

SAF-B01-055
100 B/C Area Effluent Pipeline &
Proximity Site Remediation Activities -
Other Solid
FINAL DATA PACKAGE

E:MAIL RESULTS TO:

Dave Shea

 N/A
INITIAL/DATE

Dean Strom

 N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Dave Shea X3-40

 DS 11/17
INITIAL/DATE

Dean Strom X3-40

 DS
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE COVER SHEET)

SDG **H2368**

SAF-B01-055

Rad only

Chem only

Rad & Chem

Complete

Partial

SAMPLE LOCATION/WASTE SITE: 100 BC Pipelines

RECEIVED
JAN 05 2004
EDMC



7 November 2003

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

**Subject: Contract No. 630
Analytical Data Package**

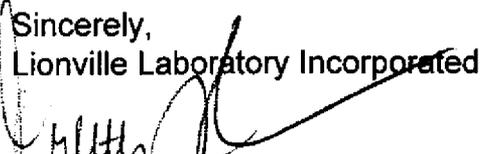
Dear Ms. Kessner:

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

LvLI Batch #	0310L637
SDG #	H2368
SAF #	B01-055
Date Received	10-02-03
# Samples	4
Matrix	Other Solid
Volatiles	
Semivolatiles	X
Pest/PCB	X
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
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

RECEIVED
NOV 2003

r:\group\pm\orlette\trn-hanford\data\b_ltrs.doc

RECEIVED
NOV 2003

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-055 H2368

DATE RECEIVED: 10/02/03

LVL LOT # :0310L637

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00YF9	001	SO	03LE1267	09/26/03	10/03/03	10/15/03
J00YH3	002	SO	03LE1267	09/25/03	10/03/03	10/15/03
J00YH6	004	SO	03LE1267	09/26/03	10/03/03	10/17/03

LAB QC:

SBLKDA	MB1	S	03LE1267	N/A	10/03/03	10/10/03
SBLKDA	MB1 BS	S	03LE1267	N/A	10/03/03	10/10/03



Client: TNU-HANFORD B01-055
LVL #: 0310L637
SDG/SAF # H2368/B01-055

W.O. #: 11343-606-001-9999-00
Date Received: 10-02-2003

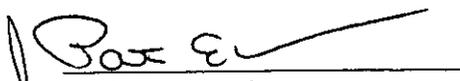
SEMIVOLATILE

Three (3) solid samples were collected on 09-25,26-2003.

The samples and there associated QC samples were extracted according to Lionville Laboratory OPs based on method 3550 on 10-03-2003 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 10-10,15,17-2003.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All samples required 2 to 20-fold dilution due to high levels of both target and non-target compounds.
5. All surrogate recoveries were within EPA QC limits.
6. Matrix spike analyses are associated with LVL # 0310L631.
7. All blank spike recoveries were within EPA QC limits.
8. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.
9. Internal standard area and retention time criteria were met.
10. 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").
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



J. Michael Taylor
President
Lionville Laboratory Incorporated

10-22-03
Date

som\goup\data\bna\tnu-hanford-0310-637.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 16 pages.

GLOSSARY

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.

mmz\10-94\gloss.bna



GLOSSARY

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.

mmz\10-94\gloss.bna



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.

	Cust ID: J00YF9		J00YH3		J00YH6		SBLKDA		SBLKDA BS	
RFW#:	001		002		004	03LE1267-MB1		03LE1267-MB1		
2-Chloronaphthalene	670	U	670	U	6800	U	330	U	330	U
2-Nitroaniline	1700	U	1700	U	17000	U	830	U	830	U
Dimethylphthalate	670	U	670	U	6800	U	330	U	330	U
Acenaphthylene	670	U	670	U	410	J	330	U	330	U
2,6-Dinitrotoluene	670	U	670	U	6800	U	330	U	330	U
3-Nitroaniline	1700	U	1700	U	17000	U	830	U	830	U
Acenaphthene	670	U	670	U	6800	U	330	U	79	%
2,4-Dinitrophenol	1700	U	1700	U	17000	U	830	U	830	U
4-Nitrophenol	1700	U	1700	U	17000	U	830	U	86	%
Dibenzofuran	670	U	670	U	6800	U	330	U	330	U
2,4-Dinitrotoluene	670	U	670	U	6800	U	330	U	79	%
Diethylphthalate	670	U	670	U	6800	U	330	U	330	U
4-Chlorophenyl-phenylether	670	U	670	U	6800	U	330	U	330	U
Fluorene	670	U	670	U	6800	U	330	U	330	U
4-Nitroaniline	1700	U	1700	U	17000	U	830	U	830	U
4,6-Dinitro-2-methylphenol	1700	U	1700	U	17000	U	830	U	830	U
N-Nitrosodiphenylamine (1)	670	U	670	U	6800	U	330	U	330	U
4-Bromophenyl-phenylether	670	U	670	U	6800	U	330	U	330	U
Hexachlorobenzene	670	U	670	U	6800	U	330	U	330	U
Pentachlorophenol	1700	U	1700	U	17000	U	830	U	73	%
Phenanthrene	670	U	670	U	4300	J	330	U	330	U
Anthracene	670	U	670	U	1800	J	330	U	330	U
Carbazole	670	U	670	U	460	J	330	U	330	U
Di-n-butylphthalate	1700		670	U	720	J	330	U	330	U
Fluoranthene	670	U	130	J	36000		330	U	330	U
Pyrene	670	U	110	J	24000		330	U	85	%
Butylbenzylphthalate	670	U	670	U	6800	U	330	U	330	U
3,3'-Dichlorobenzidine	670	U	670	U	6800	U	330	U	330	U
Benzo(a)anthracene	670	U	69	J	22000		330	U	330	U
Chrysene	670	U	73	J	24000		330	U	330	U
bis(2-Ethylhexyl)phthalate	720	B	670	U	6800	U	19	J	330	U
Di-n-octyl phthalate	670	U	670	U	6800	U	330	U	330	U
Benzo(b)fluoranthene	670	U	69	J	18000		330	U	330	U
Benzo(k)fluoranthene	670	U	71	J	16000		330	U	330	U
Benzo(a)pyrene	670	U	73	J	16000		330	U	330	U
Indeno(1,2,3-cd)pyrene	670	U	51	J	11000		330	U	330	U
Dibenz(a,h)anthracene	670	U	670	U	4100	J	330	U	330	U
Benzo(g,h,i)perylene	670	U	59	J	12000		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.

J00YF9

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

Client: TNUHANFORD B01-055 H2368

Matrix: (soil/water) SOLID

Lab Sample ID: 0310L637-001

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

Lab File ID: D101511

Level: (low/med) LOW

Date Received: 10/02/03

% Moisture: 1 decanted: (Y/N) __

Date Extracted: 10/03/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/15/03

Injection Volume: 2.0 (uL)

Dilution Factor: 2.00

GPC Cleanup: (Y/N) N

pH: _____

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.429	800	JAB
2.	ALDOL CONDENSATE	7.031	30000	JAB
3.	ALKANE	23.218	400	J
4.	UNKNOWN	30.290	700	J
5.	UNKNOWN	37.266	500	J

8

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00YH3

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

Client: TNUHANFORD B01-055 H2368

Matrix: (soil/water) SOLID

Lab Sample ID: 0310L637-002

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

Lab File ID: D101512

Level: (low/med) LOW

Date Received: 10/02/03

% Moisture: 1 decanted: (Y/N)

Date Extracted: 10/03/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/15/03

Injection Volume: 2.0 (uL)

Dilution Factor: 2.00

GPC Cleanup: (Y/N) N

pH:

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.402	400	JAB
2.	ALDOL CONDENSATE	7.005	30000	JAB
3.	ALKANE	29.757	200	J
4.	ALKANE	33.712	400	J
5.	UNKNOWN	36.244	200	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J00YH6

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

Client: TNUHANFORD B01-055 H2368

Matrix: (soil/water) SOLID

Lab Sample ID: 0310L637-004

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

Lab File ID: C101704

Level: (low/med) LOW

Date Received: 10/02/03

% Moisture: 3 decanted: (Y/N)

Date Extracted: 10/03/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/17/03

Injection Volume: 2.0 (uL)

Dilution Factor: 20.0

GPC Cleanup: (Y/N) N

pH:

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.373	50000	JAB
2. 120-32-1	CLOROPHENE	22.072	5000	JN
3.	BENZONAPHTHOTHIOPENE	26.489	5000	J
4.	PAH	33.955	20000	J
5.	PAH	34.622	5000	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKDA

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

Client: TNUHANFORD B01-055 H2368

Matrix: (soil/water) SOIL

Lab Sample ID: 03LE1267-MB1

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

Lab File ID: D101009

Level: (low/med) LOW

Date Received: 10/03/03

% Moisture: decanted: (Y/N)

Date Extracted: 10/03/03

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/10/03

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH:

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.126	80	JA
2.	ALDOL CONDENSATE	6.676	2000	JA
3.	ALDOL CONDENSATE	7.269	30000	JA
4.	ALDOL CONDENSATE	8.623	300	JA
5.	UNKNOWN	29.375	100	J

01

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-055-068		Page 1 of 1			
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround		
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-009			SAF No. B01-055		Air Quality <input type="checkbox"/> 2 days					
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex						
Shipped To TMA/RECRA		Offsite Property No. A030382			Bill of Lading/Air Bill No. SCC 05PC							
POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated Special Handling and/or Storage Cool 4°C L 2,000 pCi/gm				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
				Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P	
				No. of Container(s)	1	1	1	1	1	1	1	
				Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No.	Matrix *	Sample Date	Sample Time									
J00YF9	OTHER SOLID	9/26/03	0957	✓	✓	✓	✓	✓	✓	✓	} PCF # J00YH9	
J00YH0	OTHER SOLID	↓	1002									
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D.Shea D.SHEA		Date/Time 9/26/03 1559		Received By/Stored In Fridgen IA		Date/Time 9/26/03 1559		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-109, Uranium-238) for sample J00YF9 perform GAB then contact SM price to performing GEA				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Dry Solids DL=Dry Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From 3728 ERG IA		Date/Time 10/01/03 1300		Received By/Stored In David Smith		Date/Time 10/01/03 1300						
Relinquished By/Removed From David Smith		Date/Time 10/01/03 1300		Received By/Stored In FED EX		Date/Time						
Relinquished By/Removed From D.Shea		Date/Time 10-2-03/0930		Received By/Stored In D. Smith		Date/Time 10-2-03/0930						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
LABORATORY SECTION	Received By	Title				Date/Time						
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time						

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-071		Page 1 of 1				
Collector D. Shea		Company Contact D. Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround				
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-020		SAF No. B01-055		Air Quality		<input type="checkbox"/> 21 days						
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex								
Shipped To TMA/RECRA		Offsite Property No. A030382		Bill of Lading/Air Bill No. See OSPC										
POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> $< 2,000 \text{ pci/gm}$ Special Handling and/or Storage $\text{Cool } 4^{\circ}\text{C}$				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		G/P	G/P	G/P	aG	aG	G/P	G/P		
				No. of Container(s)		1	10	1	1	1	1	1		
				Volume		60mL	60mL	60mL	60mL	50g	500mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.		ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta			
				Sample No.		Matrix *	Sample Date	Sample Time						
J00YH3		OTHER SOLID	9/25/03	0927	✓	✓	✓	✓	✓	✓	RCF # J00YH2			
			DWS											
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) contact SM prior to GEA analysis DWS 9/25/03				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other		
D. Shea DSHEA		9/25/03 1640		Fricke ZA		3/25/03 1640								
3724 Refug ZA		10/01/03 1300		DWS		10/01/03 1300								
DWS		10/01/03 1300		Fed Ex										
DWS		10/2/03/0930		DWS		10/2/03/0930								
LABORATORY SECTION		Received By		Title		Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time								

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-055-073		Page 1 of 1			
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround		
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-034			SAF No. B01-055		Air Quality <input type="checkbox"/> 21 days					
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex ^{HS} 9-30-03						
Shipped To TMA (RECRA)		Offsite Property No. A030382			Bill of Lading/Air Bill No. SEC OSPC							
POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> $< 2,000 \text{ pCi/gm}$ Special Handling and/or Storage <i>cool 4°C</i>				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
				Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P	
				No. of Container(s)	1	1	1	1	1	1	1	
				Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
				Sample No.	Matrix *	Sample Date	Sample Time					
J00YH5	OTHER SOLID	9/26/03	1008	✓	✓	✓	✓	✓	✓	✓	✓	
J00YH6	OTHER SOLID	↓	1026	✓	✓	✓	✓	✓	✓	✓	✓	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D.Shea D.Shea		Date/Time 9/26/03 1559		Received By/Stored In Frieder IA		Date/Time 9/26/03 1559		(1) ICP Metals - 6010TR (Client List) {Arsenic, Barium, Cadmium, Selenium, Silver} (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on {Americium-241, Silver-108 metastable, Uranium-238} idws 9/26/03 OK				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
Relinquished By/Removed From 3728 Frige 1A		Date/Time 10/01/03 1300		Received By/Stored In John Smith		Date/Time 10/01/03 1300						
Relinquished By/Removed From David St John ERC		Date/Time 10/01/03 1300		Received By/Stored In FED EX		Date/Time						
Relinquished By/Removed From David St John		Date/Time 10.2.03 10930		Received By/Stored In John Smith		Date/Time 10.2.03 10930						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
LABORATORY SECTION	Received By			Title			Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time					

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hamford

Purchase Order/Project:

DATE: 10.2.03

SAF# / SOW# / Release #: B01-055

Laboratory SDG #:

03104637

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-03-102 / 1.6°C

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smith

16

RECEIVED
NOV 2003

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-055 H2368

DATE RECEIVED: 10/02/03

LVL LOT # :0310L637

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00YF9	001	SO	03LE1269	09/26/03	10/03/03	10/12/03
J00YH3	002	SO	03LE1269	09/25/03	10/03/03	10/12/03
J00YH6	004	SO	03LE1269	09/26/03	10/03/03	10/13/03

LAB QC:

PBLKJT	MB1	S	03LE1269	N/A	10/03/03	10/12/03
PBLKJT	MB1 BS	S	03LE1269	N/A	10/03/03	10/12/03

7-1-13



Analytical Report

Client: TNU-HANFORD B03-055
LVL #: 0310L637
SDG/SAF #: H2368/B03-055

W.O. #: 11343-606-001-9999-00

Date Received: 10-02-03

PCB

The set of samples consisted of three (3) soil samples collected on 09-25,26-03.

The samples and their associated QC samples were extracted on 10-03-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 10-12,13-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The samples and their associated QC samples received a Sulfuric Acid cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. Due to insufficient sample volume, matrix spike QC could not be performed on any samples in this data set. However, blank spike QC were performed with these samples to demonstrate that systems were in control.
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.


Jim Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10/30/03
Date

pefr:\group\data\pest\tnu Hanford\10L-637.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 11 pages.



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

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

ABBREVIATIONS

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

SP = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

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

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 10/24/03 10:02 C

RFW Batch Number: 0310L637

Client: TNUHANFORD B01-055 H2368 Work Order: 11343606001 Page: 1

	Cust ID:	J00YF9	J00YH3	J00YH6	PBLKJT	PBLKJT BS
Sample Information	RFW#:	001	002	004	03LE1269-MB1	03LE1269-MB1
	Matrix:	SOLID	SOLID	SOLID	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Decachlorobiphenyl	105 %	105 %	105 %	95 %	80 %
	Tetrachloro-m-xylene	100 %	95 %	100 %	90 %	75 %
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----
Aroclor-1016		13 U	13 U	14 U	13 U	91 %
Aroclor-1221		13 U	13 U	14 U	13 U	13 U
Aroclor-1232		13 U	13 U	14 U	13 U	13 U
Aroclor-1242		13 U	13 U	14 U	13 U	13 U
Aroclor-1248		13 U	13 U	14 U	13 U	13 U
Aroclor-1254		110	13 U	14 U	13 U	13 U
Aroclor-1260		13 U	21	14 U	13 U	82 %

250 repts/3

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



031011637

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU-Hamford Bol-055</u>	Refrigerator #	A	B	C	D
Est. Final Proj. Sampling Date	#/Type Container	Liquid			
Project # <u>11343-606-001-9999-03</u>		Solid	1g	1g	
Project Contact/Phone #	Volume	Liquid			
Lionville Laboratory Project Manager <u>Orlette Johnson</u>		Solid	60	60	
QC <u>SPEE</u> Del <u>5TD</u> TAT <u>21 days</u>	Preservatives		1	1	
Date Rec'd <u>10-2-03</u> Date Due <u>10-23-03</u>	ANALYSES REQUESTED	ORGANIC			INORG
		VOA	BNA	PCB/PCB	Herb
					Metal
					CN
					Hex
					Organics

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum L - EP/TCLP WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix GC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only													
			MS	MSD				0625H	0PCB	MRCRATO	ICR6										
	001	J00YF9			SO	9-26-03	0957	X	X			X	X								
	002	J00YH0					1002					X									
	002	J00YH3				9-25-03	0927	X	X			X	X								
	003	J00YH5				9-26-03	1008					X	X								
	004	J00YH6					1026	X	X			X	X								

Special Instructions: SAF # 801.055
Run Matrix QC

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

Lionville Laboratory Use Only

Samples were: 1) Shipped or Hand Delivered Airbill # _____

2) Ambient or Chilled

3) Received in Good Condition or N

4) Samples Properly Preserved or N

5) Received Within Holding Times or N

Tamper Resistant Seal was:

1) Present on Outer Package or N

2) Unbroken on Outer Package or N

3) Present on Sample or N

4) Unbroken on Sample or N

COC Record Present Upon Sample Rec'l or N

Cooler Temp. 1.6 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: # 7923 40504148

Relinquished by	Received by	Date	Time
<u>DeWEx</u>	<u>Orlette Johnson</u>	<u>10-2-03</u>	<u>0930</u>

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

ERC-03-102

Bechtel Hanford Inc.			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-068		Page 1 of 1			
Collector D. Shea			Company Contact D. Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround			
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation			Sampling Location 100 B/C pipelines, DS-100BC-009			SAF No. B01-055		Air Quality <input type="checkbox"/> 2 days						
Ice Chest No. ERC-03-102			Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex							
Shipped To TMA/RECRA			Offsite Property No. A030382			Bill of Lading/Air Bill No. See OSPC								
POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> $< 2,000 \text{ pCi/gm}$ Special Handling and/or Storage $\text{Cool } 4^{\circ}\text{C}$				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		G/P	G/P	G/P	aG	aG	G/P	G/P		
				No. of Container(s)		1	1	1	1	1	1	1		
				Volume		60mL	60mL	60mL	60mL	50g	500mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta				
Sample No.	Matrix *	Sample Date	Sample Time											
J00YF9	OTHER SOLID	9/26/03	0957	✓	✓	✓	✓	✓	✓	✓		} RCF # J00YH9		
J00YH0	OTHER SOLID	↓	1002											
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108, Potassium-40, Uranium-238) <i>due 9/26/03</i> for sample J00YF9 perform GAB then contact SMU price to performing GEA				S=Soil SE=Soilment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other		
D. Shea D. Shea		9/26/03 1559		Fridy IA		9/26/03 1559								
3728 RKG IA		10/01/03 1300		David Smith		10/01/03 1300								
David Smith		10/01/03 1300		FED EX										
D. Shea		10-2-03/0930		D. Shea		10-2-03/0930								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
LABORATORY SECTION		Received By				Title				Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method				Disposed By				Date/Time				

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-071		Page 1 of 1				
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround				
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-020		SAF No. B01-055		Air Quality <input type="checkbox"/>		21 days						
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex								
Shipped To TMA/RECRA		Offsite Property No. A030382		Bill of Lading/Air Bill No. See OSPC										
POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> <i>< 2,000 pCi/gm</i> Special Handling and/or Storage <i>Cool 4°C</i>				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		G/P	G/P	G/P	aG	aG	G/P	G/P		
				No. of Container(s)		1	10	1	1	1	1	1		
				Volume		60mL	60mL	60mL	60mL	50g	500mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.		ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.		Gross Alpha; Gross Beta		
				Sample No.		Matrix *	Sample Date	Sample Time						
J00YH3		OTHER SOLID	9/25/03	0927	✓	✓	✓	✓	✓	✓	RLF # J00YH3			
			DWS											
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) <i>contact SM prior to GET analysis</i> <i>DWS 9/25/03</i>				S=Soil SE=Sediment SO=Solid SL=Sediment W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other		
D.Shea D.Shea		9/25/03 1640		Fridge 3A		3/25/03 1640								
3728 Robin 3A		10/01/03 1300		DWS		10/01/03 1300								
DWS		10/01/03 1300		FED EX										
DWS		10/2/03 10930		DWS		10/2/03 0930								
LABORATORY SECTION		Received By		Title				Date/Time						
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time						

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B01-055-073		Page 1 of 1					
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround				
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-034		SAF No. B01-055		Air Quality <input type="checkbox"/>		21 days						
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex		9-30-03						
Shipped To TMA/RECRA		Offsite Property No. A030382		Bill of Lading/Air Bill No. SCC 03 PC										
POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated < 2,000 pCi/gm Special Handling and/or Storage Cool 4°C				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container		G/P	G/P	G/P	aG	aG	G/P	G/P		
				No. of Container(s)		1	1	1	1	1	1	1		
				Volume		60mL	60mL	60mL	60mL	50g	500mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta				
Sample No.	Matrix *	Sample Date	Sample Time											
J00YH5	OTHER SOLID	9/26/03	1008	✓	✓	✓								
J00YH6	OTHER SOLID	4	1026	✓	✓	✓	✓	✓						
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From D.Shea		Date/Time 9/26/03 1559		Received By/Stored In Frieder LA		Date/Time 9/26/03 1559		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) idws 9/26/03 OK				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		
Relinquished By/Removed From 3728 Frige LA		Date/Time 10/01/03 1300		Received By/Stored In [Signature]		Date/Time 10/01/03 1300								
Relinquished By/Removed From D.Shea		Date/Time 10/01/03 1300		Received By/Stored In FED EX		Date/Time								
Relinquished By/Removed From [Signature]		Date/Time 10-2-03/0930		Received By/Stored In [Signature]		Date/Time 10-2-03/0930								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
LABORATORY SECTION		Received By		Title				Date/Time						
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time						

**LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST**

CLIENT: TNU Hamford

Purchase Order/Project:

DATE: 10.2.03

SAT# / SOW# / Release #: B01-055

Laboratory SDG #:

03104637

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-03-102 / 1.6°C

Laboratory Sample Custodian:

Laboratory Project Manager:

D. Smith

NOV 2003

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-055 H2368

DATE RECEIVED: 10/02/03

LVL LOT # :0310L637

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

J00YF9

SILVER, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
SILVER, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
SILVER, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03
ARSENIC, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
ARSENIC, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
ARSENIC, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03
BARIUM, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
BARIUM, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
BARIUM, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03
CADMIUM, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
CADMIUM, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
CADMIUM, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03
CHROMIUM, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
CHROMIUM, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
CHROMIUM, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03
MERCURY, TOTAL	001	SO	03C0267	09/26/03	10/13/03	10/15/03
MERCURY, TOTAL	001 REP	SO	03C0267	09/26/03	10/13/03	10/15/03
MERCURY, TOTAL	001 MS	SO	03C0267	09/26/03	10/13/03	10/15/03
LEAD, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
LEAD, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
LEAD, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03
SELENIUM, TOTAL	001	SO	03L0587	09/26/03	10/09/03	10/12/03
SELENIUM, TOTAL	001 REP	SO	03L0587	09/26/03	10/09/03	10/12/03
SELENIUM, TOTAL	001 MS	SO	03L0587	09/26/03	10/09/03	10/12/03

J00YH3

SILVER, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03
ARSENIC, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03
BARIUM, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03
CADMIUM, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03
CHROMIUM, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03
MERCURY, TOTAL	002	SO	03C0267	09/25/03	10/13/03	10/15/03
LEAD, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03
SELENIUM, TOTAL	002	SO	03L0587	09/25/03	10/09/03	10/12/03

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B01-055 H2368

DATE RECEIVED: 10/02/03

LVL LOT # :0310L637

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00YH5						
SILVER, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03
ARSENIC, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03
BARIUM, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03
CADMIUM, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03
CHROMIUM, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03
MERCURY, TOTAL	003	SO	03C0267	09/26/03	10/13/03	10/15/03
LEAD, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03
SELENIUM, TOTAL	003	SO	03L0587	09/26/03	10/09/03	10/12/03

J00YH6						
SILVER, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03
ARSENIC, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03
BARIUM, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03
CADMIUM, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03
CHROMIUM, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03
MERCURY, TOTAL	004	SO	03C0267	09/26/03	10/13/03	10/15/03
LEAD, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03
SELENIUM, TOTAL	004	SO	03L0587	09/26/03	10/09/03	10/12/03

LAB QC:

SILVER LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03
SILVER, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03
ARSENIC LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03
ARSENIC, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03
BARIUM LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03
BARIUM, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03
CADMIUM LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03
CADMIUM, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03
CHROMIUM LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03
CHROMIUM, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03
MERCURY LABORATORY	LC1 BS	S	03C0267	N/A	10/13/03	10/14/03
MERCURY, TOTAL	MB1	S	03C0267	N/A	10/13/03	10/14/03
LEAD LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-055 H2368

DATE RECEIVED: 10/02/03

LVL LOT # :0310L637

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03
SELENIUM LABORATORY	LC1 BS	S	03L0587	N/A	10/09/03	10/12/03
SELENIUM, TOTAL	MB1	S	03L0587	N/A	10/09/03	10/12/03



Analytical Report

Client: TNU-HANFORD B01-055
LVL#: 0310L637
SDG/SAF#: H2368/B01-055

W.O.#: 11343-606-001-9999-00
Date Received: 10-02-03

METALS CASE NARRATIVE

1. This narrative covers the analyses of 4 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

Samples J00YF9 and J00YH6 were reported with 100 fold dilutions for Mercury due to high concentrations of this analyte. Sample J00YH6 was reported with a six fold dilution for all other analytes due to high concentrations and sample matrix.

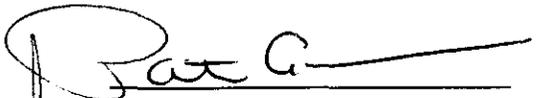
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of the Mercury LCS (120.5) which was within manufacturer's performance acceptance criteria. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recoveries for 4 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 17 pages.

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

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u> <u>Concentration (ppb)</u>	<u>PDS</u> <u>% Recovery</u>
J00YF9	Barium	2,200	81.5
	Chromium	4,000	103.8
	Lead	2,200	109.2

12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated
gmb/m10-637

10-20-03
Date

METALS METHOD GLOSSARY

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

Lot#: 03102637

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	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Antimony	<input type="checkbox"/> 6010B <input type="checkbox"/> 7041 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 204.2			<input type="checkbox"/> 99
Arsenic	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7060A ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 206.2	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Barium	<input checked="" type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Beryllium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Bismuth	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Boron	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Cadmium	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7131A ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 213.2			<input type="checkbox"/> 99
Calcium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Chromium	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7191 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 218.2			<input type="checkbox"/> SS17
Cobalt	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Copper	<input type="checkbox"/> 6010B <input type="checkbox"/> 7211 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 220.2			<input type="checkbox"/> 99
Iron	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Lead	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7421 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 239.2	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Lithium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7430 ⁴	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Magnesium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Manganese	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Mercury	<input type="checkbox"/> 7470A ³ <input checked="" type="checkbox"/> 7471A ³	<input type="checkbox"/> 245.1 ² <input type="checkbox"/> 245.5 ²			<input type="checkbox"/> 99
Molybdenum	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Nickel	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Potassium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7610 ⁴	<input type="checkbox"/> 200.7 <input type="checkbox"/> 258.1 ⁴			<input type="checkbox"/> 99
Rare Earths	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Selenium	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7740 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 270.2	<input type="checkbox"/> 3113B		<input type="checkbox"/> 99
Silicon	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Silica	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Silver	<input checked="" type="checkbox"/> 6010B <input type="checkbox"/> 7761 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 272.2			<input type="checkbox"/> 99
Sodium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7770 ⁴	<input type="checkbox"/> 200.7 <input type="checkbox"/> 273.1 ⁴			<input type="checkbox"/> 99
Strontium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Thallium	<input type="checkbox"/> 6010B <input type="checkbox"/> 7841 ⁵	<input type="checkbox"/> 200.7 <input type="checkbox"/> 279.2 <input type="checkbox"/> 200.9			<input type="checkbox"/> 99
Tin	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Titanium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Uranium	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 99
Vanadium	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Zinc	<input type="checkbox"/> 6010B	<input type="checkbox"/> 200.7			<input type="checkbox"/> 99
Zirconium	<input type="checkbox"/> 6010B ¹	<input type="checkbox"/> 200.7 ¹		<input type="checkbox"/> 1620	<input type="checkbox"/> 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, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Flame AA.
4. Graphite Furnace AA.

L-WI-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 10/17/03

CLIENT: TNUHANFORD B01-055 H2368
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	J00YF9	Silver, Total	0.78	MG/KG	0.08	1.0
		Arsenic, Total	8.2	MG/KG	0.40	1.0
		Barium, Total	1350	MG/KG	0.02	1.0
		Cadmium, Total	5.0	MG/KG	0.04	1.0
		Chromium, Total	2510	MG/KG	0.1	1.0
		Mercury, Total	89.6	MG/KG	1.7	100
		Lead, Total	311	MG/KG	0.18	1.0
		Selenium, Total	0.28 u	MG/KG	0.28	1.0
-002	J00YH3	Silver, Total	0.88	MG/KG	0.08	1.0
		Arsenic, Total	5.5	MG/KG	0.40	1.0
		Barium, Total	94.8	MG/KG	0.02	1.0
		Cadmium, Total	0.78	MG/KG	0.04	1.0
		Chromium, Total	17.0	MG/KG	0.09	1.0
		Mercury, Total	0.22	MG/KG	0.02	1.0
		Lead, Total	22.6	MG/KG	0.18	1.0
		Selenium, Total	0.35	MG/KG	0.27	1.0
-003	J00YH5	Silver, Total	0.08	MG/KG	0.06	1.0
		Arsenic, Total	1.7	MG/KG	0.33	1.0
		Barium, Total	51.9	MG/KG	0.02	1.0
		Cadmium, Total	0.73	MG/KG	0.03	1.0
		Chromium, Total	8.1	MG/KG	0.08	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Lead, Total	12.8	MG/KG	0.15	1.0
		Selenium, Total	1.0	MG/KG	0.23	1.0
-004	J00YH6	Silver, Total	1.7	MG/KG	0.47	6.0
		Arsenic, Total	166	MG/KG	2.5	6.0
		Barium, Total	152	MG/KG	0.12	6.0
		Cadmium, Total	3.3	MG/KG	0.23	6.0
		Chromium, Total	244	MG/KG	0.59	6.0
		Mercury, Total	130	MG/KG	1.6	100
		Lead, Total	445	MG/KG	1.1	6.0
		Selenium, Total	3.5	MG/KG	1.7	6.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/17/03

CLIENT: TNUHANFORD B01-055 H2368

LVL LOT #: 0310L637

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	03L0587-MB1	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	0.42 u	MG/KG	0.42	1.0
		Barium, Total	0.03	MG/KG	0.02	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.20	MG/KG	0.10	1.0
		Lead, Total	0.25	MG/KG	0.19	1.0
		Selenium, Total	0.29 u	MG/KG	0.29	1.0
BLANK1	03C0267-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/17/03

CLIENT: TNUHANFORD B01-055 H2368
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J00YF9	Silver, Total	5.7	0.78	5.0	98.4	1.0
		Arsenic, Total	188	8.2	200	89.8	1.0
		Barium, Total	2460	1350	200	556.3*	1.0
		Cadmium, Total	9.8	5.0	5.0	96.0	1.0
		Chromium, Total	2310	2510	20.0	-1000. *	1.0
		Mercury, Total	125	89.6	0.1721150	*	100
		Lead, Total	1230	311	49.9	1845 *	1.0
		Selenium, Total	180	0.28u	200	90.3	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/17/03

CLIENT: TNUHANFORD B01-055 H2368

LVL LOT #: 0310L637

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	J00YF9	Silver, Total	0.78	0.98	23.2	1.0
		Arsenic, Total	8.2	7.6	7.6	1.0
		Barium, Total	1350	2770	68.9	1.0
		Cadmium, Total	5.0	7.0	33.3	1.0
		Chromium, Total	2510	2820	11.5	1.0
		Mercury, Total	89.6	128	34.9	100
		Lead, Total	311	368	16.8	1.0
		Selenium, Total	0.28u	0.28u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/17/03

CLIENT: TNUHANFORD B01-055 H2368
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	03L0587-LC1	Silver, LCS	49.8	50.0	MG/KG	99.6
		Arsenic, LCS	906	1000	MG/KG	90.6
		Barium, LCS	501	500	MG/KG	100.1
		Cadmium, LCS	23.2	25.0	MG/KG	92.8
		Chromium, LCS	48.4	50.0	MG/KG	96.8
		Lead, LCS	231	250	MG/KG	92.3
		Selenium, LCS	904	1000	MG/KG	90.4
LCS1	03C0267-LC1	Mercury, LCS	7.5	6.2	MG/KG	120.5



0310L637

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client <u>TNU-Hamford B01-055</u>	Refrigerator #	A	B	C	D	
Est. Final Proj. Sampling Date _____	#/Type Container	Liquid				
Project # <u>11343-606-001-9999-00</u>	Solid	1g	1g	1g	1g	
Project Contact/Phone # _____	Volume	Liquid				
Lionville Laboratory Project Manager <u>Orlette Johnson</u>	Solid	60	60	60	60	
QC <u>SPC</u> Del <u>STD</u> TAT <u>21 days</u>	Preservatives	-	-	-	-	
Date Rec'd <u>10-2-03</u> Date Due <u>10-23-03</u>	ANALYSES REQUESTED	ORGANIC			INORG	
		VOA	BNA	pest	PCB	Herb
						Metal
						CN
						Hex
						Chrom

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 (M)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only												
			MS	MSD				0625H	0625B	MRCR60	ICR6									
	001	J00YF9			SO	9-26-03	0957	X	X			X	X							
	002	J00YH0					10/2/03					X	X							
	002	J00YH3			I	9-25-03	0927	X	X			X	X							
	003	J00YH5			I	9-26-03	1003					X	X							
	004	J00YH6			I		10/26	X	X			X	X							

Special Instructions: SAF # B01.055
Run Matrix QC

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

Lionville Laboratory Use Only

Samples were: 1) Shipped or Hand Delivered
Airbill # _____

2) Ambient or Chilled
3) Received in Good Condition or N
4) Samples Properly Preserved or N
5) Received Within Holding Times or N

Tamper Resistant Seal was:
1) Present on Outer Package or N
2) Unbroken on Outer Package or N
3) Present on Sample or N
4) Unbroken on Sample or N
COC Record Present Upon Sample Rec't or N
Cooler Temp. 1.6 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
7923 4050 4148

Relinquished by	Received by	Date	Time
<u>Debra Ex</u>	<u>Orlette Johnson</u>	<u>10-2-03</u>	<u>0930</u>

Relinquished by	Received by	Date	Time
'COMPOSITE WASTE'	ORIGINAL REWRITTEN		

7923 4050 4148
ERC-03-102

13

Collector D. Shea	Company Contact D. Shea	Telephone No. 373-6425	Project Coordinator KESSNER, JH	Price Code	Data Turnaround
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation	Sampling Location 100 B/C pipelines, DS-100BC-009	SAF No. B01-055	Air Quality <input type="checkbox"/> 21 days		
Tree Chest No. ERC-03-102	Field Logbook No. EL-1548-4	COA R100BC2600	Method of Shipment Fed Ex		
Shipped To TMA/RECRA	Offsite Property No. A030382	Bill of Lading/Air Bill No. SEE OSPC			

POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated L 2,000 pCi/gm Special Handling and/or Storage Cool 4°C	Preservation	Cool 4C	None	None				
	Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P
	No. of Container(s)	1	1	1	1	1	1	1
	Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta
Sample No.	Matrix *	Sample Date	Sample Time							
J00YF9	OTHER SOLID	9/26/03	0957	✓	✓	✓	✓	✓	✓	✓
J00YH0	OTHER SOLID	↓	1002							

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS		Matrix *
Relinquished By/Removed From D. Shea	Date/Time 9/26/03 1559	Received By/Stored In Fridge 1A	Date/Time 9/26/03 1559	(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108, metastable, Uranium-238) for sample J00YF9 perform GAB then contact SM price to performing GEA		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
Relinquished By/Removed From 3128 PRG 1A	Date/Time 10/01/03 1300	Received By/Stored In David Smith	Date/Time 10/01/03 1300			
Relinquished By/Removed From David Smith	Date/Time 10/01/03 1300	Received By/Stored In FEDEX	Date/Time			
Relinquished By/Removed From D. Shea	Date/Time 10-2-03/0930	Received By/Stored In D. Shea	Date/Time 10-2-03/0930			
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time			

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

14

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-071		Page 1 of 1		
Collector D. Shea		Company Contact D. Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround		
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-020				SAF No. B01-055		Air Quality <input type="checkbox"/> 21 days				
Ice Chest No. ERC-03702		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex						
Shipped To TMA/RECRA		Offsite Property No. A030382				Bill of Lading/Air Bill No. See OSPC						
POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated Special Handling and/or Storage Cool 4°C				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
				Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P	
				No. of Container(s)	1	1	1	1	1	1	1	
				Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No.	Matrix *	Sample Date	Sample Time									
J00YH3	OTHER SOLID	9/23/03	0927	✓	✓	✓	✓	✓	✓	✓	RLF # J00YH2	
		DWS										
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D. Shea		Date/Time 9/25/03 1640		Received By/Stored In Fridge 3A		Date/Time 3/25/03 1640		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) contact SM prior to GEA analysis DWS 9/25/03				S=Soil SE=Sediment SO=Solid SI=Sediment W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WT=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From 3728 Fridge 3A		Date/Time 10/01/03 1300		Received By/Stored In John		Date/Time 10/01/03 1300						
Relinquished By/Removed From DWS		Date/Time 10/01/03 1300		Received By/Stored In Fed Ex		Date/Time						
Relinquished By/Removed From DWS		Date/Time 10/20/03 0930		Received By/Stored In DWS		Date/Time 10/20/03 0930						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
LABORATORY SECTION	Received By			Title			Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time					

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-073		Page 1 of 1			
Collector D. Shea		Company Contact D. Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround			
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-034		SAF No. B01-055		Air Quality <input type="checkbox"/>		21 days					
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex ^{HS} OSPC 9-30-03							
Shipped To TMA (RECRA)		Offsite Property No. A030382		Bill of Lading/Air Bill No. SEC OSPC									
POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> $< 2,000 \text{ pCi/gm}$ Special Handling and/or Storage $\text{cool } 4^\circ\text{C}$				Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P		
				No. of Container(s)	1	1	1	1	1	1	1		
				Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta			
				Sample No.	Matrix *	Sample Date	Sample Time						
J00YH5	OTHER SOLID	9/26/03	1008	✓	✓	✓	✓	✓					
J00YH6	OTHER SOLID	↓	1026	✓	✓	✓	✓	✓					
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Flame W=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From D. Shea		Date/Time 9/26/03 1559		Received By/Stored In Frideria		Date/Time 9/26/03 1559		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) IDWS 9/26/03					
Relinquished By/Removed From 3728 Frige 1A		Date/Time 10/01/03 1300		Received By/Stored In [Signature]		Date/Time 10/01/03 1300							
Relinquished By/Removed From D. Shea		Date/Time 10/01/03 1300		Received By/Stored In FED EX		Date/Time							
Relinquished By/Removed From [Signature]		Date/Time 10-2-03/0930		Received By/Stored In [Signature]		Date/Time 10-2-03/0930							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
LABORATORY SECTION		Received By				Title				Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method				Disposed By				Date/Time			

16

**LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST**

CLIENT: TNU Hamford

Purchase Order/Project:

DATE: 10.2.03

SAT# / SOW# / Release #: 801-055

Laboratory SDG #:

03104637

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvlI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-03-102 / 1.6°C

Laboratory Sample Custodian:

Laboratory Project Manager:

[Signature]

RECEIVED
NOV 2003

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-055 H2368

DATE RECEIVED: 10/02/03

LVL LOT # :0310L637

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

J00YF9

% SOLIDS	001			SO 03L&S136	09/26/03	10/02/03	10/02/03
% SOLIDS	001	REP		SO 03L&S136	09/26/03	10/02/03	10/02/03
CHROMIUM VI	001			SO 03LVI072	09/26/03	10/09/03	10/09/03

J00YH3

% SOLIDS	002			SO 03L&S136	09/25/03	10/02/03	10/02/03
CHROMIUM VI	002			SO 03LVI072	09/25/03	10/09/03	10/09/03
CHROMIUM VI	002	REP		SO 03LVI072	09/25/03	10/09/03	10/09/03
CHROMIUM VI	002	MS		SO 03LVI072	09/25/03	10/09/03	10/09/03
CHROMIUM VI	002	MSD		SO 03LVI072	09/25/03	10/09/03	10/09/03

J00YH5

% SOLIDS	003			SO 03L&S136	09/26/03	10/02/03	10/02/03
CHROMIUM VI	003			SO 03LVI072	09/26/03	10/09/03	10/09/03

J00YH6

% SOLIDS	004			SO 03L&S136	09/26/03	10/02/03	10/02/03
CHROMIUM VI	004			SO 03LVI072	09/26/03	10/09/03	10/09/03

LAB QC:

CHROMIUM VI	MB1			S 03LVI072	N/A	10/09/03	10/09/03
CHROMIUM VI	MB1	BS		S 03LVI072	N/A	10/09/03	10/09/03
CHROMIUM VI	MB1	BSD		S 03LVI072	N/A	10/09/03	10/09/03



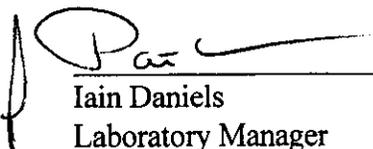
Analytical Report

Client: TNU-HANFORD B01-055 H2368
LVL#: 0310L637

W.O.#: 11343-606-001-9999-00
Date Received: 10-02-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 4 solid samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blank for Chromium VI was within the method criteria.
6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.
7. The matrix spike (MS) recovery for Insoluble Chromium VI was were within the 75-125% control limits, MS recovery for Soluble Chromium VI was below the control limits at 71.1%.
8. The replicate analyses for Percent solids and Chromium VI were within the 20% Relative Percent Difference (RPD) control limit.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

10-16-03
Date

njpvi10-637

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 13 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% 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	___ 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:	Method:		
Other:	Method		

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 10/09/03

CLIENT: TNUHANFORD B01-055 H2368
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00YF9	% Solids Chromium VI	99.2 59.0	% MG/KG	0.01 2.0	1.0 5.0
-002	J00YH3	% Solids Chromium VI	99.3 0.40 u	% MG/KG	0.01 0.40	1.0 1.0
-003	J00YH5	% Solids Chromium VI	99.2 0.40 u	% MG/KG	0.01 0.40	1.0 1.0
-004	J00YH6	% Solids Chromium VI	97.5 0.82 u	% MG/KG	0.01 0.82	1.0 2.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/09/03

CLIENT: TNUHANFORD B01-055 H2368
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI072-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 10/09/03

CLIENT: TNUHANFORD B01-055 H2368
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	J00YH3	Soluble Chromium VI	3.2	0.40u	4.0	71.1	1.0
		Insoluble Chromium VI	1100	0.40u	1190	92.1	100
BLANK10	03LVI072-MB1	Soluble Chromium VI	4.1	0.40u	4.0	101.6	1.0
		Insoluble Chromium VI	1100	0.40u	1110	98.9	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 10/09/03

CLIENT: TNUHANFORD B01-055 H2368
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0310L637

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	J00YF9	% Solids	99.2	99.4	0.20	1.0
-002REP	J00YH3	Chromium VI	0.40u	0.40u	NC	1.0



0310L637

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-Hamford B01-055
 Est. Final Proj. Sampling Date _____
 Project # 11343-606-001-9999-00
 Project Contact/Phone # _____
 Lionville Laboratory Project Manager Orlette Johnson
 QC SPC Del 5/0 TAT 21 days

Refrigerator #	A		B		C		D	
#/Type Container	Liquid	4	4		4	4		
	Solid	1g	1g		1g	1g		
Volume	Liquid							
	Solid	60	60		60	60		
Preservatives		1	1		1	1		
ANALYSES REQUESTED	ORGANIC					INORG		
	VOA	BNA	Resy/PCB	Herb		Metal	CN	Hex/Chrom

Date Rec'd 10-2-03 Date Due 10-23-03

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 (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only													
		MS	MSD				0625H	0PCB	MRCATO	ICR6										
001	J00YF9			SO	9-26-03	0957	X	X			X	X								
002	J00YH0					1002					X	X								
002	J00YH3				9-25-03	0927	X	X			X	X								
003	J00YH5				9-26-03	1008					X	X								
004	J00YH6					1026	X	X			X	X								

Special Instructions: SAF # B01-055
Run Matrix QC

DATE/REVISIONS:
 1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____

Lionville Laboratory Use Only

Samples were: 1) Shipped or Hand Delivered
 Airbill # _____

2) Ambient or Chilled
 3) Received in Good Condition or N

4) Samples Properly Preserved or N

5) Received Within Holding Times or N

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

COC Record Present Upon Sample Rec't or N

Cooler Temp. 1.6 °C

Relinquished by	Received by	Date	Time
<u>Orlette Johnson</u>	<u>Orlette Johnson</u>	<u>10-2-03</u>	<u>0930</u>

Relinquished by	Received by	Date	Time
<u>"COMPOSITE WASTE"</u>	<u>ORIGINAL REWRITTEN</u>		

Discrepancies Between Samples Labels and COC Record? Y or N
 NOTES:
7923 4050 4148

ELC-03-102

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B01-055-068		Page 1 of 1	
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code Data Turnaround	
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-009		SAF No. B01-055		Air Quality <input type="checkbox"/> 2 days			
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex			
Shipped To TM/RECRA		Offsite Property No. A030382		Bill of Lading/Air Bill No. SEE OSPC					

POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> $< 2,000 \text{ pCi/gm}$ Special Handling and/or Storage $\text{Cool } 4^{\circ}\text{C}$	Preservation	Cool 4C	None	None				
	Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P
	No. of Container(s)	1	1	1	1	1	1	1
	Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL

SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta
------------------------	--	--	--	---------------------------------------	---	---------------------	-------------	------------------------	---------------------------------------	-------------------------

Sample No.	Matrix *	Sample Date	Sample Time							
J00YF9	OTHER SOLID	9/26/03	0957	✓	✓	✓	✓	✓	✓	} REF # J00YH9
J00YH0	OTHER SOLID	↓	1002							

CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D.Shea D.Shea		Date/Time 9/26/03 1559		Received By/Stored In Fridel A		Date/Time 9/26/03 1559		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155), Gamma Spec - Add-on (Americium-241, Silver-109, Uranium-238) <i>for sample J00YF9 perform GAB then contact SM price to performing GEA</i>				S=Soil SE=Seamless SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum DL=Drum Liquid T=Trassic W=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From 3728 Pkg 1A		Date/Time 10/01/03 1300		Received By/Stored In David Smith		Date/Time 10/01/03 1300						
Relinquished By/Removed From David Smith		Date/Time 10/01/03 1300		Received By/Stored In FED EX		Date/Time						
Relinquished By/Removed From D.Shea		Date/Time 10-2-03/0930		Received By/Stored In D.Shea		Date/Time 10-2-03/0930						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						

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

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-071		Page 1 of 1	
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround	
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-020		SAF No. B01-055		Air Quality <input type="checkbox"/>		21 days			
Ice Chest No. ERC-03-102		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex					
Shipped To TMA/RECRA		Offsite Property No. A030382		Bill of Lading/Air Bill No. See OSPC							
POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated ← 2,000 pCi/gm Special Handling and/or Storage Cool 4°C			Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	
			Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P	
			No. of Container(s)	1	10	1	1	1	1		
			Volume	60mL	60mL	60mL	60mL	50g	500mL	90mL	
SAMPLE ANALYSIS				See item (1) in Special Instructions	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions	Gross Alpha, Gross Beta	
Sample No.	Matrix *	Sample Date	Sample Time								
J00YH3	OTHER SOLID	9/25/03	0927	✓	✓	✓	✓	✓	✓	✓	RLP # J00YH2
		DWS									
CHAIN OF POSSESSION						SPECIAL INSTRUCTIONS					Matrix *
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver); (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-109 metastable, Uranium-238); contact SM prior to GEA analysis DWS 9/25/03			S - Soil SL - Solid SL - Sludge W - Water O - Oil A - Air DS - Dioxin DL - Dioxin Liquid T - Tissue WL - Wipe L - Liquid V - Vegetable X - Other
D.Shea DSHEA		9/25/03 1640		Fricke 3A		3/25/03 1640					
3728 Peter 3A		10/01/03 1300		DWS		10/01/03 1300					
DWS		10/01/03 1300		Fed Ex							
DWS		10/01/03 1300		DWS		10/01/03 1300					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
DWS		10/01/03 1300		DWS		10/01/03 1300					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
DWS		10/01/03 1300		DWS		10/01/03 1300					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
DWS		10/01/03 1300		DWS		10/01/03 1300					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
DWS		10/01/03 1300		DWS		10/01/03 1300					
LABORATORY SECTION		Received By		Title		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					

Collector: D. Shea Company Contact: D. Shea Telephone No.: 373-6425 Project Coordinator: KESSNER, JH Price Code: Data Turnaround:

Project Designation: 100 B/C Area Effluent Pipeline & Proximity Site Remediation Sampling Location: 100 B/C pipelines, DS-100BC-034 SAF No.: B01-055 Air Quality: 21 days

Ice Chest No.: ERC-03-102 Field Logbook No.: EL-1548-4 COA: R100BC2600 Method of Shipment: Fed Ex ^W 9/30/03

Shipped To: TMA/RECRA Offsite Property No.: A030382 Bill of Lading/Air Bill No.: SCC 03 PC

POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated $< 2,000 \text{ pCi/gm}$ Special Handling and/or Storage cool 4°C	Preservation	Cool 4C	None	None				
	Type of Container	G/P	G/P	G/P	aG	aG	G/P	G/P
	No. of Container(s)	1	1	1	1	1	1	1
	Volume	60mL	60mL	60mL	60mL	50g	500mL	60mL

SAMPLE ANALYSIS	See item (1) in Special Instructions	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions	Gross Alpha; Gross Beta

Sample No.	Matrix *	Sample Date	Sample Time						
J00YH5	OTHER SOLID	9/26/03	1008	✓	✓	✓	✓	✓	} Ref # J00YH4
J00YH6	OTHER SOLID	4	1026	✓	✓	✓	✓	✓	

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS OK (1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver); (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) IDWS 9/26/03	Matrix * S - Soil SE - Sediment SU - Sludge SL - Sludge W - Water O - Oil A - Air DS - Drum DL - Drum Liquid T - Tissue WI - Wipe L - Liquid V - Vegetation X - Other
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time		
D. Shea	9/26/03 1559	Frideria	9/26/03 1559		
3728 Frige 1A	10/01/03 1300	Frideria	10/01/03 1300		
ERC	10/01/03 1300	FED EX			
10.2.03/0930		10.2.03/0930			

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

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Hamford

Purchase Order/Project:

DATE: 10.2.03

SAF# / SOW# / Release #: 801-055

Laboratory SDG #:

03104637

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

- | | | | | |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> 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) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvL1 Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 13. coc will be faxed or emailed to client? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date) | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |

Cooler # / temp (°C) and Comments:

ERC-03-102 / 1.6°C

Laboratory Sample Custodian:

[Signature]

Laboratory Project Manager:



EBERLINE

SERVICES

November 1, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R3-10-007-7609, SDG H2368

Dear Ms. Kessner:

Enclosed is the data report for four other solid samples designated under SAF No. B01-055 received at Eberline Services on October 2, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

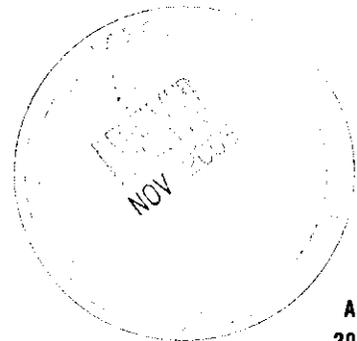
Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package



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

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2368 was composed of four other solid samples designated under SAF No. B01-055 with a Project Designation of: 100 B/C Area Effluent Pipelines & Proximity Site Remediation.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-fax on October 23, 2003.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

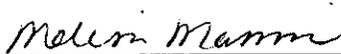
No problems were encountered during the course of the analyses.

2.2 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 C. Mannion
Senior Program Manager

11/1/3

Date

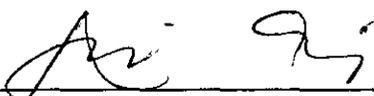
EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2368

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	.	.	.	8
Lab Control Samples	.	.	.	9
Duplicates	.	.	.	10
Data Sheets	.	.	.	12
Method Summaries	.	.	.	16
Report Guides	.	.	.	19
End of Section	.	.	.	33


Prepared by _____

Melissa Mannion
Reviewed by _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2368

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H2368

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.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 10/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2368

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R310007-01	J00YF9	100 B/C Pipelines	SOLID		B01-055	B01-055-068	09/26/03 09:57
R310007-02	J00YH0	100 B/C Pipelines	SOLID		B01-055	B01-055-068	09/26/03 10:02
R310007-03	J00YH3	100 B/C Pipelines	SOLID		B01-055	B01-055-071	09/25/03 09:22
R310007-04	J00YH5	100 B/C Pipelines	SOLID		B01-055	B01-055-073	09/26/03 10:08
R310007-05	Lab Control Sample		SOLID		B01-055		
R310007-06	Method Blank		SOLID		B01-055		
R310007-07	Duplicate (R310007-01)	100 B/C Pipelines	SOLID		B01-055		09/26/03 09:57
R310007-08	Duplicate (R310007-04)	100 B/C Pipelines	SOLID		B01-055		09/26/03 10:08

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2368

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7609	B01-055-068	J00YF9	SOLID	100.0	73.05 g		10/02/03	6	R310007-01	7609-001
		J00YH0	SOLID	100.0	45.37 g		10/02/03	6	R310007-02	7609-002
	B01-055-071	J00YH3	SOLID	100.0	98.86 g		10/02/03	7	R310007-03	7609-003
	B01-055-073	J00YH5	SOLID	100.0	54.31 g		10/02/03	6	R310007-04	7609-004
		Method Blank	SOLID						R310007-06	7609-006
		Lab Control Sample	SOLID						R310007-05	7609-005
		Duplicate (R310007-01)	SOLID	100.0	73.05 g		10/02/03	6	R310007-07	7609-007
		Duplicate (R310007-04)	SOLID	100.0	54.31 g		10/02/03	6	R310007-08	7609-008

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2368

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Gas Proportional Counting										
93A	SOLID	Gross Alpha in Soil	7078-184	20.0	2			1	1	1/1
93B	SOLID	Gross Beta in Soil	7078-184	15.0	2			1	1	1/1
Gamma Spectroscopy										
GAM	SOLID	Gamma Scan	7078-184	15.0	2			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 10/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2368

LAB SAMPLE	CLIENT SAMPLE ID					SUF-				
COLLECTED	LOCATION		MATRIX		TEST	FIX	ANALYZED	REVIEWED	BY	METHOD
RECEIVED	CUSTODY	SAF No		PLANCHET						
R310007-01	J00YF9			7609-001	93A/93		10/10/03	10/23/03	MWT	Gross Alpha in Soil
09/26/03	100 B/C Pipelines		SOLID	7609-001	93B/93		10/10/03	10/23/03	MWT	Gross Beta in Soil
10/02/03	B01-055-068	B01-055								
R310007-02	J00YH0			7609-002	GAM		10/14/03	10/23/03	MWT	Gamma Scan
09/26/03	100 B/C Pipelines		SOLID							
10/02/03	B01-055-068	B01-055								
R310007-03	J00YH3			7609-003	93A/93		10/09/03	10/23/03	MWT	Gross Alpha in Soil
09/25/03	100 B/C Pipelines		SOLID	7609-003	93B/93		10/09/03	10/23/03	MWT	Gross Beta in Soil
10/02/03	B01-055-071	B01-055								
R310007-04	J00YH5			7609-004	GAM		10/14/03	10/23/03	MWT	Gamma Scan
09/26/03	100 B/C Pipelines		SOLID							
10/02/03	B01-055-073	B01-055								
R310007-05	Lab Control Sample			7609-005	93A/93		10/10/03	10/23/03	MWT	Gross Alpha in Soil
			SOLID	7609-005	93B/93		10/10/03	10/23/03	MWT	Gross Beta in Soil
		B01-055		7609-005	GAM		10/15/03	10/23/03	MWT	Gamma Scan
R310007-06	Method Blank			7609-006	93A/93		10/09/03	10/23/03	MWT	Gross Alpha in Soil
			SOLID	7609-006	93B/93		10/09/03	10/23/03	MWT	Gross Beta in Soil
		B01-055		7609-006	GAM		10/15/03	10/23/03	MWT	Gamma Scan
R310007-07	Duplicate (R310007-01)			7609-007	93A/93		10/09/03	10/23/03	MWT	Gross Alpha in Soil
09/26/03	100 B/C Pipelines		SOLID	7609-007	93B/93		10/09/03	10/23/03	MWT	Gross Beta in Soil
10/02/03		B01-055								
R310007-08	Duplicate (R310007-04)			7609-008	GAM		10/20/03	10/23/03	MWT	Gamma Scan
09/26/03	100 B/C Pipelines		SOLID							
10/02/03		B01-055								

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 6

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2368

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B01-055	Gross Alpha in Soil	900.0_ALPHABETA_GPC	2			1	1	1		5
93B/93	B01-055	Gross Beta in Soil	900.0_ALPHABETA_GPC	2			1	1	1		5
GAM	B01-055	Gamma Scan	GAMMA_GS	2			1	1	1		5
TOTALS				6			3	3	3		15

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LWS
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-006

Method Blank

METHOD BLANK

<u>SDG 7609</u>	<u>Client/Case no Hanford</u>	<u>SDG H2368</u>
<u>Contact Melissa C. Mannion</u>	<u>Contract No. 630</u>	
<u>Lab sample id R310007-06</u>	<u>Client sample id Method Blank</u>	
<u>Dept sample id 7609-006</u>	<u>Material/Matrix</u>	<u>SOLID</u>
	<u>SAF No B01-055</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.006	1.8	3.2	10	U	93A
Gross Beta	12587-47-2	-2.19	3.5	6.2	15	U	93B
Potassium 40	13966-00-2	U		0.65		U	GAM
Cobalt 60	10198-40-0	U		<u>0.061</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		0.056	0.10	U	GAM
Radium 226	13982-63-3	U		0.10		U	GAM
Radium 228	15262-20-1	U		0.24		U	GAM
Europium 152	14683-23-9	U		<u>0.12</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.18</u>	0.10	U	GAM
Europium 155	14391-16-3	U		0.095	0.10	U	GAM
Thorium 228	14274-82-9	U		0.072		U	GAM
Thorium 232	TH-232	U		0.24		U	GAM
Uranium 235	15117-96-1	U		0.17		U	GAM
Uranium 238	U-238	U		7.5		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 B/C Area Eff. Pipeline Prox Site

QC-BLANK 45818

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-005

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7609</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R310007-05</u> Dept sample id <u>7609-005</u>	Client/Case no <u>Hanford</u> <u>SDG H2368</u> Contract <u>No. 630</u> Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>SOLID</u> SAF No <u>B01-055</u>
---	--

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	246	16	3.4	10	93A	214	8.6	115	63-137	70-130
Gross Beta	239	11	6.1	15	93B	229	9.2	104	75-125	70-130
Cobalt 60	6.15	0.28	<u>0.16</u>	0.050	GAM	5.44	0.22	113	73-127	80-120
Cesium 137	6.37	0.25	<u>0.18</u>	0.10	GAM	5.52	0.22	115	72-128	80-120

100 B/C Area Eff. Pipeline Prox Site

QC-LCS 45817

Lab id <u>EBRLNE</u> Protocol <u>Hanford</u> Version <u>Ver 1.0</u> Form <u>DVD-LCS</u> Version <u>3.06</u> Report date <u>10/23/03</u>
--

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-007

J00YF9

DUPLICATE

SDG <u>7609</u>	Client/Case no <u>Hanford</u>	<u>SDG H2368</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R310007-07</u>	Lab sample id <u>R310007-01</u>	Client sample id <u>J00YF9</u>
Dept sample id <u>7609-007</u>	Dept sample id <u>7609-001</u>	Location/Matrix <u>100 B/C Pipelines</u> SOLID
	Received <u>10/02/03</u>	Collected/Weight <u>09/26/03 09:57 73.05 g</u>
% solids <u>100.0</u>	% solids <u>100.0</u>	Custody/SAF No <u>B01-055-068</u> <u>801-055</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	4.69	4.7	5.1	10	U	93A	6.17	4.9	6.0		27	192	
Gross Beta	106	7.8	5.6	15		93B	102	8.2	7.5		4	36	

100 B/C Area Eff. Pipeline Prox Site

QC-DUP#1 45819

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-008

J00YH5

DUPLICATE

SDG <u>7609</u> Contact <u>Melissa C. Mannion</u> DPLICATE Lab sample id <u>R310007-08</u> Dept sample id <u>7609-008</u> % solids <u>100.0</u>	ORIGINAL Lab sample id <u>R310007-04</u> Dept sample id <u>7609-004</u> Received <u>10/02/03</u> % solids <u>100.0</u>	Client/Case no <u>Hanford</u> SDG <u>H2368</u> Contract No. <u>630</u> Client sample id <u>J00YH5</u> Location/Matrix <u>100 B/C Pipelines</u> SOLID Collected/Weight <u>09/26/03 10:08</u> <u>54.31 g</u> Custody/SAF No <u>B01-055-073</u> <u>B01-055</u>
--	--	--

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
Potassium 40	17.4	2.2	1.2			GAM	18.9	6.4	1.4		8	64	
Cobalt 60	U		<u>0.17</u>	0.050	U	GAM	U		<u>0.15</u>	U	-		
Cesium 137	U		<u>0.13</u>	0.10	U	GAM	U		<u>0.13</u>	U	-		
Radium 226	2.14	0.32	0.31			GAM	2.14	0.34	0.30		0	46	
Radium 228	2.38	0.67	0.62			GAM	2.47	0.64	0.57		4	66	
Europium 152	U		<u>0.35</u>	0.10	U	GAM	U		<u>0.32</u>	U	-		
Europium 154	U		<u>0.42</u>	0.10	U	GAM	U		<u>0.39</u>	U	-		
Europium 155	U		<u>0.44</u>	0.10	U	GAM	U		<u>0.25</u>	U	-		
Thorium 228	2.36	0.17	0.14			GAM	2.20	0.25	0.17		7	38	
Thorium 232	2.38	0.67	0.62			GAM	2.47	0.64	0.57		4	66	
Uranium 235	U		0.50		U	GAM	U		0.45	U	-		
Uranium 238	U		16		U	GAM	U		16	U	-		
Americium 241	U		0.36		U	GAM	U		0.12	U	-		

100 B/C Area Eff. Pipeline Prox Site

QC-DUP#4 45820

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-001

J00YF9

DATA SHEET

SDG <u>7609</u>	Client/Case no <u>Hanford</u>	<u>SDG H2368</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R310007-01</u>	Client sample id <u>J00YF9</u>	
Dept sample id <u>7609-001</u>	Location/Matrix <u>100 B/C Pipelines</u>	<u>SOLID</u>
Received <u>10/02/03</u>	Collected/Weight <u>09/26/03 09:57</u>	<u>73.05 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>B01-055-068</u>	<u>B01-055</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	6.17	4.9	6.0	10		93A
Gross Beta	12587-47-2	102	8.2	7.5	15		93B

100 B/C Area Eff. Pipeline Prox Site

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-002

J00YH0

DATA SHEET

SDG <u>7609</u>	Client/Case no <u>Hanford</u>	<u>SDG H2368</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R310007-02</u>	Client sample id <u>J00YH0</u>	
Dept sample id <u>7609-002</u>	Location/Matrix <u>100 B/C Pipelines</u>	<u>SOLID</u>
Received <u>10/02/03</u>	Collected/Weight <u>09/26/03 10:02 45.37 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B01-055-068</u>	<u>B01-055</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Potassium 40	13966-00-2	15.3	1.0	0.51			GAM
Cobalt 60	10198-40-0	U		<u>0.062</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		0.056	0.10	U	GAM
Radium 226	13982-63-3	0.440	0.11	0.12			GAM
Radium 228	15262-20-1	0.568	0.22	0.22			GAM
Europium 152	14683-23-9	U		<u>0.12</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.18</u>	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.462	0.062	0.053			GAM
Thorium 232	TH-232	0.568	0.22	0.22			GAM
Uranium 235	15117-96-1	U		0.17		U	GAM
Uranium 238	U-238	U		7.0		U	GAM
Americium 241	14596-10-2	U		0.13		U	GAM

100 B/C Area Eff. Pipeline Prox Site

DATA SHEETS

Page 2

SUMMARY DATA SECTION

Page 13

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-003

J00YH3

D A T A S H E E T

SDG <u>7609</u>	Client/Case no <u>Hanford</u>	<u>SDG H2368</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R310007-03</u>	Client sample id <u>J00YH3</u>	
Dept sample id <u>7609-003</u>	Location/Matrix <u>100 B/C Pipelines</u>	<u>SOLID</u>
Received <u>10/02/03</u>	Collected/Weight <u>09/25/03 09:22</u>	<u>98.86 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>B01-055-071</u>	<u>B01-055</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	3.53	2.7	2.9	10		93A
Gross Beta	12587-47-2	18.0	6.6	10	15		93B

100 B/C Area Eff. Pipeline Prox Site

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2368

7609-004

J00YH5

DATA SHEET

SDG <u>7609</u>	Client/Case no <u>Hanford</u>	<u>SDG H2368</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R310007-04</u>	Client sample id <u>J00YH5</u>	
Dept sample id <u>7609-004</u>	Location/Matrix <u>100 B/C Pipelines</u>	<u>SOLID</u>
Received <u>10/02/03</u>	Collected/Weight <u>09/26/03 10:08</u>	<u>54.31 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>B01-055-073</u>	<u>B01-055</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	18.9	6.4	1.4			GAM
Cobalt 60	10198-40-0	U		<u>0.15</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		<u>0.13</u>	0.10	U	GAM
Radium 226	13982-63-3	2.14	0.34	0.30			GAM
Radium 228	15262-20-1	2.47	0.64	0.57			GAM
Europium 152	14683-23-9	U		<u>0.32</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.39</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.25</u>	0.10	U	GAM
Thorium 228	14274-82-9	2.20	0.25	0.17			GAM
Thorium 232	TH-232	2.47	0.64	0.57			GAM
Uranium 235	15117-96-1	U		0.45		U	GAM
Uranium 238	U-238	U		16		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 B/C Area Eff. Pipeline Prox Site

DATA SHEETS

Page 4

SUMMARY DATA SECTION

Page 15

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2368

Test 93A Matrix SOLID
 SDG 7609
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2368

RESULTS

LAB	RAW	SUF-			Gross Alpha
SAMPLE ID	TEST FIX	PLANCHET	CLIENT	SAMPLE ID	
Preparation batch 7078-184					
R310007-01	93	7609-001	J00YF9		6.17
R310007-03	93	7609-003	J00YH3		3.53
R310007-05	93	7609-005	LCS (QC ID=45817)		ok
R310007-06	93	7609-006	BLK (QC ID=45818)		U
R310007-07	93	7609-007	Duplicate (R310007-01)		ok U

Nominal values and limits from method RDLs (pCi/g) 10
 100 B/C Area Eff. Pipeline Prox Site

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-			
SAMPLE ID	TEST FIX	CLIENT	SAMPLE ID	pCi/g	g	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-184			2σ prep error 20.0 % Reference Lab Notebook 7078 pg. 184													
R310007-01	93	J00YF9	6.0	0.100				100	100			14	10/08/03	10/10	GRB-114	
R310007-03	93	J00YH3	2.9	0.100				47	100			14	10/08/03	10/09	GRB-108	
R310007-05	93	LCS (QC ID=45817)	3.4	0.100				20	100				10/08/03	10/10	GRB-115	
R310007-06	93	BLK (QC ID=45818)	3.2	0.100				20	100				10/08/03	10/09	GRB-112	
R310007-07	93	Duplicate (R310007-01)	5.1	0.100				102	100			13	10/08/03	10/09	GRB-101	
		(QC ID=45819)														

Nominal values and limits from method 10 0.100 5-250 100 180

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

AVERAGES ± 2 SD	MDA	<u>4.1</u>	±	<u>2.7</u>
FOR 5 SAMPLES	RESIDUE	<u>58</u>	±	<u>82</u>

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2368

Test 93B Matrix SOLID
 SDG 7609
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN SOIL
 GAS PROPORTIONAL COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2368

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 7078-184				
R310007-01	93	7609-001	J00YF9	102
R310007-03	93	7609-003	J00YH3	18.0
R310007-05	93	7609-005	LCS (QC ID=45817)	ok
R310007-06	93	7609-006	BLK (QC ID=45818)	U
R310007-07	93	7609-007	Duplicate (R310007-01)	ok

Nominal values and limits from method RDLs (pCi/g) 15
 100 B/C Area Eff. Pipeline Prox Site

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-184			2σ prep error 15.0 %			Reference Lab Notebook 7078 pg. 184									
R310007-01	93	J00YF9	7.5	0.100			100	100				14	10/08/03	10/10	GRB-114
R310007-03	93	J00YH3	10	0.100			47	100				14	10/08/03	10/09	GRB-108
R310007-05	93	LCS (QC ID=45817)	6.1	0.100			20	100					10/08/03	10/10	GRB-115
R310007-06	93	BLK (QC ID=45818)	6.2	0.100			20	100					10/08/03	10/09	GRB-112
R310007-07	93	Duplicate (R310007-01) (QC ID=45819)	5.6	0.100			102	100				13	10/08/03	10/09	GRB-101

Nominal values and limits from method 15 0.100 5-250 100 180

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

AVERAGES ± 2 SD MDA 7.1 ± 3.6
 FOR 5 SAMPLES RESIDUE 58 ± 82

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2368

Test GAM Matrix SOLID
 SDG 7609
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

GAMMA SCAN
 GAMMA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H2368

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137

Preparation batch 7078-184

R310007-02		7609-002	J00YH0	U	U
R310007-04		7609-004	J00YH5	U	U
R310007-05		7609-005	LCS (QC ID=45817)	ok	ok
R310007-06		7609-006	BLK (QC ID=45818)	U	U
R310007-08		7609-008	Duplicate (R310007-04)	- U	- U

Nominal values and limits from method RDLs (pCi/g) 0.050 0.10
 100 B/C Area Eff. Pipeline Prox Site

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR

Preparation batch 7078-184 2σ prep error 15.0 % Reference Lab Notebook 7078 pg. 184

R310007-02		J00YH0	<u>0.44</u>	53.0					525			18	10/08/03	10/14	PD,04,00
R310007-04		J00YH5	<u>1.1</u>	45.8					526			18	10/08/03	10/14	PD,07,00
R310007-05		LCS (QC ID=45817)	<u>0.16</u>	45.8					431				10/08/03	10/15	PD,07,00
R310007-06		BLK (QC ID=45818)	<u>0.43</u>	45.8					411				10/08/03	10/15	PD,04,00
R310007-08		Duplicate (R310007-04) (QC ID=45819)	<u>1.2</u>	45.8					500			24	10/08/03	10/20	PD,03,00

Nominal values and limits from method 0.050 45.8 100 180

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

AVERAGES ± 2 SD	MDA <u>0.67</u> ± <u>0.91</u>
FOR 5 SAMPLES	YIELD _____ ± _____

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LMS</u>
Version <u>3.06</u>
Report date <u>10/23/03</u>

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2368

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 19

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2368

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.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2368

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.

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 21

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2368

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).

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

Page 22

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2368

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.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2368

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.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 24

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2368

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.

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 25

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H2368

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.

REPORT GUIDES

Page 8

SUMMARY DATA SECTION

Page 26

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2368

DUPLICATE

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

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

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

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2368

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

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 28

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2368

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.

REPORT GUIDES

Page 11

SUMMARY DATA SECTION

Page 29

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H2368

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'

REPORT GUIDES

Page 12

SUMMARY DATA SECTION

Page 30

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2368

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.
- * Preparation 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.

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 31

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2368

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

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 32

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2368

SDG 7609
 Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
 Contract No. 630
 Case no SDG H2368

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.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 10/23/03

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-068		Page 1 of 1					
Collector D. Shea		Company Contact D. Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround					
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-009		42308 (1609)		SAF No. B01-055		Air Quality <input type="checkbox"/> 2 days							
Ice Chest No. SML-452		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex									
Shipped To TMA/RECRE		Offsite Property No. A030403				Bill of Lading/Air Bill No. SCC OPSC									
POSSIBLE SAMPLE HAZARDS/REMARKS possibly radiologically contaminated < 2,000 pCi/gm Special Handling and/or Storage None				Preservation		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None			
				Type of Container		G/P	G/P	G/P	aG	aG	G/P	G/P			
				No. of Container(s)		1	1/2	1	1	1	1	1	1		
				Volume		60mL	60mL	60mL	60mL	50g	500mL	60mL			
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7196	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta					
				Sample No.	Matrix *	Sample Date	Sample Time								
J00YF9	OTHER SOLID	9/26/03	0957	✓	✓	✓	✓	✓	✓	✓	3 ACE RAD				
J00YH0	OTHER SOLID	↓	1002								5 Screen J00YH9				
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Sediment SO=Solid St=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From D. Shea D. Shea		Date/Time 9/26/03 1559		Received By/Stored In Fridge 1A		Date/Time 9/26/03 1559		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108, Uranium-238) for sample J00YF9 perform GAB then contact SM price to performing GEA							
Relinquished By/Removed From 3728 Ref 1A		Date/Time 10/01/03 1300		Received By/Stored In Lab at St. John		Date/Time 10/01/03 1300									
Relinquished By/Removed From David St. John		Date/Time 10/01/03 1300		Received By/Stored In FED EX		Date/Time									
Relinquished By/Removed From FED EX		Date/Time		Received By/Stored In Tom C		Date/Time 10.2.03 1000									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
LABORATORY SECTION		Received By		Title				Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time							

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B01-055-071		Page 1 of 1		
Collector D.Shea		Company Contact D.Shea		Telephone No. 373-6425		Project Coordinator KESSNER, JH		Price Code		Data Turnaround		
Project Designation 100 B/C Area Effluent Pipeline & Proximity Site Remediation		Sampling Location 100 B/C pipelines, DS-100BC-020		H/2368 (7609)		SAF No. B01-055		Air Quality <input type="checkbox"/>		21 days		
Ice Chest No. SML-452		Field Logbook No. EL-1548-4		COA R100BC2600		Method of Shipment Fed Ex						
Shipped To TMA/RECRA		Offsite Property No. A 030403				Bill of Lading/Air Bill No. See OSPC						
POSSIBLE SAMPLE HAZARDS/REMARKS <i>possibly radiologically contaminated</i> $< 2,000 \text{ pCi/gm}$ Special Handling and/or Storage <i>None</i>				Preservation Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None		
				Type of Container G/P	G/P	G/P	aG	aG	G/P	G/P		
				No. of Container(s) 1	1	1	1	1	1	1		
				Volume 60mL	60mL	60mL	60mL	50g	500mL	60mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	ICP Metals - 6010A (Add-on) (Chromium, Lead); Mercury - 7471 - (CV)	Chromium Hex - 7496	PCBs - 8082	Semi-VOA - 8270A (TCL)	See item (2) in Special Instructions.	Gross Alpha; Gross Beta		
Sample No.	Matrix *	Sample Date	Sample Time									
J00YH3	OTHER SOLID	9/25/03 DWS	0922	✓	✓	✓	✓	✓	✓	✓	REF # J00YJ2	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From D.Shea DSHEA 9/25/03 1640		Date/Time		Received By/Stored In Fridge 3A 3/25/03 1640		Date/Time		(1) ICP Metals - 6010TR (Client List) (Arsenic, Barium, Cadmium, Selenium, Silver) (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Silver-108 metastable, Uranium-238) <i>contact SM prior to GET analysis</i> <i>DWS 9/25/03</i>				S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wt=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From 3729 Ref 3A 1300 10/01/03		Date/Time		Received By/Stored In [Signature] 1300 10/01/03		Date/Time						
Relinquished By/Removed From [Signature] 1300 10/01/03		Date/Time		Received By/Stored In FED EX		Date/Time						
Relinquished By/Removed From FED EX		Date/Time		Received By/Stored In [Signature] 1000 10-2-03		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
LABORATORY SECTION	Received By			Title			Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method			Disposed By			Date/Time					



RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: BH1 Date/Time received 1000 10-2-03
 CoC No. B01-USS-068,071,073
 Container I.D. No. SML-452 Requested TAT (Days) 21 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: 4
 7. Number of containers per sample: _____ (Or see CoC)
 8. Samples are in correct container Yes [] No []
 9. Paperwork agrees with samples? Yes [] No []
 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []
 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
 12. Samples are: Preserved [] Not preserved [] Preservative _____
 13. Describe any anomalies: NO DATE ON CONTAINER OF JOOYHU
14. Was P.M. notified of any anomalies? Yes [] No [] Date 10-2-03
15. Received by [Signature] Date: 10-2-03 Time: 1000

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe
<u>all</u>	<u>240</u>						

Ion Chamber Ser. No. _____ Calibration date _____
 Alpha Meter Ser. No. _____ Calibration date 10-18-2-03
 Beta/Gamma Meter Ser. No. 100982 Calibration date 10-6-24-03