EBERLINE SERVICES

0059622

January 14, 2003

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

JAN 2003
RECEIVED

Reference: **P.O. #630**
Eberline Services R2-11-074-7391 SDG H1969

Dear Mr. Trent:

Enclosed is the data report for five solid samples designated under SAF No. F03-003 received at Eberline Services on November 15, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

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JUN 09 2003
EDMC

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

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H1969 was composed of five 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 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.3 Isotopic Thorium Analyses

The following samples had yields above the limit of 105%: B15XL2 (107%) and B15MX3 (110%). No other problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analyses

Per FH's instructions, samples in SDG H1969 were not analyzed for isotopic uranium (see e-mail attached).

2.5 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.6 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.7 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.8 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.9 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

1/14/03

Date

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

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

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

Melissa,

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

Thanks,

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

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1969

SDG	7391
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H1969

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

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	01/14/03

SDG 7391
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1969

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/14/03

SDG 7391
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1969

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15XK9	BT-1	SOLID		R211074-01	F03-003	F03-003-015	11/12/02 10:10
B15XL0	BT-1	SOLID		R211074-02	F03-003	F03-003-016	11/12/02 10:36
B15XL1	BT-1	SOLID		R211074-03	F03-003	F03-003-017	11/12/02 10:55
B15XL2	BT-1	SOLID		R211074-04	F03-003	F03-003-018	11/12/02 11:20
B15XM3	BT-1	SOLID		R211074-05	F03-003	F03-003-028	11/12/02 10:15
Method Blank		SOLID		R211074-07	F03-003		
Method Blank		SOLID		R211074-10	F03-003		
Lab Control Sample		SOLID		R211074-06	F03-003		
Lab Control Sample		SOLID		R211074-09	F03-003		
Duplicate (R211074-03)	BT-1	SOLID		R211074-08	F03-003		11/12/02 10:55
Duplicate (R211074-03)	BT-1	SOLID		R211074-11	F03-003		11/12/02 10:55

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

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
7391	F03-003-015	B15XK9	SOLID	95.9	955.7 g		11/15/02	3	R211074-01	7391-001
	F03-003-016	B15XL0	SOLID	96.0	1257 g		11/15/02	3	R211074-02	7391-002
	F03-003-017	B15XL1	SOLID	96.2	1098 g		11/15/02	3	R211074-03	7391-003
	F03-003-018	B15XL2	SOLID	94.5	1573 g		11/15/02	3	R211074-04	7391-004
	F03-003-028	B15XM3	SOLID	95.9	955.1 g		11/15/02	3	R211074-05	7391-005
		Method Blank	SOLID						R211074-07	7391-007
		Method Blank	SOLID						R211074-10	7391-010
		Lab Control Sample	SOLID						R211074-06	7391-006
		Lab Control Sample	SOLID						R211074-09	7391-009
		Duplicate (R211074-03)	SOLID	96.2	1098 g		11/15/02	3	R211074-08	7391-008
		Duplicate (R211074-03)	SOLID	96.2	1098 g		11/15/02	3	R211074-11	7391-011

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

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	7052-053	5.0	5			1	1	1/1		
NP	SOLID	Neptunium in Soil	7052-053	5.0	5			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-053	5.0	5			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-053	5.0	5			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-053	10.0	5			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-053	20.0	5			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-053	15.0	5			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-053	15.0	5			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-053	9.0	5			1	1	1/1		

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15XK9			R211074-01	7391-001	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-001	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-015	F03-003		11/15/02	7391-001	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-001	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-001	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-001	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-001	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-001	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-001	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15XL0			R211074-02	7391-002	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-002	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-016	F03-003		11/15/02	7391-002	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-002	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-002	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-002	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-002	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-002	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-002	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15XL1			R211074-03	7391-003	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-003	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-017	F03-003		11/15/02	7391-003	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-003	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-003	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-003	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-003	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-003	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-003	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15XL2			R211074-04	7391-004	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-004	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-018	F03-003		11/15/02	7391-004	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-004	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-004	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-004	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-004	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-004	TH		01/02/03	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-004	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15XM3			R211074-05	7391-005	93A/93		01/03/03	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-005	93B/93		01/03/03	01/12/03	MCM	Gross Beta in Soil
F03-003-028	F03-003		11/15/02	7391-005	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-005	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-005	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-005	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-005	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-005	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-005	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
Method Blank			R211074-07	7391-007	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
		SOLID		7391-007	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
	F03-003			7391-007	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-007	GAM		12/30/02	01/12/03	MCM	Gamma Scan
				7391-007	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-007	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-007	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-007	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
Method Blank			R211074-10	7391-010	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									
Lab Control Sample			R211074-06	7391-006	93A/93		12/31/02	01/12/03	MCM	Gross Alpha in Soil
		SOLID		7391-006	93B/93		12/31/02	01/12/03	MCM	Gross Beta in Soil
	F03-003			7391-006	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-006	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-006	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-006	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-006	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-006	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
Lab Control Sample			R211074-09	7391-009	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R211074-03)			R211074-08	7391-008	93A/93		12/31/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-008	93B/93		12/31/02	01/12/03	MCM	Gross Beta in Soil
	F03-003		11/15/02	7391-008	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-008	GAM		12/30/02	01/12/03	MCM	Gamma Scan
				7391-008	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-008	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-008	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-008	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
Duplicate (R211074-03)			R211074-11	7391-011	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
BT-1		SOLID	11/12/02							
	F03-003		11/15/02							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	F03-003	Gross Alpha in Soil	900.0_ALPHABETA_GPC	5			1	1	1	8
93B/93	F03-003	Gross Beta in Soil	900.0_ALPHABETA_GPC	5			1	1	1	8
AM	F03-003	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	5			1	1	1	8
GAM	F03-003	Gamma Scan	GAMMA_GS	5			1	1	1	8
NP	F03-003	Neptunium in Soil	NP237_LLE_PLATE_AEA	5			1	1	1	8
PU	F03-003	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	5			1	1	1	8
SR	F03-003	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	5			1	1	1	8
TH	F03-003	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	5			1	1	1	8
U_T	F03-003	Uranium, Total in Soil	UTOT_KPA	5			1	1	1	8
TOTALS				45			9	9	9	72

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-07 Method Blank

METHOD BLANK

SDG	7391	Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211074-07	Client sample id	Method Blank
Dept sample id	7391-007	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	-0.319	1.7	3.6	10	U	93A
Gross Beta	12587-47-2	-0.950	3.8	6.5	15	U	93B
Total Strontium	SR-RAD	-0.117	0.15	0.32	1.0	U	SR
Thorium 228	14274-82-9	0	0.063	0.24		U	TH
Thorium 230	14269-63-7	0.126	0.13	0.24	1.0	U	TH
Thorium 232	TH-232	0	0.063	0.24	1.0	U	TH
Neptunium 237	13994-20-2	0.005	0.020	0.048	1.0	U	NP
Plutonium 238	13981-16-3	0	0.19	0.73	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.19	0.73	1.0	U	PU
Americium 241	14596-10-2	0.244	0.33	0.62	1.0	U	AM
Potassium 40	13966-00-2	U		0.56		U	GAM
Cobalt 60	10198-40-0	U		0.053	0.050	U	GAM
Cesium 137	10045-97-3	U		0.036	0.10	U	GAM
Radium 226	13982-63-3	U		0.084		U	GAM
Radium 228	15262-20-1	U		0.18		U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.090	0.10	U	GAM
Thorium 228	14274-82-9	U		0.061		U	GAM
Thorium 232	TH-232	U		0.18		U	GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		5.5		U	GAM
Americium 241	14596-10-2	U		0.11		U	GAM

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43457

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-10 **Method Blank**

METHOD BLANK

SDG	7391	Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211074-10	Client sample id	Method Blank
Dept sample id	7391-010	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	0.005	0.10	U	U_T

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43428

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-06

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7391
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1969
Contract No. 630

Lab sample id R211074-06
Dept sample id 7391-006

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	204	15	3.5	10		93A	214	8.6	95	69-131	70-130
Gross Beta	218	11	8.0	15		93B	234	9.4	93	77-123	70-130
Total Strontium	24.2	0.94	0.29	1.0		SR	22.3	0.89	108	82-118	80-120
Thorium 230	44.0	4.3	0.32	1.0		TH	44.8	1.8	98	83-117	80-120
Neptunium 237	20.6	1.0	0.038	1.0		NP	21.8	0.87	94	88-112	80-120
Plutonium 238	24.4	4.4	0.69	1.0		PU	26.8	1.1	91	74-126	80-120
Plutonium 239/240	25.3	4.6	0.69	1.0		PU	29.0	1.2	87	75-125	80-120
Americium 241	20.6	2.6	0.32	1.0		AM	21.0	0.84	98	79-121	80-120
Cobalt 60	3.88	0.20	0.080	0.050		GAM	3.59	0.14	108	74-126	80-120
Cesium 137	4.92	0.20	0.12	0.10		GAM	4.68	0.19	105	75-125	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43456

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-09

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7391
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1969
Contract No. 630

Lab sample id R211074-09
Dept sample id 7391-009

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)	18.2	2.0	0.045	0.10		U_T	18.1	0.72	101	78-122	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43427

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-08 B15XL1

DUPLICATE

SDG	7391			Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211074-08	Lab sample id	R211074-03	Client sample id	B15XL1
Dept sample id	7391-008	Dept sample id	7391-003	Location/Matrix	BT-1 SOLID
		Received	11/15/02	Collected/Weight	11/12/02 10:55 1098 g
% solids	96.2	% solids	96.2	Custody/SAF No	F03-003-017 F03-003

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	7.58	4.8	6.0	10		93A	3.73	3.6	4.4	U	68	165	
Gross Beta	12.7	5.5	8.4	15		93B	13.4	4.3	6.1		5	86	
Total Strontium	1.58	0.23	0.21	1.0		SR	1.66	0.24	0.23		5	37	
Thorium 228	0.513	0.26	0.25			TH	0.308	0.21	0.26		50	123	
Thorium 230	0.384	0.26	0.24	1.0		TH	0.786	0.35	0.26		69	112	
Thorium 232	0.479	0.26	0.24	1.0		TH	0.342	0.21	0.26		33	123	
Neptunium 237	0.046	0.035	0.056	1.0	U	NP	0.028	0.056	0.099	U	-		
Plutonium 238	0	0.25	0.97	1.0	U	PU	0	0.023	0.062	U	-		
Plutonium 239/240	0.126	0.25	0.97	1.0	U	PU	0	0.023	0.054	U	-		
Americium 241	0	0.070	0.27	1.0	U	AM	0.056	0.11	0.42	U	-		
Potassium 40	11.5	0.83	0.33			GAM	12.2	0.80	0.25		6	35	
Cobalt 60	U		0.027	0.050	U	GAM	U		0.028	U	-		
Cesium 137	0.480	0.041	0.034	0.10		GAM	0.508	0.038	0.032		6	36	
Radium 226	0.422	0.066	0.059			GAM	0.423	0.059	0.054		0	45	
Radium 228	0.571	0.14	0.14			GAM	0.687	0.11	0.10		18	53	
Europium 152	U		0.072	0.10	U	GAM	U		0.064	U	-		
Europium 154	U		0.10	0.10	U	GAM	U		0.093	U	-		
Europium 155	U		0.061	0.10	U	GAM	U		0.059	U	-		
Thorium 228	0.541	0.036	0.034			GAM	0.564	0.034	0.033		4	35	
Thorium 232	0.571	0.14	0.14			GAM	0.687	0.11	0.10		18	53	
Uranium 235	U		0.10		U	GAM	U		0.097	U	-		
Uranium 238	U		3.3		U	GAM	U		3.8	U	-		
Americium 241	U		0.039		U	GAM	U		0.037	U	-		

200 Area Source Chara. 200-CS-1 OU

76-DUP#3 43458

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-11 B15XL1

DUPLICATE

SDG	7391			Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211074-11	Lab sample id	R211074-03	Client sample id	B15XL1
Dept sample id	7391-011	Dept sample id	7391-003	Location/Matrix	BT-1 SOLID
		Received	11/15/02	Collected/Weight	11/12/02 10:55 1098 g
% solids	96.2	% solids	96.2	Custody/SAF No	F03-003-017 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)	0.449	0.049	0.005	0.10		U_T	0.452	0.050	0.005		1	30	

200 Area Source Chara. 200-CS-1 OU

QC-DUP#3 43429

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-01 B15XK9

DATA SHEET

SDG	7391	Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R211074-01	Client sample id	B15XK9
Dept sample id	7391-001	Location/Matrix	BT-1 SOLID
Received	11/15/02	Collected/Weight	11/12/02 10:10 955.7 g
% solids	95.9	Custody/SAF No	F03-003-015 F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.44	4.5	5.3	10		93A
Gross Beta	12587-47-2	19.1	4.5	5.8	15		93B
Total Strontium	SR-RAD	0.437	0.16	0.22	1.0		SR
Thorium 228	14274-82-9	0.447	0.28	0.33			TH
Thorium 230	14269-63-7	0.548	0.28	0.26	1.0		TH
Thorium 232	TH-232	0.856	0.35	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.584	0.067	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.027	0.054	0.099	1.0	U	NP
Plutonium 238	13981-16-3	-0.008	0.048	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	0.064	0.064	0.099	1.0	U	PU
Americium 241	14596-10-2	0.035	0.070	0.27	1.0	U	AM
Potassium 40	13966-00-2	11.0	1.4	0.64			GAM
Cobalt 60	10198-40-0	U		0.082	0.050	U	GAM
Cesium 137	10045-97-3	2.62	0.15	0.067	0.10		GAM
Radium 226	13982-63-3	0.490	0.16	0.17			GAM
Radium 228	15262-20-1	0.724	0.34	0.27			GAM
Europium 152	14683-23-9	U		0.24	0.10	U	GAM
Europium 154	15585-10-1	U		0.28	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.696	0.14	0.17			GAM
Thorium 232	TH-232 .	0.724	0.34	0.27			GAM
Uranium 235	15117-96-1	U		0.34		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.35		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-02 **B15XL0**

DATA SHEET

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-02	Client sample id	B15XL0		
Dept sample id	7391-002	Location/Matrix	BT-1	SOLID	
Received	11/15/02	Collected/Weight	11/12/02 10:36	1257 g	
% solids	96.0	Custody/SAF No	F03-003-016	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	4.68	4.4	5.5	10	U	93A
Gross Beta	12587-47-2	10.2	4.8	7.2	15		93B
Total Strontium	SR-RAD	0.637	0.16	0.21	1.0		SR
Thorium 228	14274-82-9	0.306	0.27	0.38		U	TH
Thorium 230	14269-63-7	0.169	0.20	0.26	1.0	U	TH
Thorium 232	TH-232	0.407	0.21	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.749	0.082	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.013	0.058	0.099	1.0	U	NP
Plutonium 238	13981-16-3	-0.023	0.031	0.086	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.008	0.031	0.075	1.0	U	PU
Americium 241	14596-10-2	0.035	0.070	0.27	1.0	U	AM
Potassium 40	13966-00-2	9.48	2.4	0.78			GAM
Cobalt 60	10198-40-0	U		0.080	0.050	U	GAM
Cesium 137	10045-97-3	2.20	0.14	0.10	0.10		GAM
Radium 226	13982-63-3	0.392	0.14	0.13			GAM
Radium 228	15262-20-1	0.504	0.28	0.30			GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.558	0.090	0.093			GAM
Thorium 232	TH-232	0.504	0.28	0.30			GAM
Uranium 235	15117-96-1	U		0.27		U	GAM
Uranium 238	U-238	U		9.9		U	GAM
Americium 241	14596-10-2	U		0.080		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-03 **B15XL1**

DATA SHEET

SDG	7391	Client/Case no	Hanford		SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-03	Client sample id	B15XL1		
Dept sample id	7391-003	Location/Matrix	BT-1		SOLID
Received	11/15/02	Collected/Weight	11/12/02 10:55	1098 g	
% solids	96.2	Custody/SAF No	F03-003-017	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	3.73	3.6	4.4	10	U	93A
Gross Beta	12587-47-2	13.4	4.3	6.1	15		93B
Total Strontium	SR-RAD	1.66	0.24	0.23	1.0		SR
Thorium 228	14274-82-9	0.308	0.21	0.26			TH
Thorium 230	14269-63-7	0.786	0.35	0.26	1.0		TH
Thorium 232	TH-232	0.342	0.21	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.452	0.050	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.028	0.056	0.099	1.0	U	NP
Plutonium 238	13981-16-3	0	0.023	0.062	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.023	0.054	1.0	U	PU
Americium 241	14596-10-2	0.056	0.11	0.42	1.0	U	AM
Potassium 40	13966-00-2	12.2	0.80	0.25			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	0.508	0.038	0.032	0.10		GAM
Radium 226	13982-63-3	0.423	0.059	0.054			GAM
Radium 228	15262-20-1	0.687	0.11	0.10			GAM
Europium 152	14683-23-9	U		0.064	0.10	U	GAM
Europium 154	15585-10-1	U		0.093	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Thorium 228	14274-82-9	0.564	0.034	0.033			GAM
Thorium 232	TH-232	0.687	0.11	0.10			GAM
Uranium 235	15117-96-1	U		0.097		U	GAM
Uranium 238	U-238	U		3.8		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	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-04 **B15XL2**

DATA SHEET

SDG	7391	Client/Case no	Hanford		SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-04	Client sample id	B15XL2		
Dept sample id	7391-004	Location/Matrix	BT-1		SOLID
Received	11/15/02	Collected/Weight	11/12/02 11:20	1573 g	
% solids	94.5	Custody/SAF No	F03-003-018	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	3.88	3.8	4.8	10	U	93A
Gross Beta	12587-47-2	15.6	4.8	6.9	15		93B
Total Strontium	SR-RAD	3.21	0.33	0.23	1.0		SR
Thorium 228	14274-82-9	0.414	0.16	0.12			TH
Thorium 230	14269-63-7	0.523	0.22	0.27	1.0		TH
Thorium 232	TH-232	0.301	0.16	0.12	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.487	0.054	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.009	0.046	0.082	1.0	U	NP
Plutonium 238	13981-16-3	0	0.020	0.048	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.020	0.056	1.0	U	PU
Americium 241	14596-10-2	-0.181	0.36	1.0	1.0	U	AM
Potassium 40	13966-00-2	11.7	0.55	0.26			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.10	U	GAM
Radium 226	13982-63-3	0.374	0.050	0.044			GAM
Radium 228	15262-20-1	0.532	0.12	0.11			GAM
Europium 152	14683-23-9	U		0.063	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.068	0.10	U	GAM
Thorium 228	14274-82-9	0.570	0.048	0.046			GAM
Thorium 232	TH-232	0.532	0.12	0.11			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.4		U	GAM
Americium 241	14596-10-2	U		0.084		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-05 **B15XM3**

DATA SHEET

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-05	Client sample id	B15XM3		
Dept sample id	7391-005	Location/Matrix	BT-1	SOLID	
Received	11/15/02	Collected/Weight	11/12/02 10:15	955.1 g	
% solids	95.9	Custody/SAF No	F03-003-028	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.50	4.8	6.0	10		93A
Gross Beta	12587-47-2	21.7	5.2	6.8	15		93B
Total Strontium	SR-RAD	0.890	0.19	0.22	1.0		SR
Thorium 228	14274-82-9	0.777	0.32	0.24			TH
Thorium 230	14269-63-7	0.713	0.31	0.24	1.0		TH
Thorium 232	TH-232	0.620	0.25	0.24	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.557	0.061	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.054	0.039	0.047	1.0		NP
Plutonium 238	13981-16-3	0	0.16	0.60	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.16	0.59	1.0	U	PU
Americium 241	14596-10-2	0.159	0.19	0.35	1.0	U	AM
Potassium 40	13966-00-2	9.80	1.4	0.76			GAM
Cobalt 60	10198-40-0	U		0.098	0.050	U	GAM
Cesium 137	10045-97-3	2.56	0.16	0.10	0.10		GAM
Radium 226	13982-63-3	0.414	0.15	0.17			GAM
Radium 228	15262-20-1	0.699	0.32	0.33			GAM
Europium 152	14683-23-9	U		0.23	0.10	U	GAM
Europium 154	15585-10-1	U		0.27	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.730	0.13	0.15			GAM
Thorium 232	TH-232	0.699	0.32	0.33			GAM
Uranium 235	15117-96-1	U		0.34		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.34		U	GAM

200 Area Source Chara. 200-CS-1 OU

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test AM Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 7052-053						
B15XK9	R211074-01			7391-001	U	
B15XL0	R211074-02			7391-002	U	
B15XL1	R211074-03			7391-003	U	
B15XL2	R211074-04			7391-004	U	
B15XM3	R211074-05			7391-005	U	
BLK (QC ID=43457)	R211074-07			7391-007	U	
LCS (QC ID=43456)	R211074-06			7391-006	ok	
Duplicate (R211074-03)	R211074-08			7391-008	-	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 7052-053	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01			0.27	0.500			74		108			62	01/13/03	01/13	SS-010
B15XL0	R211074-02			0.27	0.500			80		109			62	01/13/03	01/13	SS-011
B15XL1	R211074-03			0.42	0.500			49		109			62	01/13/03	01/13	SS-016
B15XL2	R211074-04			1.0	0.500			32		110			62	01/13/03	01/13	SS-019
B15XM3	R211074-05			0.35	0.500			91		110			62	01/13/03	01/13	SS-021
BLK (QC ID=43457)	R211074-07			0.62	0.500			33		111				01/13/03	01/13	SS-024
LCS (QC ID=43456)	R211074-06			0.32	0.500			70		110				01/13/03	01/13	SS-022
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.27	0.500			75		108			62	01/13/03	01/13	SS-043
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test AM Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

