0066766

SAF-B05-032
300-8 Verification
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan 2 copy (s) clipped MJP 9/1/05
INITIAL/DATE

SDG H3292 **SAF-B05-032**

Sample Location/Waste Site: 300-8

RECEIVED
SEP 21 2005
EDMC

Date: 30 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 300-8 Verification
Subject: Inorganics - Data Package No. H3292-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3292-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	Date
J03VD4	7/27/05	Soil	C	See note 1
J03VD5	7/27/05	Soil	C	See note 1
J03VD6	7/27/05	Soil	C	See note 1
J03VD7	7/27/05	Soil	C	See note 1
J03VD8	7/27/05	Soil	C	See note 1
J03VD9	7/27/05	Soil	C	See note 1
J03VF0	7/27/05	Soil	C	See note 1
J03VF1	7/27/05	Soil	C	See note 1
J03VF2	7/28/05	Soil	C	See note 1
J03VF3	7/28/05	Soil	C	See note 1
J03VF4	7/28/05	Soil	C	See note 1
J03VF5	7/28/05	Soil	C	See note 1
J03VF6	7/28/05	Soil	C	See note 1
J03VF7	7/28/05	Soil	C	See note 1
J03VF8	7/28/05	Soil	C	See note 1
J03VF9	7/28/05	Soil	C	See note 1
J03VH0	7/27/05	Soil	C	See note 1

1 - ICP metals (beryllium) by 6010B.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, June 2004). 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

- **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 6 months for ICP metals.

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

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data . The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a 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 recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All accuracy 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 sample duplicate pair (J03VD4/J03VH0) was submitted for analysis. Field duplicates 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 remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. H3292-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

None found.

REFERENCES

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

DOE/RL-2001-48, Rev. 1, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, June 2004.

Appendix 1

Glossary of Data Reporting Qualifiers

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).

Appendix 2

Summary of Data Qualification

METALS DATA QUALIFICATION SUMMARY*

SDG: H3292	REVIEWER: TLI	Project: 300-8	PAGE 1 OF 1
Comments: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																					
Laboratory: LLI		SDG: H3292																			
Sample Number		J03VD4		J03VD5		J03VD6		J03VD7		J03VD8		J03VD9		J03VF0		J03VF1		J03VF2		J03VF3	
Remarks																					
Sample Date		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/28/05		7/28/05	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Beryllium	0.5	0.47		0.49		0.49		0.51		0.61		0.54		0.53		0.60		0.55		0.65	
Sample Number		J03VF4		J03VF5		J03VF6		J03VF7		J03VF8		J03VF9		J03VH0							
Remarks														Duplicate							
Sample Date		7/28/05		7/28/05		7/28/05		7/28/05		7/28/05		7/28/05		7/27/05							
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Beryllium	0.5	0.57		0.57		0.55		0.52		0.51		0.58		0.60							

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

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/11/05

CLIENT: TNUHANFORD B05-032 H3292

LVL LOT #: 0507L069

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J03VD4	Beryllium, Total	0.47	MG/KG	0.009	1.0
-002	J03VD5	Beryllium, Total	0.49	MG/KG	0.009	1.0
-003	J03VD6	Beryllium, Total	0.49	MG/KG	0.009	1.0
-004	J03VD7	Beryllium, Total	0.51	MG/KG	0.009	1.0
-005	J03VD8	Beryllium, Total	0.61	MG/KG	0.01	1.0
-006	J03VD9	Beryllium, Total	0.54	MG/KG	0.009	1.0
-007	J03VF0	Beryllium, Total	0.53	MG/KG	0.009	1.0
-008	J03VF1	Beryllium, Total	0.60	MG/KG	0.009	1.0
-009	J03VF2	Beryllium, Total	0.55	MG/KG	0.009	1.0

8/28/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/11/05

CLIENT: TNUHANFORD B05-032 H3292 LVL LOT #: 0507L069

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	J03VF3	Beryllium, Total	0.65	MG/KG	0.009	1.0
-011	J03VF4	Beryllium, Total	0.57	MG/KG	0.009	1.0
-012	J03VF5	Beryllium, Total	0.57	MG/KG	0.009	1.0
-013	J03VF6	Beryllium, Total	0.55	MG/KG	0.009	1.0
-014	J03VF7	Beryllium, Total	0.52	MG/KG	0.009	1.0
-015	J03VF8	Beryllium, Total	0.51	MG/KG	0.009	1.0
-016	J03VF9	Beryllium, Total	0.58	MG/KG	0.009	1.0
-017	J03VH0	Beryllium, Total	0.60	MG/KG	0.009	1.0

8/28/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B05-032
LVL#: 0507L069
SDG/SAF#: H3292/B05-032

W.O.#: 11343-606-001-9999-00
Date Received: 07-29-05

METALS CASE NARRATIVE

1. This narrative covers the analyses of 17 soil samples.

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

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

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

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), 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. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

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 21 pages.

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region of less-certain quantification.

13. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

Aug 12. 2005
Date

jjw/m07-069

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-01	Page 1 of 1

Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH	Price Code 8-C 15-21	Data Turnaround 15 Days
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area		SAF No. B05-032	Air Quality ☐	
Ice Chest No. AFS 04 007	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 341		Bill of Lading/Air Bill No. See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000016

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time										
J03VD4	SOIL	7·27·05	0825	X	X								
J03VD5	SOIL	7-27-05	0835	X	X								
J03VD6	SOIL	7-27-05	0845	X	X								
J03VD7	SOIL	7·27·05	0853	X	X								
J03VD8	SOIL	7·27·05	0858	X	X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1000	Received By/Stored In	Date/Time 1000
R. Fahlberg R. Fahlberg	7·27·05	2C 3728	7·27·05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
REF 2C 3728	72805 0900	S J Gale	72805 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
S J Gale	72805 0900	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	7/29/05 0900	[illegible]	7-29-05 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

None

Personnel not available to Relinquish samples from 3728 Ref # 2C on 7/28/05

Matrix *

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

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

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B05-032-02 | Page 1 of 1

Collector: Fahlberg	Company Contact: Jeff Lerch	Telephone No.: 373-5904	Project Coordinator: KESSNER, JH
Price Code: 8-C, 15-21	Air Quality: ☐	Date Turnaround: 15 Days	
Project Designation: 300-8 Verification	Sampling Location: 300-8 Aluminum Shavings Area		SAF No.: B05-032
Ice Chest No.: AFS 04 007	Field Logbook No.: EL 1395-11	COA: RG30082000	Method of Shipment: Fed EX
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050341		Bill of Lading/Air Bill No.: See OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										

000017

Sample No.	Matrix *	Sample Date	Sample Time										
03VD9	SOIL	7-27-05	0906	X	X								
03VF0	SOIL	7-27-05	0911	X	X								
03VF1	SOIL	7-27-05	0917	X	X								
~~03VF2~~	~~SOIL~~												
~~03VF3~~	~~SOIL~~												

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	1000 7-27-05	2C 3728	1000 7-27-05
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
2C 3728	72805 0900		72805 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
	72805 0900	FEDEX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	7/29/05 0900		7-29-05 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

None

Personnel not available to relinquish samples from 3728 Ref #2C on 7-28-05

Matrix *

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-032-02	Page 1 of 1
Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH	Price Code 8-C 15-21 Air Quality ☐
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area		SAF No. B05-032	Data Turnaround 15 Days
Ice Chest No. AFS 04 007	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A050341		Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000018

Preservation				None	None							
Type of Container				aG	aG							
No. of Container(s)				1	1							
Volume				60mL	60mL							
SAMPLE ANALYSIS				ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium 7-28-05							
Sample No.	Matrix *	Sample Date	Sample Time									
~~J03VD0~~	~~SOIL~~											
~~J03VF0~~	~~SOIL~~											
~~J03VF1~~	~~SOIL~~											
J03VF2	SOIL	7.28.05	0810	X	X							
J03VF3	SOIL	7.28.05	0817	X	X							

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From ERC R. Fahlberg R Fahlberg	Date/Time 1430 7-28-05	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex 7/29/05	Date/Time 0930	Received By/Stored In [signature] 7-29-05	Date/Time 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
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

None

Matrix *

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-03	Page 1 of 1

Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area		SAF No. B05-032
Ice Chest No. AFS 04 007	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 341		Bill of Lading/Air Bill No. See OSPC

Price Code 8-C 15-21 Data Turnaround 15 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000019

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										
Sample No.	Matrix *	Sample Date	Sample Time									
J03VF4	SOIL	7-28-05	0824	X	X							
J03VF5	SOIL	7-28-05	0829	X	X							
J03VF6	SOIL	7-28-05	0833	X	X							
J03VF7	SOIL	7-28-05	0841	X	X							
J03VF8	SOIL	7-28-05	0848	X	X							

72805

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From R. Fahlberg R. Fahlberg 7-28-05	Date/Time 1430	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 7/29/05 0900	Received By/Stored In [illegible] 7-29-05	Date/Time 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
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

None

Matrix *

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

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

3HI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-04	Page 1 of 1
Collector Fahlberg	Company Contact Jeff Lerch Telephone No. 373-5904	Project Coordinator KESSNER, JH	Price Code 8-C 15.21 Air Quality ☐ Data Turnaround 15 Days
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area	SAF No. B05-032	
Ice Chest No. AFS04 007	Field Logbook No. EL 1395-11 COA RG30082000	Method of Shipment Fed EX	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050341	Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000020

Preservation	None	None										
Type of Container	sG	sG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time										
J03VF9	SOIL	7.28.05	0853	X	X								
~~J03VH0~~	~~SOIL~~	RE 7.27.05											

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From EBC Date/Time 1430 R. Fahlberg R. Fahlberg 7.29.05	Received By/Stored In Fed Ex Date/Time	None	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 Date/Time 7/29/05 0900	Received By/Stored In Date/Time 7/29/05 0900		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		
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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-04	Page 1 of 1

Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH	Price Code 8C 15-21	Date Turnaround 15 Days
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area		SAF No. B05-032	Air Quality ☐	
Ice Chest No. AFS 04 007	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050 341		Bill of Lading/Air Bill No. See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

Preservation	None	None										
Type of Container	sG	sG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Superfund Add-On) (Beryllium)	Isotopic Uranium										
Sample No.	Matrix *	Sample Date	Sample Time									
~~J03VF0~~	~~SOIL~~	~~RE 7.27.05~~										
J03VH0	SOIL	7.27.05	0825	X	X							

000021

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: R. Fahlberg R. Fahlberg 7.27.05 1000	Received By/Stored In: 2a 3728 7.27.05 1000	None	S=Soil SR=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: REF 2C 3728 72805 0900	Received By/Stored In: SJGALE 72805 0900		
Relinquished By/Removed From: SJGALE 72805 0900	Received By/Stored In: FED EX		
Relinquished By/Removed From: Fed Ex 7/29/05 0900	Received By/Stored In: 7/29/05 0900	Personnel not available to relinquish samples from 3728 Ref # 2C on 7/28/05	
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

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

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-8			DATA PACKAGE: H3292		
VALIDATOR: TLI		LAB: LLI		DATE: 8/24/05	
			SDG: H3292		

ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX					
J03VD4	J03VD5	J03VD6	J03VD7	J03VD8	J03VD9
J03VF0	J03VF1	J03VF2	J03VF3	J03VF4	J03VF5
J03VF6	J03VF7	J03VF8	J03VF9	J03VH0	
					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: no FB

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: no PAS

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

Rresults 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: _____

Appendix 6

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/11/05

NT: TNUHANFORD B05-032 H3292 LVL LOT #: 0507L069

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

LE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
K1	05L0443-MB1	Beryllium, Total	0.01	MG/KG	0.01	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/11/05

CLIENT: TNUHANFORD B05-032 H3292

LVL LOT #: 0507L069

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J03VD4	Beryllium, Total	4.9	0.47	4.7	94.2	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/11/05

CLIENT: TNUHANFORD B05-032 H3292 LVL LOT #: 0507L069

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J03VD4	Beryllium, Total	0.47	0.49	3.9	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/11/05

CLIENT: TNUHANFORD B05-032 H3292 LVL LOT #: 0507L069

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0443-LC1	Beryllium, LCS	25.0	25.0	MG/KG	100

Date: 30 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 300-8 Verification
Subject: Radiochemistry - Data Package No. H3292-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3292-EB prepared by Eberline Services (EB). 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	Date
J03VD4	7/27/05	Soil	C	See note 1
J03VD5	7/27/05	Soil	C	See note 1
J03VD6	7/27/05	Soil	C	See note 1
J03VD7	7/27/05	Soil	C	See note 1
J03VD8	7/27/05	Soil	C	See note 1
J03VD9	7/27/05	Soil	C	See note 1
J03VF0	7/27/05	Soil	C	See note 1
J03VF1	7/27/05	Soil	C	See note 1
J03VF2	7/28/05	Soil	C	See note 1
J03VF3	7/28/05	Soil	C	See note 1
J03VF4	7/28/05	Soil	C	See note 1
J03VF5	7/28/05	Soil	C	See note 1
J03VF6	7/28/05	Soil	C	See note 1
J03VF7	7/28/05	Soil	C	See note 1
J03VF8	7/28/05	Soil	C	See note 1
J03VF9	7/28/05	Soil	C	See note 1
J03VH0	7/27/05	Soil	C	See note 1

1 – Alpha spectroscopy (isotopic uranium).

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 300 Area Remedial Action Sampling and Analysis Plan (DOE/RL-2001-48, June 2004). 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

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

No field blanks were submitted for analysis.

- **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 70-130%. 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. The acceptable range for tracer recovery is 20% to 105%. 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% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

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 Duplicates

One sample duplicate pair (J03VD4/J03VH0) was submitted for analysis. Field duplicates 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 remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. All analytes met the RQL.

- **Completeness**

Data package No. H3292 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

None found.

REFERENCES

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

DOE/RL-2001-48, Rev. 1, *300 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, June 2004.

Appendix 1

Glossary of Data Reporting Qualifiers

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

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: H3292	REVIEWER: TLI	Project: 300-8	PAGE 1 OF 1
Comments: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																				
Laboratory: EB	SDG: H3292																			
Sample Number		J03VD4		J03VD5		J03VD6		J03VD7		J03VD8		J03VD9		J03VF0		J03VF1		J03VF2		J03VF3
Remarks																				
Sample Date		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/27/05		7/28/05		7/28/05
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Uranium-233/234	1	0.508		0.614		0.706		0.554		0.732		0.602		0.369		0.474		0.610		0.450	
Uranium-235	1	0.059	U	0	U	0.061	U	0.087	U	0.063	U	0	U	0.149	U	0.029	U	0.057	U	0.052	U
Uranium-238	1	0.774		0.527		0.378		0.530		0.654		0.602		0.615		0.687		0.422		0.622	
Sample Number		J03VF4		J03VF5		J03VF6		J03VF7		J03VF8		J03VF9		J03VH0						
Remarks														Duplicate						
Sample Date		7/28/05		7/28/05		7/28/05		7/28/05		7/28/05		7/28/05		7/27/05						
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Uranium-233/234	1	0.382		0.838		0.770		1.65		0.738		0.577		0.490							
Uranium-235	1	0	U	0.053	U	0	U	0.055	U	0.064	U	0.029	U	0	U						
Uranium-238	1	0.310		1.19		0.993		1.47		0.844		0.289		0.605							

000010

* - RQL 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.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-01 J03VD4

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-01	Client sample id	J03VD4
Dept sample id	7884-001	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/27/05 08:25 85 g
% solids	98.9	Custody/SAF No	B05-032-01 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.508	0.24	0.18	1.0		U
Uranium 235	15117-96-1	0.059	0.059	0.22	1.0	U	U
Uranium 238	U-238	0.774	0.30	0.18	1.0		U

300-8 Verification

K
8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-02 **J03VD5**

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-02	Client sample id	J03VD5		
Dept sample id	7884-002	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/27/05 08:35	103 g	
% solids	98.3	Custody/SAF No	B05-032-01	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.614	0.22	0.17	1.0		U
Uranium 235	15117-96-1	0	0.053	0.20	1.0	U	U
Uranium 238	U-238	0.527	0.22	0.17	1.0		U

300-8 Verification

8/23/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-03 J03VD6

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-03	Client sample id	J03VD6		
Dept sample id	7884-003	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/27/05 08:45	97 g	
% solids	98.7	Custody/SAF No	B05-032-01	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.706	0.26	0.19	1.0		U
Uranium 235	15117-96-1	0.061	0.061	0.23	1.0	U	U
Uranium 238	U-238	0.378	0.20	0.19	1.0		U

300-8 Verification

8/24/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-04 J03VD7

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-04	Client sample id	J03VD7		
Dept sample id	7884-004	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/27/05 08:53	93 g	
% solids	98.7	Custody/SAF No	B05-032-01	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.554	0.24	0.18	1.0		U
Uranium 235	15117-96-1	0.087	0.12	0.22	1.0	U	U
Uranium 238	U-238	0.530	0.24	0.18	1.0		U

300-8 Verification

8/27/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-05 J03VD8

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-05	Client sample id	J03VD8
Dept sample id	7884-005	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/27/05 08:58 98 g
% solids	98.3	Custody/SAF No	B05-032-01 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.732	0.27	0.20	1.0		U
Uranium 235	15117-96-1	0.063	0.063	0.24	1.0	U	U
Uranium 238	U-238	0.654	0.27	0.20	1.0		U

300-8 Verification

8/28/07

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-06 J03VD9

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-06	Client sample id	J03VD9
Dept sample id	7884-006	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/27/05 09:06 93 g
% solids	99.3	Custody/SAF No	B05-032-02 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.602	0.23	0.17	1.0		U
Uranium 235	15117-96-1	0	0.054	0.21	1.0	U	U
Uranium 238	U-238	0.602	0.23	0.17	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-07 J03VF0

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-07	Client sample id	J03VF0
Dept sample id	7884-007	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/27/05 09:11 97 g
% solids	99.2	Custody/SAF No	B05-032-02 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.369	0.20	0.19	1.0		U
Uranium 235	15117-96-1	0.149	0.12	0.23	1.0	U	U
Uranium 238	U-238	0.615	0.25	0.19	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-08 J03VF1

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG_H3292
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R507204-08	Client sample id	J03VF1	
Dept sample id	7884-008	Location/Matrix	300-8 Al Shavings Area	SOLID
Received	07/29/05	Collected/Weight	07/27/05 09:17	95 g
% solids	98.4	Custody/SAF No	B05-032-02	B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.474	0.19	0.18	1.0		U
Uranium 235	15117-96-1	0.029	0.057	0.22	1.0	U	U
Uranium 238	U-238	0.687	0.24	0.18	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-09 J03VF2

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R507204-09	Client sample id	J03VF2	
Dept sample id	7884-009	Location/Matrix	300-8 Al Shavings Area	SOLID
Received	07/29/05	Collected/Weight	07/28/05 08:10	97 g
% solids	98.9	Custody/SAF No	B05-032-02	B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.610	0.24	0.18	1.0		U
Uranium 235	15117-96-1	0.057	0.057	0.22	1.0	U	U
Uranium 238	U-238	0.422	0.19	0.18	1.0		U

300-8 Verification

4/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-10 **J03VF3**

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-10	Client sample id	J03VF3
Dept sample id	7884-010	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/28/05 08:17 91 g
% solids	98.7	Custody/SAF No	B05-032-02 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.450	0.22	0.16	1.0		U
Uranium 235	15117-96-1	0.052	0.052	0.20	1.0	U	U
Uranium 238	U-238	0.622	0.22	0.16	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-11 J03VF4

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-11	Client sample id	J03VF4		
Dept sample id	7884-011	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/28/05 08:24	90 g	
% solids	99.1	Custody/SAF No	B05-032-03	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.382	0.19	0.18	1.0		U
Uranium 235	15117-96-1	0	0.058	0.22	1.0	U	U
Uranium 238	U-238	0.310	0.19	0.18	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-12 J03VF5

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-12	Client sample id	J03VF5
Dept sample id	7884-012	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/28/05 08:29 101 g
% solids	98.8	Custody/SAF No	B05-032-03 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.838	0.27	0.17	1.0		U
Uranium 235	15117-96-1	0.053	0.054	0.20	1.0	U	U
Uranium 238	U-238	1.19	0.32	0.17	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-13 J03VF6

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-13	Client sample id	J03VF6		
Dept sample id	7884-013	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/28/05 08:33	98 g	
% solids	98.9	Custody/SAF No	B05-032-03	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.770	0.30	0.19	1.0		U
Uranium 235	15117-96-1	0	0.060	0.23	1.0	U	U
Uranium 238	U-238	0.993	0.31	0.19	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-14 J03VF7

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-14	Client sample id	J03VF7
Dept sample id	7884-014	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/28/05 08:41 90 g
% solids	100.0	Custody/SAF No	B05-032-03 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	1.65	0.39	0.18	1.0		U
Uranium 235	15117-96-1	0.055	0.056	0.21	1.0	U	U
Uranium 238	U-238	1.47	0.38	0.18	1.0		U

300-8 Verification

8/27/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-15 J03VF8

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-15	Client sample id	J03VF8		
Dept sample id	7884-015	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/28/05 08:48	100 g	
% solids	99.2	Custody/SAF No	B05-032-03	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.738	0.27	0.20	1.0		U
Uranium 235	15117-96-1	0.064	0.064	0.24	1.0	U	U
Uranium 238	U-238	0.844	0.32	0.20	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-16 **J03VF9**

DATA SHEET

SDG	7884	Client/Case no	Hanford	SDG H3292	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-16	Client sample id	J03VF9		
Dept sample id	7884-016	Location/Matrix	300-8 Al Shavings Area	SOLID	
Received	07/29/05	Collected/Weight	07/28/05 08:53	88 g	
% solids	99.3	Custody/SAF No	B05-032-04	B05-032	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.577	0.24	0.18	1.0		U
Uranium 235	15117-96-1	0.029	0.058	0.22	1.0	U	U
Uranium 238	U-238	0.289	0.15	0.18	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-17 J03VH0

DATA SHEET

SDG	7884	Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R507204-17	Client sample id	J03VH0
Dept sample id	7884-017	Location/Matrix	300-8 Al Shavings Area SOLID
Received	07/29/05	Collected/Weight	07/27/05 08:25 92 g
% solids	98.9	Custody/SAF No	B05-032-04 B05-032

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.490	0.23	0.22	1.0		U
Uranium 235	15117-96-1	0	0.070	0.27	1.0	U	U
Uranium 238	U-238	0.605	0.29	0.22	1.0		U

300-8 Verification

8/28/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H3292 was composed of seventeen solid (soil) samples designated under SAF No. B05-032 with a Project Designation of: 300-8 Verification.

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-mail on August 9, 2005.

2.0 ANALYSIS NOTES

2.1 Isotopic Uranium Analysis

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."

Mel Mann
Melissa C. Mannion
Senior Program Manager

8/12/5
Date

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-01	Page 1 of 1
Collector: Fahlberg	Company Contact: Jeff Lerch; Telephone No.: 373-5904	Project Coordinator: KESSNER, JH	Price Code: 8-C 15-21; Air Quality ☐	Data Turnaround: 15 Days
Project Designation: 300-8 Verification	Sampling Location: 300-8 Aluminum Shavings Area H3292 (7884)	SAF No.: B05-032	
Ice Chest No.: AF504012	Field Logbook No.: EL 1395-11; COA: RG30082000	Method of Shipment: Fed EX	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A050295	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000030

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Superfund Add-On) (Beryllium)	Isotopic Uranium										
Sample No. / Matrix * / Sample Date / Sample Time												
J03VD4 / SOIL / 7.27.05 / 0825	X	X										
J03VD5 / SOIL / 7-27-05 / 0835	X	X										
J03VD6 / SOIL / 7-27-05 / 0845	X	X										
J03VD7 / SOIL / 7.27.05 / 0853	X	X										
J03VD8 / SOIL / 7.27.05 / 0858	X	X										

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Fahlberg R. Fahlberg	Received By/Stored In: 2C 3728	1000 7.27.05
Relinquished By/Removed From: REF 2C 3728	Received By/Stored In: S Goale	72805 0900
Relinquished By/Removed From: S Goale	Received By/Stored In: FED EX	72805 0900
Relinquished By/Removed From: FED EX	Received By/Stored In: MFM	07/29/05 9:20
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

None

Personnel not available to Relinquish samples from 3728 Ref # 2C on 7/25/05

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-02	Page 1 of 1

Collector: Fahlberg	Company Contact: Jeff Lerch — Telephone No.: 373-5904	Project Coordinator: KESSNER, JH	Price Code: 8-C 15-21 — Data Turnaround: 15 Days
Project Designation: 300-8 Verification	Sampling Location: 300-8 Aluminum Shavings Area H3292 (7884)	SAF No.: B05-032	Air Quality ☐
Ice Chest No.: AFS 04 012	Field Logbook No.: EL 1395-11 — COA: RG30082000	Method of Shipment: Fed EX	
Shipped To: EDERLINE SERVICES / LIONVILLE	Offsite Property No.: A050 295	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

Preservation	None	None										
Type of Container	sG	sG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										
Sample No. / Matrix * / Sample Date / Sample Time												
J03VD9 / SOIL / 7-27-05 / 0906	X	X										
J03VF0 / SOIL / 7-27-05 / 0911	X	X										
J03VF1 / SOIL / 7-27-05 / 0917	X	X										
~~J03VF2 / SOIL~~												
~~J03VF8 / SOIL~~												

000031

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By/Removed From: R. Fahlberg R. Fahlberg 7-27-05 Date/Time 1000	Received By/Stored In: ZC 3728 7-27-05 Date/Time 1000
Relinquished By/Removed From: REF ZC 3728 72805 0900 Date/Time	Received By/Stored In: S Jones 72805 0900 Date/Time
Relinquished By/Removed From: S Jones 72805 0900 Date/Time ERC	Received By/Stored In: FEDEX Date/Time
Relinquished By/Removed From: FED EX 07/29/05 Date/Time	Received By/Stored In: MFW 07/29/05 9:30 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

None

Personnel not available to relinquish samples from 3728 Ref #ZC on 7-28-05

Matrix *

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-02	Page 1 of 1

Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area H3292 (7884)		SAF No. B05-032
Ice Chest No. JFS 04 012	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX
Shipped To EBERLINE SERVICES/ LIONVILLE	Offsite Property No. A050 295		Bill of Lading/Air Bill No. See OSPC

Price Code 8-C
Air Quality 15-21 ☐
Data Turnaround 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000032

Preservation	None	None										
Type of Container	sG	sG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03VD0~~	~~SOIL~~												
~~J03VF0~~	~~SOIL~~												
~~J03VF1~~	~~SOIL~~												
J03VF2	SOIL	7.28.05	0810	X	X								
J03VF3	SOIL	7.28.05	0817	X	X								

RF 7.29.05

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From ERL	Date/Time 1430	Received By/Stored In Fed Ex	Date/Time
R. Fahlberg R Fahlberg 7-28-05			
Relinquished By/Removed From FEDEX	Date/Time 07/29/05	Received By/Stored In RFM	Date/Time 07/29/05 9:30
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
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS
None

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-03	Page 1 of 1

Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH	Price Code 8-C Air Quality ☐ 15-21	Data Turnaround 15 Days
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area H3292 (7884)		SAF No. B05-032		
Ice Chest No. AFS 04 012	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 295		Bill of Lading/Air Bill No. See OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000033

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Added) (Beryllium)	Isotopic Uranium										
Sample No. / Matrix * / Sample Date / Sample Time												
J03VF4 / SOIL / 7-28-05 / 0824	X	X										
J03VF5 / SOIL / 7-28-05 / 0829	X	X										
J03VF6 / SOIL / 7-28-05 / 0833	X	X										
J03VF7 / SOIL / 7-28-05 / 0841	X	X										
J03VF8 / SOIL / 7-28-05 / 0848	X	X										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
ERC R. Fahlberg R. Fahlberg	1430 7-28-05	Fed Ex	
FED EX	07/29/05	MFM	07/29/05 9:30

SPECIAL INSTRUCTIONS

None

Matrix *

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-032-04	Page 1 of 1
Collector Fahlberg	Company Contact Jeff Lerch	Telephone No. 373-5904	Project Coordinator KESSNER, JH	Price Code 8-C 15.21 Air Quality ☐
Project Designation 300-8 Verification	Sampling Location 300-8 Aluminum Shavings Area H3292 (7884)		SAF No. B05-032	Data Turnaround 15 Days
Ice Chest No. AFS 04 012	Field Logbook No. EL 1395-11	COA RG30082000	Method of Shipment Fed EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050295		Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000034

Preservation	None	None										
Type of Container	aG	aG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Supertrace Add-On) (Beryllium)	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time										
J03VF9	SOIL	7.28.05	0853	X	X								
~~J03VH0~~	~~SOIL~~	RL 7.27.05											

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From ERC	Date/Time 1430	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	7.29.05	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	07/29/05	NFW	07/29/05 9:30
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
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

None

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-032-04	Page 1 of 1

Collector: Fahlberg	Company Contact: Jeff Lerch — Telephone No.: 373-5904	Project Coordinator: KESSNER, JH	Price Code: 8c 15-21 — Data Turnaround: 15 Days
Project Designation: 300-8 Verification	Sampling Location: 300-8 Aluminum Shavings Area H3292 (7884)	SAF No.: B05-032	Air Quality ☐
Ice Chest No.: AF604 012	Field Logbook No.: EL 1395-11 — COA: RG30082000	Method of Shipment: Fed EX	
Shipped To: EBERLINE SERVICES, LIONVILLE	Offsite Property No.: A050 295	Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Non Rad Area, No Activity Report Required

Special Handling and/or Storage

None

000035

Preservation	None	None										
Type of Container	sG	sG										
No. of Container(s)	1	1										
Volume	60mL	60mL										
SAMPLE ANALYSIS	ICP Metals - 6010A (Superfrace Add-On) (Beryllium)	Isotopic Uranium										

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03VF0~~	~~SOIL~~	RE 7.27.05											
J03VH0	SOIL	7.27.05	0825	X	X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Fahlberg R. Fahlberg	7.27.05 1000	2a 3728	7.27.05 1000
REF2C 3728	72805 0900	SJGALE	72805 0900
SJGALE	72805 0900	FED EX	
FED EX	07/29/05		07/29/05 9:30

SPECIAL INSTRUCTIONS

None

Personnel not available to relinquish samples from 3728 Ref # 2C on 7/28/05

Matrix *

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

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

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

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 300-8			DATA PACKAGE: H3292		
VALIDATOR: TLI		LAB: ER		DATE: 8/26/05	
			SDG: H3292		
ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy	
Total Uranium	Radium-22	Tritium			
SAMPLES/MATRIX					
~~J03DV4~~ ~~J03DV5~~	J03VD4	J03VD5	J03VD6	J03VD7	J03VD8
J03VD9	J03VF0	J03VF1	J03VF2	J03VF3	J03VF4 J03VF5
J03VF6	J03VF7	J03VF8	J03VF9	J03VH0	
					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

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

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

Comments: _____

3. Continuing Calibration (Levels D, E) ☒ 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) ..... ☒ 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: _____

_____

_____

_____

_____

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: no FB

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

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: _____

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 FS or PAS

12. Holding Times (All levels)

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

Comments: _____

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:

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-19 **Method Blank**

METHOD BLANK

SDG	7884	Client/Case no	Hanford		SDG H3292
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R507204-19	Client sample id	Method Blank		
Dept sample id	7884-019	Material/Matrix			SOLID
		SAF No	B05-032		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0	0.069	0.26	1.0	U	U
Uranium 235	15117-96-1	0	0.083	0.32	1.0	U	U
Uranium 238	U-238	0	0.069	0.26	1.0	U	U

300-8 Verification

QC-BLANK #53820

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-18

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7884
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3292
Contract No. 630

Lab sample id R507204-18
Dept sample id 7884-018

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B05-032

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
Uranium 233/234	17.5	2.0	0.95	1.0		U	19.3	0.77	91	82-118	80-120
Uranium 235	15.6	1.8	0.23	1.0		U	15.7	0.63	99	80-120	80-120
Uranium 238	20.7	2.2	0.91	1.0		U	21.0	0.84	99	82-118	80-120

300-8 Verification

QC-LCS #53819

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/09/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3292

R507204-20 J03VF3

DUPLICATE

SDG	7884			Client/Case no	Hanford SDG H3292
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R507204-20	Lab sample id	R507204-10	Client sample id	J03VF3
Dept sample id	7884-020	Dept sample id	7884-010	Location/Matrix	300-8 Al Shavings Area SOLID
		Received	07/29/05	Collected/Weight	07/28/05 08:17 91 g
% solids	98.7	% solids	98.7	Custody/SAF No	B05-032-02 B05-032

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
Uranium 233/234	0.477	0.23	0.21	1.0		U	0.450	0.22	0.16		6	104	
Uranium 235	0.068	0.068	0.26	1.0	U	U	0.052	0.052	0.20	U	-		
Uranium 238	0.421	0.23	0.21	1.0		U	0.622	0.22	0.16		39	92	

300-8 Verification

QC-DUP#10 53821

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/09/05