

0059853

**SAF-B00-030**  
**100 F Area - Full Protocol**  
**FINAL VALIDATION PACKAGE**

**COMPLETE COPY OF VALIDATION PACKAGE TO:**

Jill Thomson

BT 6/3  
INITIAL/DATE

Jeanette Duncan

BT 6/3  
INITIAL/DATE

SDG

H2172

SAF-B00-030

**Waste Site: 100-F-25**

**RECEIVED**  
JUL 28 2003

**EDMC**

Date: 14 May 2003  
To: Bechtel Hanford, Inc. (technical representative)  
From: TechLaw, Inc.  
Project: 100F Area - Full Protocol - Waste Site 100-F-25  
Subject: Radiochemistry - Data Package No. H2172-EB (SDG No. H2172)

## INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H2172-EB which was prepared by Eberline Services (EB). A list of samples validated along with the analyses reported and the requested analytes is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
J00M05	4/16/03	Soil	C	See note 1
J00M06	4/16/03	Soil	C	See note 1
J00M07	4/16/03	Soil	C	See note 1
J00M08	4/16/03	Soil	C	See note 1
J00M09	4/16/03	Soil	C	See note 1
J00M10	4/16/03	Soil	C	See note 1

1- Gamma spectroscopy, carbon-14, nickel-63 and total strontium.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL December 2001) and the Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Data Requested by Client

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## DATA QUALITY PARAMETERS

- **Holding Times**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

- **Preparation (Method) Blanks**

### Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

### Field (Equipment) Blank

One equipment blank (J00M10) was submitted for analysis. Potassium-40, radium-226, radium-228, thorium-228 and thorium-232 were detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is either 70-130% or  $\pm 3$  sigma (gamma spectroscopy). In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% or  $\pm 3$  sigma.

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All accuracy results were acceptable.

- **Laboratory Duplicates**

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicate

One set of field duplicate samples (J00M05/J00M09) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. Seventeen analytes were reported above their TDL. Under the BHI statement of work, no qualification is required. All other reported results met the analyte specific TDL.

- **Completeness**

Data package No. H2172 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

**MAJOR DEFICIENCIES**

None found.

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## MINOR DEFICIENCIES

Seventeen analytes were reported above their TDL. Under the BHI statement of work, no qualification is required.

## REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

DOE/RL-96-22, Rev. 3, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, December 2001.

**Appendix 1**

**Glossary of Data Reporting Qualifiers**

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Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

**Appendix 2**

**Summary of Data Qualification**

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DATA QUALIFICATION SUMMARY

SDG: H2172	REVIEWER: TLI	DATE: 5/14/03	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned.			

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**Appendix 3**

**Qualified Data Summary and Annotated Laboratory Reports**

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RADIOCHEMISTRY ANALYSIS, SOIL MATRIX, (PCI/G)

Project: BECHTEL-HANFORD		J00M05		J00M06		J00M07		J00M08		J00M09		J00M10		
Laboratory: EB		SDG: H2172		100-F-25		100-F-25		100-F-25		Duplicate		E. Blank		
Case	Sample Number	Remarks	Location	Sample Date	Radiochemistry	TDL	Result	Q	Result	Q	Result	Q	Result	
			100-F-25	4/16/03	Carbon-14	1	-1.17	U*	-1.16	U*	-1.63	U*	-1.15	U*
			100-F-25	4/16/03	Nickel-63	30	3.32	U	4.60	U	4.28	U	-0.324	U
			100-F-25	4/16/03	Total Strontium	1	-0.015	U	-0.028	U	0.167	U	-0.083	U
			100-F-25	4/16/03	Potassium-40		14.3	U	14.8	U	13.6	U	3.98	U
			100-F-25	4/16/03	Cobalt 60	0.05	U	U	U	U	U	U	U	U
			100-F-25	4/16/03	Cesium 137	0.05	0.071	U	U	U	0.068	U	U	U
			100-F-25	4/16/03	Radium-226		0.484	U	0.464	U	0.457	U	0.133	U
			100-F-25	4/16/03	Radium-228		0.611	U	0.786	U	0.732	U	0.188	U
			100-F-25	4/16/03	Europium 152	0.1	U	U	U	U	U	U	U	U
			100-F-25	4/16/03	Europium 154	0.1	U	U*	U	U*	U	U*	U	U
			100-F-25	4/16/03	Europium 155	0.1	U	U*	U	U	U	U*	U	U
			100-F-25	4/16/03	Thorium-228		0.607	U	0.678	U	0.656	U	0.143	U
			100-F-25	4/16/03	Thorium-232		0.611	U	0.786	U	0.732	U	0.188	U
			100-F-25	4/16/03	Uranium-235	1	U	U	U	U	U	U	U	U
			100-F-25	4/16/03	Uranium-238	1	U	U*	U	U*	U	U*	U	U*
			100-F-25	4/16/03	Americium-241	1	U	U	U	U	U	U	U	U

\* - TDL exceeded  
 Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-001

J00M05

**DATA SHEET**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-01</u>	Client sample id <u>J00M05</u>	
Dept sample id <u>7493-001</u>	Location/Matrix <u>100-F-25</u>	<u>SOLID</u>
Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 11:50</u>	<u>1280 g</u>
% solids <u>94.9</u>	Custody/SAF No <u>B00-030-100</u>	<u>B00-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-1.17	2.1	3.6	50	U	C
Nickel 63	13981-37-8	3.32	1.3	2.1	30		NI_L
Total Strontium	SR-RAD	-0.015	0.24	0.49	1.0	U	SR
Potassium 40	13966-00-2	14.3	0.85	0.38			GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	0.071	0.036	0.040	0.10		GAM
Radium 226	13982-63-3	0.484	0.069	0.067			GAM
Radium 228	15262-20-1	0.611	0.17	0.19			GAM
Europium 152	14683-23-9	U		0.085	0.10	U	GAM
Europium 154	15585-10-1	U		0.13	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	0.607	0.042	0.040			GAM
Thorium 232	TH-232	0.611	0.17	0.19			GAM
Uranium 235	15117-96-1	U		0.16		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.33		U	GAM