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

AVERAGES ± 2 SD	MDA	0.44	±	0.51
FOR 8 SAMPLES	YIELD	63	±	44

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test NP Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7052-053						
B15XK9	R211074-01			7391-001	U	
B15XL0	R211074-02			7391-002	U	
B15XL1	R211074-03			7391-003	U	
B15XL2	R211074-04			7391-004	U	
B15XM3	R211074-05			7391-005	0.054	
BLK (QC ID=43457)	R211074-07			7391-007	U	
LCS (QC ID=43456)	R211074-06			7391-006	ok	
Duplicate (R211074-03)	R211074-08			7391-008	-	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 7052-053	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01			0.099	0.500			71		846			58	01/08/03	01/09	SS-019
B15XL0	R211074-02			0.099	0.500			91		847			58	01/08/03	01/09	SS-021
B15XL1	R211074-03			0.099	0.500			69		847			58	01/08/03	01/09	SS-022
B15XL2	R211074-04			0.082	0.500			77					58	01/08/03	01/09	SS-024
B15XM3	R211074-05			0.047	0.500			70		847			58	01/08/03	01/09	SS-039
BLK (QC ID=43457)	R211074-07			0.048	0.500			65		832				01/08/03	01/09	SS-044
LCS (QC ID=43456)	R211074-06			0.038	0.500			70		847				01/08/03	01/09	SS-040
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.056	0.500			59		834			58	01/08/03	01/09	SS-055
Nominal values and limits from method				1.0	0.500			20-105		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test NP	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	0.071 ± 0.053
FOR 8 SAMPLES	YIELD	72 ± 19

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test PU Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 7052-053								
B15XK9	R211074-01			7391-001	U		U	
B15XL0	R211074-02			7391-002	U		U	
B15XL1	R211074-03			7391-003	U		U	
B15XL2	R211074-04			7391-004	U		U	
B15XM3	R211074-05			7391-005	U		U	
BLK (QC ID=43457)	R211074-07			7391-007	U		U	
LCS (QC ID=43456)	R211074-06			7391-006	ok		ok	
Duplicate (R211074-03)	R211074-08			7391-008	-	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 7052-053	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 053												
B15XK9	R211074-01			0.12	0.500			42		864			57	01/07/03	01/08	SS-046
B15XL0	R211074-02			0.086	0.500			43		866			57	01/07/03	01/08	SS-047
B15XL1	R211074-03			0.062	0.500			65		866			57	01/07/03	01/08	SS-049
B15XL2	R211074-04			0.056	0.500			73		866			57	01/07/03	01/08	SS-050
B15XM3	R211074-05			0.60	0.500			79		49			57	01/07/03	01/08	SS-051
BLK (QC ID=43457)	R211074-07			0.73	0.500			60		49				01/07/03	01/08	SS-055
LCS (QC ID=43456)	R211074-06			0.69	0.500			64		49				01/07/03	01/08	SS-052
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.97	0.500			44		49			57	01/07/03	01/08	SS-056
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test	PU
Matrix	SOLID
SDG	7391
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 630
Contract	SDG H1969

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	0.41	±	0.74
FOR 8 SAMPLES	YIELD	59	±	29

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test TH Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-053					
B15XK9	R211074-01			7391-001	0.548
B15XL0	R211074-02			7391-002	U
B15XL1	R211074-03			7391-003	0.786
B15XL2	R211074-04			7391-004	0.523
B15XM3	R211074-05			7391-005	0.713
BLK (QC ID=43457)	R211074-07			7391-007	U
LCS (QC ID=43456)	R211074-06			7391-006	ok
Duplicate (R211074-03)	R211074-08			7391-008	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 7052-053	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01			0.26	0.250			102		171			48	12/30/02	12/30	SS-033
B15XL0	R211074-02			0.26	0.250			102		171			48	12/30/02	12/30	SS-041
B15XL1	R211074-03			0.26	0.250			105		171			48	12/30/02	12/30	SS-042
B15XL2	R211074-04			0.27	0.250			107		344			51	12/30/02	01/02	SS-061
B15XM3	R211074-05			0.24	0.250			110		171			48	12/30/02	12/30	SS-047
BLK (QC ID=43457)	R211074-07			0.24	0.250			104		171				12/30/02	12/30	SS-052
LCS (QC ID=43456)	R211074-06			0.32	0.250			99		171				12/30/02	12/30	SS-048
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.24	0.250			103		172			48	12/30/02	12/30	SS-055
Nominal values and limits from method				1.0	0.250			20-105		150			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test TH	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	0.26	±	0.053
FOR 8 SAMPLES	YIELD	104	±	7

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test SR Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-053					
B15XK9	R211074-01			7391-001	0.437
B15XL0	R211074-02			7391-002	0.637
B15XL1	R211074-03			7391-003	1.66
B15XL2	R211074-04			7391-004	3.21
B15XM3	R211074-05			7391-005	0.890
BLK (QC ID=43457)	R211074-07			7391-007	U
LCS (QC ID=43456)	R211074-06			7391-006	ok
Duplicate (R211074-03)	R211074-08			7391-008	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 053																
B15XK9	R211074-01			0.22	1.00			89		100			48	12/30/02	12/30	GRB-221
B15XL0	R211074-02			0.21	1.00			90		100			48	12/30/02	12/30	GRB-222
B15XL1	R211074-03			0.23	1.00			90		100			48	12/30/02	12/30	GRB-223
B15XL2	R211074-04			0.23	1.00			87		100			48	12/30/02	12/30	GRB-232
B15XM3	R211074-05			0.22	1.00			86		100			48	12/30/02	12/30	GRB-224
BLK (QC ID=43457)	R211074-07			0.32	1.00			73		100				12/30/02	12/30	GRB-230
LCS (QC ID=43456)	R211074-06			0.29	1.00			73		100				12/30/02	12/30	GRB-231
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.21	1.00			88		100			48	12/30/02	12/30	GRB-229
Nominal values and limits from method				1.0	1.00			30-105		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test SR Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

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	0.24	±	0.082
FOR 8 SAMPLES	YIELD	84	±	14

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93A Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7052-053					
B15XK9	R211074-01	93		7391-001	5.44
B15XL0	R211074-02	93		7391-002	U
B15XL1	R211074-03	93		7391-003	U
B15XL2	R211074-04	93		7391-004	U
B15XM3	R211074-05	93		7391-005	7.50
BLK (QC ID=43457)	R211074-07	93		7391-007	U
LCS (QC ID=43456)	R211074-06	93		7391-006	ok
Duplicate (R211074-03)	R211074-08	93		7391-008	ok

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

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053	2σ prep error 20.0 % Reference Lab Notebook 7052 pg. 053															
B15XK9	R211074-01	93		5.3	0.100			99		100			48	12/30/02	12/30	GRB-109
B15XL0	R211074-02	93		5.5	0.100			103		100			48	12/30/02	12/30	GRB-110
B15XL1	R211074-03	93		4.4	0.100			92		100			48	12/30/02	12/30	GRB-111
B15XL2	R211074-04	93		4.8	0.100			84		100			48	12/30/02	12/30	GRB-112
B15XM3	R211074-05	93		6.0	0.100			92		100			52	12/30/02	01/03	GRB-115
BLK (QC ID=43457)	R211074-07	93		3.6	0.100			23		100				12/30/02	12/30	GRB-115
LCS (QC ID=43456)	R211074-06	93		3.5	0.100			24		100				12/30/02	12/31	GRB-114
Duplicate (R211074-03) (QC ID=43458)	R211074-08	93		6.0	0.100			94		100			49	12/30/02	12/31	GRB-114
Nominal values and limits from method				10	0.100			5-250		100			180			

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

AVERAGES ± 2 SD FOR 8 SAMPLES				
	MDA	4.9	±	2.0
	RESIDUE	76	±	66

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93B Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-053					
B15XK9	R211074-01	93		7391-001	19.1
B15XL0	R211074-02	93		7391-002	10.2
B15XL1	R211074-03	93		7391-003	13.4
B15XL2	R211074-04	93		7391-004	15.6
B15XM3	R211074-05	93		7391-005	21.7
BLK (QC ID=43457)	R211074-07	93		7391-007	U
LCS (QC ID=43456)	R211074-06	93		7391-006	ok
Duplicate (R211074-03)	R211074-08	93		7391-008	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	15

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 053																
B15XK9	R211074-01	93		5.8	0.100			99		100			48	12/30/02	12/30	GRB-109
B15XL0	R211074-02	93		7.2	0.100			103		100			48	12/30/02	12/30	GRB-110
B15XL1	R211074-03	93		6.1	0.100			92		100			48	12/30/02	12/30	GRB-111
B15XL2	R211074-04	93		6.9	0.100			84		100			48	12/30/02	12/30	GRB-112
B15XM3	R211074-05	93		6.8	0.100			92		100			52	12/30/02	01/03	GRB-115
BLK (QC ID=43457)	R211074-07	93		6.5	0.100			23		100				12/30/02	12/30	GRB-115
LCS (QC ID=43456)	R211074-06	93		8.0	0.100			24		100				12/30/02	12/31	GRB-114
Duplicate (R211074-03) (QC ID=43458)	R211074-08	93		8.4	0.100			94		100			49	12/30/02	12/31	GRB-114
Nominal values and limits from method				15	0.100			5-250		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93B Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

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	7.0	±	1.8
FOR 8 SAMPLES	RESIDUE	76	±	66

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test GAM Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137
Preparation batch 7052-053							
B15XK9	R211074-01			7391-001	U		2.62
B15XL0	R211074-02			7391-002	U		2.20
B15XL1	R211074-03			7391-003	U		0.508
B15XL2	R211074-04			7391-004	U		U
B15XM3	R211074-05			7391-005	U		2.56
BLK (QC ID=43457)	R211074-07			7391-007	U		U
LCS (QC ID=43456)	R211074-06			7391-006	ok		ok
Duplicate (R211074-03)	R211074-08			7391-008	-	U	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	0.050		0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053	2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 053															
B15XK9	R211074-01			0.75	208					111			45	12/23/02	12/27	JR,05,00
B15XL0	R211074-02			0.63	227					111			45	12/23/02	12/27	JR,07,00
B15XL1	R211074-03			0.23	785					116			45	12/23/02	12/27	MB,07,00
B15XL2	R211074-04			0.23	806					117			45	12/23/02	12/27	02,04,00
B15XM3	R211074-05			0.80	205					117			45	12/23/02	12/27	JR,05,00
BLK (QC ID=43457)	R211074-07			0.33	205					103				12/23/02	12/30	01,04,00
LCS (QC ID=43456)	R211074-06			0.080	205					117				12/23/02	12/27	MB,07,00
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.22	785					103			48	12/23/02	12/30	MB,07,00
Nominal values and limits from method				0.050	205					100			180			

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

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 0.41 ± 0.55
YIELD ____ ± ____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/14/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test U_T Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-053					
B15XK9	R211074-01			7391-001	0.584
B15XL0	R211074-02			7391-002	0.749
B15XL1	R211074-03			7391-003	0.452
B15XL2	R211074-04			7391-004	0.487
B15XM3	R211074-05			7391-005	0.557
BLK (QC ID=43428)	R211074-10			7391-010	U
LCS (QC ID=43427)	R211074-09			7391-009	ok
Duplicate (R211074-03)	R211074-11			7391-011	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (ug/g)	0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053	2σ prep error 9.0 %			Reference Lab Notebook 7052 pg. 053												
B15XK9	R211074-01			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XL0	R211074-02			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XL1	R211074-03			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XL2	R211074-04			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XM3	R211074-05			0.005	0.100								37	12/19/02	12/19	KPA-001
BLK (QC ID=43428)	R211074-10			0.005	0.100									12/19/02	12/19	KPA-001
LCS (QC ID=43427)	R211074-09			0.045	0.100									12/19/02	12/19	KPA-001
Duplicate (R211074-03) (QC ID=43429)	R211074-11			0.005	0.100								37	12/19/02	12/19	KPA-001
Nominal values and limits from method				0.10	0.100								180			

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test U T Matrix SOLID
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METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
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PROCEDURES	REFERENCE	UTOT_KPA
	CP-060	Soil Preparation, rev 4
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 5
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 4
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 5

AVERAGES ± 2 SD	MDA	0.010 ± 0.028
FOR 8 SAMPLES	YIELD	±

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Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1969

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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SDG 7391
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1969

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

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WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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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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GUIDE, cont.

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DUPLICATE

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

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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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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REPORT GUIDE

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Contract No. 630
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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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METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1

Collector: RJ 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: BT-1 H1969 (7391)	SAF No.: F03-003	
Ice Chest No.: ERC 99 042	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A0 30 039		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RIN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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										
✓ B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson RJ Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE	11 14 02 1000
SJ GALE	11 14 02 1000	FED EX	
Fed-Ex	11/15/02 10:00	(SA-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1
Collector: RJ 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: BT-1 H1969 (T391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99-042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030039	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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 AD 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
Sample No. / Matrix * / Sample Date / Sample Time										
✓ B15XL0 / SOIL / 11-12-02 / 1036	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-12-02 1430	Ref #1B/3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE	11 14 02 1000
SJ GALE	11 14 02 1000	FED EX	
Fed-Ex	11/15/02 10:00	(SEA-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11 14 02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-017	Page 1 of 1
Collector: RJ 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: BT-1 H1969 (7391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99 042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 039	Bill of Lading/Air Bill No.: SCBT 05PC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	

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 AM 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		
✓ B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson / R. Nielson	11-12-02 1430	Ref # 18/3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE	111402 1000
SJ GALE	111402 1000	FED EX	
Fed-Express	11/15/02 10:00	(SCH-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 111402

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	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1 H1969 (7391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99 042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 039	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500 ml	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol/Ethanol}	PCBs - 8082 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel 63 Tech. 99 Tritium H3	

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE [signature]	11 14 02 1000
SJ GALE [signature]	11/14/02 1000	FEDEX	
Fed-Express	11/15/02 10:00	[signature] (SEA-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-028	Page 1 of 1

Collector: RJ 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: BT-1 H1969 (7391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99 042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 039	Bill of Lading/Air Bill No.: SOE 037 C	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG
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 11/12/02

AJD 11/14/02

RJN 11/12/02

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Bruce Nielson / R. Nielson	11-12-02 1430	Ref. #1B / 3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE SJ Gale	11 14 02 1000
SJ GALE SJ Gale	11 14 02 1000	FED EX	
Fed-Express	11/15/02 10:00	Eyamamoto (Lab 2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: FLUOR - Hanford Inc. Date/Time received 11/15/02 10:00

CoC No. F03-003-15, 16, 17, 18 & 28 / F03-005-002

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

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by Eby G. Yamamoto Date: 11/15/02 Time: 10:00 AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

EBERLINE
SERVICES

February 4, 2003

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

Reference: **P.O. #630**
Eberline Services R2-11-074-7391, SDG H1969 – Supplemental Report
R3-01-063-7391

Dear Mr. Trent:

Enclosed is the data report for five solid samples designated under SAF No. F03-003 received at Eberline Services on November 15, 2002. The samples were analyzed according to the accompanying chain-of-custody documents. This supplemental report is being issued to report the technetium-99, nickel-63, and tritium results from sample B15XL2.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

FEB 2003
RECEIVED

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 H1969 was composed of five 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

Sample B15XL2 was batched with samples in SDG H1983 (Group 7400) for tritium analysis. The matrix spike recovery was 93%. The matrix spike was associated with a sample in SDG H1983 (Group 7400). No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

Sample B15XL2 was batched with samples in SDG H1983 (Group 7400) for Ni-63 analysis. 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

Sample B15XL2 was batched with samples in SDG H1983 (Group 7400) for Tc-99 analysis. Sample B15XL2 had a yield of 19%, slightly below the lower limit of 20%. No other problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

The following samples had yields above the limit of 105%: B15XL2 (107%) and B15MX3 (110%). No other problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analyses

Per FH's instructions, samples in SDG H1969 were not analyzed for isotopic uranium (see e-mail attached).

2.8 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.9 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.12 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Program Manager

2/4/03

Date

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 H1969

SDG	7391
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H1969

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

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

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	10
Lab Control Samples	14
Duplicates	17
Data Sheets	20
Method Summaries	25
Report Guides	45
End of Section	59

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	02/04/03

SDG 7391
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1969

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 02/04/03

SDG 7391
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

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.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B15XK9	BT-1	SOLID		R211074-01	F03-003	F03-003-015	11/12/02 10:10
B15XL0	BT-1	SOLID		R211074-02	F03-003	F03-003-016	11/12/02 10:36
B15XL1	BT-1	SOLID		R211074-03	F03-003	F03-003-017	11/12/02 10:55
B15XL2	BT-1	SOLID		R211074-04	F03-003	F03-003-018	11/12/02 11:20
B15XM3	BT-1	SOLID		R211074-05	F03-003	F03-003-028	11/12/02 10:15
Method Blank		SOLID		R211074-07	F03-003		
Method Blank		SOLID		R211074-10	F03-003		
Method Blank		SOLID		R211100-08	F03-003		
Lab Control Sample		SOLID		R211074-06	F03-003		
Lab Control Sample		SOLID		R211074-09	F03-003		
Lab Control Sample		SOLID		R211100-07	F03-003		
Duplicate (R211074-03)	BT-1	SOLID		R211074-08	F03-003		11/12/02 10:55
Duplicate (R211074-03)	BT-1	SOLID		R211074-11	F03-003		11/12/02 10:55
Duplicate (R211074-04)	BT-1	SOLID		R211074-12	F03-003		11/12/02 11:20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

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
7391	F03-003-015	B15XK9	SOLID	95.9	955.7 g		11/15/02	3	R211074-01	7391-001
	F03-003-016	B15XL0	SOLID	96.0	1257 g		11/15/02	3	R211074-02	7391-002
	F03-003-017	B15XL1	SOLID	96.2	1098 g		11/15/02	3	R211074-03	7391-003
	F03-003-018	B15XL2	SOLID	94.5	1573 g		11/15/02	3	R211074-04	7391-004
	F03-003-028	B15XM3	SOLID	95.9	955.1 g		11/15/02	3	R211074-05	7391-005
		Method Blank	SOLID						R211074-07	7391-007
		Method Blank	SOLID						R211074-10	7391-010
		Lab Control Sample	SOLID						R211074-06	7391-006
		Lab Control Sample	SOLID						R211074-09	7391-009
		Duplicate (R211074-03)	SOLID	96.2	1098 g		11/15/02	3	R211074-08	7391-008
		Duplicate (R211074-03)	SOLID	96.2	1098 g		11/15/02	3	R211074-11	7391-011
		Duplicate (R211074-04)	SOLID	94.5	1573 g		11/15/02	3	R211074-12	7391-012
7400		Method Blank	SOLID						R211100-08	7400-008
		Lab Control Sample	SOLID						R211100-07	7400-007

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	7052-053	5.0	5			1	1	1/1		
NP	SOLID	Neptunium in Soil	7052-053	5.0	5			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	7052-053	5.0	5			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	7052-053	5.0	5			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	7052-053	10.0	5			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	7052-096	10.0	1			1	1	1/1		
Gas Proportional Counting												
93A	SOLID	Gross Alpha in Soil	7052-053	20.0	5			1	1	1/1		
93B	SOLID	Gross Beta in Soil	7052-053	15.0	5			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-053	15.0	5			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	7052-053	9.0	5			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	7052-096	10.0	1			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	7052-096	10.0	1			1	1	1/1		

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15XK9			R211074-01	7391-001	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-001	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-015	F03-003		11/15/02	7391-001	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-001	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-001	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-001	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-001	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-001	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-001	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15XL0			R211074-02	7391-002	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-002	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-016	F03-003		11/15/02	7391-002	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-002	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-002	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-002	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-002	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-002	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-002	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15XL1			R211074-03	7391-003	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-003	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-017	F03-003		11/15/02	7391-003	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-003	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-003	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-003	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-003	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-003	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-003	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B15XL2			R211074-04	7391-004	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-004	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
F03-003-018	F03-003		11/15/02	7391-004	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-004	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-004	H		01/24/03	02/04/03	MCM	Tritium in Soil
				7391-004	NI_L		01/29/03	02/04/03	MCM	Nickel 63 in Soil
				7391-004	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-004	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-004	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-004	TC		01/31/03	02/04/03	MCM	Technetium 99 in Soil
				7391-004	TH		01/02/03	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-004	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
B15XM3			R211074-05	7391-005	93A/93		01/03/03	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-005	93B/93		01/03/03	01/12/03	MCM	Gross Beta in Soil
F03-003-028	F03-003		11/15/02	7391-005	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-005	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-005	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-005	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-005	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-005	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
				7391-005	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
Method Blank			R211074-07	7391-007	93A/93		12/30/02	01/12/03	MCM	Gross Alpha in Soil
		SOLID		7391-007	93B/93		12/30/02	01/12/03	MCM	Gross Beta in Soil
	F03-003			7391-007	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-007	GAM		12/30/02	01/12/03	MCM	Gamma Scan
				7391-007	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-007	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-007	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-007	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
Method Blank			R211074-10	7391-010	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									
Method Blank			R211100-08	7400-008	H		01/27/03	02/03/03	MCM	Tritium in Soil
		SOLID		7400-008	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
	F03-003			7400-008	TC		01/31/03	02/03/03	MCM	Technetium 99 in Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			R211074-06	7391-006	93A/93		12/31/02	01/12/03	MCM	Gross Alpha in Soil
		SOLID		7391-006	93B/93		12/31/02	01/12/03	MCM	Gross Beta in Soil
	F03-003			7391-006	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-006	GAM		12/27/02	01/12/03	MCM	Gamma Scan
				7391-006	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-006	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-006	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-006	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
Lab Control Sample			R211074-09	7391-009	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
		SOLID								
	F03-003									
Lab Control Sample			R211100-07	7400-007	H		01/24/03	02/03/03	MCM	Tritium in Soil
		SOLID		7400-007	NI_L		01/28/03	02/03/03	MCM	Nickel 63 in Soil
	F03-003			7400-007	TC		02/03/03	02/03/03	MCM	Technetium 99 in Soil
Duplicate (R211074-03)			R211074-08	7391-008	93A/93		12/31/02	01/12/03	MCM	Gross Alpha in Soil
BT-1		SOLID	11/12/02	7391-008	93B/93		12/31/02	01/12/03	MCM	Gross Beta in Soil
	F03-003		11/15/02	7391-008	AM		01/13/03	01/14/03	MCM	Americium 241 in Soil
				7391-008	GAM		12/30/02	01/12/03	MCM	Gamma Scan
				7391-008	NP		01/09/03	01/12/03	MCM	Neptunium in Soil
				7391-008	PU		01/08/03	01/12/03	MCM	Plutonium, Isotopic in Solids
				7391-008	SR		12/30/02	01/12/03	MCM	Total Strontium in Soil
				7391-008	TH		12/30/02	01/12/03	MCM	Thorium, Isotopic in Soil
Duplicate (R211074-03)			R211074-11	7391-011	U_T		12/19/02	12/21/02	MCM	Uranium, Total in Soil
BT-1		SOLID	11/12/02							
	F03-003		11/15/02							
Duplicate (R211074-04)			R211074-12	7391-012	H		01/24/03	02/04/03	MCM	Tritium in Soil
BT-1		SOLID	11/12/02	7391-012	NI_L		01/29/03	02/04/03	MCM	Nickel 63 in Soil
	F03-003		11/15/02	7391-012	TC		02/03/03	02/04/03	MCM	Technetium 99 in Soil

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SAMPLE DELIVERY GROUP H1969

SDG 7391
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

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	5			1	1	1	8
93B/93	F03-003	Gross Beta in Soil	900.0_ALPHABETA_GPC	5			1	1	1	8
AM	F03-003	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	5			1	1	1	8
GAM	F03-003	Gamma Scan	GAMMA_GS	5			1	1	1	8
H	F03-003	Tritium in Soil	906.0_H3_LSC	1			1	1	1	4
NI_L	F03-003	Nickel 63 in Soil	NI63_LSC	1			1	1	1	4
NP	F03-003	Neptunium in Soil	NP237_LLE_PLATE_AEA	5			1	1	1	8
PU	F03-003	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	5			1	1	1	8
SR	F03-003	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	5			1	1	1	8
TC	F03-003	Technetium 99 in Soil	TC99_TR_SEP_LSC	1			1	1	1	4
TH	F03-003	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	5			1	1	1	8
U_T	F03-003	Uranium, Total in Soil	UTOT_KPA	5			1	1	1	8
TOTALS				48			12	12	12	84

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-07 **Method Blank**

METHOD BLANK

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-07	Client sample id	Method Blank		
Dept sample id	7391-007	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	-0.319	1.7	3.6	10	U	93A
Gross Beta	12587-47-2	-0.950	3.8	6.5	15	U	93B
Total Strontium	SR-RAD	-0.117	0.15	0.32	1.0	U	SR
Thorium 228	14274-82-9	0	0.063	0.24		U	TH
Thorium 230	14269-63-7	0.126	0.13	0.24	1.0	U	TH
Thorium 232	TH-232	0	0.063	0.24	1.0	U	TH
Neptunium 237	13994-20-2	0.005	0.020	0.048	1.0	U	NP
Plutonium 238	13981-16-3	0	0.19	0.73	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.19	0.73	1.0	U	PU
Americium 241	14596-10-2	0.244	0.33	0.62	1.0	U	AM
Potassium 40	13966-00-2	U		0.56		U	GAM
Cobalt 60	10198-40-0	U		0.053	0.050	U	GAM
Cesium 137	10045-97-3	U		0.036	0.10	U	GAM
Radium 226	13982-63-3	U		0.084		U	GAM
Radium 228	15262-20-1	U		0.18		U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.090	0.10	U	GAM
Thorium 228	14274-82-9	U		0.061		U	GAM
Thorium 232	TH-232	U		0.18		U	GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		5.5		U	GAM
Americium 241	14596-10-2	U		0.11		U	GAM

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43457

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

SAMPLE DELIVERY GROUP H1969

R211074-10 Method Blank

METHOD BLANK

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-10	Client sample id	Method Blank		
Dept sample id	7391-010	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	0.005	0.10	U	U_T

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 43428

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 H1969

R211100-08 **Method Blank**

METHOD BLANK

SDG	7391	Client/Case no	Hanford SDG H1969
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	N.A.			10		93A
Gross Beta	12587-47-2	N.A.			15		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	N.A.			1.0		SR
Technetium 99	14133-76-7	0.365	0.22	0.55	15	U	TC
Thorium 228	14274-82-9	N.A.					TH
Thorium 230	14269-63-7	N.A.			1.0		TH
Thorium 232	TH-232	N.A.			1.0		TH
Neptunium 237	13994-20-2	N.A.			1.0		NP
Plutonium 238	13981-16-3	N.A.			1.0		PU
Plutonium 239/240	PU-239/240	N.A.			1.0		PU
Americium 241	14596-10-2	N.A.			1.0		AM
Potassium 40	13966-00-2	N.A.					GAM
Cobalt 60	10198-40-0	N.A.			0.050		GAM
Cesium 137	10045-97-3	N.A.			0.10		GAM
Radium 226	13982-63-3	N.A.					GAM
Radium 228	15262-20-1	N.A.					GAM
Europium 152	14683-23-9	N.A.			0.10		GAM
Europium 154	15585-10-1	N.A.			0.10		GAM
Europium 155	14391-16-3	N.A.			0.10		GAM
Thorium 228	14274-82-9	N.A.					GAM
Thorium 232	TH-232	N.A.					GAM
Uranium 235	15117-96-1	N.A.					GAM
Uranium 238	U-238	N.A.					GAM
Americium 241	14596-10-2	N.A.					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	02/04/03

BLANK, cont.

SDG	7391	Client/Case no	Hanford SDG H1969
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 H1969

R211074-06

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7391
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1969
Contract No. 630

Lab sample id R211074-06
Dept sample id 7391-006

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	204	15	3.5	10		93A	214	8.6	95	69-131	70-130
Gross Beta	218	11	8.0	15		93B	234	9.4	93	77-123	70-130
Total Strontium	24.2	0.94	0.29	1.0		SR	22.3	0.89	108	82-118	80-120
Thorium 230	44.0	4.3	0.32	1.0		TH	44.8	1.8	98	83-117	80-120
Neptunium 237	20.6	1.0	0.038	1.0		NP	21.8	0.87	94	88-112	80-120
Plutonium 238	24.4	4.4	0.69	1.0		PU	26.8	1.1	91	74-126	80-120
Plutonium 239/240	25.3	4.6	0.69	1.0		PU	29.0	1.2	87	75-125	80-120
Americium 241	20.6	2.6	0.32	1.0		AM	21.0	0.84	98	79-121	80-120
Cobalt 60	3.88	0.20	0.080	0.050		GAM	3.59	0.14	108	74-126	80-120
Cesium 137	4.92	0.20	0.12	0.10		GAM	4.68	0.19	105	75-125	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43456

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-09

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7391
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1969
Contract No. 630

Lab sample id R211074-09
Dept sample id 7391-009

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)	18.2	2.0	0.045	0.10		U_T	18.1	0.72	101	78-122	80-120

200 Area Source Chara. 200-CS-1 OU

QC-LCS 43427

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211100-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7391
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1969
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	N.A.			10		93A					70-130
Gross Beta	N.A.			15		93B					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	N.A.			1.0		SR					80-120
Technetium 99	118	2.4	0.58	15		TC	109	4.4	108	82-118	80-120
Thorium 230	N.A.			1.0		TH					80-120
Neptunium 237	N.A.			1.0		NP					80-120
Plutonium 238	N.A.			1.0		PU					80-120
Plutonium 239/240	N.A.			1.0		PU					80-120
Americium 241	N.A.			1.0		AM					80-120
Cobalt 60	N.A.			0.050		GAM					80-120
Cesium 137	N.A.			0.10		GAM					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 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-08 B15XL1

DUPLICATE

SDG	7391			Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211074-08	Lab sample id	R211074-03	Client sample id	B15XL1
Dept sample id	7391-008	Dept sample id	7391-003	Location/Matrix	BT-1 SOLID
		Received	11/15/02	Collected/Weight	11/12/02 10:55 1098 g
% solids	96.2	% solids	96.2	Custody/SAF No	F03-003-017 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	7.58	4.8	6.0	10		93A	3.73	3.6	4.4	U	68	165
Gross Beta	12.7	5.5	8.4	15		93B	13.4	4.3	6.1		5	86
Total Strontium	1.58	0.23	0.21	1.0		SR	1.66	0.24	0.23		5	37
Thorium 228	0.513	0.26	0.25			TH	0.308	0.21	0.26		50	123
Thorium 230	0.384	0.26	0.24	1.0		TH	0.786	0.35	0.26		69	112
Thorium 232	0.479	0.26	0.24	1.0		TH	0.342	0.21	0.26		33	123
Neptunium 237	0.046	0.035	0.056	1.0	U	NP	0.028	0.056	0.099	U	-	
Plutonium 238	0	0.25	0.97	1.0	U	PU	0	0.023	0.062	U	-	
Plutonium 239/240	0.126	0.25	0.97	1.0	U	PU	0	0.023	0.054	U	-	
Americium 241	0	0.070	0.27	1.0	U	AM	0.056	0.11	0.42	U	-	
Potassium 40	11.5	0.83	0.33			GAM	12.2	0.80	0.25		6	35
Cobalt 60	U		0.027	0.050	U	GAM	U		0.028	U	-	
Cesium 137	0.480	0.041	0.034	0.10		GAM	0.508	0.038	0.032		6	36
Radium 226	0.422	0.066	0.059			GAM	0.423	0.059	0.054		0	45
Radium 228	0.571	0.14	0.14			GAM	0.687	0.11	0.10		18	53
Europium 152	U		0.072	0.10	U	GAM	U		0.064	U	-	
Europium 154	U		0.10	0.10	U	GAM	U		0.093	U	-	
Europium 155	U		0.061	0.10	U	GAM	U		0.059	U	-	
Thorium 228	0.541	0.036	0.034			GAM	0.564	0.034	0.033		4	35
Thorium 232	0.571	0.14	0.14			GAM	0.687	0.11	0.10		18	53
Uranium 235	U		0.10		U	GAM	U		0.097	U	-	
Uranium 238	U		3.3		U	GAM	U		3.8	U	-	
Americium 241	U		0.039		U	GAM	U		0.037	U	-	

200 Area Source Chara. 200-CS-1 OU

76-DUP#3 43458

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-11 B15XL1

DUPLICATE

SDG	7391			Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211074-11	Lab sample id	R211074-03	Client sample id	B15XL1
Dept sample id	7391-011	Dept sample id	7391-003	Location/Matrix	BT-1 SOLID
		Received	11/15/02	Collected/Weight	11/12/02 10:55 1098 g
% solids	96.2	% solids	96.2	Custody/SAF No	F03-003-017 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)	0.449	0.049	0.005	0.10		U_T	0.452	0.050	0.005		1	30	

200 Area Source Chara. 200-CS-1 OU

QC-DUP#3 43429

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-12 B15XL2

DUPLICATE

SDG	7391			Client/Case no	Hanford SDG H1969
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R211074-12	Lab sample id	R211074-04	Client sample id	B15XL2
Dept sample id	7391-012	Dept sample id	7391-004	Location/Matrix	BT-1 SOLID
		Received	11/15/02	Collected/Weight	11/12/02 11:20 1573 g
% solids	94.5	% solids	94.5	Custody/SAF No	F03-003-018 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
Tritium	0.373	0.15	0.23	400		H	0.330	0.14	0.23		12	90	
Nickel 63	0.660	1.1	1.8	30	U	NI_L	0.706	1.1	1.8	U	-		
Technetium 99	0.322	0.38	0.59	15	U	TC	0.515	0.77	2.2	U	-		

200 Area Source Chara. 200-CS-1 OU

QC-DUP#4 43668

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-01 **B15XK9**

DATA SHEET

SDG	7391	Client/Case no	Hanford	SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R211074-01	Client sample id	B15XK9	
Dept sample id	7391-001	Location/Matrix	BT-1	SOLID
Received	11/15/02	Collected/Weight	11/12/02 10:10	955.7 g
% solids	95.9	Custody/SAF No	F03-003-015	F03-003

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	5.44	4.5	5.3	10		93A
Gross Beta	12587-47-2	19.1	4.5	5.8	15		93B
Total Strontium	SR-RAD	0.437	0.16	0.22	1.0		SR
Thorium 228	14274-82-9	0.447	0.28	0.33			TH
Thorium 230	14269-63-7	0.548	0.28	0.26	1.0		TH
Thorium 232	TH-232	0.856	0.35	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.584	0.067	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.027	0.054	0.099	1.0	U	NP
Plutonium 238	13981-16-3	-0.008	0.048	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	0.064	0.064	0.099	1.0	U	PU
Americium 241	14596-10-2	0.035	0.070	0.27	1.0	U	AM
Potassium 40	13966-00-2	11.0	1.4	0.64			GAM
Cobalt 60	10198-40-0	U		0.082	0.050	U	GAM
Cesium 137	10045-97-3	2.62	0.15	0.067	0.10		GAM
Radium 226	13982-63-3	0.490	0.16	0.17			GAM
Radium 228	15262-20-1	0.724	0.34	0.27			GAM
Europium 152	14683-23-9	U		0.24	0.10	U	GAM
Europium 154	15585-10-1	U		0.28	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.696	0.14	0.17			GAM
Thorium 232	TH-232	0.724	0.34	0.27			GAM
Uranium 235	15117-96-1	U		0.34		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.35		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	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-02 **B15XL0**

DATA SHEET

SDG	7391	Client/Case no	Hanford		SDG H1969
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-02	Client sample id	B15XL0		
Dept sample id	7391-002	Location/Matrix	BT-1		SOLID
Received	11/15/02	Collected/Weight	11/12/02 10:36	1257 g	
% solids	96.0	Custody/SAF No	F03-003-016	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	4.68	4.4	5.5	10	U	93A
Gross Beta	12587-47-2	10.2	4.8	7.2	15		93B
Total Strontium	SR-RAD	0.637	0.16	0.21	1.0		SR
Thorium 228	14274-82-9	0.306	0.27	0.38		U	TH
Thorium 230	14269-63-7	0.169	0.20	0.26	1.0	U	TH
Thorium 232	TH-232	0.407	0.21	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.749	0.082	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.013	0.058	0.099	1.0	U	NP
Plutonium 238	13981-16-3	-0.023	0.031	0.086	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.008	0.031	0.075	1.0	U	PU
Americium 241	14596-10-2	0.035	0.070	0.27	1.0	U	AM
Potassium 40	13966-00-2	9.48	2.4	0.78			GAM
Cobalt 60	10198-40-0	U		0.080	0.050	U	GAM
Cesium 137	10045-97-3	2.20	0.14	0.10	0.10		GAM
Radium 226	13982-63-3	0.392	0.14	0.13			GAM
Radium 228	15262-20-1	0.504	0.28	0.30			GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.558	0.090	0.093			GAM
Thorium 232	TH-232	0.504	0.28	0.30			GAM
Uranium 235	15117-96-1	U		0.27		U	GAM
Uranium 238	U-238	U		9.9		U	GAM
Americium 241	14596-10-2	U		0.080		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	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-03 B15XL1

DATA SHEET

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-03	Client sample id	B15XL1		
Dept sample id	7391-003	Location/Matrix	BT-1	SOLID	
Received	11/15/02	Collected/Weight	11/12/02 10:55	1098 g	
% solids	96.2	Custody/SAF No	F03-003-017	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	3.73	3.6	4.4	10	U	93A
Gross Beta	12587-47-2	13.4	4.3	6.1	15		93B
Total Strontium	SR-RAD	1.66	0.24	0.23	1.0		SR
Thorium 228	14274-82-9	0.308	0.21	0.26			TH
Thorium 230	14269-63-7	0.786	0.35	0.26	1.0		TH
Thorium 232	TH-232	0.342	0.21	0.26	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.452	0.050	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.028	0.056	0.099	1.0	U	NP
Plutonium 238	13981-16-3	0	0.023	0.062	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.023	0.054	1.0	U	PU
Americium 241	14596-10-2	0.056	0.11	0.42	1.0	U	AM
Potassium 40	13966-00-2	12.2	0.80	0.25			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	0.508	0.038	0.032	0.10		GAM
Radium 226	13982-63-3	0.423	0.059	0.054			GAM
Radium 228	15262-20-1	0.687	0.11	0.10			GAM
Europium 152	14683-23-9	U		0.064	0.10	U	GAM
Europium 154	15585-10-1	U		0.093	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Thorium 228	14274-82-9	0.564	0.034	0.033			GAM
Thorium 232	TH-232	0.687	0.11	0.10			GAM
Uranium 235	15117-96-1	U		0.097		U	GAM
Uranium 238	U-238	U		3.8		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	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-04 B15XL2

DATA SHEET

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-04	Client sample id	B15XL2		
Dept sample id	7391-004	Location/Matrix	BT-1	SOLID	
Received	11/15/02	Collected/Weight	11/12/02 11:20	1573 g	
% solids	94.5	Custody/SAF No	F03-003-018	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	3.88	3.8	4.8	10	U	93A
Gross Beta	12587-47-2	15.6	4.8	6.9	15		93B
Tritium	10028-17-8	0.330	0.14	0.23	400		H
Nickel 63	13981-37-8	0.706	1.1	1.8	30	U	NI_L
Total Strontium	SR-RAD	3.21	0.33	0.23	1.0		SR
Technetium 99	14133-76-7	0.515	0.77	2.2	15	U	TC
Thorium 228	14274-82-9	0.414	0.16	0.12			TH
Thorium 230	14269-63-7	0.523	0.22	0.27	1.0		TH
Thorium 232	TH-232	0.301	0.16	0.12	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.487	0.054	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.009	0.046	0.082	1.0	U	NP
Plutonium 238	13981-16-3	0	0.020	0.048	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.020	0.056	1.0	U	PU
Americium 241	14596-10-2	-0.181	0.36	1.0	1.0	U	AM
Potassium 40	13966-00-2	11.7	0.55	0.26			GAM
Cobalt 60	10198-40-0	U		0.028	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.10	U	GAM
Radium 226	13982-63-3	0.374	0.050	0.044			GAM
Radium 228	15262-20-1	0.532	0.12	0.11			GAM
Europium 152	14683-23-9	U		0.063	0.10	U	GAM
Europium 154	15585-10-1	U		0.10	0.10	U	GAM
Europium 155	14391-16-3	U		0.068	0.10	U	GAM
Thorium 228	14274-82-9	0.570	0.048	0.046			GAM
Thorium 232	TH-232	0.532	0.12	0.11			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.4		U	GAM
Americium 241	14596-10-2	U		0.084		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	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

R211074-05 **B15XM3**

DATA SHEET

SDG	7391	Client/Case no	Hanford	SDG H1969	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R211074-05	Client sample id	B15XM3		
Dept sample id	7391-005	Location/Matrix	BT-1	SOLID	
Received	11/15/02	Collected/Weight	11/12/02 10:15	955.1 g	
% solids	95.9	Custody/SAF No	F03-003-028	F03-003	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	7.50	4.8	6.0	10		93A
Gross Beta	12587-47-2	21.7	5.2	6.8	15		93B
Total Strontium	SR-RAD	0.890	0.19	0.22	1.0		SR
Thorium 228	14274-82-9	0.777	0.32	0.24			TH
Thorium 230	14269-63-7	0.713	0.31	0.24	1.0		TH
Thorium 232	TH-232	0.620	0.25	0.24	1.0		TH
Total Uranium (ug/g)	7440-61-1	0.557	0.061	0.005	0.10		U_T
Neptunium 237	13994-20-2	0.054	0.039	0.047	1.0		NP
Plutonium 238	13981-16-3	0	0.16	0.60	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.16	0.59	1.0	U	PU
Americium 241	14596-10-2	0.159	0.19	0.35	1.0	U	AM
Potassium 40	13966-00-2	9.80	1.4	0.76			GAM
Cobalt 60	10198-40-0	U		0.098	0.050	U	GAM
Cesium 137	10045-97-3	2.56	0.16	0.10	0.10		GAM
Radium 226	13982-63-3	0.414	0.15	0.17			GAM
Radium 228	15262-20-1	0.699	0.32	0.33			GAM
Europium 152	14683-23-9	U		0.23	0.10	U	GAM
Europium 154	15585-10-1	U		0.27	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.730	0.13	0.15			GAM
Thorium 232	TH-232	0.699	0.32	0.33			GAM
Uranium 235	15117-96-1	U		0.34		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.34		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	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test AM Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 7052-053						
B15XK9	R211074-01			7391-001	U	
B15XL0	R211074-02			7391-002	U	
B15XL1	R211074-03			7391-003	U	
B15XL2	R211074-04			7391-004	U	
B15XM3	R211074-05			7391-005	U	
BLK (QC ID=43457)	R211074-07			7391-007	U	
LCS (QC ID=43456)	R211074-06			7391-006	ok	
Duplicate (R211074-03)	R211074-08			7391-008	-	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 7052-053	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01			0.27	0.500			74		108			62	01/13/03	01/13	SS-010
B15XL0	R211074-02			0.27	0.500			80		109			62	01/13/03	01/13	SS-011
B15XL1	R211074-03			0.42	0.500			49		109			62	01/13/03	01/13	SS-016
B15XL2	R211074-04			1.0	0.500			32		110			62	01/13/03	01/13	SS-019
B15XM3	R211074-05			0.35	0.500			91		110			62	01/13/03	01/13	SS-021
BLK (QC ID=43457)	R211074-07			0.62	0.500			33		111				01/13/03	01/13	SS-024
LCS (QC ID=43456)	R211074-06			0.32	0.500			70		110				01/13/03	01/13	SS-022
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.27	0.500			75		108			62	01/13/03	01/13	SS-043
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test AM	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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

AVERAGES ± 2 SD	MDA	0.44	±	0.51
FOR 8 SAMPLES	YIELD	63	±	44

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test NP Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7052-053						
B15XK9	R211074-01			7391-001	U	
B15XL0	R211074-02			7391-002	U	
B15XL1	R211074-03			7391-003	U	
B15XL2	R211074-04			7391-004	U	
B15XM3	R211074-05			7391-005	0.054	
BLK (QC ID=43457)	R211074-07			7391-007	U	
LCS (QC ID=43456)	R211074-06			7391-006	ok	
Duplicate (R211074-03)	R211074-08			7391-008	-	U
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01			0.099	0.500			71		846			58	01/08/03	01/09	SS-019
B15XL0	R211074-02			0.099	0.500			91		847			58	01/08/03	01/09	SS-021
B15XL1	R211074-03			0.099	0.500			69		847			58	01/08/03	01/09	SS-022
B15XL2	R211074-04			0.082	0.500			77					58	01/08/03	01/09	SS-024
B15XM3	R211074-05			0.047	0.500			70		847			58	01/08/03	01/09	SS-039
BLK (QC ID=43457)	R211074-07			0.048	0.500			65		832				01/08/03	01/09	SS-044
LCS (QC ID=43456)	R211074-06			0.038	0.500			70		847				01/08/03	01/09	SS-040
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.056	0.500			59		834			58	01/08/03	01/09	SS-055
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 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test NP	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	0.071	±	0.053
FOR 8 SAMPLES	YIELD	72	±	19

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test PU Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 7052-053								
B15XK9	R211074-01			7391-001	U		U	
B15XL0	R211074-02			7391-002	U		U	
B15XL1	R211074-03			7391-003	U		U	
B15XL2	R211074-04			7391-004	U		U	
B15XM3	R211074-05			7391-005	U		U	
BLK (QC ID=43457)	R211074-07			7391-007	U		U	
LCS (QC ID=43456)	R211074-06			7391-006	ok		ok	
Duplicate (R211074-03)	R211074-08			7391-008	-	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 7052-053	2σ prep error 5.0 %			Reference Lab Notebook 7052 pg. 053												
B15XK9	R211074-01			0.12	0.500			42		864			57	01/07/03	01/08	SS-046
B15XL0	R211074-02			0.086	0.500			43		866			57	01/07/03	01/08	SS-047
B15XL1	R211074-03			0.062	0.500			65		866			57	01/07/03	01/08	SS-049
B15XL2	R211074-04			0.056	0.500			73		866			57	01/07/03	01/08	SS-050
B15XM3	R211074-05			0.60	0.500			79		49			57	01/07/03	01/08	SS-051
BLK (QC ID=43457)	R211074-07			0.73	0.500			60		49				01/07/03	01/08	SS-055
LCS (QC ID=43456)	R211074-06			0.69	0.500			64		49				01/07/03	01/08	SS-052
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.97	0.500			44		49			57	01/07/03	01/08	SS-056
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test PU	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	0.41	±	0.74
FOR 8 SAMPLES	YIELD	59	±	29

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test TH Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 230
Preparation batch 7052-053					
B15XK9	R211074-01			7391-001	0.548
B15XL0	R211074-02			7391-002	U
B15XL1	R211074-03			7391-003	0.786
B15XL2	R211074-04			7391-004	0.523
B15XM3	R211074-05			7391-005	0.713
BLK (QC ID=43457)	R211074-07			7391-007	U
LCS (QC ID=43456)	R211074-06			7391-006	ok
Duplicate (R211074-03)	R211074-08			7391-008	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 7052-053	2σ prep error 5.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01			0.26	0.250			102		171			48	12/30/02	12/30	SS-033
B15XL0	R211074-02			0.26	0.250			102		171			48	12/30/02	12/30	SS-041
B15XL1	R211074-03			0.26	0.250			105		171			48	12/30/02	12/30	SS-042
B15XL2	R211074-04			0.27	0.250			107		344			51	12/30/02	01/02	SS-061
B15XM3	R211074-05			0.24	0.250			110		171			48	12/30/02	12/30	SS-047
BLK (QC ID=43457)	R211074-07			0.24	0.250			104		171				12/30/02	12/30	SS-052
LCS (QC ID=43456)	R211074-06			0.32	0.250			99		171				12/30/02	12/30	SS-048
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.24	0.250			103		172			48	12/30/02	12/30	SS-055
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 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test TH	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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 0.26 ± 0.053
FOR 8 SAMPLES	YIELD 104 ± 7

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test SR Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7052-053					
B15XK9	R211074-01			7391-001	0.437
B15XL0	R211074-02			7391-002	0.637
B15XL1	R211074-03			7391-003	1.66
B15XL2	R211074-04			7391-004	3.21
B15XM3	R211074-05			7391-005	0.890
BLK (QC ID=43457)	R211074-07			7391-007	U
LCS (QC ID=43456)	R211074-06			7391-006	ok
Duplicate (R211074-03)	R211074-08			7391-008	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 053															
B15XK9	R211074-01			0.22	1.00			89		100			48	12/30/02	12/30	GRB-221
B15XL0	R211074-02			0.21	1.00			90		100			48	12/30/02	12/30	GRB-222
B15XL1	R211074-03			0.23	1.00			90		100			48	12/30/02	12/30	GRB-223
B15XL2	R211074-04			0.23	1.00			87		100			48	12/30/02	12/30	GRB-232
B15XM3	R211074-05			0.22	1.00			86		100			48	12/30/02	12/30	GRB-224
BLK (QC ID=43457)	R211074-07			0.32	1.00			73		100				12/30/02	12/30	GRB-230
LCS (QC ID=43456)	R211074-06			0.29	1.00			73		100				12/30/02	12/30	GRB-231
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.21	1.00			88		100			48	12/30/02	12/30	GRB-229
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 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test SR	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	0.24	±	0.082
FOR 8 SAMPLES	YIELD	84	±	14

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test TC Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7052-096						
B15XL2	R211074-04			7391-004	U	
BLK (QC ID=43533)	R211100-08			7400-008	U	
LCS (QC ID=43532)	R211100-07			7400-007	ok	
Duplicate (R211074-04)	R211074-12			7391-012	-	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															
B15XL2	R211074-04			2.2	1.03			19		66			80	01/28/03	01/31	GRB-220
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 (R211074-04) (QC ID=43668)	R211074-12			0.59	1.03			86		50			83	01/28/03	02/03	GRB-224
Nominal values and limits from method				15	1.00			20-105		50			180			

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 FOR 4 SAMPLES				
MDA	0.98	±	1.6
YIELD	72	±	72

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93A Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7052-053					
B15XK9	R211074-01	93		7391-001	5.44
B15XL0	R211074-02	93		7391-002	U
B15XL1	R211074-03	93		7391-003	U
B15XL2	R211074-04	93		7391-004	U
B15XM3	R211074-05	93		7391-005	7.50
BLK (QC ID=43457)	R211074-07	93		7391-007	U
LCS (QC ID=43456)	R211074-06	93		7391-006	ok
Duplicate (R211074-03)	R211074-08	93		7391-008	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	10

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 7052-053	2σ prep error 20.0 %				Reference Lab Notebook 7052 pg. 053											
B15XK9	R211074-01	93		5.3	0.100			99		100			48	12/30/02	12/30	GRB-109
B15XL0	R211074-02	93		5.5	0.100			103		100			48	12/30/02	12/30	GRB-110
B15XL1	R211074-03	93		4.4	0.100			92		100			48	12/30/02	12/30	GRB-111
B15XL2	R211074-04	93		4.8	0.100			84		100			48	12/30/02	12/30	GRB-112
B15XM3	R211074-05	93		6.0	0.100			92		100			52	12/30/02	01/03	GRB-115
BLK (QC ID=43457)	R211074-07	93		3.6	0.100			23		100				12/30/02	12/30	GRB-115
LCS (QC ID=43456)	R211074-06	93		3.5	0.100			24		100				12/30/02	12/31	GRB-114
Duplicate (R211074-03) (QC ID=43458)	R211074-08	93		6.0	0.100			94		100			49	12/30/02	12/31	GRB-114
Nominal values and limits from method				10	0.100			5-250		100			180			

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93A	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	4.9	±	2.0
FOR 8 SAMPLES	RESIDUE	76	±	66

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93B Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7052-053					
B15XK9	R211074-01	93		7391-001	19.1
B15XL0	R211074-02	93		7391-002	10.2
B15XL1	R211074-03	93		7391-003	13.4
B15XL2	R211074-04	93		7391-004	15.6
B15XM3	R211074-05	93		7391-005	21.7
BLK (QC ID=43457)	R211074-07	93		7391-007	U
LCS (QC ID=43456)	R211074-06	93		7391-006	ok
Duplicate (R211074-03)	R211074-08	93		7391-008	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	15

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 053																
B15XK9	R211074-01	93		5.8	0.100			99		100			48	12/30/02	12/30	GRB-109
B15XL0	R211074-02	93		7.2	0.100			103		100			48	12/30/02	12/30	GRB-110
B15XL1	R211074-03	93		6.1	0.100			92		100			48	12/30/02	12/30	GRB-111
B15XL2	R211074-04	93		6.9	0.100			84		100			48	12/30/02	12/30	GRB-112
B15XM3	R211074-05	93		6.8	0.100			92		100			52	12/30/02	01/03	GRB-115
BLK (QC ID=43457)	R211074-07	93		6.5	0.100			23		100				12/30/02	12/30	GRB-115
LCS (QC ID=43456)	R211074-06	93		8.0	0.100			24		100				12/30/02	12/31	GRB-114
Duplicate (R211074-03) (QC ID=43458)	R211074-08	93		8.4	0.100			94		100			49	12/30/02	12/31	GRB-114
Nominal values and limits from method				15	0.100			5-250		100			180			

Lab id EBRLNE
Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test 93B	Matrix SOLID
SDG 7391	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract No. 630	
Contract SDG H1969	

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	7.0	± 1.8
FOR 8 SAMPLES	RESIDUE	76	± 66

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/04/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test GAM Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7052-053						
B15XK9	R211074-01			7391-001	U	2.62
B15XL0	R211074-02			7391-002	U	2.20
B15XL1	R211074-03			7391-003	U	0.508
B15XL2	R211074-04			7391-004	U	U
B15XM3	R211074-05			7391-005	U	2.56
BLK (QC ID=43457)	R211074-07			7391-007	U	U
LCS (QC ID=43456)	R211074-06			7391-006	ok	ok
Duplicate (R211074-03)	R211074-08			7391-008	- U	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (pCi/g)	0.050	0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 053																
B15XK9	R211074-01			0.75	208					111			45	12/23/02	12/27	JR,05,00
B15XL0	R211074-02			0.63	227					111			45	12/23/02	12/27	JR,07,00
B15XL1	R211074-03			0.23	785					116			45	12/23/02	12/27	MB,07,00
B15XL2	R211074-04			0.23	806					117			45	12/23/02	12/27	02,04,00
B15XM3	R211074-05			0.80	205					117			45	12/23/02	12/27	JR,05,00
BLK (QC ID=43457)	R211074-07			0.33	205					103				12/23/02	12/30	01,04,00
LCS (QC ID=43456)	R211074-06			0.080	205					117				12/23/02	12/27	MB,07,00
Duplicate (R211074-03) (QC ID=43458)	R211074-08			0.22	785					103			48	12/23/02	12/30	MB,07,00
Nominal values and limits from method				0.050	205					100			180			

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

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 0.41 ± 0.55
YIELD ____ ± ____

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test U T Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 7052-053					
B15XK9	R211074-01			7391-001	0.584
B15XL0	R211074-02			7391-002	0.749
B15XL1	R211074-03			7391-003	0.452
B15XL2	R211074-04			7391-004	0.487
B15XM3	R211074-05			7391-005	0.557
BLK (QC ID=43428)	R211074-10			7391-010	U
LCS (QC ID=43427)	R211074-09			7391-009	ok
Duplicate (R211074-03)	R211074-11			7391-011	ok
Nominal values and limits from method 200 Area Source Chara. 200-CS-1 OU				RDLs (ug/g)	0.10

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-053 2σ prep error 9.0 % Reference Lab Notebook 7052 pg. 053																
B15XK9	R211074-01			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XL0	R211074-02			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XL1	R211074-03			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XL2	R211074-04			0.005	0.100								37	12/19/02	12/19	KPA-001
B15XM3	R211074-05			0.005	0.100								37	12/19/02	12/19	KPA-001
BLK (QC ID=43428)	R211074-10			0.005	0.100									12/19/02	12/19	KPA-001
LCS (QC ID=43427)	R211074-09			0.045	0.100									12/19/02	12/19	KPA-001
Duplicate (R211074-03) (QC ID=43429)	R211074-11			0.005	0.100								37	12/19/02	12/19	KPA-001
Nominal values and limits from method				0.10	0.100								180			

Lab id EBRLNE
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SAMPLE DELIVERY GROUP H1969

Test U T Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract No. 630
Contract SDG H1969

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

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 0.010 ± 0.028
YIELD ____ ± ____

Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1969

Test H Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium
Preparation batch 7052-096					
B15XL2	R211074-04			7391-004	0.330
BLK (QC ID=43533)	R211100-08			7400-008	U
LCS (QC ID=43532)	R211100-07			7400-007	ok
Duplicate (R211074-04)	R211074-12			7391-012	ok

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

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-096	2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 096															
B15XL2	R211074-04			0.23	20.7			49		120			73	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 (R211074-04) (QC ID=43668)	R211074-12			0.23	20.1			49		120			73	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 4 SAMPLES
MDA 0.27 ± 0.098
YIELD 41 ± 18

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

SAMPLE DELIVERY GROUP H1969

Test NI_L Matrix SOLID
SDG 7391
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1969

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 7052-096						
B15XL2	R211074-04			7391-004	U	
BLK (QC ID=43533)	R211100-08			7400-008	U	
LCS (QC ID=43532)	R211100-07			7400-007	ok	
Duplicate (R211074-04)	R211074-12			7391-012	-	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								
B15XL2	R211074-04			1.8	0.500			90		100			78	01/28/03	01/29	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 (R211074-04) (QC ID=43668)	R211074-12			1.8	0.500			90		100			78	01/28/03	01/29	LSC-005
Nominal values and limits from method				30	0.500			30-105		50			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	1.8	±	0.12
YIELD	94	±	8

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REPORT GUIDE

Client Hanford
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SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
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REPORT GUIDE

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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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REPORT GUIDE

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WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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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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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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GUIDE, cont.

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DUPLICATE

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

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

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

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

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

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Contract No. 630
Case no SDG H1969

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/04/03

SDG 7391
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H1969

MATRIX SPIKE

for the recovery.

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/04/03

SDG 7391
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1969

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/04/03

METHOD SUMMARY

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

METHOD SUMMARY

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

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1 H1969 (7391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 039	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500 ml	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol/Ethanol}	PCBs - 8082 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel 63 Tech. 99 Tritium H3	

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE [signature]	11 14 02 1000
SJ GALE [signature]	11 14 02 1000	FEDEX	
Fed-Express	11/15/02 10:00	[signature] (SRA-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1

Collector: RJ 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: BT-1 H1969 (7391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99 042	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030039	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS: RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RIN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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 AAJ 111402	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										
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RJ Nielson RJ Nielson	11-12-02 1430	Received By/Stored In: Ref # 1B/3728	11-12-02 1430
Relinquished By/Removed From: REF 1B 111402	1000	Received By/Stored In: SJ GALE	111402 1000
Relinquished By/Removed From: SJ GALE	111402 1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed-Ex	11/15/02 10:00	Received By/Stored In: (SA-2)	11/15/02 10:00
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1

Collector: RJ 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: BT-1 H1969 (T391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99-042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 039	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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 SJG 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: [signature] R. Nielson	Date/Time: 11-12-02 1430	Received By/Stored In: Ref #1B/3728	Date/Time: 11-12-02 1430
Relinquished By/Removed From: REF 1B	Date/Time: 11 14 02 1000	Received By/Stored In: SJ GALE [signature]	Date/Time: 11 1402 1000
Relinquished By/Removed From: SJ GALE [signature]	Date/Time: 11 1402 1000	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed-Express	Date/Time: 11/15/02 10:00	Received By/Stored In: [signature] (SEA-2)	Date/Time: 11/15/02 10:00
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-017	Page 1 of 1

Collector RT 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 BT-1 H1969 (7391)	SAF No. F03-003	Air Quality ☐
Ice Chest No. ERC 99 042	Field Logbook No. HNF-N-3251 / COA 117514ES10	Method of Shipment Federal Express	
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Property No. A030 039	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082 AJD 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.		

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE [signature]	111402 1000
SJ GALE [signature]	111402 1000	FED EX	
Fed-Express	11/15/02 10:00	[signature] (SCH-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-028	Page 1 of 1
Collector: RJ 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: BJ-1 H1969 (7391)	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: ERC 99 042	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: EBERLINE SERVICES (Formerly TMA)	Offsite Property No.: A030 039	Bill of Lading/Air Bill No.: 506 057 C	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None BJ 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g RJ 11/12/02	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082 AJ 11/14/02	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson / R. Nielson	11-12-02 1430	Ref. #18 / 3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE	11 14 02 1000
SJ GALE	11 14 02 1000	FED EX	
Fed-Express	11/15/02 10:00	Yamamoto (DAA-2)	11/15/02 10:00

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/14/02

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: FLUOR-Hanford Inc. Date/Time received 11/15/02 10:00

CoC No. F03-003-15, 16, 17, 18 & 28 / F03-005-002

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

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by Eby G. Yamamoto Date: 11/15/02 Time: 10:00 AM

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

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____

200-CS-1

PARTIAL DATA FOR SAF F03-003

FINAL DATA PACKAGE

SDG: H 1969

☒ **CHEMICAL DATA**

Please note the data refrences an incorrect SAF Number. Replacement has been requested. Will notify and scan in when received. Per direction from Steve Trent pen and ink changes were made on 3/24/03. Rescanned 3/24/03. DHayes

☐ **RADIOCHEMISTRY DATA**

DISTRIBUTE TO: Chris Cearlock
Greg Thomas

WASTE SITE(S): BT-1

LIONVILLE LABORATORY INC.

11 December 2002

DEC 2002
RECEIVED

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

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 #	0211L143
SDG #	H1969
SAF #	~~F02-003~~ 03-003 Dayes 12/17/02
Date Received	11-15-02
# Samples	5
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 ~~F02~~ F03 -003 H1969

Dayes 3/24/03 RFW LOT # :0211L143

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B15XL2	001	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
B15XL2	001 MS	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
B15XL2	001 MSD	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
B15XK9	002	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
B15XM3	003	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
B15XL0	004	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
B15XL1	005	S	02LVX654	11/12/02	11/15/02	N/A	11/20/02
LAB QC:							
VBLKXX	MB1	S	02LVX654	N/A	N/A	N/A	11/20/02
VBLKXX	MB1 BS	S	02LVX654	N/A	N/A	N/A	11/20/02

gw 12-02-03

DEC 2002 RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F02-003
LVL #: 0211L143
SDG/SAF #: H1969/~~F02-003~~ F03-003 DAynes 3/24/03

W.O. #: 11343-606-001-9999-00
Date Received: 11-15-2002

GC/MS VOLATILE

Five (5) soil samples were collected on 11-12-2002.

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 11-20-2002.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of a discrepancy, which has been recorded on the Sample Receipt Checklist (p-16).

2. The required holding time for analysis was met.

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

4. All surrogate recoveries were within EPA QC limits.

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

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

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

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

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

by J. Michael Taylor
President
Lionville Laboratory Incorporated

12-05-02
Date

som\group\data\voa\tnu-hanford\0211-143.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 6 pages.

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

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

VLI
LIONVILLE LABORATORY INC

GLOSSARY OF VOA DATA

ABBREVIATIONS

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

VLI
LIONVILLE LABORATORY INC

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

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

Report Date: 12/02/02 10:08

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F02~~-003 H1969 Work Order: 11343606001 Page: 1a

F03 Dayes 3/24/03

	Cust ID:	B15XL2	B15XL2	B15XL2	B15XK9	B15XM3	B15XL0
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.04	1.11	1.04	1.04
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	101 %	99 %	99 %	102 %	103 %	97 %
	Bromofluorobenzene	98 %	96 %	96 %	97 %	97 %	95 %
	1,2-Dichloroethane-d4	100 %	99 %	101 %	100 %	103 %	101 %
Chloromethane		11 U	11 U	11 U	11 U	11 U	11 U
Bromomethane		11 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride		11 U	11 U	11 U	11 U	11 U	11 U
Chloroethane		11 U	11 U	11 U	11 U	11 U	11 U
Methylene Chloride		16	15	16	11	13	13
Acetone		11 U	11 U	11 U	11 U	11 U	11 U
Carbon Disulfide		6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene		6 U	92 %	90 %	6 U	6 U	6 U
1,1-Dichloroethane		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	6 U	6 U	6 U
Chloroform		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane		6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone		11 U	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane		6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride		6 U	6 U	6 U	6 U	6 U	6 U
Bromodichloromethane		6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane		6 U	6 U	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene		6 U	116 %	113 %	6 U	6 U	6 U
Dibromochloromethane		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane		6 U	6 U	6 U	6 U	6 U	6 U
Benzene		6 U	101 %	102 %	6 U	6 U	6 U
Trans-1,3-Dichloropropene		6 U	6 U	6 U	6 U	6 U	6 U
Bromoform		6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-pentanone		11 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone		11 U	11 U	11 U	11 U	11 U	11 U
Tetrachloroethene		6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	6 U	6 U	6 U
Toluene		6 U	106 %	105 %	6 U	2 J	6 U

*= Outside of EPA CLP QC limits.

F03 Dayes 3/24/03

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F02~~-003 H1969 Work Order: 11343606001 Page: 1b

Cust ID:	B15XL2	B15XL2	B15XL2	B15XK9	B15XM3	B15XL0
RFW#:	001	001 MS	001 MSD	002	003	004
Chlorobenzene	6 U	108 %	106 %	6 U	6 U	6 U
Ethylbenzene	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	6 U	6 U	6 U	6 U	6 U	6 U
Xylene (total)	6 U	6 U	6 U	6 U	6 U	6 U

*= Outside of EPA CLP QC limits.

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

Report Date: 12/02/02 10:08

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F02~~-003 H1969 Work Order: 11343606001 Page: 2a

F03 Dayes 3/24/03

	Cust ID:	B15XL1	VBLKXX	VBLKXX BS
Sample Information	RFW#:	005	02LVX654-MB1	02LVX654-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	0.980	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg

Surrogate Recovery	Toluene-d8	98	%	89	%	97	%
	Bromofluorobenzene	96	%	86	%	97	%
	1,2-Dichloroethane-d4	102	%	90	%	97	%
Chloromethane		10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U
Methylene Chloride		12		5	U	5	U
Acetone		10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	88	%
1,1-Dichloroethane		5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U
Chloroform		5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U
Trichloroethene		5	U	5	U	112	%
Dibromochloromethane		5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U
Benzene		5	U	5	U	96	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U
Bromoform		5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U
Toluene		5	U	5	U	99	%

*= Outside of EPA CLP QC limits.

F03 Dayes 3/24/03

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F02~~-003 H1969 Work Order: 11343606001 Page: 2b

Cust ID:	B15XL1	VBLKXX	VBLKXX BS
RFW#:	005	02LVX654-MB1	02LVX654-MB1
Chlorobenzene	5 U	5 U	99 %
Ethylbenzene	5 U	5 U	5 U
Styrene	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only
0211L143

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: OJ
QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

		A	B	C			D		E		F	G				
Refrigerator #		1	4	4			4		4		4	4				
#/Type Container	Liquid					3/5 VOAs										
	Solid	1g	1g	1g			1g		1g		1g	1g				
Volume	Liquid															
	Solid	60	250	250			60		125		500	60				
Preservatives		—	—	—			—		—		—	—				
ANALYSES REQUESTED		ORGANIC: TCL VOA	ORGANIC: BNA (1)	ORGANIC: ~~Pest~~ PCB	ORGANIC: Herb	TPH	Alcohols Glycols Ketones		INORG: ICP Metal (2)	INORG: CN	INORG: IC Anions (3)	PH				
Lionville Laboratory Use Only		0624H	0625X	OPCB		ODRO	OGCSC		MET(1) ICR6		INORG(1)	IPH				
Lab ID	Client ID/Description															
001	B15XL2			S	11-12-02	1120	X	X	X		X	X	X				
002	B15XK9					1010	X	X	X		X	X	X				
003	B15XM3					1015	X	X	X		X	X	X				
004	B15XL0					1036	X	X	X		X	X	X				
005	B15XL1					1055	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

Rem Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:
MET(1) 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V,
2. Zn, Hg,
INORG(1) 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2,
4. INH3N, ICNYO, ISFD
5.
6.

Relinquished by	Received by	Date	Time
Hed Ex	[signature]	11-15-02	0820

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
7912 3216 8806/2.3°C 7912 3216 8780

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. 15.1 °C

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: MJ 111402 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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

Sample No.	Matrix *	Sample Date	Sample Time											
B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson	11-12-02 1430	REF # 1B/3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE	111402 1000
SJ GALE	111402 1000	FED EX	
Fed Ex	11-15-02 0520		11-15-02 0520

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA SJS 11/14/02	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1			
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. SJS 11/14/02		
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
~~RJB~~ REF 1B	11 14 02 1000	SJ Gale	11 14 02 1000
SJ Gale	11 14 02 1000	FED EX	
FED EX	11-15-02 0930		11-15-02 0900

SJS 11/14/02

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

Matrix *

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-028	Page 1 of 1
Collector RJ 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 BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
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 11/12/02

RJN 11/12/02

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref. #1B / 3728	11-12-02 1430
REF 1B	111402 1000	SJGALE [signature]	111402 1000
SJGALE [signature]	111402 1000	FED EX	
Fed Ex	11-15-02 0920	D. [signature]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1
Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA, MA 111402	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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. SJG 111402		
Sample No.	Matrix *	Sample Date	Sample Time								
B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: R Nielson	Received By/Stored In: Ref #1B/3728	11-12-02 1430
Relinquished By/Removed From: REF 1B	Received By/Stored In: SJGALE	111402 1000
Relinquished By/Removed From: SJGALE	Received By/Stored In: FEDEX	111402 1000
Relinquished By/Removed From: FEDEX	Received By/Stored In: D Nielson	11-15-02 0920
Relinquished By/Removed From	Received By/Stored In	
Relinquished By/Removed From	Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-017	Page 1 of 1

Collector: RT 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE 057C	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ MD 11/14/02 RECRA	Offsite Property No.: A030 029		Bill of Lading/Air Bill No.: SEE 057C

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
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. AD 11/14/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
Relinquished By/Removed From	Ref 1B	11 14 02 1000	SJGALE	11 14 02 1000
Relinquished By/Removed From	SJGALE	11 14 02 1000	FED EX	
Relinquished By/Removed From	Fed Ex	11-15-02 0900		11-15-02 0900
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

Matrix *

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.15.02

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

Laboratory SDG #: 02 11L 143

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

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

Cooler # / temp (°C) and Comments:

#1 Cooler received at 15.1°C

96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~ 003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XL2	001	S	02LE1384	11/12/02	11/21/02	11/23/02
B15XL2	001 MS	S	02LE1384	11/12/02	11/21/02	11/23/02
B15XL2	001 MSD	S	02LE1384	11/12/02	11/21/02	11/23/02
B15XK9	002	S	02LE1384	11/12/02	11/21/02	11/23/02
B15XM3	003	S	02LE1384	11/12/02	11/21/02	11/23/02
B15XL0	004	S	02LE1384	11/12/02	11/21/02	11/23/02
B15XL1	005	S	02LE1384	11/12/02	11/21/02	11/25/02
LAB QC:						
SBLKIL	MB1	S	02LE1384	N/A	11/21/02	11/23/02
SBLKIL	MB1 BS	S	02LE1384	N/A	11/21/02	11/23/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD F03-003
LVL #: 0211L143
SDG/SAF #: H1969/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-15-2002

SEMIVOLATILE

Five (5) soil samples were collected on 11-12-2002.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 11-21-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 11-23,25-2002.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of a discrepancy, which has been recorded on the Sample Receipt Checklist (p-22).

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. One (1) of twenty-two (22) matrix spike recoveries was outside EPA QC limits.

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

7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.

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

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

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

by J. Michael Taylor
President
Lionville Laboratory Incorporated

12-05-02
Date

som\gorup\data\bna\tnu-hanford-0211-143.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 2 pages.

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

GLOSSARY OF BNA DATA

DATA QUALIFIERS

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

GLOSSARY OF BNA DATA

ABBREVIATIONS

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

TECHNICAL FLAGS FOR MANUAL INTEGRATION

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

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

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

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

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

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

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List — Report Date: 11/27/02 15:37

RFW Batch Number: **0211L143** — Client: **TNUHANFORD ~~F02~~-003 H1969** — Work Order: 11343606001 — Page: 1a

F03 Daynes 3/24/03

	Cust ID:	B15XL2		B15XL2		B15XL2		B15XK9		B15XM3		B15XL0	
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	71	%	66	%	75	%	66	%	71	%	65	%
	2-Fluorobiphenyl	70	%	70	%	78	%	71	%	80	%	73	%
	p-Terphenyl-d14	92	%	95	%	102	%	94	%	105	%	85	%
	Phenol-d5	72	%	67	%	77	%	68	%	74	%	68	%
	2-Fluorophenol	73	%	70	%	80	%	70	%	77	%	70	%
	2,4,6-Tribromophenol	69	%	74	%	79	%	72	%	83	%	68	%
			fl		fl		fl		fl		fl		fl
Phenol		350	U	65	%	78	%	340	U	350	U	350	U
bis(2-Chloroethyl)ether		350	U	350	U	350	U	340	U	350	U	350	U
2-Chlorophenol		350	U	67	%	79	%	340	U	350	U	350	U
1,3-Dichlorobenzene		350	U	350	U	350	U	340	U	350	U	350	U
1,4-Dichlorobenzene		350	U	66	%	80	%	340	U	350	U	350	U
1,2-Dichlorobenzene		350	U	350	U	350	U	340	U	350	U	350	U
2-Methylphenol		350	U	350	U	350	U	340	U	350	U	350	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	350	U	340	U	350	U	350	U
3- and/or 4-Methylphenol		350	U	350	U	350	U	340	U	350	U	350	U
N-Nitroso-Di-n-propylamine		350	U	69	%	82	%	340	U	350	U	350	U
Hexachloroethane		350	U	350	U	350	U	340	U	350	U	350	U
Nitrobenzene		350	U	350	U	350	U	340	U	350	U	350	U
Isophorone		350	U	350	U	350	U	340	U	350	U	350	U
2-Nitrophenol		350	U	350	U	350	U	340	U	350	U	350	U
2,4-Dimethylphenol		350	U	350	U	350	U	340	U	350	U	350	U
bis(2-Chloroethoxy)methane		350	U	350	U	350	U	340	U	350	U	350	U
2,4-Dichlorophenol		350	U	350	U	350	U	340	U	350	U	350	U
1,2,4-Trichlorobenzene		350	U	67	%	79	%	340	U	350	U	350	U
Naphthalene		350	U	350	U	350	U	340	U	350	U	350	U
4-Chloroaniline		350	U	350	U	350	U	340	U	350	U	350	U
Hexachlorobutadiene		350	U	350	U	350	U	340	U	350	U	350	U
4-Chloro-3-methylphenol		350	U	67	%	84	%	340	U	350	U	350	U
2-Methylnaphthalene		350	U	350	U	350	U	340	U	350	U	350	U
Hexachlorocyclopentadiene		350	U	350	U	350	U	340	U	350	U	350	U
2,4,6-Trichlorophenol		350	U	350	U	350	U	340	U	350	U	350	U
2,4,5-Trichlorophenol		880	U	880	U	880	U	860	U	870	U	870	U

*= Outside of EPA CLP QC limits.

F03 Dayes 3/24/03

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F03~~-003 H1969 Work Order: 11343606001 Page: 1b

Cust ID:	B15XL2		B15XL2		B15XL2		B15XK9		B15XM3		B15XL0	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	350	U	350	U	350	U	340	U	350	U	350	U
2-Nitroaniline	880	U	880	U	880	U	860	U	870	U	870	U
Dimethylphthalate	350	U	350	U	350	U	340	U	350	U	350	U
Acenaphthylene	350	U	350	U	350	U	340	U	350	U	350	U
2,6-Dinitrotoluene	350	U	350	U	350	U	340	U	350	U	350	U
3-Nitroaniline	880	U	880	U	880	U	860	U	870	U	870	U
Acenaphthene	350	U	69	%	83	%	340	U	350	U	350	U
2,4-Dinitrophenol	880	U	880	U	880	U	860	U	870	U	870	U
4-Nitrophenol	880	U	68	%	91	%	860	U	870	U	870	U
Dibenzofuran	350	U	350	U	350	U	340	U	350	U	350	U
2,4-Dinitrotoluene	350	U	71	%	90 *	%	340	U	350	U	350	U
Diethylphthalate	350	U	350	U	350	U	340	U	350	U	350	U
4-Chlorophenyl-phenylether	350	U	350	U	350	U	340	U	350	U	350	U
Fluorene	350	U	350	U	350	U	340	U	350	U	350	U
4-Nitroaniline	880	U	880	U	880	U	860	U	870	U	870	U
4,6-Dinitro-2-methylphenol	880	U	880	U	880	U	860	U	870	U	870	U
N-Nitrosodiphenylamine (1)	350	U	350	U	350	U	340	U	350	U	350	U
4-Bromophenyl-phenylether	350	U	350	U	350	U	340	U	350	U	350	U
Hexachlorobenzene	350	U	350	U	350	U	340	U	350	U	350	U
Pentachlorophenol	880	U	71	%	82	%	860	U	870	U	870	U
Phenanthrene	350	U	350	U	350	U	340	U	350	U	350	U
Anthracene	350	U	350	U	350	U	340	U	350	U	350	U
Carbazole	350	U	350	U	350	U	340	U	350	U	350	U
Di-n-Butylphthalate	350	U	350	U	350	U	340	U	350	U	350	U
Fluoranthene	350	U	350	U	350	U	340	U	350	U	350	U
Pyrene	350	U	90	%	99	%	340	U	350	U	350	U
Butylbenzylphthalate	350	U	350	U	350	U	340	U	350	U	350	U
3,3'-Dichlorobenzidine	350	U	350	U	350	U	340	U	350	U	350	U
Benzo(a)anthracene	350	U	350	U	350	U	340	U	350	U	350	U
Chrysene	350	U	350	U	350	U	340	U	350	U	350	U
bis(2-Ethylhexyl)phthalate	350	U	350	U	350	U	340	U	350	U	350	U
Di-n-Octyl phthalate	350	U	350	U	350	U	340	U	350	U	350	U
Benzo(b)fluoranthene	350	U	350	U	350	U	340	U	350	U	350	U
Benzo(k)fluoranthene	350	U	350	U	350	U	340	U	350	U	350	U
Benzo(a)pyrene	350	U	350	U	350	U	340	U	350	U	350	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	350	U	340	U	350	U	350	U
Dibenzo(a,h)anthracene	350	U	350	U	350	U	340	U	350	U	350	U
Benzo(g,h,i)perylene	350	U	350	U	350	U	340	U	350	U	350	U
Tributylphosphate	350	U	350	U	350	U	340	U	350	U	350	U

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 11/27/02 15:37

RFW Batch Number: **0211L143** Client: **TNUHANFORD ~~F02~~-003 H1969** Work Order: 11343606001 Page: 2a

F03 DAyres 3/24/03

	Cust ID:	B15XL1		SBLKIL		SBLKIL BS	
Sample Information	RFW#:	005		02LE1384-MB1		02LE1384-MB1	
	Matrix:	SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Nitrobenzene-d5	68	%	80	%	72	%
	2-Fluorobiphenyl	73	%	80	%	78	%
	p-Terphenyl-d14	82	%	100	%	102	%
	Phenol-d5	66	%	84	%	72	%
	2-Fluorophenol	70	%	83	%	76	%
	2,4,6-Tribromophenol	68	%	74	%	78	%
Phenol		350	U	330	U	74	%
bis(2-Chloroethyl)ether		350	U	330	U	330	U
2-Chlorophenol		350	U	330	U	76	%
1,3-Dichlorobenzene		350	U	330	U	330	U
1,4-Dichlorobenzene		350	U	330	U	78	%
1,2-Dichlorobenzene		350	U	330	U	330	U
2-Methylphenol		350	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	330	U	330	U
3- and/or 4-Methylphenol		350	U	330	U	330	U
N-Nitroso-Di-n-propylamine		350	U	330	U	78	%
Hexachloroethane		350	U	330	U	330	U
Nitrobenzene		350	U	330	U	330	U
Isophorone		350	U	330	U	330	U
2-Nitrophenol		350	U	330	U	330	U
2,4-Dimethylphenol		350	U	330	U	330	U
bis(2-Chloroethoxy)methane		350	U	330	U	330	U
2,4-Dichlorophenol		350	U	330	U	330	U
1,2,4-Trichlorobenzene		350	U	330	U	78	%
Naphthalene		350	U	330	U	330	U
4-Chloroaniline		350	U	330	U	330	U
Hexachlorobutadiene		350	U	330	U	330	U
4-Chloro-3-methylphenol		350	U	330	U	72	%
2-Methylnaphthalene		350	U	330	U	330	U
Hexachlorocyclopentadiene		350	U	330	U	330	U
2,4,6-Trichlorophenol		350	U	330	U	330	U
2,4,5-Trichlorophenol		870	U	830	U	830	U

*= Outside of EPA CLP QC limits.

F03 Dayes 3/24/03

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F02~~-003 H1969 Work Order: 11343606001 Page: 2b

Cust ID:	B15XL1		SBLKIL		SBLKIL BS	
RFW#:	005		02LE1384-MB1		02LE1384-MB1	
2-Chloronaphthalene	350	U	330	U	330	U
2-Nitroaniline	870	U	830	U	830	U
Dimethylphthalate	350	U	330	U	330	U
Acenaphthylene	350	U	330	U	330	U
2,6-Dinitrotoluene	350	U	330	U	330	U
3-Nitroaniline	870	U	830	U	830	U
Acenaphthene	350	U	330	U	81	%
2,4-Dinitrophenol	870	U	830	U	830	U
4-Nitrophenol	870	U	830	U	76	%
Dibenzofuran	350	U	330	U	330	U
2,4-Dinitrotoluene	350	U	330	U	78	%
Diethylphthalate	350	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	330	U	330	U
Fluorene	350	U	330	U	330	U
4-Nitroaniline	870	U	830	U	830	U
4,6-Dinitro-2-methylphenol	870	U	830	U	830	U
N-Nitrosodiphenylamine (1)	350	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	330	U	330	U
Hexachlorobenzene	350	U	330	U	330	U
Pentachlorophenol	870	U	830	U	78	%
Phenanthrene	350	U	330	U	330	U
Anthracene	350	U	330	U	330	U
Carbazole	350	U	330	U	330	U
Di-n-Butylphthalate	350	U	330	U	330	U
Fluoranthene	350	U	330	U	330	U
Pyrene	350	U	330	U	103	%
Butylbenzylphthalate	350	U	330	U	330	U
3,3'-Dichlorobenzidine	350	U	330	U	330	U
Benzo(a)anthracene	350	U	330	U	330	U
Chrysene	350	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	350	U	20	J	330	U
Di-n-Octyl phthalate	350	U	330	U	330	U
Benzo(b)fluoranthene	350	U	330	U	330	U
Benzo(k)fluoranthene	350	U	330	U	330	U
Benzo(a)pyrene	350	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	330	U	330	U
Dibenzo(a,h)anthracene	350	U	330	U	330	U
Benzo(g,h,i)perylene	350	U	330	U	330	U
Tributylphosphate	350	U	330	U	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XL2

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

Client: TNUHANFORD ~~F02~~-003 H1969 F03 D Ayres 3/24/03

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L143-001

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

Lab File ID: D112310

Level: (low/med) LOW

Date Received: 11/15/02

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

Date Extracted: 11/21/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENDSATE	6.389	4000	JAB
2.	ALDOL CONDENSATE	6.981	30000	JAB
3.	ALDOL CONDENSATE	7.589	300	JAB
4.	ALDOL CONDENSATE	8.31	3000	JAB
5.	ALDOL CONDENSATE	9.615	700	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XK9

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

F03 Dayes 3/24/03

Client: TNUHANFORD ~~F02~~-003 H1969

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L143-002

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

Lab File ID: D112313

Level: (low/med) LOW

Date Received: 11/15/02

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

Date Extracted: 11/21/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.377	4000	JAB
2.	ALDOL CONDENSATE	6.977	30000	JAB
3.	ALDOL CONDENSATE	7.586	300	JAB
4.	ALDOL CONDENSATE	8.307	3000	JAB
5.	ALDOL CONDENSATE	9.611	700	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XM3

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

F03 Dayes 3/24/03

Client: TNUHANFORD ~~F02~~-003 H1969

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L143-003

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

Lab File ID: D112314

Level: (low/med) LOW

Date Received: 11/15/02

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

Date Extracted: 11/21/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.448	5000	JAB
2.	ALDOL CONDENSATE	7.039	40000	JAB
3.	ALDOL CONDENSATE	7.605	300	JAB
4.	ALDOL CONDENSATE	8.326	4000	JAB
5.	ALDOL CONDENSATE	9.622	900	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XL0

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

F03 Daynes 3/24/03

Client: TNUHANFORD ~~F02~~-003 H1969

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L143-004

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

Lab File ID: D112315

Level: (low/med) LOW

Date Received: 11/15/02

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

Date Extracted: 11/21/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.352	3000	JAB
2.	ALDOL CONDENSATE	6.960	30000	JAB
3.	ALDOL CONDENSATE	7.578	200	JAB
4.	ALDOL CONDENSATE	8.299	3000	JAB
5.	ALDOL CONDENSATE	9.612	600	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B15XL1

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

F03 DAyres 3/24/03

Client: TNUHANFORD ~~F02~~ 003 H1969

Matrix: (soil/water) SOIL

Lab Sample ID: 0211L143-005

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

Lab File ID: C112505

Level: (low/med) LOW

Date Received: 11/15/02

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

Date Extracted: 11/21/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/25/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.238	100	J
2.	ALDOL CONDENSATE	5.741	2000	JAB
3.	ALDOL CONDENSATE	6.338	40000	JAB
4.	ALDOL CONDENSATE	7.785	2000	JAB
5.	ALDOL CONDENSATE	9.119	400	JAB

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKIL

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

F03 Daynes 3/24/03

Client: TNUHANFORD ~~F02~~-003 H1969

Matrix: (soil/water) SOIL

Lab Sample ID: 02LE1384-MB1

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

Lab File ID: D112308

Level: (low/med) LOW

Date Received: 11/21/02

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

Date Extracted: 11/21/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/23/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.336	4000	JA
2.	ALDOL CONDENSATE	6.953	40000	JA
3.	ALDOL CONDENSATE	7.579	300	JA
4.	ALDOL CONDENSATE	8.301	4000	JA
5.	ALDOL CONDENSATE	9.614	700	JA

Lionville Laboratory Use Only

0211L143

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: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

		A	B	C			D		E		F	G				
Refrigerator #		1	4	4			4		4		4	4				
#/Type Container	Liquid															
	Solid	1g	1g	1g		3/5 VOAs	1g		1g		1g	1g				
Volume	Liquid															
	Solid	60	250	250			60		125		500	60				
Preservatives		—	—	—			—		—		—	—				
ANALYSES REQUESTED →		ORGANIC: TCL VOA	BNA (1)	~~Pest~~ PCB	Herb	TPH	Alcohols Glycols Ketones		INORG: ICP Metal (2)	CN	IC Anions (3)	PH				

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X	OPCB		ODRO	OGCSC		MET(1) ICRG		INORG(1)	IPH				
001	B15XL2			S	11.12.02	1120	X	X	X		X	X		X		X	X				
002	B15XK9					1010	X	X	X		X	X		X		X	X				
003	B15XM3					1015	X	X	X		X	X		X		X	X				
004	B15XL0					1036	X	X	X		X	X		X		X	X				
005	B15XL1					1055	X	X	X		X	X		X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:

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

2. Zn, Hg,

INORG(1) 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2,

4. INH3N, ICNTO, ISFD

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. 15.1 °C

Relinquished by	Received by	Date	Time
Hed Ex	[signature]	11.15.02	0820

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7912 3216 8806/2.3°C 7912 3216 8780

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-018	Page 1 of 1
Collector: RJ 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: BT-1		SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA SJD 111402	Offsite Property No.: A030 029		Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE	111402 1000
SJ GALE	111402 1000	FED EX	
Fed Ex	11-15-02 0920	D. [illegible]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-015	Page 1 of 1
Collector RJ Nielson	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N
Project Designation 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ AJD 111402 RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1			
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. AJD 111402		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.J. Nielson / R. Nielson	11-12-02 1430	Ref # 1B / 3728	11-12-02 1430
~~R+B~~ REF 1B	11 14 02 1000	SJ GALE / SJ Gale	11 14 02 1000
SJ GALE / SJ Gale	11 14 02 1000	FED EX	
Fed Ex	11-15-02 0520	[signature]	11-15-02 0520

AJD 1402

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-028	Page 1 of 1

Collector: RJ 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: RT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ND 11 14 02 ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g RJN 11/12/02	
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. ND 11 14 02	Nickel-63; Technetium-99; Tritium - H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B15XM3 / SOIL / 11-12-02 / 1015	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R.J. Nielson / R. Nielson	11-12-02 1430	Received By/Stored In: Ref. #18 / 3728	11-12-02 1430
Relinquished By/Removed From: REF 18	111402 1000	Received By/Stored In: SJ GALE	111402 1000
Relinquished By/Removed From: SJ GALE	11 14 02 1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-15-02 0920	Received By/Stored In: D. Smith	11-15-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ MA 11/14/02 RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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. SJG 11/14/02		
Sample No. / Matrix * / Sample Date / Sample Time										
B15XL0 / SOIL / 11-12-02 / 1036	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-12-02 1430	Received By/Stored In: Ref #1B/3728	11-12-02 1430
Relinquished By/Removed From: REF 1B	11/14/02 1000	Received By/Stored In: SJGALE	11/14/02 1000
Relinquished By/Removed From: SJGALE	11/14/02 1000	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FEDEX	11-15-02 0920	Received By/Stored In: D. Martin	11-15-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-017	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA MD 111402	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
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. MD 111402		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1430	Received By/Stored In	Date/Time
R.Nielson / R.Nielson	11-12-02	Ref # 18/3728	11-12-02 1430
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Ref 18	11 14 02 1000	SJGALE	11 14 02 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
SJGALE	11 14 02 1000	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11-15-02 0900		11-15-02 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/14/02

Matrix *

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.15.02

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

Laboratory SDG #: 02 11L 143

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

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

Cooler # / temp (°C) and Comments:

#96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

#1 Cooler rec'd at 15.1°C

Laboratory Sample Custodian: D. Jones

Laboratory Project Manager:

2

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XL2	001	S	02LE1360	11/12/02	11/18/02	11/23/02
B15XK9	002	S	02LE1360	11/12/02	11/18/02	11/23/02
B15XK9	002 MS	S	02LE1360	11/12/02	11/18/02	11/23/02
B15XK9	002 MSD	S	02LE1360	11/12/02	11/18/02	11/23/02
B15XM3	003	S	02LE1360	11/12/02	11/18/02	11/23/02
B15XL0	004	S	02LE1360	11/12/02	11/18/02	11/23/02
B15XL1	005	S	02LE1360	11/12/02	11/18/02	11/23/02

LAB QC:

PBLKFZ	MB1	S	02LE1360	N/A	11/18/02	11/23/02
PBLKFZ	MB1 BS	S	02LE1360	N/A	11/18/02	11/23/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L143
SDG/SAF #: H1969/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-15-02

PCB

The set of samples consisted of five (5) soil samples collected on 11-12-02.

The samples and their associated QC samples were extracted on 11-18-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 11-23-02. 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 with the exception of cooler temperature, which have been recorded on the Sample Receipt Checklist.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric Acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. One (1) of four (4) matrix spike recoveries was outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12/2/02
Date

pef\r:\group\data\pest\tnu hanford\11L-143.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 13 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 026557

Initiator: Bryce Santoro
Date: 11/25/02
Client: TNU

Batch: 021L143
Samples: 002MS
Method: SW846/MCAWW/CLP/

Parameter: OPCB
Matrix: Soil
Prep Batch: 02LE1360

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)

Low Aroclor recovery in 002MS @ 38% (QC limit = 50%) LCS and MSD recoveries are good. All samples clean.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description: Narrate

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

4. Project Manager Instructions...signature/date: 11/25/02

✓ 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: 11/26/02 Other Explanation:

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

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

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

QA-105-A-0801

GLOSSARY OF PESTICIDE/PCB DATA

ATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP	=	Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form 1 and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

R:/SHARE/HPLC/PESTICIDE/PCBGLOS

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 11/25/02 14:26

RFW Batch Number: **0211L143** Client: **TNUHANFORD ~~F02~~-003 H1969** Work Order: 11343606001 Page: 1

F03 Dayes 3/24/03

9

Cust ID:	B15XL2	B15XK9	B15XK9	B15XK9	B15XM3	B15XL0
Sample Information RFW#:	001	002	002 MS	002 MSD	003	004
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene	90 %	90 %	40 %	65 %	70 %	85 %
Decachlorobiphenyl	115 %	115 %	55 %	110 %	100 %	110 %
	fl	fl	fl	fl	fl	fl
Aroclor-1016	35 U	34 U	38 * %	71 %	35 U	35 U
Aroclor-1221	70 U	69 U	69 U	69 U	70 U	69 U
Aroclor-1232	35 U	34 U	34 U	34 U	35 U	35 U
Aroclor-1242	35 U	34 U	34 U	34 U	35 U	35 U
Aroclor-1248	35 U	34 U	34 U	34 U	35 U	35 U
Aroclor-1254	35 U	34 U	34 U	34 U	35 U	35 U
Aroclor-1260	35 U	34 U	50 %	95 %	35 U	35 U

Cust ID:	B15XL1	PBLKFZ	PBLKFZ BS
Sample Information RFW#:	005	02LE1360-MB1	02LE1360-MB1
Matrix:	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG
Surrogate: Tetrachloro-m-xylene	75 %	75 %	90 %
Decachlorobiphenyl	100 %	100 %	115 %
	fl	fl	fl
Aroclor-1016	35 U	33 U	83 %
Aroclor-1221	69 U	67 U	67 U
Aroclor-1232	35 U	33 U	33 U
Aroclor-1242	35 U	33 U	33 U
Aroclor-1248	35 U	33 U	33 U
Aroclor-1254	35 U	33 U	33 U
Aroclor-1260	35 U	33 U	94 %

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

0211L143

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: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

		A	B	C			D		E		F	G				
Refrigerator #		1	4	4			4		4		4	4				
#/Type Container	Liquid															
	Solid	1g	1g	1g			1g		1g		1g	1g				
Volume	Liquid					3 - 8 VOAs										
	Solid	100	250	250			60		125		500	60				
Preservatives		—	—	—		3	—		—		—	—				
ANALYSES REQUESTED		ORGANIC							INORG							
		TCL VOA	BNA (1)	Pest/PCB	Herb	TPH	Alcohols Glycols Ketones		ICP Metal (2)	CN	IC Anions (3)	pH				
		Lionville Laboratory Use Only														
		0624H	0625X	OPCB		ODRO	OGCIC		MCT(1) ICRG		INORG(1)	IPH				

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X	OPCB		ODRO	OGCIC		MCT(1) ICRG		INORG(1)	IPH				
001	B15XL2			S	11.12.02	1120	X	X	X		X	X		X		X	X				
002	B15XK9					1010	X	X	X		X	X		X		X	X				
003	B15XM3					1015	X	X	X		X	X		X		X	X				
004	B15XL0					1030	X	X	X		X	X		X		X	X				
005	B15XL1					1055	X	X	X		X	X		X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:

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

2. Zn, Hg,

INORG(1) 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2,

4. INH3N, ICNTO, ISFD

5.

6.

Lionville Laboratory Use Only

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

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

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

Cooler Temp. 15.1 °C

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

NOTES: 7912 3216 8806 / 2.3°C 7912 3216 8780

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	11.15.02	0830

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1
Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ MJ 111402 RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-12-02 1430	REF # 1B/3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE	111402 1000
SJ GALE	111402 1000	FED EX	
Fed Ex	11-15-02 0920		11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1
Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA SJS 11/14/02	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	RJN 11/12/02	
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. SJS 11/14/02		
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RJ Nielson RJ Nielson	11-12-02 1430	Received By/Stored In: Ref # 1B / 3728	11-12-02 1430
Relinquished By/Removed From: ~~RJB~~ REF 1B	11 14 02 1000	Received By/Stored In: SJ Gale	11 14 02 1000
Relinquished By/Removed From: SJ Gale	11 14 02 1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-15-02 0830	Received By/Stored In: [illegible]	11-15-02 0900
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SJS 11/14/02

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-028	Page 1 of 1
Collector RJ 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 RT-1		SAF No. F03-003	
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g	RJN 11/12/02	
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. AJD 11/14/02	Nickel-63; Technetium-99; Tritium - H3		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: R Nielson / R. Nielson	Date/Time: 11-12-02 1430	Received By/Stored In: Ref. #1B / 3728	Date/Time: 11-12-02 1430
Relinquished By/Removed From: REF 1B 111402	Date/Time: 1000	Received By/Stored In: SJ GALE	Date/Time: 111402 1000
Relinquished By/Removed From: SJ GALE	Date/Time: 111402 1000	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 11-15-02 0920	Received By/Stored In: D. Smith	Date/Time: 11-15-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA LA 111402	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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.		
B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson / R Nielson	11-12-02 1430	Ref #1B/3728	11-12-02 1430
REF 1B	111402 1000	SJGALE	111402 1000
SJGALE	111402 1000	FEDEX	
FedEx	11-15-02 0820	D Miller	11-15-02 0820

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11 / 14 / 02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-017	Page 1 of 1
Collector RJ 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 BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ MW 11402 RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
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. AJD 11/14/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
Ref 1B	11 14 02 1000	SJGALE [signature]	11 14 02 1000
SJGALE [signature]	11 14 02 1000	FED EX	
Fed Ex	11-15-02 0920	[signature]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.15.02

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

Laboratory SDG #: 02 11L 143

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

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

Cooler # / temp (°C) and Comments:

#96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

#1 Cooler received at 15.1°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager:

Lionville Laboratory, Inc.

DRO ANALYTICAL DATA PACKAGE FOR

TNUHANFORD ~~F02~~-003 H1969

F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XL2	001	S	02LE1362	11/12/02	11/18/02	11/20/02
B15XL2	001 MS	S	02LE1362	11/12/02	11/18/02	11/20/02
B15XL2	001 MSD	S	02LE1362	11/12/02	11/18/02	11/20/02
B15XK9	002	S	02LE1362	11/12/02	11/18/02	11/20/02
B15XM3	003	S	02LE1362	11/12/02	11/18/02	11/20/02
B15XL0	004	S	02LE1362	11/12/02	11/18/02	11/20/02
B15XL1	005	S	02LE1362	11/12/02	11/18/02	11/20/02
LAB QC:						
BLK	MB1	S	02LE1362	N/A	11/18/02	11/19/02
BLK	MB1 BS	S	02LE1362	N/A	11/18/02	11/20/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL #: 0211L143
SDG/SAF #: H1969/F03-003

W.O. #: 11343-606-001-9999-00
Date Received: 11-15-02

DIESEL RANGE ORGANICS

The set of samples consisted of five (5) soil samples collected on 11-12-02.

The samples and their associated QC samples were prepared on 11-18-02 and analyzed on 11-19,20-02 according to Lionville Laboratory OPs based on SW846, 3rd Edition for Diesel Range Petroleum Hydrocarbons. 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.

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of cooler temperature, which has been recorded on the Sample Receipt Checklist.

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

1/20/03
Date

pef\r:\troup\data\dro\11L-1435tnu.doc

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

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

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: 11/24/02 18:49

RFW Batch Number: **0211L143** Client: **TNUHANFORD ~~P02~~-003 H1969** Work Order: 11343606001 Page: 1

F03 Dayes 3/24/03

5

	Cust ID:	B15XL2	B15XL2	B15XL2	B15XK9	B15XM3	B15XL0
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		74 %	60 %	71 %	73 %	70 %	86 %
Diesel Range Organics		12.6 U	65 %	67 %	12.4 U	12.5 U	12.5 U
Kerosene		12.6 U	12.6 U	12.6 U	12.4 U	12.5 U	12.5 U

	Cust ID:	B15XL1	BLK	BLK BS
Sample Information	RFW#:	005	02LE1362-MB1	02LE1362-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg
p-Terphenyl		74 %	72 %	69 %
Diesel Range Organics		12.5 U	12.0 U	63 %
Kerosene		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

Lionville Laboratory Use Only

0211L143

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: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

		A	B	C			D		E		F	G				
Refrigerator #		1	4	4			4		4		4	4				6
#/Type Container	Liquid					3/5 VOAS										
	Solid	1g	1g	1g			1g		1g		1g	1g				
Volume	Liquid															
	Solid	60	250	250			60		125		500	60				
Preservatives		—	—	—			—		—		—	—				
ANALYSES REQUESTED		ORGANIC: TCL VOA	ORGANIC: BNA (1)	ORGANIC: ~~Pest~~ PCB	ORGANIC: Herb	TPH	Alcohols Glycols Ketones		INORG: ICP Metal (2)	INORG: CN	INORG: Anions (3)	PH				

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X	OPCB		ODRO	OGCSC		MET(2) ICRG		INORG(1)	IPH				
001	B15XL2			S	11.12.02	1120	X	X	X		X	X		X		X	X				
002	B15XK9					1010	X	X	X		X	X		X		X	X				
003	B15XM3					1015	X	X	X		X	X		X		X	X				
004	B15XL0					1036	X	X	X		X	X		X		X	X				
005	B15XL1					1055	X	X	X		X	X		X		X	X				

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:

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

2. Zn, Hg,

INORG(1) 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2,

4. INH3N, ICNTO, ISFD

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. 15.1 °C

Relinquished by	Received by	Date	Time
Hed Ex	[signature]	11.15.02	0820

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7912 3216 8806/2.3°C 7912 3216 8780

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: MW 111402 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R.J. Nielson	11-12-02 1430	REF # 1B/3728	11-12-02 1430
Relinquished By/Removed From: REF 1B	111402 1000	Received By/Stored In: SJ GALE	111402 1000
Relinquished By/Removed From: SJ GALE	111402 1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-15-02 0820	Received By/Stored In: D. [illegible]	11-15-02 0820
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1
Collector RJ 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 BT-1	SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251; COA 117514ES10	Method of Shipment Federal Express	∞
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No. A030 029	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	BIN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1			
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										
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson RJ Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
~~RJB~~ REF 1B	11 14 02 1000	SJ Gale	11 14 02 1000
SJ Gale	11 14 02 1000	FED EX	
FED EX	11-15-02 0830		11-15-02 0800

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-028	Page 1 of 1

Collector: RJ 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: RT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG
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 11/12/02

RJN 11/12/02

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson / R.Nielson	11-12-02 1430	Ref. #1B / 3728	11-12-02 1430
REF 1B	111402 1000	SJGALE	111402 1000
SJGALE	11 14 02 1000	FED EX	
FED EX	11-15-02 0920	D. [illegible]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EDERLINE SERVICES (Formerly TMA)~~ N/A 11/14/02 REXRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
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.		

RJN 11/12/02

SJG 11/14/02

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Nielson	11-12-02 1430	REF #1B/3728	11-12-02 1430
REF 1B	11 14 02 1000	SJGALE	11/14/02 1000
SJGALE	11/14/02 1000	FEDEX	
FedEx	11-15-02 0920	D Mann	11-15-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

Matrix *

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-017	Page 1 of 1
Collector RJ 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 BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	11
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ MD 11402 RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions. 11/14/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	11 14 02 1000	SJGALE [signature]	11 14 02 1000
SJGALE [signature]	11 14 02 1000	FED EX	
Fed Ex	11-15-02 0920	[signature]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.15.02

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

Laboratory SDG #: 02111143

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

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

Cooler # / temp (°C) and Comments:

#96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

#1 cooler rec'd at 15.1°C

Laboratory Sample Custodian: D. Jones

Laboratory Project Manager:

Lionville Laboratory, Inc.
GCSC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~ 003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XL2	001	S	02LE1381	11/12/02	11/20/02	11/20/02
B15XL2	001 MS	S	02LE1381	11/12/02	11/20/02	11/20/02
B15XL2	001 MSD	S	02LE1381	11/12/02	11/20/02	11/20/02
B15XK9	002	S	02LE1381	11/12/02	11/20/02	11/20/02
B15XM3	003	S	02LE1381	11/12/02	11/20/02	11/20/02
B15XL0	004	S	02LE1381	11/12/02	11/20/02	11/20/02
B15XL1	005	S	02LE1381	11/12/02	11/20/02	11/20/02
LAB QC:						
BLK	MB1	S	02LE1381	N/A	11/20/02	11/20/02
BLK	MB1 BS	S	02LE1381	N/A	11/20/02	11/20/02
BLK	MB1 BSD	S	02LE1381	N/A	11/20/02	11/20/02

DEC 2002
RECEIVED

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD F03-003
LVL#: 0211L143
SDG/SAF#: H1969/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-15-02

GC SCAN

The set of samples consisted of five (5) soil samples collected on 11-12-02.

The samples and their associated QC samples were analyzed on 11-20-02 according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures based on method 8015 for n-propyl Alcohol and Ethanol.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of cooler temperature, which have been recorded on the Sample Receipt Checklist.

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

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

4. Surrogates are not currently employed in the methodology.

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

7. All initial calibrations were within acceptance criteria.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

11/27/02
Date

r:\group\data\gcsc\11L-143.doc

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

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

GLOSSARY OF GC SCAN DATA

DATA QUALIFIERS

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

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

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

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

I = Interference.

ABBREVIATIONS

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

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF GC SCAN DATA

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

Lionville Laboratory, Inc.

GC SCAN

Report Date: 11/24/02 18:15

RFW Batch Number: 0211L143 Client: TNUHANFORD ~~F02~~ 003 H1969 Work Order: 11343606001 Page: 1

F03 Dayes 3/24/03

	Cust ID:	B15XL2	B15XL2	B15XL2	B15XK9	B15XM3	B15XL0
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		25 U	92 %	90 %	23 U	26 U	23 U
Ethanol		25 U	101 %	92 %	23 U	26 U	23 U

	Cust ID:	B15XL1	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	005	02LE1381-MB1	02LE1381-MB1	02LE1381-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
n-Propyl Alcohol		22 U	25 U	92 %	88 %
Ethanol		22 U	25 U	103 %	99 %

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

Lionville Laboratory Use Only

0211L143

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: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

		A	B	C			D		E		F	G
Refrigerator #		1	4	4			4		4		4	4
#/Type Container	Liquid											
	Solid	1g	1g	1g		3/5 VOAs	1g		1g		1g	1g
Volume	Liquid											
	Solid	60	250	250			60		125		500	60
Preservatives		—	—	—			—		—		—	—
ANALYSES REQUESTED		ORGANIC: TCL VOA	BNA (1)	Pest/PCB	Herb	TPH	Alcohols Glycols Ketones		INORG: ICP Metal (2)	CN	IC Anions (3)	PH

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X	OPCB		ODRO	OGCSC		MET(2) ICRG		INORG(1)	IPH
001	B15XL2			S	11-12-02	1120	X	X	X		X	X		X		X	X
002	B15XK9					1010	X	X	X		X	X		X		X	X
003	B15XM3					1015	X	X	X		X	X		X		X	X
004	B15XL0					1036	X	X	X		X	X		X		X	X
005	B15XL1					1055	X	X	X		X	X		X		X	X

Special Instructions: SAF # F03-003

Run Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:

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

2. Zn, Hg,

INORG(1) 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2,

4. INH3N, ICNTO, ISFD

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. 15.1 °C

Relinquished by	Received by	Date	Time
Ned Ex	[signature]	11-15-02	0820

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7912 3216 8806/2.3°C 7912 3216 8780

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA MJ 11/14/02	Offsite Property No.: A030 029		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500 ml	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) (1-Propanol, Ethanol)	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel 63 Tech 99 Tritium H3 11/14/02	

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-12-02 1430	REF # 1B/3728	11-12-02 1430
REF 1B	11/14/02 1000	SJ GALE	11/14/02 1000
SJ GALE	11/14/02 1000	FED EX	
Fed Ex	11-15-02 0920	D. [illegible]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-015	Page 1 of 1
Collector RJ Nielson	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N
Project Designation 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	Data Turnaround 45 Days
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ AJD 111402 RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
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. AJD 111402		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] R. Nielson	11-12-02 1430	Ref # 1B / 3728	11-12-02 1430
~~R+B~~ REF 1B	11 14 02 1000	SJ GALE [signature]	11 14 02 1000
SJ GALE [signature]	11 14 02 1000	FED EX	
Fed Ex	11-15-02 0920	[signature]	11-15-02 0920

AJD 1402

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

Matrix *
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SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
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DS=Drum Solids
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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	F03-003-028	Page 1 of 1

Collector: RJ 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: RT-1		SAF No.: F03-003
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: WD 11 14 02 ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g RJN 11/12/02	
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. AJD 11/14/02	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RJ Nielson / R. Nielson 11-12-02	1430	Received By/Stored In: Ref. #18 / 3728 11-12-02	1430
Relinquished By/Removed From: REF 18 111402	1000	Received By/Stored In: SJ Gale / 111402	1000
Relinquished By/Removed From: SJ Gale / 111402	1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-15-02 0920	Received By/Stored In: D. Smith	11-15-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-016	Page 1 of 1
Collector RJ 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 BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA MA 111402	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG			
No. of Container(s)	1	1	1	1	1	1	1	1			
Volume	60g	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. SJD 111402			

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: [signature] R. Nielson	Date/Time: 11-12-02 1430	Received By/Stored In: Ref #1B/3728	Date/Time: 11-12-02 1430
Relinquished By/Removed From: REF 1B	Date/Time: 111402 1000	Received By/Stored In: SJ GALE [signature]	Date/Time: 111402 1000
Relinquished By/Removed From: SJ GALE [signature]	Date/Time: 111402 1000	Received By/Stored In: FEDEX	Date/Time:
Relinquished By/Removed From: FedEx	Date/Time: 11-15-02 0920	Received By/Stored In: D. [signature]	Date/Time: 11-15-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-017	Page 1 of 1
Collector RJ 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 BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ MJ 111402 RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
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. MJ 111402		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
REF 1B	111402 1000	SJGALE [signature]	111402 1000
SJGALE [signature]	111402 1000	FED EX	
Fed Ex	11-15-02 0920	[signature]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11.15.02

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

Laboratory SDG #: 02 11L 143

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

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

Cooler # / temp (°C) and Comments:

#1 cooler rec'd at 15.1°C

96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

Laboratory Sample Custodian: D. Gonzalez

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Dayes 3/24/03

DEC 2002 RECEIVED

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XL2						
SILVER, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
SILVER, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
SILVER, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
SILVER, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
MERCURY, TOTAL	001	S	02C0350	11/12/02	11/26/02	11/27/02
MERCURY, TOTAL	001 REP	S	02C0350	11/12/02	11/26/02	11/27/02
MERCURY, TOTAL	001 MS	S	02C0350	11/12/02	11/26/02	11/27/02
NICKEL, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
NICKEL, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
NICKEL, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
NICKEL, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
LEAD, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
LEAD, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
LEAD, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	001	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	001 REP	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	001 MS	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	001 MSD	S	02L0679	11/12/02	11/20/02	11/21/02
B15XK9						
SILVER, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
MERCURY, TOTAL	002	S	02C0350	11/12/02	11/26/02	11/27/02
NICKEL, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
LEAD, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	002	S	02L0679	11/12/02	11/20/02	11/21/02
B15XM3						
SILVER, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BERYLLIUM, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
MERCURY, TOTAL	003	S	02C0350	11/12/02	11/26/02	11/27/02
NICKEL, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
LEAD, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	003	S	02L0679	11/12/02	11/20/02	11/21/02
B15XL0						
SILVER, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
MERCURY, TOTAL	004	S	02C0350	11/12/02	11/26/02	11/27/02
NICKEL, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
LEAD, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	004	S	02L0679	11/12/02	11/20/02	11/21/02
B15XL1						
SILVER, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
ARSENIC, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
BARIUM, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
BERYLLIUM, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
CADMIUM, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
CHROMIUM, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
COPPER, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
MERCURY, TOTAL	005	S	02C0350	11/12/02	11/26/02	11/27/02
NICKEL, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 DAyes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
SELENIUM, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
VANADIUM, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02
ZINC, TOTAL	005	S	02L0679	11/12/02	11/20/02	11/21/02

LAB QC:

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

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-003
LVL#: 0211L143
SDG/SAF#: H1969/F03-003

W.O.#: 11343-606-001-9999-00
Date Received: 11-15-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 5 soil samples.

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

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

4. Please refer to the Sample Receipt Check List.

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

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

7. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB result for Copper was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples (except B15XL0) read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

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

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

10. All matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 23 pages.

11. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

12-6-02
Date

gmb/m11-143

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0211L143

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010B		__200.7				__99
Beryllium	✓6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	✓6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	✓6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	✓6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/06/02

F03 DAyres 3/24/03

CLIENT: TNUHANFORD ~~002~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15XL2	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	1.8	MG/KG	0.39	1.0
		Barium, Total	80.7	MG/KG	0.03	1.0
		Beryllium, Total	0.38	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	7.1	MG/KG	0.10	1.0
		Copper, Total	12.2	MG/KG	0.13	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	8.4	MG/KG	0.13	1.0
		Lead, Total	3.1	MG/KG	0.25	1.0
		Selenium, Total	0.39 u	MG/KG	0.39	1.0
		Vanadium, Total	64.2	MG/KG	0.10	1.0
		Zinc, Total	45.2	MG/KG	0.08	1.0
-002	B15XK9	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	3.4	MG/KG	0.38	1.0
		Barium, Total	77.4	MG/KG	0.03	1.0
		Beryllium, Total	0.38	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	11.4	MG/KG	0.10	1.0
		Copper, Total	14.2	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	5.5	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	57.7	MG/KG	0.10	1.0
		Zinc, Total	48.2	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/06/02

F03 Dayes 3/24/03

CLIENT: TNUHANFORD ~~F02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15XM3	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	3.8	MG/KG	0.39	1.0
		Barium, Total	89.6	MG/KG	0.03	1.0
		Beryllium, Total	0.32	MG/KG	0.02	1.0
		Cadmium, Total	0.06	MG/KG	0.04	1.0
		Chromium, Total	11.7	MG/KG	0.10	1.0
		Copper, Total	15.4	MG/KG	0.13	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	11.6	MG/KG	0.13	1.0
		Lead, Total	5.8	MG/KG	0.25	1.0
		Selenium, Total	0.39 u	MG/KG	0.39	1.0
		Vanadium, Total	58.7	MG/KG	0.10	1.0
		Zinc, Total	49.7	MG/KG	0.08	1.0
-004	B15XL0	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	1.7	MG/KG	0.35	1.0
		Barium, Total	73.7	MG/KG	0.03	1.0
		Beryllium, Total	0.33	MG/KG	0.02	1.0
		Cadmium, Total	0.18	MG/KG	0.04	1.0
		Chromium, Total	7.2	MG/KG	0.09	1.0
		Copper, Total	30.6	MG/KG	0.12	1.0
		Mercury, Total	0.07	MG/KG	0.01	1.0
		Nickel, Total	10.8	MG/KG	0.12	1.0
		Lead, Total	6.3	MG/KG	0.22	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Vanadium, Total	74.1	MG/KG	0.09	1.0
		Zinc, Total	80.8	MG/KG	0.07	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/06/02

F03 DAyres 3/24/03

CLIENT: TNUHANFORD ~~F02~~ 003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15XL1	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	2.1	MG/KG	0.34	1.0
		Barium, Total	66.7	MG/KG	0.03	1.0
		Beryllium, Total	0.24	MG/KG	0.02	1.0
		Cadmium, Total	0.04	MG/KG	0.04	1.0
		Chromium, Total	8.2	MG/KG	0.09	1.0
		Copper, Total	13.4	MG/KG	0.12	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	8.6	MG/KG	0.12	1.0
		Lead, Total	2.9	MG/KG	0.22	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0
		Vanadium, Total	67.3	MG/KG	0.09	1.0
		Zinc, Total	43.1	MG/KG	0.07	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/06/02

F03- DAyes 3/24/03

CLIENT: TNUHANFORD ~~F02~~ 003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0679-MB1	Silver, Total	0.14 u	MG/KG	0.14	1.0
		Arsenic, Total	0.38 u	MG/KG	0.38	1.0
		Barium, Total	0.05	MG/KG	0.03	1.0
		Beryllium, Total	0.02 u	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.17	MG/KG	0.10	1.0
		Copper, Total	0.84	MG/KG	0.13	1.0
		Nickel, Total	0.13 u	MG/KG	0.13	1.0
		Lead, Total	0.24 u	MG/KG	0.24	1.0
		Selenium, Total	0.38 u	MG/KG	0.38	1.0
		Vanadium, Total	0.10 u	MG/KG	0.10	1.0
		Zinc, Total	0.39	MG/KG	0.08	1.0
BLANK1	02C0350-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/06/02

F03 D Hayes 3/24/03

CLIENT: TNUHANFORD ~~002~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15XL2	Silver, Total	4.7	0.14u	5.1	92.2	1.0
		Silver, Total MSD	4.1	0.14u	4.9	83.7	1.0
		Arsenic, Total	195	1.8	203	95.5	1.0
		Arsenic, Total MSD	195	1.8	197	98.1	1.0
		Barium, Total	277	80.7	203	97.1	1.0
		Barium, Total MSD	279	80.7	197	100.6	1.0
		Beryllium, Total	5.1	0.38	5.1	92.5	1.0
		Beryllium, Total MSD	5.2	0.38	4.9	98.3	1.0
		Cadmium, Total	4.8	0.04u	5.1	94.1	1.0
		Cadmium, Total MSD	4.9	0.04u	4.9	100	1.0
		Chromium, Total	26.4	7.1	20.3	95.1	1.0
		Chromium, Total MSD	26.5	7.1	19.7	98.5	1.0
		Copper, Total	37.0	12.2	25.3	98.0	1.0
		Copper, Total MSD	37.1	12.2	24.6	101.2	1.0
		Mercury, Total	0.14	0.01u	0.15	95.2	1.0
		Nickel, Total	59.0	8.4	50.6	100	1.0
		Nickel, Total MSD	57.8	8.4	49.3	100.2	1.0
		Lead, Total	52.7	3.1	50.6	98.0	1.0
		Lead, Total MSD	53.3	3.1	49.3	101.8	1.0
		Selenium, Total	190	0.39u	203	94.0	1.0
		Selenium, Total MSD	192	0.39u	197	97.2	1.0
		Vanadium, Total	110	64.2	50.6	90.9	1.0
		Vanadium, Total MSD	112	64.2	49.3	98.0	1.0
		Zinc, Total	90.6	45.2	50.6	89.7	1.0
		Zinc, Total MSD	92.8	45.2	49.3	96.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/06/02

F03- Dayes 3/24/03

CLIENT: TNUHANFORD ~~F02~~ 003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B15XL2	Silver, Total	92.2	83.7	9.6
		Arsenic, Total	95.5	98.1	2.7
		Barium, Total	97.1	100.6	3.6
		Beryllium, Total	92.5	98.3	6.1
		Cadmium, Total	94.1	100	6.1
		Chromium, Total	95.1	98.5	3.5
		Copper, Total	98.0	101.2	3.2
		Nickel, Total	100	100.2	0.20
		Lead, Total	98.0	101.8	3.8
		Selenium, Total	94.0	97.2	3.3
		Vanadium, Total	90.9	98.0	7.5
		Zinc, Total	89.7	96.6	7.3

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/06/02

F03 DReyes 3/24/03

CLIENT: TNUHANFORD ~~B02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15XL2	Silver, Total	0.14u	0.15u	NC	1.0
		Arsenic, Total	1.8	1.6	11.8	1.0
		Barium, Total	80.7	95.8	17.1	1.0
		Beryllium, Total	0.38	0.38	1.5	1.0
		Cadmium, Total	0.04u	0.04u	NC	1.0
		Chromium, Total	7.1	6.8	4.3	1.0
		Copper, Total	12.2	12.2	0.00	1.0
		Mercury, Total	0.01u	0.02u	NC	1.0
		Nickel, Total	8.4	8.1	3.6	1.0
		Lead, Total	3.1	3.7	17.6	1.0
		Selenium, Total	0.39u	0.40u	NC	1.0
		Vanadium, Total	64.2	62.3	3.0	1.0
		Zinc, Total	45.2	44.2	2.2	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/06/02

F03 DAyles 3/24/03

CLIENT: TNUHANFORD ~~F04~~-003 H1969 LVL LOT #: 0211L143

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

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

Lionville Laboratory Use Only

0211L143

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: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

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

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X	OPCB		ODRO	OGCSC		MET① ICRG		INORG①	IPH				
001	B15XL2			S	11.12.02	1120	X	X	X		X	X		X		X	X				
002	B15XK9					1010	X	X	X		X	X		X		X	X				
003	B15XM3					1015	X	X	X		X	X		X		X	X				
004	B15XL0					1036	X	X	X		X	X		X		X	X				
005	B15XL1					1055	X	X	X		X	X		X		X	X				

Special Instructions: SAF # F03-003

Rem Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:

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

2. Zn, Hg,

INORG① 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2

4. INH3N, ICNYO, ISFD

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. 15.1 °C

Relinquished by	Received by	Date	Time
Hed Ex	[signature]	11.15.02	0820

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7912 3216 8806/2.3°C 7912 3216 8780

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: MD 111402 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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

Sample No.	Matrix *	Sample Date	Sample Time											
B15XL2	SOIL	11-12-02	1120	X	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson	11-12-02 1430	REF #1B/3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE	111402 1000
SJ GALE	111402 1000	FED EX	
Fed Ex	11-15-02 0820		11-15-02 0820

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ NLS 11 14 02 RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RIN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1			
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.		
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson RJ Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
RJB REF 1B	11 14 02 1000	SJ GALE	11 14 02 1000
SJ GALE	11 14 02 1000	FED EX	
FED EX	11-15-02 0830		11-15-02 0900

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

Matrix *

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

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

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

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FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-028	Page 1 of 1

Collector: RJ 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: RT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: MD 11 14 02 ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1	1		
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g RJN 11/12/02		
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. ADD 11/14/02	Nickel-63; Technetium-99; Tritium - H3		
Sample No.	Matrix *	Sample Date	Sample Time								
B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RJ Nielson / R. Nielson 11-12-02	1430	Received By/Stored In: Ref. #18 / 3728 11-12-02	1430
Relinquished By/Removed From: REF 18 111402	1000	Received By/Stored In: SJ GALE 111402	1000
Relinquished By/Removed From: SJ GALE 11 14 02	1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX	11-15-02 0920	Received By/Stored In: [illegible]	11-15-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 18 on 11/14/02

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

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

20

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-016	Page 1 of 1
Collector RJ 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 BT-1		SAF No. F03-003	
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA 111402	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG			
No. of Container(s)	1	1	1	1	1	1	1	1			
Volume	60g	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. 111402			

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref #1B/3728	11-12-02 1430
REF 1B	111402 1000	SJGALE [signature]	111402 1000
SJGALE [signature]	111402 1000	FEDEX	
FedEx	11-15-02 0920	[signature]	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

21

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F03-003-017	Page 1 of 1
Collector RT Nielson	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N
Project Designation 200 Area Source Characterization 200-CS-1 OU - Soil Sampli	Sampling Location BT-1		SAF No. F03-003	Air Quality ☐
Ice Chest No. SEE OSPC	Field Logbook No. HNF-N-3251	COA 117514ES10	Method of Shipment Federal Express	Data Turnaround 45 Days
Shipped To ~~EBERLINE SERVICES (Formerly TMA)~~ MD 111402 RECRA	Offsite Property No. A030 029		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	
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. AJD 111402		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL1	SOIL	11-12-02	1055	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	11-12-02 1430	Ref # 1B/3728	11-12-02 1430
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
REF 1B	111402 1000	SJGALE [signature]	111402 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
SJGALE [signature]	111402 1000	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	11-15-02 0920	[signature]	11-15-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11-15-02

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

Laboratory SDG #: 02 11L 143

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

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

Cooler # / temp (°C) and Comments:

#1 cooler received at 15.1°C

96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

Laboratory Sample Custodian: D. [illegible]

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD E02-003 H1969

F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

DEC 2002 RECEIVED

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B15XL2						
% SOLIDS	001	S	02L%S125	11/12/02	11/18/02	11/19/02
CHLORIDE BY IC	001	S	02LIC077	11/12/02	11/21/02	11/21/02
CHLORIDE BY IC	001 REP	S	02LIC077	11/12/02	11/21/02	11/21/02
CHLORIDE BY IC	001 MS	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	001	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	001 REP	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	001 MS	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	001	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	001 REP	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	001 MS	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	001	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	001 REP	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	001 MS	S	02LIC077	11/12/02	11/21/02	11/21/02
TOTAL CYANIDE	001	S	02LCB88	11/12/02	11/20/02	11/20/02
PHOSPHATE BY IC	001	S	02LIC077	11/12/02	11/21/02	11/21/02
PHOSPHATE BY IC	001 REP	S	02LIC077	11/12/02	11/21/02	11/21/02
PHOSPHATE BY IC	001 MS	S	02LIC077	11/12/02	11/21/02	11/21/02
CHROMIUM VI	001	S	02LVI037	11/12/02	11/22/02	11/22/02
SULFATE BY IC	001	S	02LIC077	11/12/02	11/21/02	11/21/02
SULFATE BY IC	001 REP	S	02LIC077	11/12/02	11/21/02	11/21/02
SULFATE BY IC	001 MS	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE NITRITE	001	S	02LN3C84	11/12/02	11/20/02	11/20/02
NITRATE NITRITE	001 REP	S	02LN3C84	11/12/02	11/20/02	11/20/02
NITRATE NITRITE	001 MS	S	02LN3C84	11/12/02	11/20/02	11/20/02
AMMONIA	001	S	02LAM033	11/12/02	11/18/02	11/19/02
AMMONIA	001 REP	S	02LAM033	11/12/02	11/18/02	11/19/02
AMMONIA	001 MS	S	02LAM033	11/12/02	11/18/02	11/19/02
PH	001	S	02LPH091	11/12/02	11/18/02	11/18/02
PH	001 REP	S	02LPH091	11/12/02	11/18/02	11/18/02
SULFIDE	001	S	02LSD052	11/12/02	11/18/02	11/18/02
SULFIDE	001 REP	S	02LSD052	11/12/02	11/18/02	11/18/02
SULFIDE	001 MS	S	02LSD052	11/12/02	11/18/02	11/18/02
B15XK9						
% SOLIDS	002	S	02L%S125	11/12/02	11/18/02	11/19/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Daynes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	002	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	002	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	002	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	002	S	02LIC077	11/12/02	11/21/02	11/21/02
TOTAL CYANIDE	002	S	02LCB88	11/12/02	11/20/02	11/20/02
PHOSPHATE BY IC	002	S	02LIC077	11/12/02	11/21/02	11/21/02
CHROMIUM VI	002	S	02LVI037	11/12/02	11/22/02	11/22/02
SULFATE BY IC	002	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE NITRITE	002	S	02LN3C84	11/12/02	11/20/02	11/20/02
AMMONIA	002	S	02LAM033	11/12/02	11/18/02	11/19/02
PH	002	S	02LPH091	11/12/02	11/18/02	11/18/02
SULFIDE	002	S	02LSD052	11/12/02	11/18/02	11/18/02
B15XM3						
% SOLIDS	003	S	02L%S125	11/12/02	11/18/02	11/19/02
CHLORIDE BY IC	003	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	003	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	003	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	003	S	02LIC077	11/12/02	11/21/02	11/21/02
TOTAL CYANIDE	003	S	02LCB88	11/12/02	11/20/02	11/20/02
PHOSPHATE BY IC	003	S	02LIC077	11/12/02	11/21/02	11/21/02
CHROMIUM VI	003	S	02LVI037	11/12/02	11/22/02	11/22/02
SULFATE BY IC	003	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE NITRITE	003	S	02LN3C84	11/12/02	11/20/02	11/20/02
AMMONIA	003	S	02LAM033	11/12/02	11/18/02	11/19/02
PH	003	S	02LPH091	11/12/02	11/18/02	11/18/02
SULFIDE	003	S	02LSD052	11/12/02	11/18/02	11/18/02
B15XL0						
% SOLIDS	004	S	02L%S125	11/12/02	11/18/02	11/19/02
CHLORIDE BY IC	004	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	004	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	004	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	004	S	02LIC077	11/12/02	11/21/02	11/21/02
TOTAL CYANIDE	004	S	02LCB88	11/12/02	11/20/02	11/20/02
PHOSPHATE BY IC	004	S	02LIC077	11/12/02	11/21/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	004	S	02LVI037	11/12/02	11/22/02	11/22/02
SULFATE BY IC	004	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE NITRITE	004	S	02LN3C84	11/12/02	11/20/02	11/20/02
AMMONIA	004	S	02LAM033	11/12/02	11/18/02	11/19/02
PH	004	S	02LPH091	11/12/02	11/18/02	11/18/02
SULFIDE	004	S	02LSD053	11/12/02	11/19/02	11/19/02
B15XL1						
% SOLIDS	005	S	02L%S125	11/12/02	11/18/02	11/19/02
% SOLIDS	005 REP	S	02L%S125	11/12/02	11/18/02	11/19/02
CHLORIDE BY IC	005	S	02LIC077	11/12/02	11/21/02	11/21/02
FLUORIDE BY IC	005	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRITE BY IC	005	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE BY IC	005	S	02LIC077	11/12/02	11/21/02	11/21/02
TOTAL CYANIDE	005	S	02LCB88	11/12/02	11/20/02	11/20/02
TOTAL CYANIDE	005 REP	S	02LCB88	11/12/02	11/20/02	11/20/02
TOTAL CYANIDE	005 MS	S	02LCB88	11/12/02	11/20/02	11/20/02
PHOSPHATE BY IC	005	S	02LIC077	11/12/02	11/21/02	11/21/02
CHROMIUM VI	005	S	02LVI037	11/12/02	11/22/02	11/22/02
CHROMIUM VI	005 REP	S	02LVI037	11/12/02	11/22/02	11/22/02
CHROMIUM VI	005 MS	S	02LVI037	11/12/02	11/22/02	11/22/02
CHROMIUM VI	005 MSD	S	02LVI037	11/12/02	11/22/02	11/22/02
SULFATE BY IC	005	S	02LIC077	11/12/02	11/21/02	11/21/02
NITRATE NITRITE	005	S	02LN3C84	11/12/02	11/20/02	11/20/02
AMMONIA	005	S	02LAM033	11/12/02	11/18/02	11/19/02
PH	005	S	02LPH091	11/12/02	11/18/02	11/18/02
SULFIDE	005	S	02LSD053	11/12/02	11/19/02	11/19/02

LAB QC:

CHLORIDE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
CHLORIDE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
FLUORIDE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
FLUORIDE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
NITRITE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
NITRITE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
NITRATE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD ~~F02~~-003 H1969
F03 Dayes 3/24/03

DATE RECEIVED: 11/15/02 LVL LOT # :0211L143

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
TOTAL CYANIDE	LCS L	S	02LCB88	N/A	11/20/02	11/20/02
TOTAL CYANIDE	LCS L	S	02LCB88	N/A	11/20/02	11/20/02
TOTAL CYANIDE	MB1	S	02LCB88	N/A	11/20/02	11/20/02
PHOSPHATE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
PHOSPHATE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
CHROMIUM VI	MB1	S	02LVI037	N/A	11/22/02	11/22/02
CHROMIUM VI	MB1 BS	S	02LVI037	N/A	11/22/02	11/22/02
CHROMIUM VI	MB1 BSD	S	02LVI037	N/A	11/22/02	11/22/02
SULFATE BY IC	MB1	S	02LIC077	N/A	11/21/02	11/21/02
SULFATE BY IC	MB1 BS	S	02LIC077	N/A	11/21/02	11/21/02
NITRATE NITRITE	MB1	S	02LN3C84	N/A	11/20/02	11/20/02
NITRATE NITRITE	MB1 BS	S	02LN3C84	N/A	11/20/02	11/20/02
AMMONIA	MB1	S	02LAM033	N/A	11/18/02	11/18/02
AMMONIA	MB1 BS	S	02LAM033	N/A	11/18/02	11/18/02
AMMONIA	MB1 BSD	S	02LAM033	N/A	11/18/02	11/18/02
SULFIDE	MB1	S	02LSD052	N/A	11/18/02	11/18/02
SULFIDE	MB1 BS	S	02LSD052	N/A	11/18/02	11/18/02
SULFIDE	MB1	S	02LSD053	N/A	11/19/02	11/19/02
SULFIDE	MB1 BS	S	02LSD053	N/A	11/19/02	11/19/02

LIONVILLE LABORATORY INC.

Analytical Report

F03 DHynes 3/24/03

Client: TNU-HANFORD ~~F02~~-003 H1969
LVL#: 0211L143

W.O.#: 11343-606-001-9999-00
Date Received: 11-15-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 5 soil samples.

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

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

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

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

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

8. The replicate analyses for Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Chromium VI, Sulfate, Ammonia, pH, Sulfide, Percent Solids and Total Cyanide were within the 20% RPD control limit, however replicate analysis for Nitrate Nitrite was outside the control limit that may be attributed to sample inhomogeneity.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-10-02
Date

njp\i11-143

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 22 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity __ by coupon __ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		✓ 9010B/9014	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		✓ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Chloride, Fluoride, Nitrate, **Method:** EPA 300.0 (mod.)

Other: Nitrite, Phosphate, Sulfate **Method**

Nitrate Nitrite EPA 353.2 (mod.)

Ammonia EPA 350.3 (mod.)

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/09/02

F03 DHynes 3/24/03

CLIENT: TNUHANFORD ~~B02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B15XL2	% Solids	94.9	%	0.01	1.0
		Chloride by IC	3.1	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.32 u	MG/KG	1.32	1.0
		Nitrate by IC	35.7	MG/KG	1.32	1.0
		Cyanide, Total	0.44 u	MG/KG	0.44	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	2.8	MG/KG	1.3	1.0
		Nitrate Nitrite	8.5	MG/KG	0.20	1.0
		Ammonia, as N	4.6 u	MG/KG	4.6	1.0
		pH	8.4	SOIL PH	0.01	1.0
		Sulfide	21.7 u	MG/KG	21.7	1.0
-002	B15XK9	% Solids	97.0	%	0.01	1.0
		Chloride by IC	4.1	MG/KG	1.3	1.0
		Fluoride by IC	1.3 u	MG/KG	1.3	1.0
		Nitrite by IC	1.29 u	MG/KG	1.29	1.0
		Nitrate by IC	203	MG/KG	12.9	10.0
		Cyanide, Total	0.48 u	MG/KG	0.48	1.0
		Phosphate by IC	2.9	MG/KG	1.3	1.0
		Chromium VI	0.45	MG/KG	0.41	1.0
		Sulfate by IC	41.7	MG/KG	1.3	1.0
		Nitrate Nitrite	49.8	MG/KG	2.0	10.0
		Ammonia, as N	4.9 u	MG/KG	4.9	1.0
		pH	8.1	SOIL PH	0.01	1.0
		Sulfide	20.1 u	MG/KG	20.1	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/09/02

F03 DHynes 3/24/03

CLIENT: TNUHANFORD ~~B01~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B15XM3	% Solids	95.8		%	0.01	1.0
		Chloride by IC	7.0		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	278		MG/KG	13.0	10.0
		Cyanide, Total	0.57	u	MG/KG	0.57	1.0
		Phosphate by IC	2.3		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	51.6		MG/KG	1.3	1.0
		Nitrate Nitrite	85.6		MG/KG	3.5	20.0
		Ammonia, as N	5.0	u	MG/KG	5.0	1.0
		pH	8.0		SOIL PH	0.01	1.0
		Sulfide	12.2	u	MG/KG	12.2	1.0
-004	B15XL0	% Solids	96.2		%	0.01	1.0
		Chloride by IC	2.3		MG/KG	1.3	1.0
		Fluoride by IC	1.3	u	MG/KG	1.3	1.0
		Nitrite by IC	1.30	u	MG/KG	1.30	1.0
		Nitrate by IC	30.9		MG/KG	1.30	1.0
		Cyanide, Total	0.40	u	MG/KG	0.40	1.0
		Phosphate by IC	4.2		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	6.4		MG/KG	1.3	1.0
		Nitrate Nitrite	7.6		MG/KG	0.20	1.0
		Ammonia, as N	4.9	u	MG/KG	4.9	1.0
		pH	8.1		SOIL PH	0.01	1.0
		Sulfide	22.2	u	MG/KG	22.2	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/09/02

F03 DHyes 3/24/03

CLIENT: TNUHANFORD ~~B02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B15XL1	% Solids	96.1	%	0.01	1.0
		Chloride by IC	3.4	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	26.6	MG/KG	1.30	1.0
		Cyanide, Total	0.39 u	MG/KG	0.39	1.0
		Phosphate by IC	1.7	MG/KG	1.3	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
		Sulfate by IC	26.2	MG/KG	1.3	1.0
		Nitrate Nitrite	6.6	MG/KG	0.20	1.0
		Ammonia, as N	4.6 u	MG/KG	4.6	1.0
		pH	8.5	SOIL PH	0.01	1.0
		Sulfide	21.4 u	MG/KG	21.4	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/09/02

F03 Dayes 3/24/03

CLIENT: TNUHANFORD ~~P02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LIC077-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	1.2	u	MG/KG	1.2	1.0
		Nitrite by IC	1.25	u	MG/KG	1.25	1.0
		Nitrate by IC	1.25	u	MG/KG	1.25	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK1	02LCB88-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	02LVI037-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	02LN3C84-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	02LAM033-MB1	Ammonia, as N	5.0	u	MG/KG	5.0	1.0
BLANK10	02LSD052-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0
BLANK10	02LSD053-MB1	Sulfide	40.0	u	MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/09/02

F03 Dayes 3/24/03

CLIENT: TNUHANFORD ~~F02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B15XL2	Chloride by IC	49.9	3.1	53.0	88.3	2.0
		Fluoride by IC	27.1	0.0	26.0	104.2	1.0
		Nitrite by IC	50.1	1.32u	53.0	94.5	2.0
		Nitrate by IC	88.0	35.7	53.0	98.7	2.0
		Phosphate by IC	29.9	1.3 u	26.0	115.0	1.0
		Sulfate by IC	28.4	2.8	26.0	98.3	1.0
		Nitrate Nitrite	13.2	8.5	5.2	91.6	5.0
		Ammonia, as N	182	4.6 u	191	95.5	1.0
		Sulfide	201	10.9	211	90.1	1.0
-005	B15XL1	Cyanide, Total	5.56	0.39u	6.18	90.1	1.0
		Soluble Chromium VI	4.1	0.42u	4.2	98.1	1.0
		Insoluble Chromium VI	1360	0.42u	1270	106.6	100
BLANK10	02LIC077-MB1	Chloride by IC	22.8	1.2 u	25.0	91.3	1.0
		Fluoride by IC	26.0	1.2 u	25.0	103.9	1.0
		Nitrite by IC	23.8	1.25u	25.0	95.1	1.0
		Nitrate by IC	24.0	1.25u	25.0	95.9	1.0
		Phosphate by IC	24.0	1.2 u	25.0	96.0	1.0
		Sulfate by IC	23.8	1.2 u	25.0	95.4	1.0
BLANK10	02LVI037-MB1	Soluble Chromium VI	4.1	0.40u	4.0	103.2	1.0
		Insoluble Chromium VI	1100	0.40u	1160	94.9	100
BLANK10	02LN3C84-MB1	Nitrate Nitrite	5.3	0.20u	5.0	105.8	1.0
BLANK10	02LAM033-MB1	Ammonia, as N	192	5.0 u	200	96.2	1.0
		Ammonia, as N MSD	214	5.0 u	200	107.0	1.0
BLANK10	02LSD052-MB1	Sulfide	408	40.0 u	424	96.2	1.0
BLANK10	02LSD053-MB1	Sulfide	416	40.0 u	432	96.3	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 12/09/02

F03 Dayres 3/24/03

CLIENT: TNUHANFORD ~~F02~~-003 H1969 LVL LOT #: 0211L143

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

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

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/09/02

F03 DAyes 3/24/03

CLIENT: TNUHANFORD ~~E02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B15XL2	Chloride by IC	3.1	2.8	9.4	1.0
		Fluoride by IC	1.3 u	1.3 u	NC	1.0
		Nitrite by IC	1.32u	1.32u	NC	1.0
		Nitrate by IC	35.7	33.2	7.3	1.0
		Phosphate by IC	1.3 u	1.3 u	NC	1.0
		Sulfate by IC	2.8	2.7	4.4	1.0
		Nitrate Nitrite	8.5	11.5	30.5	5.0
		Ammonia, as N	4.6 u	4.6 u	NC	1.0
		pH	8.4	8.4	0.1	1.0
		Sulfide	21.7 u	23.4 u	NC	1.0
-005REP	B15XL1	% Solids	96.1	96.2	0.12	1.0
		Cyanide, Total	0.39u	0.51u	NC	1.0
		Chromium VI	0.42u	0.42u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/09/02

F03 DHayes 3/24/03

CLIENT: TNUHANFORD ~~B02~~-003 H1969 LVL LOT #: 0211L143

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	02LCB88-LCS1	Cyanide, Total LCS	2.02	2.0	MG/KG	101.0
LCSS2	02LCB88-LCS2	Cyanide, Total LCS	9.83	10.0	MG/KG	98.3

Lionville Laboratory Use Only

0211L143

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI

16

Client: TNU Hanford F03-003

Est. Final Proj. Sampling Date:

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

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 11.15.02 Date Due: 12-15-02

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

Lionville Laboratory Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H	0625X	OPCB		ODRO	OGCSC		MET(1) ICRG		INORG(1)	IPH
001	B15XL2			S	11.12.02	1120	X	X	X		X	X		X		X	X
002	B15XK9					1010	X	X	X		X	X		X		X	X
003	B15XM3					1015	X	X	X		X	X		X		X	X
004	B15XL0					1036	X	X	X		X	X		X		X	X
005	B15XL1					1055	X	X	X		X	X		X		X	X

Special Instructions: SAF # F03-003

Rem Matrix QC

ODRO = Report KRO + DRO Compounds

DATE/REVISIONS:

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

2. Zn, Hg,

INORG(1) 3. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4, IN3N2,

4. INH3N, ICNTO, ISFD

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. 15.1 °C

Relinquished by	Received by	Date	Time
Hed Ex	[signature]	11-15-02	0320

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 7912 3216 8806/2.3°C 7912 3216 8780

17.

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-018	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: MJ 111402 ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

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	aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500 ml	
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	Alcohols, Glycols, & Ketones - 8015M (Add-on) {1-Propanol, Ethanol}	PCBs - 8082	See item (2) in Special Instructions.	See item (3) in Special Instructions.	pH (Soil) - 9045	See item (4) in Special Instructions.	Nickel 63 Tech. 99 Tritium H3	
Sample No. / Matrix * / Sample Date / Sample Time										
B15XL2 / SOIL / 11-12-02 / 1120	X	X	X	X	X	X	X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.J. Nielson / R. Nielson	11-12-02 1430	REF # 1B / 3728	11-12-02 1430
REF 1B	111402 1000	SJ GALE	111402 1000
SJ GALE	111402 1000	FED EX	
Fed Ex	11-15-02 0820	D. [illegible]	11-15-02 0820

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

18

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-015	Page 1 of 1
Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA SJS 11/14/02	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	BJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1			
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. SJS 11/14/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XK9	SOIL	11-12-02	1010	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: RJ Nielson RJ Nielson	11-12-02 1430	Received By/Stored In: REF # 1B / 3728	11-12-02 1430
Relinquished By/Removed From: ~~RJB~~ REF 1B	11 14 02 1000	Received By/Stored In: SJ Gale	11 14 02 1000
Relinquished By/Removed From: SJ Gale	11 14 02 1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	11-15-02 0920	Received By/Stored In: [illegible]	11-15-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SJS 11/14/02

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-028	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251; COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: MD 11 14 02 ~~EDERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None RJN 11/12/02	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	500g RJN 11/12/02	
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. AJD 11/14/02	Nickel-63; Technetium-99; Tritium - H3	

Sample No.	Matrix *	Sample Date	Sample Time										
B15XM3	SOIL	11-12-02	1015	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
RJ Nielson / R. Nielson	11-12-02 1430	Ref. #18 / 3728	11-12-02 1430
REF 1B	11 14 02 1000	SJ GALE	11 14 02 1000
SJ GALE	11 14 02 1000	FED EX	
FED EX	11-15-02 0920	D. Smith	11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-016	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251	COA: 117514ES10	Method of Shipment: Federal Express
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ RECRA	Offsite Property No.: A030 029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None RJN 11/12/02		
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG		
No. of Container(s)	1	1	1	1	1	1	1	1		
Volume	60g	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. SJG 11/14/02		

Sample No.	Matrix *	Sample Date	Sample Time										
B15XL0	SOIL	11-12-02	1036	X	X	X	X	X	X	X	X		

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	11-12-02 1430	Received By/Stored In: Ref #1B/3728	11-12-02 1430
Relinquished By/Removed From: REF 1B 11/14/02	1000	Received By/Stored In: SJGALE 11/14/02	1000
Relinquished By/Removed From: SJGALE 11/14/02	1000	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FEDEX	11-15-02 0920	Received By/Stored In: D. Smith	11-15-02 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

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

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

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

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-003-017	Page 1 of 1

Collector: RJ 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: BT-1	SAF No.: F03-003	
Ice Chest No.: SEE OSPC	Field Logbook No.: HNF-N-3251 — COA: 117514ES10	Method of Shipment: Federal Express	
Shipped To: ~~EBERLINE SERVICES (Formerly TMA)~~ MW 111402 RECRA	Offsite Property No.: A030029	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

RADIOACTIVE

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	RJN	
Type of Container	G	aG	G	aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	~~G/P~~ aG	11/12/02	
No. of Container(s)	1	1	1	1	1	1	1	1	1	
Volume	60g	250g	60mL	250g	125g	500g	60g	1000g	RJN 11/12/02	

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. AMD 11/14/02		
Sample No. / Matrix * / Sample Date / Sample Time										
B15XL1 / SOIL / 11-12-02 / 1055	X	X	X	X	X	X	X	X		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.Nielson / R.Nielson	11-12-02 1430	Ref # 16/3728	11-12-02 1430
Ref 1B	11 14 02 1000	SJGALE	11/14/02 1000
SJGALE	11 14 02 1000	FED EX	
Fed Ex	11-15-02 0920		11-15-02 0920

SPECIAL INSTRUCTIONS

** Please check the SAF for specific sampling instructions.

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

Personnel not available to relinquish samples from the 3728 Ref # 1B on 11/14/02

Matrix *

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

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

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

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TRU Hanford

Purchase Order/Project:

DATE: 11-15-02

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

Laboratory SDG #: 02 11L 143

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

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

Cooler # / temp (°C) and Comments:

#1 cooler received at 15.1°C

96-006 / 15.1°C

ERC 99-062 / 0.6°C

SML-441 / 2.3°C

Laboratory Sample Custodian: [signature]

Laboratory Project Manager: