
LCS (QC ID=43532)	R211100-07			0.43	0.500			51		106				01/21/03	01/21	SS-051
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.25	0.500			81		106			64	01/21/03	01/21	SS-055
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test AM Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

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

AVERAGES ± 2 SD FOR 9 SAMPLES				
	MDA	0.31	±	0.11
	YIELD	72	±	20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test NP Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7052-096						
B15YM1	R211100-01			7400-001	U	
B15YM2	R211100-02			7400-002	U	
B15YM3	R211100-03			7400-003	U	
B15YM4	R211100-04			7400-004	U	
B15YM5	R211100-05			7400-005	U	
B15YM6	R211100-06			7400-006	U	
BLK (QC ID=43533)	R211100-08			7400-008	U	
LCS (QC ID=43532)	R211100-07			7400-007	ok	
Duplicate (R211100-06)	R211100-09			7400-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 096											
B15YM1	R211100-01			0.099	0.500			84		103			64	01/21/03	01/21	SS-031
B15YM2	R211100-02			0.11	0.500			77		104			64	01/21/03	01/21	SS-039
B15YM3	R211100-03			0.12	0.500			73		104			64	01/21/03	01/21	SS-040
B15YM4	R211100-04			0.11	0.500			77		104			64	01/21/03	01/21	SS-041
B15YM5	R211100-05			0.14	0.500			63		105			64	01/21/03	01/21	SS-042
B15YM6	R211100-06			0.13	0.500			65		104			64	01/21/03	01/21	SS-043
BLK (QC ID=43533)	R211100-08			0.12	0.500			70		104				01/21/03	01/21	SS-051
LCS (QC ID=43532)	R211100-07			0.12	0.500			66		104				01/21/03	01/21	SS-044
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.11	0.500			77		105			64	01/21/03	01/21	SS-052
Nominal values and limits from method				1.0	0.500			20-105		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test NP	Matrix SOLID
SDG 7400	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1983	

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

AVERAGES ± 2 SD	MDA	0.12	±	0.024
FOR 9 SAMPLES	YIELD	72	±	14

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test PU Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 7052-096								
B15YM1	R211100-01			7400-001	U		U	
B15YM2	R211100-02			7400-002	U		U	
B15YM3	R211100-03			7400-003	U		U	
B15YM4	R211100-04			7400-004	U		U	
B15YM5	R211100-05			7400-005	U		U	
B15YM6	R211100-06			7400-006	U		U	
BLK (QC ID=43533)	R211100-08			7400-008	U		U	
LCS (QC ID=43532)	R211100-07			7400-007	ok		ok	
Duplicate (R211100-06)	R211100-09			7400-009	-	U	-	U
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0		1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 096																
B15YM1	R211100-01			0.16	0.500			89		160			65	01/21/03	01/22	SS-005
B15YM2	R211100-02			0.18	0.500			78		159			65	01/21/03	01/22	SS-010
B15YM3	R211100-03			0.20	0.500			74		159			65	01/21/03	01/22	SS-011
B15YM4	R211100-04			0.18	0.500			78		160			65	01/21/03	01/22	SS-014
B15YM5	R211100-05			0.20	0.500			70		160			65	01/21/03	01/22	SS-016
B15YM6	R211100-06			0.24	0.500			82		160			65	01/21/03	01/22	SS-031
BLK (QC ID=43533)	R211100-08			0.16	0.500			93		161				01/21/03	01/22	SS-042
LCS (QC ID=43532)	R211100-07			0.16	0.500			85		160				01/21/03	01/22	SS-032
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.16	0.500			81		161			65	01/21/03	01/22	SS-044
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 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test PU Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

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	0.18	±	0.055
FOR 9 SAMPLES	YIELD	81	±	14

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test TH Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-096					
B15YM1	R211100-01			7400-001	0.410
B15YM2	R211100-02			7400-002	0.453
B15YM3	R211100-03			7400-003	1.59
B15YM4	R211100-04			7400-004	0.678
B15YM5	R211100-05			7400-005	0.721
B15YM6	R211100-06			7400-006	0.651
BLK (QC ID=43533)	R211100-08			7400-008	0.244
LCS (QC ID=43532)	R211100-07			7400-007	ok
Duplicate (R211100-06)	R211100-09			7400-009	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 096												
B15YM1	R211100-01			0.24	0.250			102		854			64	01/21/03	01/21	SS-031
B15YM2	R211100-02			0.27	0.250			100		166			65	01/21/03	01/22	SS-031
B15YM3	R211100-03			0.33	0.250			86		167			65	01/21/03	01/22	SS-042
B15YM4	R211100-04			0.47	0.250			60		165			65	01/21/03	01/22	SS-051
B15YM5	R211100-05			0.25	0.250			104		165			65	01/21/03	01/22	SS-052
B15YM6	R211100-06			0.26	0.250			100		165			65	01/21/03	01/22	SS-055
BLK (QC ID=43533)	R211100-08			0.22	0.250			104		854				01/21/03	01/21	SS-059
LCS (QC ID=43532)	R211100-07			0.24	0.250			95		854				01/21/03	01/21	SS-057
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.23	0.250			105		854			64	01/21/03	01/21	SS-060
Nominal values and limits from method				1.0	0.250			20-105		150			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test	TH
Matrix	SOLID
SDG	7400
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1983

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	0.28	±	0.16
FOR 9 SAMPLES	YIELD	95	±	29

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test SR Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-096					
B15YM1	R211100-01			7400-001	U
B15YM2	R211100-02			7400-002	U
B15YM3	R211100-03			7400-003	U
B15YM4	R211100-04			7400-004	U
B15YM5	R211100-05			7400-005	0.293
B15YM6	R211100-06			7400-006	U
BLK (QC ID=43533)	R211100-08			7400-008	U
LCS (QC ID=43532)	R211100-07			7400-007	ok
Duplicate (R211100-06)	R211100-09			7400-009	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0

200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 096															
B15YM1	R211100-01			0.30	1.00			92		100			65	01/22/03	01/22	GRB-217
B15YM2	R211100-02			0.29	1.00			96		100			65	01/22/03	01/22	GRB-218
B15YM3	R211100-03			0.31	1.00			93		100			65	01/22/03	01/22	GRB-219
B15YM4	R211100-04			0.27	1.00			94		100			65	01/22/03	01/22	GRB-229
B15YM5	R211100-05			0.26	1.00			96		100			65	01/22/03	01/22	GRB-230
B15YM6	R211100-06			0.28	1.00			92		100			65	01/22/03	01/22	GRB-231
BLK (QC ID=43533)	R211100-08			0.32	1.00			89		100				01/22/03	01/22	GRB-224
LCS (QC ID=43532)	R211100-07			0.29	1.00			84		100				01/22/03	01/22	GRB-221
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.32	1.00			75		100			65	01/22/03	01/22	GRB-232
Nominal values and limits from method				1.0	1.00			30-105		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test	SR
Matrix	SOLID
SDG	7400
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG H1983

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

AVERAGES ± 2 SD	MDA	0.29	±	0.042
FOR 9 SAMPLES	YIELD	90	±	14

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test TC Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7052-096						
B15YM4	R211100-04			7400-004	U	
B15YM5	R211100-05			7400-005	U	
B15YM6	R211100-06			7400-006	U	
BLK (QC ID=43533)	R211100-08			7400-008	U	
LCS (QC ID=43532)	R211100-07			7400-007	ok	
Duplicate (R211100-06)	R211100-09			7400-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	15	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 096															
B15YM4	R211100-04			0.57	1.01			87		50			74	01/28/03	01/31	GRB-222
B15YM5	R211100-05			0.57	1.04			86		50			77	01/28/03	02/03	GRB-202
B15YM6	R211100-06			0.58	1.02			85		50			77	01/28/03	02/03	GRB-203
BLK (QC ID=43533)	R211100-08			0.55	1.00			93		50				01/28/03	01/31	GRB-230
LCS (QC ID=43532)	R211100-07			0.58	1.00			92		50				01/28/03	02/03	GRB-204
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.74	1.02			67		50			77	01/28/03	02/03	GRB-230
Nominal values and limits from method				15	1.00			20-105		50			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test TC Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

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

AVERAGES ± 2 SD	MDA	0.60	±	0.14
FOR 6 SAMPLES	YIELD	85	±	19

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test 93A Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 7052-096						
B15YM1	R211100-01	93		7400-001	U	
B15YM2	R211100-02	93		7400-002	U	
B15YM3	R211100-03	93		7400-003	U	
B15YM4	R211100-04	93		7400-004	6.08	
B15YM5	R211100-05	93		7400-005	U	
B15YM6	R211100-06	93		7400-006	U	
BLK (QC ID=43533)	R211100-08	93		7400-008	U	
LCS (QC ID=43532)	R211100-07	93		7400-007	ok	
Duplicate (R211100-06)	R211100-09	93		7400-009	-	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 7052-096	2σ prep error 20.0 % Reference Lab Notebook 7052 pg. 096															
B15YM1	R211100-01	93		4.8	0.100			90		100			60	01/16/03	01/17	GRB-109
B15YM2	R211100-02	93		3.6	0.100			74		100			60	01/16/03	01/17	GRB-111
B15YM3	R211100-03	93		4.9	0.100			76		100			60	01/16/03	01/17	GRB-112
B15YM4	R211100-04	93		4.7	0.100			74		100			60	01/16/03	01/17	GRB-105
B15YM5	R211100-05	93		4.7	0.100			75		100			60	01/16/03	01/17	GRB-105
B15YM6	R211100-06	93		4.5	0.100			68		100			60	01/16/03	01/17	GRB-114
BLK (QC ID=43533)	R211100-08	93		2.7	0.100			22		100				01/16/03	01/20	GRB-101
LCS (QC ID=43532)	R211100-07	93		3.0	0.100			21		100				01/16/03	01/17	GRB-114
Duplicate (R211100-06) (QC ID=43534)	R211100-09	93		4.4	0.100			68		100			63	01/16/03	01/20	GRB-102
Nominal values and limits from method				10	0.100			5-250		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test 93A Matrix SOLID	Client Hanford
SDG 7400	Contract No. 630
Contact Melissa C. Mannion	Contract SDG H1983

METHOD SUMMARY, cont.

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

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

AVERAGES ± 2 SD	MDA	4.1	±	1.7
FOR 9 SAMPLES	RESIDUE	63	±	49

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test 93B Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-096					
B15YM1	R211100-01	93		7400-001	10.2
B15YM2	R211100-02	93		7400-002	8.33
B15YM3	R211100-03	93		7400-003	8.96
B15YM4	R211100-04	93		7400-004	12.9
B15YM5	R211100-05	93		7400-005	12.9
B15YM6	R211100-06	93		7400-006	12.6
BLK (QC ID=43533)	R211100-08	93		7400-008	U
LCS (QC ID=43532)	R211100-07	93		7400-007	ok
Duplicate (R211100-06)	R211100-09	93		7400-009	ok
Nominal values and limits from method				RDLs (pCi/g)	15
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 096															
B15YM1	R211100-01	93		5.7	0.100			90		100			60	01/16/03	01/17	GRB-109
B15YM2	R211100-02	93		6.0	0.100			74		100			60	01/16/03	01/17	GRB-111
B15YM3	R211100-03	93		6.8	0.100			76		100			60	01/16/03	01/17	GRB-112
B15YM4	R211100-04	93		6.8	0.100			74		100			60	01/16/03	01/17	GRB-105
B15YM5	R211100-05	93		6.8	0.100			75		100			60	01/16/03	01/17	GRB-105
B15YM6	R211100-06	93		7.8	0.100			68		100			60	01/16/03	01/17	GRB-114
BLK (QC ID=43533)	R211100-08	93		5.2	0.100			22		100				01/16/03	01/20	GRB-101
LCS (QC ID=43532)	R211100-07	93		7.6	0.100			21		100				01/16/03	01/17	GRB-114
Duplicate (R211100-06) (QC ID=43534)	R211100-09	93		5.8	0.100			68		100			63	01/16/03	01/20	GRB-102
Nominal values and limits from method				15	0.100			5-250		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test 93B Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

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

AVERAGES ± 2 SD	MDA	6.5	±	1.8
FOR 9 SAMPLES	RESIDUE	63	±	49

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test GAM Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 7052-096								
B15YM1	R211100-01			7400-001	U		0.117	
B15YM2	R211100-02			7400-002	U		U	
B15YM3	R211100-03			7400-003	U		U	
B15YM4	R211100-04			7400-004	U		U	
B15YM5	R211100-05			7400-005	U		U	
B15YM6	R211100-06			7400-006	U		U	
BLK (QC ID=43533)	R211100-08			7400-008	U		U	
LCS (QC ID=43532)	R211100-07			7400-007	ok		ok	
Duplicate (R211100-06)	R211100-09			7400-009	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10	
200 Area Source Chara. 200-CS-1 OU								

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 096															
B15YM1	R211100-01			0.26	808					128			56	01/08/03	01/13	02,04,00
B15YM2	R211100-02			0.23	857					128			56	01/08/03	01/13	MB,05,00
B15YM3	R211100-03			0.21	785					107			56	01/08/03	01/13	MB,07,00
B15YM4	R211100-04			0.29	724					107			56	01/08/03	01/13	02,04,00
B15YM5	R211100-05			0.27	874					107			56	01/08/03	01/13	MB,05,00
B15YM6	R211100-06			0.22	776					116			58	01/08/03	01/15	MB,07,00
BLK (QC ID=43533)	R211100-08			0.88	158					112				01/08/03	01/15	01,03,00
LCS (QC ID=43532)	R211100-07			0.13	158					112				01/08/03	01/15	MB,07,00
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.26	776					112			58	01/08/03	01/15	02,04,00
Nominal values and limits from method				0.050	158					100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test GAM Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1983