100 F Area - Full Protocol

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 Per  
 5/10/03

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>04/29/03</u>

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-002

J00M06

**DATA SHEET**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-02</u>	Client sample id <u>J00M06</u>	
Dept sample id <u>7493-002</u>	Location/Matrix <u>100-F-25</u>	<u>SOLID</u>
Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 12:10</u>	<u>1187 g</u>
% solids <u>94.4</u>	Custody/SAF No <u>B00-030-100</u>	<u>B00-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-0.148	1.9	3.2	50	U	C
Nickel 63	13981-37-8	3.98	1.3	2.1	30		NI_L
Total Strontium	SR-RAD	0.028	0.18	0.37	1.0	U	SR
Potassium 40	13966-00-2	14.4	0.86	0.21			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.027	0.10	U	GAM
Radium 226	13982-63-3	0.498	0.054	0.049			GAM
Radium 228	15262-20-1	0.764	0.12	0.11			GAM
Europium 152	14683-23-9	U		0.058	0.10	U	GAM
Europium 154	15585-10-1	U		0.093	0.10	U	GAM
Europium 155	14391-16-3	U		0.055	0.10	U	GAM
Thorium 228	14274-82-9	0.808	0.050	0.048			GAM
Thorium 232	TH-232	0.764	0.12	0.11			GAM
Uranium 235	15117-96-1	U		0.099		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Americium 241	14596-10-2	U		0.034		U	GAM

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
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Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/29/03</u>

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-003

J00M07

**DATA SHEET**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-03</u>	Client sample id <u>J00M07</u>	
Dept sample id <u>7493-003</u>	Location/Matrix <u>100-F-25</u>	<u>SOLID</u>
Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 12:20</u>	<u>1063 g</u>
% solids <u>92.7</u>	Custody/SAF No <u>B00-030-100</u>	<u>B00-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-1.16	1.6	2.7	50	U	C
Nickel 63	13981-37-8	4.60	1.3	2.0	30		NI_L
Total Strontium	SR-RAD	-0.028	0.18	0.38	1.0	U	SR
Potassium 40	13966-00-2	14.8	0.91	0.50			GAM
Cobalt 60	10198-40-0	U		0.042	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	0.464	0.086	0.091			GAM
Radium 228	15262-20-1	0.786	0.19	0.20			GAM
Europium 152	14683-23-9	U		0.097	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.14</u>	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.678	0.046	0.046			GAM
Thorium 232	TH-232	0.786	0.19	0.20			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.3		U	GAM
Americium 241	14596-10-2	U		0.14		U	GAM

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**DATA SHEETS**

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**SUMMARY DATA SECTION**

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
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Version <u>3.06</u>
Report date <u>04/29/03</u>

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-004

J00M08

**DATA SHEET**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	<u>SDG H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-04</u>	Client sample id <u>J00M08</u>	
Dept sample id <u>7493-004</u>	Location/Matrix <u>100-F-25</u>	<u>SOLID</u>
Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 12:28</u>	<u>1166 g</u>
% solids <u>93.7</u>	Custody/SAF No <u>B00-030-100</u>	<u>B00-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-1.75	1.8	3.1	50	U	C
Nickel 63	13981-37-8	3.58	1.3	2.1	30		NI_L
Total Strontium	SR-RAD	-0.062	0.20	0.43	1.0	U	SR
Potassium 40	13966-00-2	14.3	0.52	0.21			GAM
Cobalt 60	10198-40-0	U		0.025	0.050	U	GAM
Cesium 137	10045-97-3	0.055	0.026	0.028	0.10		GAM
Radium 226	13982-63-3	0.490	0.045	0.043			GAM
Radium 228	15262-20-1	0.727	0.11	0.10			GAM
Europium 152	14683-23-9	0.134	0.040	0.053	0.10		GAM
Europium 154	15585-10-1	U		0.079	0.10	U	GAM
Europium 155	14391-16-3	U		0.060	0.10	U	GAM
Thorium 228	14274-82-9	0.619	0.029	0.027			GAM
Thorium 232	TH-232	0.727	0.11	0.10			GAM
Uranium 235	15117-96-1	U		0.081		U	GAM
Uranium 238	U-238	U		2.8		U	GAM
Americium 241	14596-10-2	U		0.084		U	GAM

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5/10/03*

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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Version <u>3.06</u>
Report date <u>04/29/03</u>

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-005

J00M09

**DATA SHEET**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-05</u>	Client sample id <u>J00M09</u>	
Dept sample id <u>7493-005</u>	Location/Matrix <u>100-F-25</u>	<u>SOLID</u>
Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 11:50</u>	<u>1146 g</u>
% solids <u>94.4</u>	Custody/SAP No <u>B00-030-100</u>	<u>B00-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-1.63	1.8	3.0	50	U	C
Nickel 63	13981-37-8	4.28	1.3	2.1	30		NI_L
Total Strontium	SR-RAD	0.167	0.24	0.45	1.0	U	SR
Potassium 40	13966-00-2	13.6	0.75	0.36			GAM
Cobalt 60	10198-40-0	U		0.036	0.050	U	GAM
Cesium 137	10045-97-3	0.068	0.033	0.038	0.10		GAM
Radium 226	13982-63-3	0.457	0.072	0.070			GAM
Radium 228	15262-20-1	0.732	0.14	0.13			GAM
Europium 152	14683-23-9	U		0.080	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.11</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.12</u>	0.10	U	GAM
Thorium 228	14274-82-9	0.656	0.042	0.041			GAM
Thorium 232	TH-232	0.732	0.14	0.13			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		3.9		U	GAM
Americium 241	14596-10-2	U		0.31		U	GAM

100 F Area - Full Protocol

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*3/16/03*

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>04/29/03</u>

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-006

J00M10

**DATA SHEET**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-06</u>	Client sample id <u>J00M10</u>	
Dept sample id <u>7493-006</u>	Location/Matrix <u>100-F-25</u>	<u>SOLID</u>
Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 11:45</u>	<u>1206 g</u>
% solids <u>100.0</u>	Custody/SAP No <u>B00-030-101</u>	<u>B00-030</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-1.15	1.3	2.2	50	U	C
Nickel 63	13981-37-8	-0.324	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.083	0.18	0.39	1.0	U	SR
Potassium 40	13966-00-2	3.98	0.44	0.11			GAM
Cobalt 60	10198-40-0	U		0.013	0.050	U	GAM
Cesium 137	10045-97-3	U		0.011	0.10	U	GAM
Radium 226	13982-63-3	0.133	0.036	0.023			GAM
Radium 228	15262-20-1	0.188	0.047	0.046			GAM
Europium 152	14683-23-9	U		0.032	0.10	U	GAM
Europium 154	15585-10-1	U		0.039	0.10	U	GAM
Europium 155	14391-16-3	U		0.042	0.10	U	GAM
Thorium 228	14274-82-9	0.143	0.017	0.014			GAM
Thorium 232	TH-232	0.188	0.047	0.046			GAM
Uranium 235	15117-96-1	U		0.061		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Americium 241	14596-10-2	U		0.079		U	GAM

100 F Area - Full Protocol

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000016

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>04/29/03</u>

**Appendix 4**

**Laboratory Narrative and Chain-of-Custody Documentation**

000017

## 1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2172 was composed of six solid (soil) samples designated under SAF No. B00-030 with a Project Designation of: 100 F Area – Full Protocol.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on April 29, 2003. The electronic data deliverable (EDD) was transmitted to BHI via e-mail on April 29, 2003.

## 2.0 ANALYSIS NOTES

### 2.1 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

### 2.2 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

### 2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

### 2.4 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

### Case Narrative Certification Statement

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

Melissa Mannion  
Melissa C. Mannion  
Program Manager

May 1, 2003  
Date

**Bechtel Hanford Inc.** **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** **B00-030-100** **Page 1 of 1**

Collector: **FAHLBERG/NIELSON** Telephone No. **531-7620** Project Coordinator: **KESSNER, JH** Price Code: **8L 8B** Data Turnaround: **24 Days 7-Days**

Project Designation: **100 F Area - Full Protocol** Sampling Location: **SP6H8172(7493)** SAF No. **B00-030** Air Quality:

Ice Chest No. **ERC 02 402** Field Logbook No. **EL-1572** COA **R1DF242000** Method of Shipment: **Fed EX**

Shipped To: **TMARECRA** Offsite Property No. **A-030 199** Bill of Lading/Air Bill No. **SEE OSPC**

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
Potentially Radioactive, Tie To

**Special Handling and/or Storage**

Preservation	None	Cool AC	None	None
Type of Container	aG	aG	aG	aG
No. of Container(s)	1	1	1	1
Volume	250mL	120mL	1000mL	60mL

**SAMPLE ANALYSIS**

Sample No.	Matrix *	Sample Date	Sample Time	Mercury 7471 - (CV)	Cadmium Hx - 7196	Gamma Spectroscopy (Caesium-137, Cobalt-60, Europium-152, Europium-154)	Strontium-89,90 - Total Sr, Nickel-63, Carbon-14
J00M05	SOIL	4-16-03	1150	X	X	X	X
J00M06	SOIL	4-16-03	1210	X	X	X	X
J00M07	SOIL	4-16-03	1220	X	X	X	X
J00M08	SOIL	4-16-03	1228	X	X	X	X
J00M08	SOIL	4-16-03	1150	X	X	X	X

**CHAIN OF POSSESSION**

Relinquished By/Removed From: **FAHLBERG/NIELSON** Date/Time: **4/16/03 1430** Received By/Stored In: **Ref # 1A** Date/Time: **4/16/03 1430**

Relinquished By/Removed From: **REFIA** Date/Time: **0900** Received By/Stored In: **310ALE** Date/Time: **41703 0900**

Relinquished By/Removed From: **SIGALE** Date/Time: **41703 0900** Received By/Stored In: **FED EX** Date/Time: **4-21-03 (09)**

Relinquished By/Removed From: **FED EX** Date/Time: **4-21-03 (09)** Received By/Stored In: **Ref # 1A** Date/Time: **4-21-03 (09)**

Relinquished By/Removed From: **Ref # 1A** Date/Time: **4-21-03 (09)** Received By/Stored In: **Ref # 1A** Date/Time: **4-21-03 (09)**

**SPECIAL INSTRUCTIONS**

Personnel not available to relinquish samples from the 3728 Ref # 1A on **4/17/03**

**LABORATORY SECTION** Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**FINAL SAMPLE DISPOSITION** Disposal Method: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Bechtel Hanford Inc.** **B00-030-101** Page 1 of 1  
**Collector** FAHLBERG/NIELSON **Price Code** 8L8B **Data Turnaround**  
**Project Designation** 100 F Area - Full Protocol **Air Quality**  **21 Days**  
**Ice Chest No.** ERC 02 402 **Field Notebook No.** EL-1572 **COA** R10F242000 **Method of Shipment** Fed EX  
**Company Contact** M Stankovich **Telephone No.** 531-7620 **Project Coordinator** KESSNER, JH  
**Sampling Location** SDG 42172 (7493) **SAF No.** B00-030 **Bill of Lading/Air Bill No.** SEE OSPC

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	None	Cool AC	None	None	None	Matrix *
J00M10	SOIL	4-16-03	1145			70mL	1000mL	60mL		
<b>SAMPLE ANALYSIS</b> Mercury 7471 (0.01) <b>Chromium Hex - 7196</b> Gamma Spectroscopy (Caesium-137, Cobalt-60, Europium-152, Europium-154) Strontium-89,90 - Total Sr, Nickel-63, Carbon-14 SOIL ANALYSIS										

**CHAIN OF POSSESSION**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FAHLBERG/NIELSON	4/16/03	QUE # 1A	4/16/03 1430
REF 1A	41703 0900	SJGATE/DEL	41703 0900
SJGATE/DEL	41703 0900	FED EX	
REF 1A	41703 0900	42603 1600	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

**SPECIAL INSTRUCTIONS**  
 Do not run lab Qc on this sample.  
 Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/17/03

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

**Appendix 5**

**Data Validation Supporting Documentation**

**000021**

## APPENDIX A

### RADIOCHEMICAL DATA VALIDATION CHECKLIST

#### RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT:	100-F-25		DATA PACKAGE: H2172		
VALIDATOR:	TLI	LAB:	EB	DATE: 5/9/03	
CASE:			SDG: H2172		
<b>ANALYSES PERFORMED</b>					
Gamma Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy	
Total Uranium	Radium-22	Tritium	(U-67)	(214)	
<b>SAMPLES/MATRIX</b>					
J00M05 J00M06 J00M07 J00M08					
J00M09 J00M10					
soil					

1. Completeness .....  N/A

Technical verification forms present? ..... Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Initial Calibration (Levels D, E) .....  N/A

Instruments/detectors calibrated? ..... Yes No N/A

Initial calibration acceptable? ..... Yes No N/A

Standards NIST traceable? ..... Yes No N/A

**Appendix A – Radiochemical Data Validation Checklist**

Standards Expired? .....Yes No N/A

Calculation check acceptable? .....Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. Continuing Calibration (Levels D, E).....~~Yes~~ N/A

Calibration checked within required frequency? .....Yes No N/A

Calibration check acceptable? .....Yes No N/A

Calibration check standards traceable? .....Yes No N/A

Calibration check standards expired? .....Yes No N/A

Calculation check acceptable? .....Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Background Counts (Levels D, E).....~~Yes~~ N/A

Background Counts checked within required frequency? .....Yes No N/A

Background Counts acceptable? .....Yes No N/A

Calculation check acceptable? .....Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Appendix A – Radiochemical Data Validation Checklist**

5. Blanks (Levels B, C, D, E) .....  N/A

Method blank analyzed within required frequency?.....  Yes No N/A

Method blank results acceptable?.....  Yes No N/A

Analytes detected in method blank? ..... Yes  No N/A

Field blank(s) analyzed? .....  Yes No N/A

Field blank results acceptable? ..... Yes  No N/A

Analytes detected in field blank(s)?.....  Yes No N/A

Transcription/Calculation Errors? (Levels D, E)..... Yes No  N/A

Comments: K-40 R9 226/228 th 229/232 -web

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) .....  N/A

LCS /BSS analyzed within required frequency? .....  Yes No N/A

LCS/BSS recoveries acceptable?.....  Yes No N/A

LCS/BSS traceable? (Levels D,E) ..... Yes No  N/A

LCS/BSS expired? (Levels D,E)..... Yes No  N/A

LCS/BSS levels correct? (Levels D,E) ..... Yes No  N/A

Transcription/Calculation Errors? (Levels D, E)..... Yes No  N/A

Comments: \_\_\_\_\_

7. Chemical Carrier Recovery (Levels C, D, E) .....  N/A

Chemical carrier added? ..... Yes No N/A

Chemical recovery acceptable?..... Yes No N/A

Chemical carrier traceable? (Levels D, E )..... Yes No N/A

**Appendix A – Radiochemical Data Validation Checklist**

Chemical carrier expired? (Levels D, E) .....Yes No N/A

Transcription/Calculation errors? (Levels D, E).....Yes No N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. Tracer Recovery (Levels C, D, E ) .....  N/A

Tracer added?.....Yes No N/A

Tracer recovery acceptable? .....Yes No N/A

Tracer traceable? (Levels D, E ) .....Yes No N/A

Tracer expired? (Levels D, E).....Yes No N/A

Transcription/Calculation errors? (Levels D, E).....Yes No N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Matrix Spikes (Levels C, D, E).....  N/A

Matrix spike analyzed? .....Yes No N/A

Spike recoveries acceptable? .....Yes No N/A

Spike source traceable? (Levels D, E) .....Yes No N/A

Spike source expired? Levels D, E).....Yes No N/A

Transcription/Calculation Errors? (Levels D, E).....Yes No N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Appendix A – Radiochemical Data Validation Checklist**

10. Duplicates (Levels C, D, E) .....  N/A

Duplicates Analyzed at required frequency? .....  Yes No N/A

RPD Values Acceptable? .....  Yes No N/A

Transcription/Calculation Errors? (Levels D, E) .....  Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. Field QC Samples (Levels C, D E) .....  N/A

Field duplicate sample(s) analyzed? .....  Yes No N/A

Field duplicate RPD values acceptable? .....  Yes No N/A

Field split sample(s) analyzed? .....  Yes  No N/A

Field split RPD values acceptable? .....  Yes  No N/A

Performance audit sample(s) analyzed? .....  Yes  No N/A

Performance audit sample results acceptable? .....  Yes  No N/A

Comments: \_\_\_\_\_ No FD or PAS

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

12. Holding Times (All levels)

Are sample holding times acceptable? .....  Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Appendix A – Radiochemical Data Validation Checklist**

13. Results and Detection Limits (All Levels ).....  N/A

Results reported for all required sample analyses?.....  Yes  No  N/A

Results supported in raw data?(Levels D, E)..... Yes  No  N/A

Results Acceptable? (Levels D, E) ..... Yes  No  N/A

Transcription/Calculation errors? (Levels D, E)..... Yes  No  N/A

MDA's meet required detection limits? ..... Yes  No  N/A

Transcription/calculation errors? (Levels D, E)..... Yes  No  N/A

Comments: 17 case

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Appendix 6**

**Additional Documentation Requested by Client**

000028

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H2172**

7493-008

Method Blank

**METHOD BLANK**

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R304127-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7493-008</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B00-030</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	-1.87	2.1	3.6	50	U	C
Nickel 63	13981-37-8	1.47	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.041	0.15	0.33	1.0	U	SR
Potassium 40	13966-00-2	U		0.40		U	GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.022	0.10	U	GAM
Radium 226	13982-63-3	U		0.036		U	GAM
Radium 228	15262-20-1	U		0.073		U	GAM
Europium 152	14683-23-9	U		0.046	0.10	U	GAM
Europium 154	15585-10-1	U		0.042	0.10	U	GAM
Europium 155	14391-16-3	U		0.050	0.10	U	GAM
Thorium 228	14274-82-9	U		0.025		U	GAM
Thorium 232	TH-232	U		0.073		U	GAM
Uranium 235	15117-96-1	U		0.081		U	GAM
Uranium 238	U-238	U		2.0		U	GAM
Americium 241	14596-10-2	U		0.10		U	GAM

100 F Area - Full Protocol

QC-BLANK #44497
-----------------

000029

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>04/29/03</u>

**EBERLINE SERVICES/RICHMOND**  
SAMPLE DELIVERY GROUP H2172

7493-007

Lab Control Sample

**LAB CONTROL SAMPLE**

SDG <u>7493</u> Contact <u>Melissa C. Mannion</u>  Lab sample id <u>R304127-07</u> Dept sample id <u>7493-007</u>	Client/Case no <u>Hanford</u> SDG <u>H2172</u> Contract <u>No. 630</u>  Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>B00-030</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 LNTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	2500	50	11	50	C	2600	100	96	84-116	80-120
Nickel 63	225	4.2	2.1	30	NI_L	228	9.1	99	84-116	80-120
Total Strontium	21.1	0.89	0.28	1.0	SR	21.1	0.84	100	83-117	80-120
Cobalt 60	1.58	0.077	0.026	0.050	GAM	1.53	0.061	103	75-125	80-120
Cesium 137	1.57	0.067	0.041	0.10	GAM	1.48	0.059	106	74-126	80-120

100 F Area - Full Protocol

QC-LCS #44496

000030

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>04/29/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2172

7493-009

J00M05

DUPLICATE

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R304127-09</u>	Lab sample id <u>R304127-01</u>	Client sample id <u>J00M05</u>
Dept sample id <u>7493-009</u>	Dept sample id <u>7493-001</u>	Location/Matrix <u>100-F-25</u> <u>SOLID</u>
	Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 11:50</u> <u>1280 g</u>
% solids <u>94.9</u>	% solids <u>96.9</u>	Custody/SAF No <u>800-030-100</u> <u>800-030</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 PROT TOT LIMIT
Carbon 14	-0.798	1.8	3.1	50	U	C	-1.17	2.1	3.6	U	-	
Nickel 63	3.79	1.3	2.1	30		NI_L	3.32	1.3	2.1		13	80
Total Strontium	-0.012	0.22	0.47	1.0	U	SR	-0.015	0.24	0.49	U	-	
Potassium 40	14.3	0.71	0.25			GAM	14.3	0.85	0.38		0	34
Cobalt 60	U		0.031	0.050	U	GAM	U		0.041	U	-	
Cesium 137	0.074	0.033	0.036	0.10		GAM	0.071	0.036	0.040		4	106
Radium 226	0.533	0.065	0.061			GAM	0.484	0.069	0.067		10	42
Radium 228	0.751	0.16	0.16			GAM	0.611	0.17	0.19		21	61
Europium 152	U		0.084	0.10	U	GAM	U		0.085	U	-	
Europium 154	U		0.11	0.10	U	GAM	U		0.13	U	-	
Europium 155	U		0.082	0.10	U	GAM	U		0.12	U	-	
Thorium 228	0.683	0.041	0.036			GAM	0.607	0.042	0.040		12	35
Thorium 232	0.751	0.16	0.16			GAM	0.611	0.17	0.19		21	61
Uranium 235	U		0.11		U	GAM	U		0.16	U	-	
Uranium 238	U		3.9		U	GAM	U		4.5	U	-	
Americium 241	U		0.11		U	GAM	U		0.33	U	-	

100 F Area - Full Protocol

QC-DUP#1 44498

000031

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>04/29/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2172

7493-010

J00M05

MATRIX SPIKE

SDG <u>7493</u>	Client/Case no <u>Hanford</u>	SDG <u>H2172</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R304127-10</u>	Lab sample id <u>R304127-01</u>	Client sample id <u>J00M05</u>
Dept sample id <u>7493-010</u>	Dept sample id <u>7493-001</u>	Location/Matrix <u>100-F-25</u> SOLID
	Received <u>04/21/03</u>	Collected/Weight <u>04/16/03 11:50</u> <u>1280 g</u>
% solids <u>94.9</u>	% solids <u>94.9</u>	Custody/SAF No <u>B00-030-100</u> <u>B00-030</u>

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS	PROTOCOL
Nickel 63	902	9.2	2.4	30	NI_L	916	37	3.32	1.3	98	84-116	60-140

100 F Area - Full Protocol

QC-MS#1 44499

MATRIX SPIKES

Page 1

SUMMARY DATA SECTION

Page 11

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>04/29/03</u>

000032

Date: 14 May 2003  
To: Bechtel Hanford Inc. (technical representative)  
From: TechLaw, Inc.  
Project: 100-F Area - Full Protocol - Waste Site 100-F-25  
Subject: Inorganics - Data Package No. H2172-LLI (SDG No. H2172)

## INTRODUCTION

This memo presents the results of data validation on Data Package No. H2172-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
J00M05	4/16/03	Soil	C	See note 1
J00M06	4/16/03	Soil	C	See note 1
J00M07	4/16/03	Soil	C	See note 1
J00M08	4/16/03	Soil	C	See note 1
J00M09	4/16/03	Soil	C	See note 1
J00M10	4/16/03	Soil	C	See note 1

1 - Chromium VI by 7196A, mercury by 7471a.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL December 2001) and the Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort, (BHI-01249, Rev. 3, March 2003). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested by Client

## DATA QUALITY PARAMETERS

000001

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 30 days for chromium VI and 28 days for mercury.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

One equipment blank (J00M10) was submitted for analysis. All equipment blank results were acceptable.

- **Accuracy**

Matrix Spike

Matrix spike (MS) analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify

000002

sample concentrations. Matrix spike recoveries must fall within the range of 70% to 130%. Samples with a spike recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a spike recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to a matrix spike recovery of 68.2%, all mercury results were qualified as estimates and flagged "J".

All other matrix spike recovery results were acceptable.

- **Precision**

- Laboratory Duplicate Samples

- Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

- All laboratory duplicate results were acceptable.

- Field Duplicate

- One set of field duplicate samples (J00M05/J00M09) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

- Reported analytical detection levels are compared against the target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. All chromium VI results exceeded the analyte specific TDL. Under the BHI statement of work, no qualification is required.

000003

- **Completeness**

Data package No. H2172-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

### **MAJOR DEFICIENCIES**

None found.

### **MINOR DEFICIENCIES**

Due to a matrix spike recovery of 68.2%, all mercury results were qualified as estimates and flagged "J". Data flagged "J" is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

All chromium VI results exceeded the analyte specific TDL. Under the BHI statement of work, no qualification is required.

### **REFERENCES**

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

BHI-01249, Rev. 3, *Data Quality Objectives Summary Report for 100/300 Area Remaining Sites Analytical Sampling Effort*, Bechtel Hanford Incorporated, March 2003.

DOE/RL-96-22, Rev. 3, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, December 2001.

000004

**Appendix 1**

**Glossary of Data Reporting Qualifiers**

000005

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.
- J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.
- BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.
- R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.
- UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

000006

**Appendix 2**  
**Summary of Data Qualification**

000007

DATA QUALIFICATION SUMMARY

SDG: H2172	REVIEWER: TLI	DATE: 5/14/03	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Mercury	J	All	MS recovery

000008

**Appendix 3**

**Qualified Data Summary and Annotated Laboratory Reports**

**000009**



Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/30/03

CLIENT: TNUHANFORD B00-030 H2172  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00M05	Mercury, Total	0.14	µg/KG	0.02	1.0
-002	J00M06	Mercury, Total	0.02	µg/KG	0.02	1.0
-003	J00M07	Mercury, Total	0.02	µg/KG	0.02	1.0
-004	J00M08	Mercury, Total	0.04	µg/KG	0.02	1.0
-005	J00M09	Mercury, Total	0.11	µg/KG	0.02	1.0
-006	J00M10	Mercury, Total	0.02	µg/KG	0.02	1.0

*PK*  
*5/10/03*

000011

*06*

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/25/03

CLIENT: TNUHANFORD B00-030 H2172  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00M05	% Solids Chromium VI	93.9 0.43 u	% MG/KG	0.01 0.43	1.0 1.0
-002	J00M06	% Solids Chromium VI	93.3 0.43 u	% MG/KG	0.01 0.43	1.0 1.0
-003	J00M07	% Solids Chromium VI	93.4 0.43 u	% MG/KG	0.01 0.43	1.0 1.0
-004	J00M08	% Solids Chromium VI	92.6 0.43 u	% MG/KG	0.01 0.43	1.0 1.0
-005	J00M09	% Solids Chromium VI	94.4 0.42 u	% MG/KG	0.01 0.42	1.0 1.0
-006	J00M10	% Solids Chromium VI	100 0.40 u	% MG/KG	0.01 0.40	1.0 1.0

*Handwritten signature*  
 5/10/03

000012

*Handwritten mark*



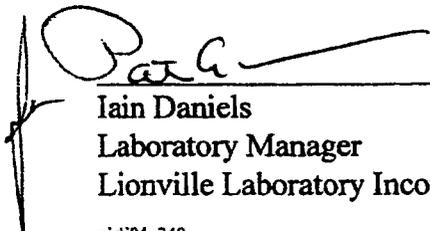
## Analytical Report

**Client:** TNU-HANFORD B00-030 H2172  
**LVL#:** 0304L240

**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 04-18-03

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 6 soil 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 recoveries for Chromium VI were within the 75-125% control limits.
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

04-29-03  
Date

njpl04-240

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.

000014

03

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		



**Analytical Report**

**Client:** TNU-HANFORD B00-030  
**LVL#:** 0304L240  
**SDG/SAF#:** H2172/B00-030

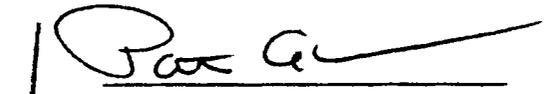
**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 04-18-03

**METALS CASE NARRATIVE**

1. This narrative covers the analyses of 6 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 80-120% control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
9. The matrix spike (MS) recovery was outside the 75-125% control limits. A serial dilution was performed for Mercury. Refer to the Inorganics Accuracy Report.
10. The duplicate analysis was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
11. 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.

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 1A pages.

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

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated  
jjw/m04-240

05-02-03  
Date



000016

~~03~~

**BECHEM INSTRUMENT INC.**  
**CHAIN OF POSSESSION / SAMPLE DELIVERY RECEIPT**

Collector: **FAHLBERG/NIELSON**      Telephone No: **531-7620**      Project Coordinator: **KESSNER, JH**  
 Project Designation: **100 F Area - Full Protocol**      Sampling Location: **100-F-25**      Price Code: **8L**      Data Turnaround: **21 Days**  
 Air Quality:       Method of Shipment: **Fed EX**

Ice Chest No. **ERC 02 010**      Field Logbook No. **EL-1572**      COA **R10F242000**  
 Shipped To: **TM/RECRA**      Offsite Property No. **A030212**      Bill of Lading/Air Bill No. **SEE ASPC**

**POSSIBLE SAMPLE HAZARDS/REMARKS**  
*Potentially Radioactive, The To*

**Special Handling and/or Storage**

**SAMPLE ANALYSIS**

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	None	Cool 4C	None	None
J00M10	SOIL	4-16-03	1145	Type of Container: 1	None	120mL	1000mL	None
				No. of Container(s): 1	None	250mL	None	None
				Volume: 50mL	None	None	None	None

**SPECIAL INSTRUCTIONS**  
 Do not run lab QOC on this sample.

Personnel not available to relinquish samples from the 3728 Ref # **1A** on **4/17/03**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
<i>[Signature]</i>	4/16/03	<i>[Signature]</i>	4/16/03 1430
<i>[Signature]</i>	4/16/03	<i>[Signature]</i>	4/16/03 0900
<i>[Signature]</i>	4/17/03 0900	<i>[Signature]</i>	4/17/03 0900
<i>[Signature]</i>	4/18/03 0900	<i>[Signature]</i>	4/18/03 1000
<i>[Signature]</i>	4/18/03 0900	<i>[Signature]</i>	4/18/03 0900

**CHAIN OF POSSESSION**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
<i>[Signature]</i>	4/18/03 0900	<i>[Signature]</i>	4/18/03 0900
<i>[Signature]</i>	4/18/03 0900	<i>[Signature]</i>	4/18/03 0900
<i>[Signature]</i>	4/18/03 0900	<i>[Signature]</i>	4/18/03 0900

LABORATORY SECTION Received By \_\_\_\_\_ Date/Time \_\_\_\_\_  
 FINAL SAMPLE DISPOSITION Disposal Method \_\_\_\_\_ Date/Time \_\_\_\_\_

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

Company Contact: Telephone No. 531-7620  
 M Stankovich  
 Project Designation: 100 F Area - Full Protocol  
 Sampling Location: 100-F-25  
 Field Logbook No.: EL-1572  
 COA: R10F242000  
 Method of Shipment: Fed EX  
 Bill of Lading/Air Bill No.: 588 057C

Collector: FAHLBERG/NIELSON  
 Ice Chest No.: ERC 02 010  
 Shipped To: TMA/RECR

Shipped To: TMA/RECR  
 POSSIBLE SAMPLE HAZARDS/REMARKS: Potentially Radioactive, The To  
 Special Handling and/or Storage

Sample No.	Matrix *	Sample Date	Sample Time	Preservation		Volume	No. of Container(s)	Type of Container	None	Cool/C	None	None
				aG	I							
J00M05	SOIL	4-16-03	1150			250mL	1			120mL		
J00M06	SOIL	4-16-03	1210			1000mL	1					
J00M07	SOIL	4-16-03	1220									
J00M08	SOIL	4-16-03	1228									
J00M09	SOIL	4-16-03	1150									

SAMPLE ANALYSIS  
 Mercury-7471-(CV)  
 Chromium Hex-7196  
 Gamma Spectroscopy (Caesium-137, Cobalt-60, Barophane-152, Europium-154)  
 Uranium-238, 235 - Total  
 Plutonium-239, 240 - Total  
 Carbon-14

SPECIAL INSTRUCTIONS

Received By/Removed From	Date/Time	Received By/Stored In	Date/Time
AMUNIK	4-16-03	Ref # 1A	4-16-03 1430
REFIA	4-17-03 0900	SIORLE	4-17-03 0920
SIORLE	4-17-03 0900	FED EX	
SIORLE	4-18-03/0900	SIORLE	4-18-03/0900

Personnel not available to relinquish samples from the 3728 Ref # 1A on 4/17/03

LABORATORY SECTION	Received By	Date/Time
FINAL SAMPLE DISPOSITION <td>Disposed Method <td>Date/Time </td></td>	Disposed Method <td>Date/Time </td>	Date/Time

**Appendix 5**  
**Data Validation Supporting Documentation**

**000019**

**INORGANIC ANALYSIS DATA VALIDATION CHECKLIST**

ALIDATION LEVEL:	A	B	<b>C</b>	D	E
PROJECT:	100-F-25		DATA PACKAGE: H2172		
VALIDATOR:	JLI	LAB: LLI	DATE: 5/9/03		
CASE:	SDG: H2172				
<b>ANALYSES PERFORMED</b>					
SW-846/ICP	SW-846/GFAA	<b>SW-846/Hg</b>	SW-846 Cyanide	<b>CRUI</b>	
<b>SAMPLES/MATRIX</b>					
J00M05 J00M06 J00M07 J00M08 J00M09 J00M10					
Soil					

**1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE**

Technical verification documentation present? ..... Yes No **N/A**  
 Comments: \_\_\_\_\_

**2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)**

Initial calibrations performed on all instruments? ..... Yes No **N/A**  
 Initial calibrations acceptable? ..... Yes No **N/A**  
 ICP interference checks acceptable? ..... Yes No **N/A**  
 ICV and CCV checks performed on all instruments? ..... Yes No **N/A**  
 ICV and CCV checks acceptable? ..... Yes No **N/A**  
 Standards traceable? ..... Yes No **N/A**  
 Standards expired? ..... Yes No **N/A**  
 Calculation check acceptable? ..... Yes No **N/A**  
 Comments: \_\_\_\_\_

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E)..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E)..... Yes No N/A

Laboratory blanks analyzed?..... Yes No N/A

Laboratory blank results acceptable?..... Yes No N/A

Field blanks analyzed? (Levels C, D, E)..... Yes No N/A

Field blank results acceptable? (Levels C, D, E)..... Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed?..... Yes No N/A

MS/MSD results acceptable?..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A

MS/MSD standards expired? (Levels D, E)..... Yes No N/A

LCS/BSS samples analyzed?..... Yes No N/A

LCS/BSS results acceptable?..... Yes No N/A

Standards traceable? (Levels D, E)..... Yes No N/A

Standards expired? (Levels D, E)..... Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Performance audit sample(s) analyzed?..... Yes No N/A

Performance audit sample results acceptable?..... Yes No N/A

Comments: Hg - 68.220 - Fall

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

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No PAS

*AT*

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

- Duplicate RPD values acceptable? ..... Yes No N/A
- Duplicate results acceptable? ..... Yes No N/A
- MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
- MS/MSD standards expired? (Levels D, E) ..... Yes No N/A
- Field duplicate RPD values acceptable? ..... Yes No N/A
- Field split RPD values acceptable? ..... Yes No N/A
- Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. ICP QUALITY CONTROL (Levels D and E)

- ICP serial dilution samples analyzed? ..... Yes No N/A
- ICP serial dilution %D values acceptable? ..... Yes No N/A
- ICP post digestion spike required? ..... Yes No N/A
- ICP post digestion spike values acceptable? ..... Yes No N/A
- Standards traceable? ..... Yes No N/A
- Standards expired? ..... Yes No N/A
- Transcription/calculation errors? ..... Yes No N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**INORGANIC ANALYSIS DATA VALIDATION CHECKLIST**

**7. FURNACE AA QUALITY CONTROL (Levels D and E)**

- Duplicate injections performed as required? ..... Yes No **N/A**
- Duplicate injection %RSD values acceptable? ..... Yes No **N/A**
- Analytical spikes performed as required? ..... Yes No **N/A**
- Analytical spike recoveries acceptable? ..... Yes No **N/A**
- Standards traceable? ..... Yes No **N/A**
- Standards expired? ..... Yes No **N/A**
- MSA performed as required? ..... Yes No **N/A**
- MSA results acceptable? ..... Yes No **N/A**
- Transcription/calculation errors? ..... Yes No **N/A**

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**8. HOLDING TIMES (all levels)**

- Samples properly preserved? ..... **Yes** No N/A
- Sample holding times acceptable? ..... **Yes** No N/A

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

- Results reported for all requested analyses? .....  Yes  No  N/A
- Results supported in the raw data? (Levels D, E) .....  Yes  No  N/A
- Samples properly prepared? (Levels D, E) .....  Yes  No  N/A
- Detection limits meet RDL? .....  Yes  No  N/A
- Transcription/calculation errors? (Levels D, E) .....  Yes  No  N/A

Comments: all CRT over

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**Appendix 6**

**Additional Documentation Requested by Client**

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/30/03

CLIENT: TNUHANFORD B00-030 H2172  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	03C0097-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

000026

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Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/30/03

CLIENT: TNUHANFORD B00-030 H2172  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	J00M05	Mercury, Total	0.25	0.14	0.16	68.2	1.0

000027

08

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/30/03

CLIENT: TNUHANFORD B00-030 H2172  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD		DILUTION FACTOR (REP)
-001REP	J00M05	Mercury, Total	0.14	0.09	40.3	1.0

000028

05

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 04/25/03

CLIENT: TNUHANFORD B00-030 H2172  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	J00N06	Soluble Chromium VI	4.6	0.43u	4.3	102.6	1.0
		Insoluble Chromium VI	1300	0.43u	1190	109.4	100
BLANK10	03LVI026-MB1	Soluble Chromium VI	3.9	0.40u	4.0	96.6	1.0
		Insoluble Chromium VI	1320	0.40u	1300	101.2	100

000029

*08*

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 04/25/03

CLIENT: TNUHANFORD B00-030 H2172  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	J00M05	% Solids	93.9	94.0	0.053	1.0
-002REP	J00M06	Chromium VI	0.43u	0.43u	NC	1.0

000030

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/25/03

CLIENT: TNUHANFORD B00-030 H2172  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0304L240

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI026-ME1	Chromium VI	0.40 u	MG/KG	0.40	1.0

000031

# Validation Tracking Sheet

SDG: H2172  
SAF# 600-030

SAF Title: 100F Area - Full Protocol  
Waste Site: 100-E-25

1. Date Initiated: 5-8-03
2. Date Started: 5-9-03
3. Date Due: 5-16-03 Rcvd 5-14-03<sup>13</sup>
4. Date to Reviewers: 5-14-03
5. Date Review Comments Back to Validator: 5-19-03
6. Date Validator Dispositioned Comments are Transmitted Back to Reviewers: 5-22
7. Review Complete?  Yes  No
8. If no, continue to follow steps 5 and 6 above until it is.

Comments rcvd from Rich 5-15-03

Comments rcvd from Cheryl 5-19-03

Back to Bruce 5-19-03

Back to Rich 5-22-03

## Validation Review Form

Date: 5-14-03

COA: R10F24 2000

SDG Number:

H2172

Validation Report Title:

100F Area - Full Protocol  
Waste Site 100-F-25

**BC**  
~~Remaining Sites~~ Expedited Validation  
Review?

Yes X No     

Comment Due Date:

5-16-03

Reviewers: R. L. Weiss  
C. L. Volkman  
Project

Additional Comments:



# REVIEW COMMENT RECORD (RCR)

<b>1. Date</b> 06/15/03		<b>2. Review No.</b> 1 of 1	
<b>3. Project No.</b> CVP/Remaining Sites		<b>4. Page</b>	
<b>5. Document Number(s)/Title(s)</b> Validation Packages for SDG 2172	<b>6. Program/Project/Building Number</b> 100-F-25	<b>7. Reviewer</b> RL Weiss	<b>8. Organization/Group</b> S&DM
<b>17. Comment Submittal Approval:</b>  Organization Manager (Optional)		<b>9. Location/Phone</b> Sigma 1 372-9831	
<b>10. Agreement with indicated comment disposition(s)</b> 11.			
Date _____ Reviewer/Point of Contact _____ Date _____ Reviewer/Point of Contact _____		Date _____ Reviewer/Point of Contact _____ Date _____ Reviewer/Point of Contact _____	
<b>12. Item</b>	<b>13. Comment(s)/Discrepancy(s)</b> (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)  Inorganics; No Comments  Rad, pg. 3, 4, & 10; Detection levels -- All C-14 results missed TDL criteria. Evaluation appears to have used reported result for evaluation against criteria not reported MDA.	<b>14. Reviewer Concurrence Required</b>  [Signature]	<b>15. Disposition</b> (Provide justification if NOT accepted.)  [Signature]
1		16. Status	