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

AVERAGES ± 2 SD	MDA	0.31	±	0.44
FOR 9 SAMPLES	YIELD		±	

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test U T Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-086					
B15YM1	R211100-01			7400-001	0.486
B15YM2	R211100-02			7400-002	0.391
B15YM3	R211100-03			7400-003	0.295
B15YM4	R211100-04			7400-004	0.465
B15YM5	R211100-05			7400-005	0.351
B15YM6	R211100-06			7400-006	0.322
BLK (QC ID=43434)	R211098-12			7398-012	U
LCS (QC ID=43433)	R211098-11			7398-011	ok
Duplicate (R211100-06)	R211100-13			7400-013	ok
Nominal values and limits from method			RDLs (ug/g)		0.10
200 Area Source Chara. 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-086	2σ prep error 9.0 %			Reference Lab Notebook 7052 pg. 086												
B15YM1	R211100-01			0.004	0.100								35	12/23/02	12/23	KPA-001
B15YM2	R211100-02			0.004	0.100								35	12/23/02	12/23	KPA-001
B15YM3	R211100-03			0.004	0.100								35	12/23/02	12/23	KPA-001
B15YM4	R211100-04			0.004	0.100								35	12/23/02	12/23	KPA-001
B15YM5	R211100-05			0.004	0.100								35	12/23/02	12/23	KPA-001
B15YM6	R211100-06			0.004	0.100								35	12/23/02	12/23	KPA-001
BLK (QC ID=43434)	R211098-12			0.004	0.100									12/23/02	12/23	KPA-001
LCS (QC ID=43433)	R211098-11			0.040	0.100									12/23/02	12/23	KPA-001
Duplicate (R211100-06) (QC ID=43438)	R211100-13			0.004	0.100								35	12/23/02	12/23	KPA-001
Nominal values and limits from method				0.10	0.100								180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test U T Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1983

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test H Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 7052-096					
B15YM4	R211100-04			7400-004	1.53
B15YM5	R211100-05			7400-005	1.02
B15YM6	R211100-06			7400-006	0.512
BLK (QC ID=43533)	R211100-08			7400-008	U
LCS (QC ID=43532)	R211100-07			7400-007	ok
Duplicate (R211100-06)	R211100-09			7400-009	OUT U
Spike (R211100-06)	R211100-10			7400-010	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	400

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 7052-096 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 096																
B15YM4	R211100-04			0.23	20.1			48		120			67	01/21/03	01/24	LSC-004
B15YM5	R211100-05			0.22	20.0			48		120			67	01/21/03	01/24	LSC-004
B15YM6	R211100-06			0.23	20.1			50		120			67	01/21/03	01/24	LSC-004
BLK (QC ID=43533)	R211100-08			0.29	20.0			33		120				01/21/03	01/27	LSC-004
LCS (QC ID=43532)	R211100-07			0.33	20.0			33		120				01/21/03	01/24	LSC-004
Duplicate (R211100-06) (QC ID=43534)	R211100-09			0.22	20.0			50		120			67	01/21/03	01/24	LSC-004
Spike (R211100-06) (QC ID=43535)	R211100-10			0.21	20.0			50		120			67	01/21/03	01/24	LSC-004
Nominal values and limits from method				400	20.0					25			180			

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

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 0.25 ± 0.090
YIELD 45 ± 16

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/03/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1983

Test NI L Matrix SOLID
SDG 7400
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1983

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 7052-096						
B15YM4	R211100-04			7400-004	U	
B15YM5	R211100-05			7400-005	U	
B15YM6	R211100-06			7400-006	U	
BLK (QC ID=43533)	R211100-08			7400-008	U	
LCS (QC ID=43532)	R211100-07			7400-007	ok	
Duplicate (R211100-06)	R211100-09			7400-009	-	U
Nominal values and limits from method				RDLs (pCi/g)	30	
200 Area Source Chara. 200-CS-1 OU						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 096															
B15YM4	R211100-04			1.8	0.500			92		100			71	01/28/03	01/28	LSC-005
B15YM5	R211100-05			1.9	0.500			88		100			71	01/28/03	01/28	LSC-005
B15YM6	R211100-06			1.8	0.500			92		100			71	01/28/03	01/28	LSC-005
BLK (QC ID=43533)	R211100-08			1.7	0.500			96		100				01/28/03	01/28	LSC-005
LCS (QC ID=43532)	R211100-07			1.7	0.500			98		100				01/28/03	01/28	LSC-005
Duplicate (R211100-06) (QC ID=43534)	R211100-09			1.8	0.500			91		100			71	01/28/03	01/28	LSC-005
Nominal values and limits from method				30	0.500			30-105		50			180			

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

AVERAGES ± 2 SD	MDA 1.8 ± 0.15
FOR 6 SAMPLES	YIELD 93 ± 7

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REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1983

SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

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Protocol Hanford
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Form DVD-RG
Version 3.06
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SDG 7400
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1983

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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R E P O R T G U I D E

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W O R K S U M M A R Y

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

The following notes apply to this report:

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

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

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

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

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

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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GUIDE, cont.

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DATA SHEET

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

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

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

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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DUPLICATE

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

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

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

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

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

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REPORT GUIDE

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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GUIDE, cont.

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3 H1983 (7400)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 96-059	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030056	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2000 pCi/gm

Special Handling and/or Storage

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

DAS 11/20/02

Sample No.	Matrix *	Sample Date	Sample Time										
B15YM1	SOIL	11-18-02	0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	[illegible]	11/20/02 1100
[illegible] ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11/21/02 9:50	[illegible]	11/21/02 9:50

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-082	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3 H1983 (7400)	SAF No.: F03-003	
Ice Chest No.: ERC-96-059	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030056	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mls	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM2 / SOIL / 11-18-02 / 0923	X	X	X	X	X	X	X	X		

JS 11/20/02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100		11/20/02 1100
ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11/21/02 9:50		11/21/02 9:50

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Matrix *

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3 H1983 (7400)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-059	Field Logbook No.: TNF-N3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030056	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

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

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - LS	
B15YM3	SOIL	11-18-02	0932	X	X	X	X	X	X	X	X		

DAS 11/20/02

RJN 11/18/02

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson R. Nielson	11-18-02 1230	Ref # 1A / 3728	11-18-02 1230
3728 Ref 1A	11/20/02		11/20/02 1100
	11/20/02 1100	FED EX	11/20/02 1130
Fed Ex	11/21/02 9:50		11/21/02 9:50

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Matrix *

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3 H1983 (7400)	SAF No.: F03-003	
Ice Chest No.: ERC-96-059	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030056	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM4 / SOIL / 11-18-02 / 0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-18-02 1230	REF #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11/21/02 9:50	[illegible]	11/21/02 9:50

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3 H1983 (7400)	SAF No.: F03-003	
Ice Chest No.: ERC-96-059	Field Logbook No.: HNF-N-325 1	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030056		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions. DAS 11/20/02	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	[illegible]	11/20/02 1100
Paul St. John ERC [illegible]	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11/21/02 9:50	[illegible]	11/21/02 9:50

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3 H1983 (7400)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-96-059	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030056	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions. DAS	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM6 / SOIL / 11-18-02 / 1006	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref # 1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: [illegible]	11/20/02 1100
Relinquished By/Removed From: [illegible]	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11/21/02 9:50	Received By/Stored In: [illegible]	11/21/02 9:50
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Fluor Hanford Date/Time received 11/21/02 9:50 AM

CoC No. F03-003-081, 082, 083, 084, 085, 086

Container I.D. No. ERC 96-059 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

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

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by [signature] Date: 11/21/02 Time: 9:50 AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

LIONVILLE LABORATORY INC.

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 #	0211L202
SDG #	H1983
SAF #	F03-003
Date Received	11-21-02
# Samples	6
Matrix	Soil
Volatiles	X
Semivolatiles	X
Pest/PCB	X
DRO/GRO	X
GC Scan	X
Metals	X
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

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

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

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1	001	S	02LVX660	11/18/02	N/A	11/25/02
B15YM2	002	S	02LVX660	11/18/02	N/A	11/25/02
B15YM3	003	S	02LVX660	11/18/02	N/A	11/25/02
B15YM4	004	S	02LVX662	11/18/02	N/A	11/26/02
B15YM5	005	S	02LVX660	11/18/02	N/A	11/25/02
B15YM6	006	S	02LVX660	11/18/02	N/A	11/25/02
B15YM6	006 MS	S	02LVX660	11/18/02	N/A	11/25/02
B15YM6	006 MSD	S	02LVX660	11/18/02	N/A	11/25/02

LAB QC:

VBLKAE	MB1	S	02LVX660	N/A	N/A	11/25/02
VBLKAE	MB1 BS	S	02LVX660	N/A	N/A	11/25/02
VBLKAG	MB1	S	02LVX662	N/A	N/A	11/26/02

12-12-02

JAN 2003
RECEIVED

1

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L202
SDG/SAF #: H1983/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-21-2002

GC/MS VOLATILE

Six (6) soil samples were collected on 11-18-2002.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL volatile target compounds on 11-25,26-2002.

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. A non-target compound was detected in sample B15YM1.

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

12-13-02
Date

som\group\data\voa\tnu-hanford\0211-202.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 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.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

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

Report Date: 12/11/02 16:14

RFW Batch Number: 0211L202 Client: TNUHANFORD F03-003 H1983 Work Order: 11343606001 Page: 1a

	Cust ID:	B15YM1		B15YM2		B15YM3		B15YM4		B15YM5		B15YM6	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.02		0.943		1.02		0.943		0.962		1.06	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	106	%	113	%	116	%	118	%	112	%	107	%
	Bromofluorobenzene	92	%	98	%	104	%	109	%	100	%	93	%
	1,2-Dichloroethane-d4	81	%	86	%	89	%	101	%	85	%	80	%
			fl		fl		fl		fl		fl		fl
Chloromethane		11	U	10	U	10	U	10	U	10	U	11	U
Bromomethane		11	U	10	U	10	U	10	U	10	U	11	U
Vinyl Chloride		11	U	10	U	10	U	10	U	10	U	11	U
Chloroethane		11	U	10	U	10	U	10	U	10	U	11	U
Methylene Chloride		7		7		9		23		10		13	
Acetone		26		10	U	10	U	10	U	10	U	15	
Carbon Disulfide		6	U	5	U	5	U	5	U	5	U	6	U
1,1-Dichloroethene		6	U	5	U	5	U	5	U	5	U	6	U
1,1-Dichloroethane		6	U	5	U	5	U	5	U	5	U	6	U
1,2-Dichloroethene (total)		6	U	5	U	5	U	5	U	5	U	6	U
Chloroform		6	U	5	U	5	U	5	U	5	U	6	U
1,2-Dichloroethane		6	U	5	U	5	U	5	U	5	U	6	U
2-Butanone		11	U	10	U	10	U	10	U	10	U	11	U
1,1,1-Trichloroethane		6	U	5	U	5	U	5	U	5	U	6	U
Carbon Tetrachloride		6	U	5	U	5	U	5	U	5	U	6	U
Bromodichloromethane		6	U	5	U	5	U	5	U	5	U	6	U
1,2-Dichloropropane		6	U	5	U	5	U	5	U	5	U	6	U
cis-1,3-Dichloropropene		6	U	5	U	5	U	5	U	5	U	6	U
Trichloroethene		6	U	5	U	5	U	5	U	5	U	6	U
Dibromochloromethane		6	U	5	U	5	U	5	U	5	U	6	U
1,1,2-Trichloroethane		6	U	5	U	5	U	5	U	5	U	6	U
Benzene		6	U	5	U	5	U	5	U	5	U	6	U
Trans-1,3-Dichloropropene		6	U	5	U	5	U	5	U	5	U	6	U
Bromoform		6	U	5	U	5	U	5	U	5	U	6	U
4-Methyl-2-pentanone		11	U	10	U	10	U	10	U	10	U	11	U
2-Hexanone		11	U	10	U	10	U	10	U	10	U	11	U
Tetrachloroethene		6	U	5	U	5	U	5	U	5	U	6	U
1,1,2,2-Tetrachloroethane		6	U	5	U	5	U	5	U	5	U	6	U
Toluene		6	U	5	U	5	U	5	U	5	U	6	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L202** Client: **TNUHANFORD F03-003 H1983** Work Order: 11343606001 Page: 1b

Cust ID:	B15YM1	B15YM2	B15YM3	B15YM4	B15YM5	B15YM6
RFW#:	001	002	003	004	005	006
Chlorobenzene	6 U	5 U	5 U	5 U	5 U	6 U
Ethylbenzene	6 U	5 U	5 U	5 U	5 U	6 U
Styrene	6 U	5 U	5 U	5 U	5 U	6 U
Xylene (total)	6 U	5 U	5 U	5 U	5 U	6 U

*= Outside of EPA CLP QC limits.

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

RFW Batch Number: 0211L202 Client: TNUHANFORD F03-003 H1983 Work Order: 11343606001 Page: 2a Report Date: 12/11/02 16:14

	Cust ID:	B15YM6		B15YM6		VBLKAE		VBLKAE BS		VBLKAG	
Sample Information	RFW#:	006 MS		006 MSD		02LVX660-MB1		02LVX660-MB1		02LVX662-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.04		1.04		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	115	%	116	%	108	%	105	%	105	%
	Bromofluorobenzene	97	%	98	%	102	%	99	%	100	%
	1,2-Dichloroethane-d4	83	%	84	%	89	%	86	%	94	%
Chloromethane		11	U	11	U	10	U	10	U	10	U
Bromomethane		11	U	11	U	10	U	10	U	10	U
Vinyl Chloride		11	U	11	U	10	U	10	U	10	U
Chloroethane		11	U	11	U	10	U	10	U	10	U
Methylene Chloride		6		6		5	U	5	U	5	U
Acetone		11	U	11	U	10	U	10	U	10	U
Carbon Disulfide		6	U	6	U	5	U	5	U	5	U
1,1-Dichloroethene		101	%	115	%	5	U	82	%	5	U
1,1-Dichloroethane		6	U	6	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	6	U	5	U	5	U	5	U
Chloroform		6	U	6	U	5	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	5	U	5	U	5	U
2-Butanone		11	U	11	U	10	U	10	U	10	U
1,1,1-Trichloroethane		6	U	6	U	5	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	5	U	5	U	5	U
Bromodichloromethane		6	U	6	U	5	U	5	U	5	U
1,2-Dichloropropane		6	U	6	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	5	U	5	U	5	U
Trichloroethene		109	%	132	%	5	U	104	%	5	U
Dibromochloromethane		6	U	6	U	5	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	5	U	5	U	5	U
Benzene		111	%	137	%	5	U	100	%	5	U
Trans-1,3-Dichloropropene		6	U	6	U	5	U	5	U	5	U
Bromoform		6	U	6	U	5	U	5	U	5	U
4-Methyl-2-pentanone		11	U	11	U	10	U	10	U	10	U
2-Hexanone		11	U	11	U	10	U	10	U	10	U
Tetrachloroethene		6	U	6	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	6	U	5	U	5	U	5	U
Toluene		111	%	136	%	5	U	100	%	5	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0211L202** Client: **TNUHANFORD F03-003 H1983** Work Order: 11343606001 Page: 2b

Cust ID:	B15YM6		B15YM6		VBLKAE		VBLKAE BS		VBLKAG	
RFW#:	006 MS		006 MSD		02LVX660-MB1		02LVX660-MB1		02LVX662-MB1	
Chlorobenzene	104	%	129	%	5	U	97	%	5	U
Ethylbenzene	6	U	6	U	5	U	5	U	5	U
Styrene	6	U	6	U	5	U	5	U	5	U
Xylene (total)	6	U	6	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM1

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 0211L202-001

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: x112512

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: not dec. 4

Date Analyzed: 11/25/02

Column: (pack/cap) CAP

Dilution Factor: 1.02

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	17.561	6	J

FORM 1 VOA-TIC 12/88 Rev.

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1E

VOLATILE ORGANICS ANALYSIS SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM2

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 0211L202-002

Sample wt/vol: 5.30 (g/mL) G

Lab File ID: x112513

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: not dec. 2

Date Analyzed: 11/25/02

Column: (pack/cap) CAP

Dilution Factor: 0.943

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC

12/88 Rev.

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1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM3

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 0211L202-003

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: x112514

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: not dec. 2

Date Analyzed: 11/25/02

Column: (pack/cap) CAP

Dilution Factor: 1.02

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM4

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 0211L202-004

Sample wt/vol: 5.30 (g/mL) G

Lab File ID: x112614

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: not dec. 7

Date Analyzed: 11/26/02

Column: (pack/cap) CAP

Dilution Factor: 0.943

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC

12/88 Rev.

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1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM5

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 0211L202-005

Sample wt/vol: 5.20 (g/mL) G

Lab File ID: x112516

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: not dec. 5

Date Analyzed: 11/25/02

Column: (pack/cap) CAP

Dilution Factor: 0.962

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC

12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM6

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 0211L202-006

Sample wt/vol: 4.70 (g/mL) G

Lab File ID: x112517

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: not dec. 4

Date Analyzed: 11/25/02

Column: (pack/cap) CAP

Dilution Factor: 1.06

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC

12/88 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKAE

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

Client: TNUHANFORD F03-003 H1983

Matrix: SOIL

Lab Sample ID: 02LVX660-MB1

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: x112505

Level: (low/med) LOW

Date Received: 11/25/02

% Moisture: not dec. 0

Date Analyzed: 11/25/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 12/88 Rev.

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Lionville Laboratory Use Only

02111202

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Tru Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-21-02 Date Due: 12-21-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	g	g	g		g			g		g	g				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—			—			—		—	—				
ANALYSES REQUESTED		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			ICP Metal (2)	CN	IC Anions (3)	Fl				
		Lionville Laboratory Use Only														
		062244	062544	0PCB		0GCSC			METO ICP6		INORG1	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	062244	062544	0PCB		0GCSC			METO ICP6		INORG1	IPH				
001	B15YM1			S	11-18-02	0915	X	X	X		X			X		X	X				
002	B15YM2					0923	X	X	X		X			X		X	X				
003	B15YM3					0932	X	X	X		X			X		X	X				
004	B15YM4					0943	X	X	X		X			X		X	X				
005	B15YM5					0956	X	X	X		X			X		X	X				
006	B15YM6					1006	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

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

3. INO3N2, INH3N, ICNTO, ICNTO

4.

5.

6.

Lionville Laboratory Use Only

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

2) Ambient or Chilled

3) Received In Good Condition Y or N

4) Samples Properly Preserved Y or N

5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 1.2 °C

Relinquished by	Received by	Date	Time
Hand Ex	D. Smith	11-21-02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7921 3814 3377/2.3°C 7921 3814 3344

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See DSPC DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2000pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	100g		
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										
B15YM1	SOIL	11-18-02	0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	Dave St. John	11/20/02 1100
Dave St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11.21.02 0945		11.21.02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-082	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RETRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPS	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	100g		
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										
B15YM2	SOIL	11-18-02	0923	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref# 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: D. Nielsen / R. Nielson 11-18-02	Date/Time: 1230	Received By/Stored In: Ref #1A / 3728 11-18-02	Date/Time: 1230
Relinquished By/Removed From: 3728 Ref 1A	Date/Time: 11/20/02 1100	Received By/Stored In: David St. John	Date/Time: 11/20/02 1100
Relinquished By/Removed From: David St. John ERC	Date/Time: 11/20/02 1100	Received By/Stored In: FED EX	Date/Time: 11/20/02 1100
Relinquished By/Removed From: Fed Ex	Date/Time: 11-21-02 0945	Received By/Stored In:	Date/Time: 11-21-02 0945
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1
Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERL-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

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

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
B15YM3	SOIL	11-18-02	0932	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Ref # 1A / 3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John EEC	11/20/02 1100	Received By/Stored In: RED EX	11/20/02 1100
Relinquished By/Removed From:	11-21-02 09:45	Received By/Stored In:	11-21-02 09:45
Relinquished By/Removed From:		Received By/Stored In:	
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: < 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YM4	SOIL	11-18-02	0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In: D. Smith	11-21-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	100g	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John Erc	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: FED EX	11-21-02 0945	Received By/Stored In:	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3		SAF No.: F03-003
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: DAS REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

~2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM6 / SOIL / 11-18-02 / 1006	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-18-02 1230	Ref # 1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	[illegible]	11/20/02 1100
[illegible] ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11-21-02 0945	[illegible]	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
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	F03-005-013	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 24 Hours
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-3	SAF No.: F03-005	Air Quality ☐
Ice Chest No.	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Government Vehicle	
Shipped To: Radiological Counting Facility	Offsite Property No.	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS

Preservation	None											
Type of Container	G/P											
No. of Container(s)	1											
Volume	60g											
	Rad Screen			RCF								
Sample No.	Matrix *	Sample Date	Sample Time									
B15YR1	SOIL	11-18-02	0905	Y		10670						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson / R Nielson	11-18-02 1400	REF # 1A 5728	11-18-02 1400
REF # 1A/5728	11-19-02 1110	R Nielson / R. Nielson	11/19/02 1110
R Nielson / R Nielson	11-19-02 1130	K. Eliason / [illegible]	11-19-02 1130

SPECIAL INSTRUCTIONS

** The RCF laboratory will e-fax their results to Steve Trent at 866-252-5816.

Gross Alpha/Beta Sample Pulled

COPY

Matrix *
S=Soil
SE=Sediment
SD=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)

11/19/02 04:58pm P. 001

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.21.02

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

Laboratory SDG #: 02111L202

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?)	DG 11.21.02 ~~☑ 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-99-030/1.2°C
#ERC-02-505/2.3°C

Laboratory Sample Custodian: D. Smith

Laboratory Project Manager:

25

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1	001	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM1	001 MS	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM1	001 MSD	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM2	002	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM3	003	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM4	004	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM5	005	S	02LE1401	11/18/02	11/22/02	12/06/02
B15YM6	006	S	02LE1401	11/18/02	11/22/02	12/06/02

LAB QC:

SBLKIQ	MB1	S	02LE1401	N/A	11/22/02	12/05/02
SBLKIQ	MB1 BS	S	02LE1401	N/A	11/22/02	12/05/02
SBLKIQ	MB1 BSD	S	02LE1401	N/A	11/22/02	12/05/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L202
SDG/SAF #: H1983/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-21-2002

SEMIVOLATILE

Six (6) soil samples were collected on 11-18-2002.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 11-22-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 12-05,06-2002.

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

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

2. Samples were extracted and analyzed within required holding time.

3. Non-target compounds were detected in the samples.

4. All surrogate recoveries were within EPA QC limits.

5. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

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

7. Internal standard area criteria were not met for the blank spike 02LE1401-MB1 BS. However; the GC/MS instrument was inspected for possible malfunction and was judged to be functioning properly.

8. Manual integrations are performed according to OP 21-06A-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").

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

J. Michael Taylor
President
Lionville Laboratory Incorporated

12-12-02
Date

som\gorup\data\bna\tnu-hanford-0211-202.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 2 4 pages.

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

GLOSSARY OF BNA DATA

DATA QUALIFIERS

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

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List — Report Date: 12/10/02 10:35

RFW Batch Number: 0211L202 — Client: TNUHANFORD F03-003 H1983 — Work Order: 11343606001 — Page: 1a

	Cust ID:	B15YM1		B15YM1		B15YM1		B15YM2		B15YM3		B15YM4	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	66	%	78	%	69	%	75	%	83	%	77	%
	2-Fluorobiphenyl	66	%	78	%	72	%	77	%	84	%	75	%
	p-Terphenyl-d14	81	%	95	%	86	%	90	%	97	%	93	%
	Phenol-d5	63	%	77	%	65	%	74	%	88	%	70	%
	2-Fluorophenol	64	%	78	%	64	%	74	%	85	%	72	%
	2,4,6-Tribromophenol	70	%	88	%	80	%	70	%	81	%	81	%
			fl		fl		fl		fl		fl		fl
Phenol		350	U	74	%	64	%	340	U	340	U	360	U
bis(2-Chloroethyl)ether		350	U	350	U	350	U	340	U	340	U	360	U
2-Chlorophenol		350	U	80	%	67	%	340	U	340	U	360	U
1,3-Dichlorobenzene		350	U	350	U	350	U	340	U	340	U	360	U
1,4-Dichlorobenzene		350	U	76	%	67	%	340	U	340	U	360	U
1,2-Dichlorobenzene		350	U	350	U	350	U	340	U	340	U	360	U
2-Methylphenol		350	U	350	U	350	U	340	U	340	U	360	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	350	U	340	U	340	U	360	U
3- and/or 4-Methylphenol		350	U	350	U	350	U	340	U	340	U	360	U
N-Nitroso-Di-n-propylamine		350	U	89	%	72	%	340	U	340	U	360	U
Hexachloroethane		350	U	350	U	350	U	340	U	340	U	360	U
Nitrobenzene		350	U	350	U	350	U	340	U	340	U	360	U
Isophorone		350	U	350	U	350	U	340	U	340	U	360	U
2-Nitrophenol		350	U	350	U	350	U	340	U	340	U	360	U
2,4-Dimethylphenol		350	U	350	U	350	U	340	U	340	U	360	U
bis(2-Chloroethoxy)methane		350	U	350	U	350	U	340	U	340	U	360	U
2,4-Dichlorophenol		350	U	350	U	350	U	340	U	340	U	360	U
1,2,4-Trichlorobenzene		350	U	83	%	77	%	340	U	340	U	360	U
Naphthalene		350	U	350	U	350	U	340	U	340	U	360	U
4-Chloroaniline		350	U	350	U	350	U	340	U	340	U	360	U
Hexachlorobutadiene		350	U	350	U	350	U	340	U	340	U	360	U
4-Chloro-3-methylphenol		350	U	96	%	83	%	340	U	340	U	360	U
2-Methylnaphthalene		350	U	350	U	350	U	340	U	340	U	360	U
Hexachlorocyclopentadiene		350	U	350	U	350	U	340	U	340	U	360	U
2,4,6-Trichlorophenol		350	U	350	U	350	U	340	U	340	U	360	U
2,4,5-Trichlorophenol		870	U	870	U	870	U	850	U	850	U	890	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0211L202 Client: TNUHANFORD F03-003 H1983 Work Order: 11343606001 Page: 1b

Cust ID:	B15YM1		B15YM1		B15YM1		B15YM2		B15YM3		B15YM4	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	350	U	350	U	350	U	340	U	340	U	360	U
2-Nitroaniline	870	U	870	U	870	U	850	U	850	U	890	U
Dimethylphthalate	350	U	350	U	350	U	340	U	340	U	360	U
Acenaphthylene	350	U	350	U	350	U	340	U	340	U	360	U
2,6-Dinitrotoluene	350	U	350	U	350	U	340	U	340	U	360	U
3-Nitroaniline	870	U	870	U	870	U	850	U	850	U	890	U
Acenaphthene	350	U	84	%	77	%	340	U	340	U	360	U
2,4-Dinitrophenol	870	U	870	U	870	U	850	U	850	U	890	U
4-Nitrophenol	870	U	101	%	89	%	850	U	850	U	890	U
Dibenzofuran	350	U	350	U	350	U	340	U	340	U	360	U
2,4-Dinitrotoluene	350	U	96 *	%	93 *	%	340	U	340	U	360	U
Diethylphthalate	350	U	350	U	350	U	340	U	340	U	360	U
4-Chlorophenyl-phenylether	350	U	350	U	350	U	340	U	340	U	360	U
Fluorene	350	U	350	U	350	U	340	U	340	U	360	U
4-Nitroaniline	870	U	870	U	870	U	850	U	850	U	890	U
4,6-Dinitro-2-methylphenol	870	U	870	U	870	U	850	U	850	U	890	U
N-Nitrosodiphenylamine (1)	350	U	350	U	350	U	340	U	340	U	360	U
4-Bromophenyl-phenylether	350	U	350	U	350	U	340	U	340	U	360	U
Hexachlorobenzene	350	U	350	U	350	U	340	U	340	U	360	U
Pentachlorophenol	870	U	95	%	80	%	850	U	850	U	890	U
Phenanthrene	350	U	350	U	350	U	340	U	340	U	360	U
Anthracene	350	U	350	U	350	U	340	U	340	U	360	U
Carbazole	350	U	350	U	350	U	340	U	340	U	360	U
Di-n-Butylphthalate	350	U	350	U	350	U	340	U	340	U	360	U
Fluoranthene	350	U	350	U	350	U	340	U	340	U	360	U
Pyrene	350	U	87	%	76	%	340	U	340	U	360	U
Butylbenzylphthalate	350	U	350	U	350	U	340	U	340	U	360	U
3,3'-Dichlorobenzidine	350	U	350	U	350	U	340	U	340	U	360	U
Benzo(a)anthracene	350	U	350	U	350	U	340	U	340	U	360	U
Chrysene	350	U	350	U	350	U	340	U	340	U	360	U
bis(2-Ethylhexyl)phthalate	350	U	350	U	350	U	340	U	21	J	360	U
Di-n-Octyl phthalate	350	U	350	U	350	U	340	U	340	U	360	U
Benzo(b)fluoranthene	350	U	350	U	350	U	340	U	340	U	360	U
Benzo(k)fluoranthene	350	U	350	U	350	U	340	U	340	U	360	U
Benzo(a)pyrene	350	U	350	U	350	U	340	U	340	U	360	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	350	U	340	U	340	U	360	U
Dibenzo(a,h)anthracene	350	U	350	U	350	U	340	U	340	U	360	U
Benzo(g,h,i)perylene	350	U	350	U	350	U	340	U	340	U	360	U
Tributylphosphate	350	U	350	U	350	U	340	U	340	U	360	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: 0211L202 Client: TNUHANFORD F03-003 H1983 Work Order: 11343606001 Report Date: 12/10/02 10:35 Page: 2a

	Cust ID:	B15YM5		B15YM6		SBLKIQ		SBLKIQ BS		SBLKIQ BSD	
Sample Information	RFW#:	005		006		02LE1401-MB1		02LE1401-MB1		02LE1401-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	80	%	69	%	71	%	65	%	58	%
	2-Fluorobiphenyl	78	%	69	%	78	%	71	%	61	%
	p-Terphenyl-d14	89	%	90	%	86	%	86	%	67	%
	Phenol-d5	85	%	78	%	69	%	63	%	63	%
	2-Fluorophenol	82	%	75	%	75	%	71	%	68	%
	2,4,6-Tribromophenol	84	%	69	%	63	%	67	%	56	%
Phenol		350	U	350	U	330	U	63	%	63	%
bis(2-Chloroethyl)ether		350	U	350	U	330	U	330	U	330	U
2-Chlorophenol		350	U	350	U	330	U	72	%	69	%
1,3-Dichlorobenzene		350	U	350	U	330	U	330	U	330	U
1,4-Dichlorobenzene		350	U	350	U	330	U	72	%	67	%
1,2-Dichlorobenzene		350	U	350	U	330	U	330	U	330	U
2-Methylphenol		350	U	350	U	330	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	330	U	330	U	330	U
3- and/or 4-Methylphenol		350	U	350	U	330	U	330	U	330	U
N-Nitroso-Di-n-propylamine		350	U	350	U	330	U	68	%	66	%
Hexachloroethane		350	U	350	U	330	U	330	U	330	U
Nitrobenzene		350	U	350	U	330	U	330	U	330	U
Isophorone		350	U	350	U	330	U	330	U	330	U
2-Nitrophenol		350	U	350	U	330	U	330	U	330	U
2,4-Dimethylphenol		350	U	350	U	330	U	330	U	330	U
bis(2-Chloroethoxy)methane		350	U	350	U	330	U	330	U	330	U
2,4-Dichlorophenol		350	U	350	U	330	U	330	U	330	U
1,2,4-Trichlorobenzene		350	U	350	U	330	U	69	%	62	%
Naphthalene		350	U	350	U	330	U	330	U	330	U
4-Chloroaniline		350	U	350	U	330	U	330	U	330	U
Hexachlorobutadiene		350	U	350	U	330	U	330	U	330	U
4-Chloro-3-methylphenol		350	U	350	U	330	U	68	%	64	%
2-Methylnaphthalene		350	U	350	U	330	U	330	U	330	U
Hexachlorocyclopentadiene		350	U	350	U	330	U	330	U	330	U
2,4,6-Trichlorophenol		350	U	350	U	330	U	330	U	330	U
2,4,5-Trichlorophenol		880	U	870	U	830	U	830	U	830	U

*= Outside of EPA CLP QC limits.

Cust ID:	B15YM5		B15YM6		SBLKIQ		SBLKIQ BS		SBLKIQ BSD	
RFW#:	005		006		02LE1401-MB1		02LE1401-MB1		02LE1401-MB1	
2-Chloronaphthalene	350	U	350	U	330	U	330	U	330	U
2-Nitroaniline	880	U	870	U	830	U	830	U	830	U
Dimethylphthalate	350	U	350	U	330	U	330	U	330	U
Acenaphthylene	350	U	350	U	330	U	330	U	330	U
2,6-Dinitrotoluene	350	U	350	U	330	U	330	U	330	U
3-Nitroaniline	880	U	870	U	830	U	830	U	830	U
Acenaphthene	350	U	350	U	330	U	74	%	67	%
2,4-Dinitrophenol	880	U	870	U	830	U	830	U	830	U
4-Nitrophenol	880	U	870	U	830	U	44	%	55	%
Dibenzofuran	350	U	350	U	330	U	330	U	330	U
2,4-Dinitrotoluene	350	U	350	U	330	U	80	%	75	%
Diethylphthalate	350	U	350	U	330	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	350	U	330	U	330	U	330	U
Fluorene	350	U	350	U	330	U	330	U	330	U
4-Nitroaniline	880	U	870	U	830	U	830	U	830	U
4,6-Dinitro-2-methylphenol	880	U	870	U	830	U	830	U	830	U
N-Nitrosodiphenylamine (1)	350	U	350	U	330	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	350	U	330	U	330	U	330	U
Hexachlorobenzene	350	U	350	U	330	U	330	U	330	U
Pentachlorophenol	880	U	870	U	830	U	41	%	42	%
Phenanthrene	350	U	350	U	330	U	330	U	330	U
Anthracene	350	U	350	U	330	U	330	U	330	U
Carbazole	350	U	350	U	330	U	330	U	330	U
Di-n-Butylphthalate	350	U	100	J	330	U	330	U	330	U
Fluoranthene	350	U	350	U	330	U	330	U	330	U
Pyrene	350	U	350	U	330	U	86	%	68	%
Butylbenzylphthalate	350	U	350	U	330	U	330	U	330	U
3,3'-Dichlorobenzidine	350	U	350	U	330	U	330	U	330	U
Benzo(a)anthracene	350	U	350	U	330	U	330	U	330	U
Chrysene	350	U	350	U	330	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	350	U	25	J	330	U	330	U	330	U
Di-n-Octyl phthalate	350	U	350	U	330	U	330	U	330	U
Benzo(b)fluoranthene	350	U	350	U	330	U	330	U	330	U
Benzo(k)fluoranthene	350	U	350	U	330	U	330	U	330	U
Benzo(a)pyrene	350	U	350	U	330	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	330	U	330	U	330	U
Dibenzo(a,h)anthracene	350	U	350	U	330	U	330	U	330	U
Benzo(g,h,i)perylene	350	U	350	U	330	U	330	U	330	U
Tributylphosphate	350	U	350	U	330	U	330	U	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM1

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L202-001

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

Lab File ID: A120606

Level: (low/med) LOW

Date Received: 11/21/02

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

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.639	5000	JAB
2.	ALDOL CONDENSATE	3.957	40000	JAB
3.	ALDOL CONDENSATE	4.601	300	JAB
4.	ALDOL CONDENSATE	5.256	5000	JAB
5.	ALDOL CONDENSATE	6.434	900	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM2

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L202-002

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

Lab File ID: A120609

Level: (low/med) LOW

Date Received: 11/21/02

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

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.666	4000	JAB
2.	ALDOL CONDENSATE	3.958	30000	JAB
3.	ALDOL CONDENSATE	4.614	300	JAB
4.	ALDOL CONDENSATE	5.263	4000	JAB
5.	ALDOL CONDENSATE	6.454	800	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM3

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L202-003

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

Lab File ID: A120610

Level: (low/med) LOW

Date Received: 11/21/02

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

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.713	5000	JAB
2.	ALDOL CONDENSATE	3.958	40000	JAB
3.	ALDOL CONDENSATE	4.625	300	JAB
4.	ALDOL CONDENSATE	5.281	5000	JAB
5.	ALDOL CONDENSATE	6.459	900	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM4

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L202-004

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

Lab File ID: A120611

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: 7 decanted: (Y/N)__

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.673	4000	JAB
2.	ALDOL CONDENSATE	3.958	30000	JAB
3.	ALDOL CONDENSATE	4.615	300	JAB
4.	ALDOL CONDENSATE	5.264	4000	JAB
5.	ALDOL CONDENSATE	6.455	800	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM5

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L202-005

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

Lab File ID: A120612

Level: (low/med) LOW

Date Received: 11/21/02

% Moisture: 5 decanted: (Y/N)__

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.680	4000	JAB
2.	ALDOL CONDENSATE	3.958	30000	JAB
3.	ALDOL CONDENSATE	4.615	300	JAB
4.	ALDOL CONDENSATE	5.264	4000	JAB
5.	ALDOL CONDENSATE	6.456	800	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15YM6

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L202-006

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

Lab File ID: A120613

Level: (low/med) LOW

Date Received: 11/21/02

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

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/06/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	3.626	4000	JAB
2.	ALDOL CONDENSATE	3.957	30000	JAB
3.	ALDOL CONDENSATE	4.601	200	JAB
4.	ALDOL CONDENSATE	5.249	4000	JAB
5.	ALDOL CONDENSATE	6.447	700	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKIQ

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

Client: TNUHANFORD F03-003 H1983

Matrix: (soil/water) SOIL

Lab Sample ID: 02LE1401-MB1

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

Lab File ID: D120510

Level: (low/med) LOW

Date Received: 11/22/02

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

Date Extracted: 11/22/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/05/20

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.168	5000	JA
2.	ALDOL CONDENSATE	6.751	40000	JA
3.	ALDOL CONDENSATE	7.299	300	JA
4.	ALDOL CONDENSATE	8.020	3000	JA
5.	ALDO CONDENSATE	9.298	1000	JA

Lionville Laboratory Use Only

02111202

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-21-02 Date Due: 12-21-02

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

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625Y	0PCB	0GCSC	METO ICRG	INORG①	IPH
001	B15YM1			S	11-18-02	0915	X	X	X	X	X	X	X
002	B15YM2					0923	X	X	X	X	X	X	X
003	B15YM3					0932	X	X	X	X	X	X	X
004	B15YM4					0943	X	X	X	X	X	X	X
005	B15YM5					0956	X	X	X	X	X	X	X
006	B15YM6					1006	X	X	X	X	X	X	X

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

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

3. IN3N2, INH3N, ICNYO, ICNYO

4.

5.

6.

Lionville Laboratory Use Only

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

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

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

Cooler Temp. 1.2 °C

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

NOTES: 7921 3814 3377/2.3°C 7921 3814 3344

Relinquished by	Received by	Date	Time
Fed Ex	D. Smith	11-21-02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector R. Nielson	Company Contact: Steve Trent Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N Data Turnaround: 45 Days Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No. ERC-99-030	Field Logbook No. HNF-N-3251 COA 117514ES10	Method of Shipment: Federal Express	
Shipped To RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No. A030043	Bill of Lading/Air Bill No. See DSPR DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2000 pCi/gm

Special Handling and/or Storage

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

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
B15YM1	SOIL	11-18-02	0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson JR. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	Dave St John	11/20/02 1100
Dave St John ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11-21-02 0945		11-21-02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-082	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RETRA DAS ~~EDERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPS	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	100g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {i-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM2 / SOIL / 11-18-02 / 0923	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	R. Nielson	11-18-02 1230	Received By/Stored In: Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A		11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John ERC		11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex		11-21-02 0945	Received By/Stored In: D. Smith	11-21-02 0945
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1
Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERL-99-030	Field Logbook No.: HNF-N3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC 11/20/02 DAS	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

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

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
B15YM3	SOIL	11-18-02	0932	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

RJN 11/18/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	1230 11-18-02	Ref # 1A / 3728	1230 11-18-02
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John EEC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11.21.02 09:45	D. Mitch	11.21.02 09:45

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-084	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3		SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 PCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15YM4	SOIL	11-18-02	0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-18-02 1230	Ref #1A / 3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11-21-02 0945	D. Smith	11-21-02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson 11-18-02	1230	Ref #1A/3728 11-18-02	1230
3728 Ref-1A	11/20/02 1100	David Stephen	11/20/02 1100
David Stephen ERC	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11-21-02 0945		11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: DAS RECRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: <2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM6 / SOIL / 11-18-02 / 1006	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Ref # 1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In:	11/20/02 1100
Relinquished By/Removed From: ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In:	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11-21-02

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

Laboratory SDG #: 02111L202

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~~ DO 11-21-02	☑ 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 99-030 / 1.2°C

#ERC-02-505 / 2.3°C

Laboratory Sample Custodian: D. Smith

Laboratory Project Manager:

24

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1	001	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM1	001 MS	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM1	001 MSD	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM2	002	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM3	003	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM4	004	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM5	005	S	02LE1415	11/18/02	11/23/02	12/11/02
B15YM6	006	S	02LE1415	11/18/02	11/23/02	12/11/02

LAB QC:

PBLKGT	MB1	S	02LE1415	N/A	11/23/02	12/10/02
PBLKGT	MB1 BS	S	02LE1415	N/A	11/23/02	12/10/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L202
SDG/SAF #: H1983/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-21-02

PCB

The set of samples consisted of six (6) soil samples collected on 11-18-02.

The samples and their associated QC samples were extracted on 11-23-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 12-10,11-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/13/02
Date

pef\r:\group\data\pest\tnu hanford\11L-202.pcb

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

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

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 15:39

RFW Batch Number: **0211L202** Client: **TNUHANFORD F03-003 H1983** Work Order: 11343606001 Page: 1

05

	Cust ID:	B15YM1		B15YM1		B15YM1		B15YM2		B15YM3		B15YM4	
Sample Information	RFW#:	001		001 MS		001 MSD		002		003		004	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	80	%	90	%	85	%	85	%	55	%	80	%
	Decachlorobiphenyl	100	%	110	%	105	%	105	%	85	%	100	%
			fl		fl		fl		fl		fl		fl
Aroclor-1016		35	U	88	%	87	%	34	U	34	U	36	U
Aroclor-1221		70	U	70	U	70	U	68	U	68	U	72	U
Aroclor-1232		35	U	35	U	35	U	34	U	34	U	36	U
Aroclor-1242		35	U	35	U	35	U	34	U	34	U	36	U
Aroclor-1248		35	U	35	U	35	U	34	U	34	U	36	U
Aroclor-1254		35	U	35	U	35	U	34	U	34	U	36	U
Aroclor-1260		35	U	106	%	103	%	34	U	34	U	36	U

	Cust ID:	B15YM5		B15YM6		PBLKGT		PBLKGT BS	
Sample Information	RFW#:	005		006		02LE1415-MB1		02LE1415-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate:	Tetrachloro-m-xylene	80	%	90	%	70	%	80	%
	Decachlorobiphenyl	105	%	110	%	100	%	100	%
			fl		fl		fl		fl
Aroclor-1016		35	U	35	U	33	U	84	%
Aroclor-1221		70	U	69	U	67	U	67	U
Aroclor-1232		35	U	35	U	33	U	33	U
Aroclor-1242		35	U	35	U	33	U	33	U
Aroclor-1248		35	U	35	U	33	U	33	U
Aroclor-1254		35	U	35	U	33	U	33	U
Aroclor-1260		35	U	35	U	33	U	100	%

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

02111L202

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY INC.

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.21.02 Date Due: 12-21-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—			—			—		—	—				
ANALYSES REQUESTED		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			TCP Metal (2)	CN	Cl Alcohol (3)	FL				

Lionville Laboratory Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625Y 0D00	0PCB		0GC3C			MET ① ICRL		INORG ①	IPH				
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	001	B15YM1			S	11-18-02	0915	X	X	X		X			X		X	X				
	002	B15YM2					0923	X	X	X		X			X		X	X				
	003	B15YM3					0932	X	X	X		X			X		X	X				
	004	B15YM4					0943	X	X	X		X			X		X	X				
	005	B15YM5					0956	X	X	X		X			X		X	X				
	006	B15YM6					1006	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

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

3. IN3N2, INH3N, ICNYO, ICNYO

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # See below

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

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

Cooler Temp. 1.2 °C

Relinquished by	Received by	Date	Time
Hand Ex	D. Smith	11-21-02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

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

NOTES: 7921 3814 3377/2.3°C 7921 3814 3344

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See DSPC DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2000pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	100g		

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
B15YM1	SOIL	11-18-02	0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson 11-18-02	1230	Ref #1A/3728 11-18-02	1230
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11.21.02 0945		11.21.02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F03-003-082 | Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: REZRA DAS 11/20/02 ~~EDERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPS

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	100g		

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
B15YM2	SOIL	11-18-02	0923	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: D. Nielsen R. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A/3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John 11/20/02	1100
Relinquished By/Removed From: David St. John ERC David St. John	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In: D. Smith	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1
Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERL-99-030	Field Logbook No.: HNF-N3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC 11/20/02 DAS	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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 - HB	
Sample No.	Matrix *	Sample Date	Sample Time								
B15YM3	SOIL	11-18-02	0932	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson 11-18-02	1230	Received By/Stored In: Ref # 1A / 3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St John	11/20/02 1100
Relinquished By/Removed From: David St John ERC	11/20/02 1100	Received By/Stored In: RED EX	11/20/02 1100
Relinquished By/Removed From: Red Ex	11.21.02 0945	Received By/Stored In: D. Minich	11.21.02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: REZRA DAS ~~FRERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM4	SOIL	11-18-02	0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson 11-18-02	Date/Time: 1230	Received By/Stored In: Ref #1A/3728 11-18-02	Date/Time: 1230
Relinquished By/Removed From: 3728 Ref 1A 11/20/02	Date/Time: 1100	Received By/Stored In: 11/20/02	Date/Time: 1100
Relinquished By/Removed From: Dev St. John ERC 11/20/02	Date/Time: 1100	Received By/Stored In: FED EX 11/20/02	Date/Time: 1100
Relinquished By/Removed From: FED EX 11-21-02	Date/Time: 0945	Received By/Stored In: D. Smith 11-21-02	Date/Time: 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA ~~FIBERLINE SERVICES (Formerly TMA)~~ AAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	AAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: FED EX	11-21-02 0945	Received By/Stored In: [illegible]	11-21-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: DAS RECRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

~2,000 pCi/gm

Special Handling and/or Storage

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

SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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									
B15YM6 / SOIL / 11-18-02 / 1006	X	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-18-02 1230	Ref # 1A/3728	11-18-02 1230
Relinquished By/Removed From	3728 Ref 1A	11/20/02 1100		11/20/02 1100
Relinquished By/Removed From	ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From	FED EX	11-21-02 0945	Received By/Stored In	11-21-02 0945
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-013	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 24 Hours
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location: SP-3	SAF No.: F03-005	Air Quality ☐
Ice Chest No.	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Government Vehicle	
Shipped To: Radiological Counting Facility	Offsite Property No.	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None										
Type of Container	G/P										
No. of Container(s)	1										
Volume	60g										
SAMPLE ANALYSIS	Rad Screen			RCF							
Sample No. / Matrix * / Sample Date / Sample Time											
B15YR1 / SOIL / 11-18-02 / 0905	X		10670								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson 11-18-02	Date/Time: 1400	Received By/Stored In: Ref # 1A 3728 11-18-02	Date/Time: 1400
Relinquished By/Removed From: Ref # 1A 3728 11-19-02	Date/Time: 1110	Received By/Stored In: R. Nielson 11/19/02	Date/Time: 1110
Relinquished By/Removed From: R. Nielson 11-19-02	Date/Time: 1130	Received By/Stored In: K. Eliason / 11-19-02	Date/Time: 1130
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The RCF laboratory will e-fax their results to Steve Trent at 866-252-5816.

Gross Alpha/Beta Sample Pulled

COPY

Matrix *
S=Soil
SE=Sediment
SD=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)

11/19/02 04:58pm

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11.21.02

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

Laboratory SDG #: 02111L202

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~~ DG 11.21.02	☑ 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-99030/1.2°C
#ERC-02-505/2.3°C

Laboratory Sample Custodian: D. Ymitn

Laboratory Project Manager:

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1	001	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM1	001 MS	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM1	001 MSD	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM2	002	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM3	003	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM4	004	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM5	005	S	02LE1427	11/18/02	11/25/02	11/26/02
B15YM6	006	S	02LE1427	11/18/02	11/25/02	11/26/02

LAB QC:

BLK	MB1	S	02LE1427	N/A	11/25/02	11/25/02
BLK	MB1 BS	S	02LE1427	N/A	11/25/02	11/25/02
BLK	MB1 BSD	S	02LE1427	N/A	11/25/02	11/25/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD F03-003
LVL#: 0211L202
SDG/SAF#: H1983/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-21-02

GC SCAN

The set of samples consisted of six (6) soil samples collected on 11-18-02.

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

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. Surrogates are not currently employed in the methodology.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria, with the exception of target compound Ethanol analyzed on 11-26-02 at 12:52. The data reflected an increase in instrument response, so the ability to identify this compound was not impaired. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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

12/9/02
Date

r:\group\data\gcsc\11L-202.doc

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 026C561

Initiator: John Lach
Date: 12/3/02
Client: TNU

Batch: 021LL201, 202
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: 06CSC
Matrix: SO. 1
Prep Batch: 02LE1427.

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)

CCV run prior to samples on 11/26/02 at 12:52Am elevated for Ethanol at 20.5% limit 15%.

2. Known or Probable Causes(s)

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:

Narr.
No hits in samples, matrix QC 100-106% for ethanol.

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

__ 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: _____ 12/4/02

Other Explanation:

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

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

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

QA-105-A-0801

GLOSSARY OF GC SCAN DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 12/03/02 15:11

RFW Batch Number: **0211L202** Client: **TNU-HANFORD F03-003** Work Order: 11343606001 Page: 1

	Cust ID:	B15YM1	B15YM1	B15YM1	B15YM2	B15YM3	B15YM4
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		27 U	96 %	97 %	25 U	23 U	26 U
Ethanol		27 U	100 %	100 %	25 U	23 U	26 U

	Cust ID:	B15YM5	B15YM6	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	005	006	02LE1427-MB1	02LE1427-MB1	02LE1427-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
n-Propyl Alcohol		22 U	24 U	25 U	100 %	100 %
Ethanol		22 U	24 U	25 U	102 %	103 %

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

Lionville Laboratory Use Only

02111202

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI Lionville Laboratory Inc.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Tnu Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Orlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.21.02 Date Due: 12-21-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—			—			—		—	—				
ANALYSES REQUESTED →		ORGANIC							INORG							
		TCL VOA	BNA (2)	Pest/PCB	Herb	Alcohols Glycols Ketones			ICP Metal (2)	CN	IC Anions (3)	Fl				
		Lionville Laboratory Use Only														
		06244	06254	0PCB		0GCSC			METO ICP6		INORG ①	IPH				
001	B15Ym1				S	11.18.02	0915	X	X	X		X		X	X	X				
002	B15Ym2						0923	X	X	X		X		X	X	X				
003	B15Ym3						0932	X	X	X		X		X	X	X				
004	B15Ym4						0943	X	X	X		X		X	X	X				
005	B15Ym5						0956	X	X	X		X		X	X	X				
006	B15Ym6						1006	X	X	X		X		X	X	X				

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

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

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

3. INSN2, INHSN, ICNYO, ICNYO

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # ___ Dee Liters

2) Ambient or (Chilled)

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

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

Cooler Temp. 1.2 °C

Relinquished by	Received by	Date	Time
Fed Ex	D. Smith	11.21.02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

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

NOTES: 7921 3814 3377/2.3°C 7921 3814 3344

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See DSPC DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS: <2000pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM1 / SOIL / 11-18-02 / 0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson JR. Nielson 11-18-02	1230	Ref #1A/3728 11-18-02	1230
3728 Ref 1A	11/20/02 1100	David St John	11/20/02 1100
David St John ERC David St John	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11.21.02 0945	[illegible]	11.21.02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-082
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPS DAS 11/20	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM2 / SOIL / 11-18-02 / 0923	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A/3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: 11/20/02	1100
Relinquished By/Removed From: ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In:	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days — Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: TNF-N3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA ~~FIBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None DAS	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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 - HB	RJN 11/18/02
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM3 / SOIL / 11-18-02 / 0932	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-18-02 1230	Ref # 1A / 3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John	11/20/02 1100	Ref 1A	11/20/02 1100
	11-21-02 0945		11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	

SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15YM4 / SOIL / 11-18-02 / 0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	[illegible]	11/20/02 1100
[illegible] ERC	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11-21-02 0945	[illegible]	11-21-02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RETRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson / R. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A/3728 11-18-02	1230
Relinquished By/Removed From: 3728B Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In: [illegible]	11-21-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: DAS REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM6 / SOIL / 11-18-02 / 1006	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref # 1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In:	11/20/02 1100
Relinquished By/Removed From: ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In:	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-005-013	Page 1 of 1

Collector R. Nielson	Company Contact Steve Trent — Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N — Data Turnaround 24 Hours
Project Designation 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location SP-3	SAF No. F03-005	Air Quality ☐
Ice Chest No.	Field Logbook No. HNF-N-325/ — COA 117514ES10	Method of Shipment Government Vehicle	
Shipped To Radiological Counting Facility	Offsite Property No.	Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None										
Type of Container	G/P										
No. of Container(s)	1										
Volume	60g										
SAMPLE ANALYSIS	Rad Screen			RCF							
Sample No. / Matrix * / Sample Date / Sample Time											
B15YR1 / SOIL / 11-18-02 / 0905	V		10670								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1400	Received By/Stored In	Date/Time
[signature] / R Nielson 11-18-02		Ref# 1A 3728	11-18-02 1400
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Ref# 1A 3728 11-19-02	1110	[signature] / R. Nielson	11/19/02 1110
Relinquished By/Removed From	Date/Time 1130	Received By/Stored In	Date/Time
[signature] / R Nielson 11-19-02		K. Eliason / [signature]	11-19-02 1130
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The RCF laboratory will e-fax their results to Steve Trent at 866-252-5816.

Gross Alpha/Beta Sample Pulled

COPY

Matrix *

S=Soil
SE=Sediment
SD=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)

11/19/02 04:58pm P. 001

13

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 11.21.02

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

Laboratory SDG #: 02-11L-202

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~~ DJ 11.21.02	☑ 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-99-030/1.2°C
#ERC-02-505/2.3°C

Laboratory Sample Custodian: D. Ymitson

Laboratory Project Manager:

Lionville Laboratory, Inc.

DRO ANALYTICAL DATA PACKAGE FOR

TNU-HANFORD F03-003 A1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1	001	S	02LE1400	11/18/02	11/22/02	11/27/02
B15YM1	001 MS	S	02LE1400	11/18/02	11/22/02	11/27/02
B15YM1	001 MSD	S	02LE1400	11/18/02	11/22/02	11/27/02
B15YM2	002	S	02LE1400	11/18/02	11/22/02	11/27/02
B15YM3	003	S	02LE1400	11/18/02	11/22/02	11/27/02
B15YM4	004	S	02LE1400	11/18/02	11/22/02	11/28/02
B15YM5	005	S	02LE1400	11/18/02	11/22/02	11/28/02
B15YM6	006	S	02LE1400	11/18/02	11/22/02	11/28/02

LAB QC:

BLK	MB1	S	02LE1400	N/A	11/22/02	11/28/02
BLK	MB1 BS	S	02LE1400	N/A	11/22/02	11/28/02

JAN 2003
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L202
SDG/SAF #: H1983/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-21-02

DIESEL RANGE ORGANICS

The set of samples consisted of six (6) water samples collected on 11-18-02.

The samples and their associated QC samples were extracted on 11-22-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-27,28-02. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8015B. The analysis met the intent of method WTPH-D.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/4/02
Date

pef\r:\group\data\dro\tnu hanford\11L-202.doc

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

GLOSSARY OF DIESEL RANGE ORGANICS DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF DIESEL RANGE ORGANICS DATA

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 12/03/02 13:09

RFW Batch Number: **0211L202** Client: **TNU-HANFORD F03-003** Work Order: 11343606001 Page: 1

	Cust ID:	B15YM1	B15YM1	B15YM1	B15YM2	B15YM3	B15YM4
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
p-Terphenyl		102 %	90 %	101 %	100 %	92 %	90 %
Diesel Range Organics		12.6 U	70 %	78 %	12.3 U	12.3 U	12.9 U
Kerosene		12.6 U	12.6 U	12.6 U	12.3 U	12.3 U	12.9 U

	Cust ID:	B15YM5	B15YM6	BLK	BLK BS
Sample Information	RFW#:	005	006	02LE1400-MB1	02LE1400-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg
p-Terphenyl		96 %	87 %	106 %	96 %
Diesel Range Organics		12.6 U	12.5 U	12.0 U	71 %
Kerosene		12.6 U	12.5 U	12.0 U	12.0 U

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

Page 1 of 1

Lionville Laboratory Use Only

02111L202

Custody Transfer Record/Lab Work Request

Page ___ of ___

VLI Lionville Laboratory Inc

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: Tnu Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-21-02 Date Due: 12-21-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	g	g	g		g			g		g	g				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—			—			—		—	—				
ANALYSES REQUESTED		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			TCL Metal (2)	CN	TCL Anion (3)	Fl				
		Lionville Laboratory Use Only														
		062414	0625X 0PAH	0PCB		0GCSC			METO ICP6		INORG (1)	IPH				
001	B15YM1	X	X	X		X			X		X	X				
002	B15YM2	X	X	X		X			X		X	X				
003	B15YM3	X	X	X		X			X		X	X				
004	B15YM4	X	X	X		X			X		X	X				
005	B15YM5	X	X	X		X			X		X	X				
006	B15YM6	X	X	X		X			X		X	X				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected
001	B15YM1			S	11-18-02	0915
002	B15YM2					0923
003	B15YM3					0932
004	B15YM4					0943
005	B15YM5					0956
006	B15YM6					1006

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

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

3. IN3N2, INH3N, ICNYO, ICNYO

4.

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 1.2 °C

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

NOTES: 7921 3814 3377/2.3°C 7921 3814 3344

Relinquished by	Received by	Date	Time
Clear Ex	D. Smith	11-21-02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See DSPC DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS: <2000pCi/gm

Special Handling and/or Storage

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15YM1	SOIL	11-18-02	0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R.Nielson JR. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A/3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David Stockton	11/20/02 1100
Relinquished By/Removed From: David Stockton ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: FED EX	11.21.02 0945	Received By/Stored In: [illegible]	11.21.02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-082 Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N	Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3		SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RETRA DAS ~~EDERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPS DAS 11/20/02

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM2 / SOIL / 11-18-02 / 0923	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: D. Nielson / R. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A / 3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John ERC	11/20/02 1100	Received By/Stored In: FEDEX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In: D. Smith	11-21-02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F03-003-003

Collector: R Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: REZRA ~~FREELINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC 11/20/02 DAS

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	RJN 11/18/02

Sample No.	Matrix *	Sample Date	Sample Time										
B15YM3	SOIL	11-18-02	0932	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson R. Nielson	11-18-02 1230	Received By/Stored In: Ref # 1A / 3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John EEC	11/20/02 1100	Received By/Stored In: REO EK	11/20/02 1100
Relinquished By/Removed From: REO EK	11-21-02 0945	Received By/Stored In: D. Ahrich	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15YM4	SOIL	11-18-02	0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	Dave St. John	11/20/02 1100
Dave St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11-21-02 0945	D. Smith	11-21-02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 PCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	1230 11-18-02	Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David Stanton	11/20/02 1100
Relinquished By/Removed From: David Stanton, John Erc	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: FED EX	11-21-02 0945	Received By/Stored In: [illegible]	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: DAS RECRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSAC

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

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	G/P	G/P	G/P	G/P	
No. of Container(s)				1	1	1	1	1	1	1	1	1	
Volume				60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
				VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {I-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	
Sample No.	Matrix *	Sample Date	Sample Time										
B15YM6	SOIL	11-18-02	1006	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref # 1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In:	11/20/02 1100
Relinquished By/Removed From: ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In:	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Matrix *
S=Soil
SE=Sediment
SO=Solid
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	F03-005-013	Page 1 of 1

Collector R. Nielson	Company Contact Steve Trent — Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N — Data Turnaround 24 Hours
Project Designation 200 Area Source Characterization 200-CS-1 OU - Waste Man	Sampling Location SP-3	SAF No. F03-005	Air Quality ☐
Ice Chest No.	Field Logbook No. HNF-N-3251 — COA 117514ES10	Method of Shipment Government Vehicle	
Shipped To Radiological Counting Facility	Offsite Property No.	Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS

Preservation	None											
Type of Container	G/P											
No. of Container(s)	1											
Volume	60g											
	Rad Screen			RCF								
Sample No.	Matrix *	Sample Date	Sample Time									
B15YR1	SOIL	11-18-02	0905	Y		10670						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1400	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-18-02	REF # 1A 3728	11-18-02 1400
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
REF # 1A 3728	11-19-02 1110	[signature] / R. Nielson	11/19/02 1110
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-19-02 1130	K. Eliason / [signature]	11-19-02 1130
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS
** The RCF laboratory will e-fax their results to Steve Trent at 866-252-5816.

Gross Alpha/Beta Sample Pulled

COPY

Matrix *
S=Soil
SE=Sediment
SD=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: TRU Hanford

Purchase Order/Project:

DATE: 11-21-02

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

Laboratory SDG #: 02111L202

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?)	DO 11-21-02 ~~☑ 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-99-030/1.2°C

#ERC-02-505/2.3°C

Laboratory Sample Custodian: D. Ymitn

Laboratory Project Manager:

JAN 2003
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1						
SILVER, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
SILVER, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
SILVER, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
MERCURY, TOTAL	001	S	02C0362	11/18/02	12/09/02	12/10/02
MERCURY, TOTAL	001 REP	S	02C0362	11/18/02	12/09/02	12/10/02
MERCURY, TOTAL	001 MS	S	02C0362	11/18/02	12/09/02	12/10/02
NICKEL, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
NICKEL, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
NICKEL, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	001	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	001 REP	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	001 MS	S	02L0726	11/18/02	12/11/02	12/13/02
B15YM2						
SILVER, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
MERCURY, TOTAL	002	S	02C0362	11/18/02	12/09/02	12/10/02
NICKEL, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	002	S	02L0726	11/18/02	12/11/02	12/13/02
B15YM3						
SILVER, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
MERCURY, TOTAL	003	S	02C0362	11/18/02	12/09/02	12/10/02
NICKEL, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	003	S	02L0726	11/18/02	12/11/02	12/13/02
B15YM4						
SILVER, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
MERCURY, TOTAL	004	S	02C0362	11/18/02	12/09/02	12/10/02
NICKEL, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	004	S	02L0726	11/18/02	12/11/02	12/13/02
B15YM5						
SILVER, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
MERCURY, TOTAL	005	S	02C0362	11/18/02	12/09/02	12/10/02
NICKEL, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	005	S	02L0726	11/18/02	12/11/02	12/13/02
B15YM6						
SILVER, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
ARSENIC, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
BARIUM, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
BERYLLIUM, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
CADMIUM, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
CHROMIUM, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
COPPER, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	006	S	02C0362	11/18/02	12/09/02	12/10/02
NICKEL, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
LEAD, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
SELENIUM, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
VANADIUM, TOTAL	006	S	02L0726	11/18/02	12/11/02	12/13/02
ZINC, TOTAL	006	S	02L0726	11/18/02	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
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
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
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
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
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
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 F03-003
LVL#: 0211L202
SDG/SAF#: H1983/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-21-02

METALS CASE NARRATIVE

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

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

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

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

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

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

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

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

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

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 23 pages.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-18-02
Date

gmb/m11-202

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this
Lot#: 02ILL202

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: ✓3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	✓6010B		200.7				99
Antimony	✓6010B	7041 [5]	200.7	204.2			99
Arsenic	✓6010B	7060A [5]	200.7	206.2	3113B		99
Barium	✓6010B		200.7				99
Beryllium	✓6010B		200.7				99
Bismuth	6010B [1]		200.7 [1]			1620	99
Boron	✓6010B		200.7				99
Cadmium	✓6010B	7131A [5]	200.7	213.2			99
Calcium	✓6010B		200.7				99
Chromium	✓6010B	7191 [5]	200.7	218.2			SS17
Cobalt	✓6010B		200.7				99
Copper	✓6010B	7211 [5]	200.7	220.2			99
Iron	✓6010B		200.7				99
Lead	✓6010B	7421 [5]	200.7	239.2	3113B		99
Lithium	6010B	7430 [4]	200.7			1620	99
Magnesium	6010B		200.7				99
Manganese	6010B		200.7				99
Mercury	7470A [3]	✓7471A [3]	245.1 [2]	245.5 [2]			99
Molybdenum	✓6010B		200.7				99
Nickel	✓6010B		200.7				99
Potassium	6010B	7610 [4]	200.7	258.1 [4]			99
Rare Earths	✓6010B [1]		200.7 [1]			1620	99
Selenium	✓6010B	7740 [5]	200.7	270.2	3113B		99
Silicon	6010B [1]		200.7			1620	99
Silica	✓6010B		200.7			1620	99
Silver	✓6010B	7761 [5]	200.7	272.2			99
Sodium	6010B	7770 [4]	200.7	273.1 [4]			99
Strontium	6010B		200.7				99
Thallium	6010B	7841 [5]	200.7	279.2 200.9			99
Tin	6010B		200.7				99
Titanium	6010B		200.7				99
Uranium	✓6010B [1]		200.7 [1]			1620	99
Vanadium	✓6010B		200.7				99
Zinc	✓6010B		200.7				99
Zirconium	6010B [1]		200.7 [1]			1620	99

Other:_____ Method:_____

L-WI-033/M-03/01

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15YM1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	4.2	MG/KG	0.38	1.0
		Barium, Total	75.2	MG/KG	0.03	1.0
		Beryllium, Total	0.32	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	7.4	MG/KG	0.1	1.0
		Copper, Total	12.4	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	9.8	MG/KG	0.13	1.0
		Lead, Total	4.0	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	64.4	MG/KG	0.1	1.0
		Zinc, Total	43.8	MG/KG	0.08	1.0
-002	B15YM2	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	2.9	MG/KG	0.38	1.0
		Barium, Total	69.8	MG/KG	0.03	1.0
		Beryllium, Total	0.28	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	26.2	MG/KG	0.10	1.0
		Copper, Total	13.8	MG/KG	0.13	1.0
		Mercury, Total	0.07	MG/KG	0.02	1.0
		Nickel, Total	6.7	MG/KG	0.13	1.0
		Lead, Total	2.5	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	67.9	MG/KG	0.10	1.0
		Zinc, Total	39.6	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1983

LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YM3	Silver, Total	0.28	MG/KG	0.12	1.0
		Arsenic, Total	2.5	MG/KG	0.34	1.0
		Barium, Total	77.9	MG/KG	0.03	1.0
		Beryllium, Total	0.30	MG/KG	0.02	1.0
		Cadmium, Total	0.05	MG/KG	0.04	1.0
		Chromium, Total	15.7	MG/KG	0.09	1.0
		Copper, Total	12.6	MG/KG	0.12	1.0
		Mercury, Total	0.06	MG/KG	0.01	1.0
		Nickel, Total	7.2	MG/KG	0.12	1.0
		Lead, Total	2.2	MG/KG	0.21	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0
		Vanadium, Total	69.5	MG/KG	0.09	1.0
		Zinc, Total	41.6	MG/KG	0.07	1.0
-004	B15YM4	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	4.8	MG/KG	0.38	1.0
		Barium, Total	91.0	MG/KG	0.03	1.0
		Beryllium, Total	0.43	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	10.2	MG/KG	0.10	1.0
		Copper, Total	21.3	MG/KG	0.13	1.0
		Mercury, Total	0.03	MG/KG	0.02	1.0
		Nickel, Total	11.7	MG/KG	0.13	1.0
		Lead, Total	6.5	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	58.0	MG/KG	0.10	1.0
		Zinc, Total	52.0	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1983

LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15YM5	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	3.7	MG/KG	0.37	1.0
		Barium, Total	106	MG/KG	0.03	1.0
		Beryllium, Total	0.37	MG/KG	0.02	1.0
		Cadmium, Total	0.14	MG/KG	0.04	1.0
		Chromium, Total	25.2	MG/KG	0.1	1.0
		Copper, Total	15.4	MG/KG	0.13	1.0
		Mercury, Total	0.06	MG/KG	0.02	1.0
		Nickel, Total	12.6	MG/KG	0.13	1.0
		Lead, Total	3.9	MG/KG	0.23	1.0
		Selenium, Total	0.37 u	MG/KG	0.37	1.0
		Vanadium, Total	62.4	MG/KG	0.1	1.0
		Zinc, Total	52.9	MG/KG	0.08	1.0
-006	B15YM6	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	3.9	MG/KG	0.34	1.0
		Barium, Total	93.3	MG/KG	0.03	1.0
		Beryllium, Total	0.34	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	10.4	MG/KG	0.09	1.0
		Copper, Total	11.7	MG/KG	0.11	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	10.4	MG/KG	0.11	1.0
		Lead, Total	3.9	MG/KG	0.21	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0
		Vanadium, Total	48.5	MG/KG	0.09	1.0
		Zinc, Total	41.7	MG/KG	0.07	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/16/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Barium, Total	0.05	MG/KG	0.03	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.12	MG/KG	0.10	1.0
		Copper, Total	0.13 u	MG/KG	0.13	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	0.10 u	MG/KG	0.10	1.0
		Zinc, Total	0.24	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 F03-003 H1983

LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15YM1	Silver, Total	5.0	0.14u	5.1	98.0	1.0
		Arsenic, Total	204	4.2	203	98.0	1.0
		Barium, Total	268	75.2	203	95.0	1.0
		Beryllium, Total	5.3	0.32	5.1	97.7	1.0
		Cadmium, Total	5.1	0.04u	5.1	100	1.0
		Chromium, Total	27.2	7.4	20.3	97.5	1.0
		Copper, Total	37.1	12.4	25.4	97.2	1.0
		Mercury, Total	0.16	0.02u	0.16	96.3	1.0
		Nickel, Total	59.1	9.8	50.9	96.9	1.0
		Lead, Total	53.3	4.0	50.9	96.9	1.0
		Selenium, Total	196	0.38u	203	96.5	1.0
		Vanadium, Total	110	64.4	50.9	90.6	1.0
		Zinc, Total	91.5	43.8	50.9	93.7	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1983

LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15YM1	Silver, Total	0.14u	0.14u	NC	1.0
		Arsenic, Total	4.2	3.6	15.4	1.0
		Barium, Total	75.2	68.3	9.6	1.0
		Beryllium, Total	0.32	0.30	7.0	1.0
		Cadmium, Total	0.04u	0.04u	NC	1.0
		Chromium, Total	7.4	6.9	7.0	1.0
		Copper, Total	12.4	12.1	2.4	1.0
		Mercury, Total	0.02u	0.01u	NC	1.0
		Nickel, Total	9.8	8.9	9.6	1.0
		Lead, Total	4.0	3.5	13.3	1.0
		Selenium, Total	0.38u	0.37u	NC	1.0
		Vanadium, Total	64.4	59.8	7.4	1.0
		Zinc, Total	43.8	40.2	8.6	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/16/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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
		Arsenic, LCS	970	1000	MG/KG	97.0
		Barium, LCS	492	500	MG/KG	98.5
		Beryllium, LCS	24.4	25.0	MG/KG	97.6
		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
		Nickel, LCS	199	200	MG/KG	99.6
		Lead, LCS	246	250	MG/KG	98.5
		Selenium, LCS	955	1000	MG/KG	95.5
		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

02111202

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORIES, INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-21-02 Date Due: 12-21-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	100				
Preservatives		—	—			—			—		—	—				
ANALYSES REQUESTED →		ORGANIC: TCL VOA	BNA (1)	Pest/PCB	Herb	Alcohols Glycols Ketones			INORG: ICP Metal (2)	CN	IC Anions	Fl				
		Lionville Laboratory Use Only														
		062344	0625X 0D80	0PCB		0GCSC			MET ICRG		INORG	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	062344	0625X 0D80	0PCB		0GCSC			MET ICRG		INORG	IPH				
001	B15YM1			S	11-18-02	0915	X	X	X		X			X		X	X				
002	B15YM2					0923	X	X	X		X			X		X	X				
003	B15YM3					0932	X	X	X		X			X		X	X				
004	B15YM4					0943	X	X	X		X			X		X	X				
005	B15YM5					0956	X	X	X		X			X		X	X				
006	B15YM6					1006	X	X	X		X			X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

INORG ① 2. ICCL, ICFL, ICAN3, ICAN2, ICP04, ICS04

3. INSN2, INH3N, ICNYO, ICNYO

4.

5.

6.

Lionville Laboratory Use Only

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

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

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

Cooler Temp. 1.2 °C

Relinquished by	Received by	Date	Time
Fed Ex	D. Smith	11-21-02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

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

NOTES: 7921 3814 3377/2.3 7921 3814 3344

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See DSPC 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2000pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	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.		
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM1 / SOIL / 11-18-02 / 0915	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A		11/20/02 1100	Received By/Stored In	11/20/02 1100
Relinquished By/Removed From		11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: FED EX		11-21-02 0945	Received By/Stored In	11-21-02 0945
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

(1) *Semi*-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(3) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; NO_2/NO_3 - 353.2; Ammonia - 350.3; Total Cyanide - 9010; *Sulfides* - 9030
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Isotopic Uranium; Americium-241; Neptunium-237; Strontium-89,90 -- Total Sr; Total Uranium

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-082
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐	Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RETRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1			
Volume	60g	250g	60mL	250g	125g	500g	60g	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		
Sample No.	Matrix *	Sample Date	Sample Time							
B15YM2	SOIL	11-18-02	0923	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A/3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: Dave St. John 11/20/02	1100
Relinquished By/Removed From: Dave St. John ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In:	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERL-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSEC 11/20/02

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	500g	500g		
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	RJN 11/18/02	
Sample No.	Matrix *	Sample Date	Sample Time								
B15YM3	SOIL	11-18-02	0932	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11-18-02 1230	Ref # 1A / 3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
Fed Ex	11-21-02 0945	D. Mitch	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 PCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM4 / SOIL / 11-18-02 / 0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1230	Received By/Stored In	Date/Time 1230
R. Nielson	11-18-02	Ref #1A/3728	11-18-02
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
3728 Ref 1A	11/20/02 1100		11/20/02 1100
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
ERC	11/20/02 1100	FED EX	11/20/02 1100
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11-21-02 0945		11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

20

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐	Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003		
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express		
Shipped To: RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	100g	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson 11-18-02	1230	REF #1A/3728 11-18-02	1230
3728 REF 1A	11/20/02 1100	David St John	11/20/02 1100
David St John	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11-21-02 0945	[illegible]	11-21-02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

21

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: DAS REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

<2,000 pCi/gm

Special Handling and/or Storage

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	G/P	G/P	G/P	G/P
No. of Container(s)				1	1	1	1	1	1	1	1	1
Volume				60g	250g	60mL	250g	125g	500g	60g	1000g	500g
				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									
B15YM6	SOIL	11-18-02	1006	X	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: R. Nielson	Date/Time: 11-18-02 1230	Received By/Stored In: Ref # 1A/3728	Date/Time: 11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	Date/Time: 11/20/02 1100	Received By/Stored In:	Date/Time: 11/20/02 1100
Relinquished By/Removed From: ERC	Date/Time: 11/20/02 1100	Received By/Stored In: FED EX	Date/Time: 11/20/02 1100
Relinquished By/Removed From: Fed Ex	Date/Time: 11-21-02 0945	Received By/Stored In:	Date/Time: 11-21-02 0945
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

22

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: Tru Hanford

Purchase Order/Project:

DATE: 11.21.02

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

Laboratory SDG #: 02111L202

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?)	DO 11.21.02 ~~☑ 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 99.030/ 1.2°C

~~#ERC-02-505/ 2.3°C~~

Laboratory Sample Custodian: D. Johnson

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15YM1						
% SOLIDS	001	S	02L%S129	11/18/02	11/25/02	11/26/02
% SOLIDS	001 REP	S	02L%S129	11/18/02	11/25/02	11/26/02
CHLORIDE BY IC	001	S	02LIC085	11/18/02	12/19/02	12/19/02
CHLORIDE BY IC	001 REP	S	02LIC085	11/18/02	12/19/02	12/19/02
CHLORIDE BY IC	001 MS	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	001	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	001 REP	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	001 MS	S	02LIC085	11/18/02	12/19/02	12/19/02
NITRITE BY IC	001	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRITE BY IC	001 REP	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRITE BY IC	001 MS	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	001	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	001 REP	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	001 MS	S	02LICA85	11/18/02	12/19/02	12/19/02
TOTAL CYANIDE	001	S	02LCA91	11/18/02	11/25/02	11/25/02
PHOSPHATE BY IC	001	S	02LICB85	11/18/02	12/19/02	12/19/02
PHOSPHATE BY IC	001 REP	S	02LICB85	11/18/02	12/19/02	12/19/02
PHOSPHATE BY IC	001 MS	S	02LICB85	11/18/02	12/19/02	12/19/02
CHROMIUM VI	001	S	02LVI039	11/18/02	12/10/02	12/10/02
CHROMIUM VI	001 REP	S	02LVI039	11/18/02	12/10/02	12/10/02
CHROMIUM VI	001 MS	S	02LVI039	11/18/02	12/10/02	12/10/02
CHROMIUM VI	001 MSD	S	02LVI039	11/18/02	12/10/02	12/10/02
SULFATE BY IC	001	S	02LICC85	11/18/02	12/19/02	12/19/02
SULFATE BY IC	001 REP	S	02LICC85	11/18/02	12/19/02	12/19/02
SULFATE BY IC	001 MS	S	02LICC87	11/18/02	12/23/02	12/23/02
NITRATE NITRITE	001	S	02LN3C86	11/18/02	12/06/02	12/06/02
NITRATE NITRITE	001 REP	S	02LN3C86	11/18/02	12/06/02	12/06/02
NITRATE NITRITE	001 MS	S	02LN3C86	11/18/02	12/06/02	12/06/02
AMMONIA	001	S	02LAMA34	11/18/02	12/02/02	12/05/02
PH	001	S	02LPH095	11/18/02	11/25/02	11/25/02
PH	001 REP	S	02LPH095	11/18/02	11/25/02	11/25/02
SULFIDE	001	S	02LSDA56	11/18/02	11/25/02	11/25/02
B15YM2						
% SOLIDS	002	S	02L%S129	11/18/02	11/25/02	11/26/02

JAN 2003
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	002	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	002	S	02LIC085	11/18/02	12/19/02	12/19/02
NITRITE BY IC	002	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	002	S	02LICA85	11/18/02	12/19/02	12/19/02
TOTAL CYANIDE	002	S	02LCA91	11/18/02	11/25/02	11/25/02
PHOSPHATE BY IC	002	S	02LICB85	11/18/02	12/19/02	12/19/02
CHROMIUM VI	002	S	02LVI039	11/18/02	12/10/02	12/10/02
SULFATE BY IC	002	S	02LICC85	11/18/02	12/19/02	12/19/02
NITRATE NITRITE	002	S	02LN3C86	11/18/02	12/06/02	12/06/02
AMMONIA	002	S	02LAMA34	11/18/02	12/02/02	12/05/02
AMMONIA	002 REP	S	02LAMA34	11/18/02	12/02/02	12/05/02
AMMONIA	002 MS	S	02LAMA34	11/18/02	12/02/02	12/05/02
PH	002	S	02LPH095	11/18/02	11/25/02	11/25/02
SULFIDE	002	S	02LSDA56	11/18/02	11/25/02	11/25/02
SULFIDE	002 REP	S	02LSDA56	11/18/02	11/25/02	11/25/02
SULFIDE	002 MS	S	02LSDA56	11/18/02	11/25/02	11/25/02
B15YM3						
% SOLIDS	003	S	02L%S129	11/18/02	11/25/02	11/26/02
CHLORIDE BY IC	003	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	003	S	02LIC085	11/18/02	12/19/02	12/19/02
NITRITE BY IC	003	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	003	S	02LICA85	11/18/02	12/19/02	12/19/02
TOTAL CYANIDE	003	S	02LCA91	11/18/02	11/25/02	11/25/02
PHOSPHATE BY IC	003	S	02LICB85	11/18/02	12/19/02	12/19/02
CHROMIUM VI	003	S	02LVI039	11/18/02	12/10/02	12/10/02
SULFATE BY IC	003	S	02LICC85	11/18/02	12/19/02	12/19/02
NITRATE NITRITE	003	S	02LN3C86	11/18/02	12/06/02	12/06/02
AMMONIA	003	S	02LAMA34	11/18/02	12/02/02	12/05/02
PH	003	S	02LPH095	11/18/02	11/25/02	11/25/02
SULFIDE	003	S	02LSDA56	11/18/02	11/25/02	11/25/02
B15YM4						
% SOLIDS	004	S	02L%S129	11/18/02	11/25/02	11/26/02
CHLORIDE BY IC	004	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	004	S	02LIC085	11/18/02	12/19/02	12/19/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	004	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	004	S	02LICA85	11/18/02	12/19/02	12/19/02
TOTAL CYANIDE	004	S	02LCA91	11/18/02	11/25/02	11/25/02
PHOSPHATE BY IC	004	S	02LICB85	11/18/02	12/19/02	12/19/02
CHROMIUM VI	004	S	02LVI039	11/18/02	12/10/02	12/10/02
SULFATE BY IC	004	S	02LICC85	11/18/02	12/19/02	12/19/02
NITRATE NITRITE	004	S	02LN3C86	11/18/02	12/06/02	12/06/02
AMMONIA	004	S	02LAMA34	11/18/02	12/02/02	12/05/02
PH	004	S	02LPH095	11/18/02	11/25/02	11/25/02
SULFIDE	004	S	02LSDA56	11/18/02	11/25/02	11/25/02
B15YM5						
% SOLIDS	005	S	02L%S129	11/18/02	11/25/02	11/26/02
CHLORIDE BY IC	005	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	005	S	02LIC085	11/18/02	12/19/02	12/19/02
NITRITE BY IC	005	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	005	S	02LICA85	11/18/02	12/19/02	12/19/02
TOTAL CYANIDE	005	S	02LCA91	11/18/02	11/25/02	11/25/02
PHOSPHATE BY IC	005	S	02LICB85	11/18/02	12/19/02	12/19/02
CHROMIUM VI	005	S	02LVI039	11/18/02	12/10/02	12/10/02
SULFATE BY IC	005	S	02LICC85	11/18/02	12/19/02	12/19/02
NITRATE NITRITE	005	S	02LN3C86	11/18/02	12/06/02	12/06/02
AMMONIA	005	S	02LAMA34	11/18/02	12/02/02	12/05/02
PH	005	S	02LPH095	11/18/02	11/25/02	11/25/02
SULFIDE	005	S	02LSDA56	11/18/02	11/25/02	11/25/02
B15YM6						
% SOLIDS	006	S	02L%S129	11/18/02	11/25/02	11/26/02
CHLORIDE BY IC	006	S	02LIC085	11/18/02	12/19/02	12/19/02
FLUORIDE BY IC	006	S	02LIC085	11/18/02	12/19/02	12/19/02
NITRITE BY IC	006	S	02LICA85	11/18/02	12/19/02	12/19/02
NITRATE BY IC	006	S	02LICA85	11/18/02	12/19/02	12/19/02
TOTAL CYANIDE	006	S	02LCA91	11/18/02	11/25/02	11/25/02
TOTAL CYANIDE	006 REP	S	02LCA91	11/18/02	11/25/02	11/25/02
TOTAL CYANIDE	006 MS	S	02LCA91	11/18/02	11/25/02	11/25/02
PHOSPHATE BY IC	006	S	02LICB85	11/18/02	12/19/02	12/19/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-003 H1983

DATE RECEIVED: 11/21/02 LVL LOT # :0211L202

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	006	S	02LVI039	11/18/02	12/10/02	12/10/02
SULFATE BY IC	006	S	02LICC85	11/18/02	12/19/02	12/19/02
NITRATE NITRITE	006	S	02LN3C86	11/18/02	12/06/02	12/06/02
AMMONIA	006	S	02LAMA34	11/18/02	12/02/02	12/05/02
PH	006	S	02LPH095	11/18/02	11/25/02	11/25/02
SULFIDE	006	S	02LSDA56	11/18/02	11/25/02	11/25/02

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	02LCA91	N/A	11/25/02	11/25/02
TOTAL CYANIDE	LCS L	S	02LCA91	N/A	11/25/02	11/25/02
TOTAL CYANIDE	MB1	S	02LCA91	N/A	11/25/02	11/25/02
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	02LVI039	N/A	12/10/02	12/10/02
CHROMIUM VI	MB1 BS	S	02LVI039	N/A	12/10/02	12/10/02
CHROMIUM VI	MB1 BSD	S	02LVI039	N/A	12/10/02	12/10/02
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
SULFATE BY IC	MB1 BS	S	02LICC87	N/A	12/23/02	12/23/02
NITRATE NITRITE	MB1	S	02LN3C86	N/A	12/06/02	12/06/02
NITRATE NITRITE	MB1 BS	S	02LN3C86	N/A	12/06/02	12/06/02
AMMONIA	MB1	S	02LAMA34	N/A	12/02/02	12/05/02
AMMONIA	MB1 BS	S	02LAMA34	N/A	12/02/02	12/05/02
AMMONIA	MB1 BSD	S	02LAMA34	N/A	12/02/02	12/05/02
SULFIDE	MB1	S	02LSDA56	N/A	11/25/02	11/25/02
SULFIDE	MB1 BS	S	02LSDA56	N/A	11/25/02	11/25/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-005 H1983
LVL#: 0211L202

W.O.#: 11343-606-001-9999-00
Date Received: 11-21-02

INORGANIC NARRATIVE

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

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

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

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike (MS) recoveries for Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Chromium VI, Sulfate, Nitrate Nitrite and Ammonia were within the 75-125% control limits, however MS recovery for Sulfide was below the control limits that may be attributed to sample inhomogeneity.

8. The replicate analyses for Percent Solids, Chloride, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, Chromium VI, Ammonia, pH, Nitrate Nitrite and Sulfate were within the 20% RPD control limit, however replicate analysis for Sulfide was outside the control limit that may be attributed to sample inhomogeneity.

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

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

for Pat C

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-30-02
Date

njp\i11-202

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 25 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, Nitrite **Method:** EPA 300.0 (mod.)

Other: Nitrate, Phosphate, Sulfate **Method**

Nitrate Nitrite EPA 353.2 (mod.)

Ammonia EPA 350.3 (mod.)

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15YM1	% Solids	95.5		%	0.01	1.0
		Chloride by IC	1.3	u	MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.31	u	MG/KG	1.31	1.0
		Nitrate by IC	29.5		MG/KG	1.31	1.0
		Cyanide, Total	0.38	u	MG/KG	0.38	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	7.0		MG/KG	1.3	1.0
		Nitrate Nitrite	4.7		MG/KG	0.20	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	31.2	u	MG/KG	31.2	1.0
-002	B15YM2	% Solids	97.7		%	0.01	1.0
		Chloride by IC	1.5		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	24.9		MG/KG	1.28	1.0
		Cyanide, Total	0.32	u	MG/KG	0.32	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	1.5		MG/KG	0.41	1.0
		Sulfate by IC	4.4		MG/KG	1.3	1.0
		Nitrate Nitrite	4.9		MG/KG	0.18	1.0
		Ammonia, as N	2.6	u	MG/KG	2.6	1.0
		pH	8.4		SOIL PH	0.01	1.0
		Sulfide	59.0		MG/KG	39.3	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15YM3	% Solids	97.8		%	0.01	1.0
		Chloride by IC	1.6		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.28	u	MG/KG	1.28	1.0
		Nitrate by IC	18.8		MG/KG	1.28	1.0
		Cyanide, Total	0.27	u	MG/KG	0.27	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.73		MG/KG	0.41	1.0
		Sulfate by IC	4.4		MG/KG	1.3	1.0
		Nitrate Nitrite	3.3		MG/KG	0.20	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	43.0		MG/KG	28.6	1.0
-004	B15YM4	% Solids	93.2		%	0.01	1.0
		Chloride by IC	4.0		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.34	u	MG/KG	1.34	1.0
		Nitrate by IC	134		MG/KG	6.71	5.0
		Cyanide, Total	0.45	u	MG/KG	0.45	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	11.7		MG/KG	1.3	1.0
		Nitrate Nitrite	22.7		MG/KG	1.0	5.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.0		SOIL PH	0.01	1.0
		Sulfide	31.4	u	MG/KG	31.4	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15YM5	% Solids	95.1		%	0.01	1.0
		Chloride by IC	3.9		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.31	u	MG/KG	1.31	1.0
		Nitrate by IC	46.3		MG/KG	1.31	1.0
		Cyanide, Total	0.41	u	MG/KG	0.41	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	1.6		MG/KG	0.42	1.0
		Sulfate by IC	5.8		MG/KG	1.3	1.0
		Nitrate Nitrite	8.8		MG/KG	0.19	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.3		SOIL PH	0.01	1.0
		Sulfide	29.6	u	MG/KG	29.6	1.0
-006	B15YM6	% Solids	96.0		%	0.01	1.0
		Chloride by IC	1.9		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.30	u	MG/KG	1.30	1.0
		Nitrate by IC	12.7		MG/KG	1.30	1.0
		Cyanide, Total	0.41	u	MG/KG	0.41	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	3.2		MG/KG	1.3	1.0
		Nitrate Nitrite	1.7		MG/KG	0.19	1.0
		Ammonia, as N	2.5	u	MG/KG	2.5	1.0
		pH	8.5		SOIL PH	0.01	1.0
		Sulfide	43.8		MG/KG	29.2	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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
		Nitrite by IC	1.25	u	MG/KG	1.25	1.0
		Nitrate by IC	1.25	u	MG/KG	1.25	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	02LCA91-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	02LVI039-MB1	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	02LN3C86-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	02LAMA34-MB1	Ammonia, as N	2.5	u	MG/KG	2.5	1.0
BLANK10	02LSDA56-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983

LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15YM1	Chloride by IC	54.3	0.65	52.0	103.3	2.0
		Fluoride by IC	55.6	0.86	52.0	105.3	2.0
		Nitrite by IC	51.5	1.31u	52.0	99.0	2.0
		Nitrate by IC	85.7	29.5	52.0	108.0	2.0
		Phosphate by IC	57.3	1.3 u	52.0	110.1	2.0
		Soluble Chromium VI	4.2	0.42u	4.2	94.6	1.0
		Insoluble Chromium VI	1150	0.42u	1150	100.2	100
		Sulfate by IC	32.3	7.0	26.0	97.3	1.0
		Nitrate Nitrite	9.7	4.7	5.0	100.9	1.0
-002	B15YM2	Ammonia, as N	102	2.6 u	99.5	102.5	1.0
		Sulfide	231	59.0	249	69.1	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-006	B15YM6	Cyanide, Total	4.41	0.41u	4.57	96.6	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
		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
		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	02LVI039-MB1	Soluble Chromium VI	4.1	0.40u	4.0	102.8	1.0
		Insoluble Chromium VI	1220	0.40u	1160	105.4	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	02LN3C86-MB1	Nitrate Nitrite	5.2	0.20u	5.0	103.6	1.0
BLANK10	02LAMA34-MB1	Ammonia, as N	102	2.5 u	100	102.0	1.0
		Ammonia, as N MSD	104	2.5 u	100	103.8	1.0
BLANK10	02LSDA56-MB1	Sulfide	458	40.0 u	448	102.1	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983

LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	02LAMA34-MB1	Ammonia, as N	102.0	103.8	1.7

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15YM1	% Solids	95.5	95.7	0.24	1.0
		Chloride by IC	1.3 u	1.3 u	NC	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrite by IC	1.31u	1.31u	NC	1.0
		Nitrate by IC	29.5	30.5	3.1	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Chromium VI	0.42u	0.42u	NC	1.0
		Sulfate by IC	7.0	6.8	3.3	1.0
		Nitrate Nitrite	4.7	4.9	4.4	1.0
		pH	8.5	8.5	0.2	1.0
-002REP	B15YM2	Ammonia, as N	2.6 u	2.5 u	NC	1.0
		Sulfide	59.0	45.9	25.1	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-006REP	B15YM6	Cyanide, Total	0.41u	0.36u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/27/02

CLIENT: TNUHANFORD F03-003 H1983 LVL LOT #: 0211L202

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	02LCA91-LCS1	Cyanide, Total LCS	2.04	2.0	MG/KG	102.0
LCSS2	02LCA91-LCS2	Cyanide, Total LCS	9.66	10.0	MG/KG	96.6

Lionville Laboratory Use Only

02111202

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVL LIONVILLE LABORATORY INC

Client: Tnu Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: Arlette Johnson

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11-21-02 Date Due: 12-21-02

		A	B	C		D			E		F	G				
Refrigerator #		1	4	4		4			4		4	4				
#/Type Container	Liquid															
	Solid	1 jar	1 jar	1 jar		1 jar			1 jar		1 jar	1 jar				
Volume	Liquid	0	0	0		0			0		0	0				
	Solid	60	250	250		60			125		500	60				
Preservatives		—	—			—			—		—	—				
ANALYSES REQUESTED		ORGANIC: TCL VOA	ORGANIC: BNA (SV)	ORGANIC: Pest/PCB	ORGANIC: Herb	ORGANIC: Alcohols/Glycols/Ketones			INORG: TCLP Metal (Cd)	INORG: CN	INORG: Anions (Br, Cl, NO3, PO4, SO4)	INORG: F				
Lionville Laboratory Use Only		06244	06254 OPAH	OPCB		OGCSC			METO ICAE6		INORG(1)	IPH				

MATRIX CODES	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	06244	06254 OPAH	OPCB		OGCSC			METO ICAE6		INORG(1)	IPH				
S - Soil	001	B15YM1			S	11-18-02	0915	X	X	X		X			X		X	X				
SE - Sediment	002	B15YM2					0923	X	X	X		X			X		X	X				
SO - Solid	003	B15YM3					0932	X	X	X		X			X		X	X				
SL - Sludge	004	B15YM4					0943	X	X	X		X			X		X	X				
W - Water	005	B15YM5					0956	X	X	X		X			X		X	X				
O - Oil	006	B15YM6					1006	X	X	X		X			X		X	X				
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

Special Instructions: SAF # F03-003

Run Matrix QC

DATE/REVISIONS:

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

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

3. INSN2, INHSN, ICNYO, ICNYO

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # Dee Lelins

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

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

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

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

Cooler Temp. 1.2 °C

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

NOTES: 7921 3814 3377/2.3°C 7921 3814 3344

Relinquished by	Received by	Date	Time
Hoa Ex	D. Johnson	11-21-02	0945

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-081	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RETRA DAS 11/20/02; ~~EDERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: SEE DSPO DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

<2000pCi/gm

Special Handling and/or Storage

Preservation			Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	
Type of Container			G	aG	G	aG	G/P	G/P	G/P	G/P	
No. of Container(s)			1	1	1	1	1	1	1		
Volume			60g	250g	60mL	250g	125g	500g	60g	100g	
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								
B15YM1	SOIL	11-18-02	0915	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: David St John	11/20/02 1100
Relinquished By/Removed From: David St John ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11.21.02 0945	Received By/Stored In: [illegible]	11.21.02 0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-082	Page 1 of 1
Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RETRA DAS 11/20/02 ~~EDERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPS DAS 11/20/02	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	100g		
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										
B15YM2 / SOIL / 11-18-02 / 0923	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
Relinquished By/Removed From	3728 Ref 1A	11/20/02 1100	Received By/Stored In	11/20/02 1100
Relinquished By/Removed From		11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex		11-21-02 0945	Received By/Stored In	11-21-02 0945
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-083	Page 1 of 1

Collector: R Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERL-99-030	Field Logbook No.: TMF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ DAS 11/20/02	Offsite Property No.: A030043		Bill of Lading/Air Bill No.: See OSPC 11/20/02

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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 - HB	RJN 11/18/02
Sample No. / Matrix * / Sample Date / Sample Time										
B15YM3 / SOIL / 11-18-02 / 0932	X	X	X	X	X	X	X	X		

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-18-02 1230	Ref # 1A / 3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A		11/20/02 1100	Received By/Stored In: David St. John	11/20/02 1100
Relinquished By/Removed From: David St. John EEC		11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: FED EX		11-21-02 09:45	Received By/Stored In	11-21-02 09:45
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-084	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent	Telephone No.: 373-5869	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: RECRA DAS ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	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										
B15YM4	SOIL	11-18-02	0943	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson / R. Nielson 11-18-02	1230	Received By/Stored In: Ref #1A/3728 11-18-02	1230
Relinquished By/Removed From: 3728 Ref 1A 11/20/02	1100	Received By/Stored In: [illegible] 11/20/02	1100
Relinquished By/Removed From: [illegible] ERC [illegible] 11/20/02	1100	Received By/Stored In: FED EX 11/20/02	1100
Relinquished By/Removed From: FED EX 11-21-02	0945	Received By/Stored In: D. [illegible] 11-21-02	0945
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-085	Page 1 of 1

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Collector: R. Nielson	Company Contact: Steve Trent — Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N — Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC-02-505	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: RECRA DAS 11/20/02 ~~EBERLINE SERVICES (Formerly TMA)~~	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

< 2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	DAS 11/20/02
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	100g	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										
B15YM5	SOIL	11-18-02	0956	X	X	X	X	X	X	X	X	X	X

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson / R. Nielson	11-18-02 1230	Ref #1A/3728	11-18-02 1230
3728 Ref 1A	11/20/02 1100	David St. John	11/20/02 1100
David St. John ERC	11/20/02 1100	FED EX	11/20/02 1100
FED EX	11-21-02 0945	[illegible]	11-21-02 0945

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-086	Page 1 of 1

Collector: R. Nielson	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location: SP-3	SAF No.: F03-003	
Ice Chest No.: ERC-99-030	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: DAS REZRA ~~EBERLINE SERVICES (Formerly TMA)~~ 11/20/02	Offsite Property No.: A030043	Bill of Lading/Air Bill No.: See OSRC	

POSSIBLE SAMPLE HAZARDS/REMARKS: <2,000 pCi/gm

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	G/P	G/P	G/P	G/P	G/P	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	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										
B15YM6 / SOIL / 11-18-02 / 1006	X	X	X	X	X	X	X	X	X	

Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/20/02

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Nielson	11-18-02 1230	Received By/Stored In: Ref # 1A/3728	11-18-02 1230
Relinquished By/Removed From: 3728 Ref 1A	11/20/02 1100	Received By/Stored In: [illegible]	11/20/02 1100
Relinquished By/Removed From: [illegible] ERC	11/20/02 1100	Received By/Stored In: FED EX	11/20/02 1100
Relinquished By/Removed From: Fed Ex	11-21-02 0945	Received By/Stored In: [illegible]	11-21-02 0945
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.21.02

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

Laboratory SDG #: 0211L202

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?)	DO 11.21.02 ~~☑ Yes~~	☑ No	☐ N/A	☐ see Comment #
10. Shipment meets LvL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☑ Yes	☐ No	☐ N/A	☐ see Comment #
11. Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☑ N/A	☐ see Comment #
12. coc signed and dated?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
13. coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☑ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

#ERC 99.030/ 1.2°C

#ERC-02.505/ 2.3°C

Laboratory Sample Custodian: D. Smith

Laboratory Project Manager: