Date: 30 March 2002
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Area - Full Protocol - Waste Site 100-F-15
Subject: Inorganics - Data Package No. H1695-LLI (SDG No. H1695)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H1695-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
B141C2	2/5/02	Soil	C	See note 1
B141C3	2/5/02	Soil	C	See note 1
B141C4	2/5/02	Soil	C	See note 1
B141C5	2/5/02	Soil	C	See note 1
B141C6	2/5/02	Soil	C	See note 1
B141C7	2/5/02	Soil	C	See note 1
B141C8	2/5/02	Soil	C	See note 1
B141C9	2/5/02	Soil	C	See note 1
B141D0	2/5/02	Soil	C	See note 1
B141D1	2/5/02	Soil	C	See note 1
B141D2	2/5/02	Soil	C	See note 1

1 - Chromium VI by 7196A; total chromium by 6010B.

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). 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

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AUG 1 2 2002
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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 total chromium and 30 days for chromium VI.

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 (B141D2)was submitted for analysis. Total chromium was detected in the equipment blank. Under the BHI statement of work, no qualification is required. All other 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 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.

All 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 were submitted for analysis (B141C3/B141D0). 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 100 Area Remedial Action Sampling and Analysis Plan TDLs to ensure that laboratory detection levels meet the required criteria. All reported results met the analyte specific TDL.

- **Completeness**

Data package No. H1695-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-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

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

DATA QUALIFICATION SUMMARY

SDG: H1695	REVIEWER: TLI	DATE: 3/30/02	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																					
Laboratory: LLI																					
Case	SDG: H1695																				
Sample Number		B141C2		B141C3		B141C4		B141C5		B141C6		B141C7		B141C8		B141C9		B141D0		B141D1	
Location																		Duplicate			
Sample Date		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02	
Inorganics	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chromium, total	1	13.0		13.3		13.8		13.7		15.5		12.6		12.9		12.3		13.0		15.6	
Chromium VI	0.5	0.41	U	1.3		0.41	U	0.41	U	0.45		0.42	U	0.41	U	0.41	U	0.41	U	0.41	U
Sample Number		B141D2																			
Remarks		E. Blank																			
Sample Date		2/5/02																			
Inorganics	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chromium, total	1	0.22																			
Chromium VI	0.5	0.40	U																		

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.

000030

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/25/02

CLIENT: TNUHANFORD B00-030 H1695

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

LVL LOT #: 0202L936

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B141C2	% Solids	97.2	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-002	B141C3	% Solids	98.0	%	0.01	1.0
		Chromium VI	1.3	MG/KG	0.41	1.0
-003	B141C4	% Solids	97.3	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-004	B141C5	% Solids	97.9	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-005	B141C6	% Solids	97.5	%	0.01	1.0
		Chromium VI	0.45	MG/KG	0.41	1.0
-006	B141C7	% Solids	95.6	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-007	B141C8	% Solids	98.3	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-008	B141C9	% Solids	98.3	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-009	B141D0	% Solids	97.8	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-010	B141D1	% Solids	97.3	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0

3/30/02

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/25/02

LVL LOT #: 0202L936

CLIENT: TNUHANFORD B00-030 H1695
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B141D2	% Solids	100	%	0.01	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0

3/30/02

000022

07

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/13/02

LVL LOT #: 0202L936

CLIENT: TNU-HANFORD B00-030

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B141C2	Chromium, Total	13.0	MG/KG	0.07	1.0
-002	B141C3	Chromium, Total	13.3	MG/KG	0.08	1.0
-003	B141C4	Chromium, Total	13.8	MG/KG	0.08	1.0
-004	B141C5	Chromium, Total	13.7	MG/KG	0.08	1.0
-005	B141C6	Chromium, Total	15.5	MG/KG	0.08	1.0
-006	B141C7	Chromium, Total	12.6	MG/KG	0.08	1.0
-007	B141C8	Chromium, Total	12.9	MG/KG	0.08	1.0
-008	B141C9	Chromium, Total	12.3	MG/KG	0.08	1.0
-009	B141D0	Chromium, Total	13.0	MG/KG	0.08	1.0
-010	B141D1	Chromium, Total	15.6	MG/KG	0.08	1.0
-011	B141D2	Chromium, Total	0.22	MG/KG	0.08	1.0

3/30/02

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030
LVL#: 0202L936
SDG/SAF#: H1695/B00-030

W.O.#: 11343-606-001-9999-00
Date Received: 02-07-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 11 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 with the exception of cooler temperature, which has been recorded on the chain of custody.

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

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

7. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. 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.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 16 pages.

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

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

02-13-02
Date

gmb/m02-936

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MAR 2002

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-030

H1695

DATE RECEIVED: 02/07/02

LVL LOT # :0202L936

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B141C2						
CHROMIUM, TOTAL	001	S	02L0062	02/05/02	02/08/02	02/09/02
CHROMIUM, TOTAL	001 REP	S	02L0062	02/05/02	02/08/02	02/09/02
CHROMIUM, TOTAL	001 MS	S	02L0062	02/05/02	02/08/02	02/09/02
B141C3						
CHROMIUM, TOTAL	002	S	02L0062	02/05/02	02/08/02	02/09/02
B141C4						
CHROMIUM, TOTAL	003	S	02L0062	02/05/02	02/08/02	02/09/02
B141C5						
CHROMIUM, TOTAL	004	S	02L0062	02/05/02	02/08/02	02/09/02
B141C6						
CHROMIUM, TOTAL	005	S	02L0062	02/05/02	02/08/02	02/09/02
B141C7						
CHROMIUM, TOTAL	006	S	02L0062	02/05/02	02/08/02	02/09/02
B141C8						
CHROMIUM, TOTAL	007	S	02L0062	02/05/02	02/08/02	02/09/02
B141C9						
CHROMIUM, TOTAL	008	S	02L0062	02/05/02	02/08/02	02/09/02
B141D0						
CHROMIUM, TOTAL	009	S	02L0062	02/05/02	02/08/02	02/09/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-030

DATE RECEIVED: 02/07/02

LVL LOT # :0202L936

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B141D1						
CHROMIUM, TOTAL	010	S	02L0062	02/05/02	02/08/02	02/09/02
B141D2						
CHROMIUM, TOTAL	011	S	02L0062	02/05/02	02/08/02	02/09/02
LAB QC:						
CHROMIUM LABORATORY	LC1 BS	S	02L0062	N/A	02/08/02	02/09/02
CHROMIUM, TOTAL	MB1	S	02L0062	N/A	02/08/02	02/09/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030 H1695
LVL#: 0202L936

W.O.#: 11343-606-001-9999-00
Date Received: 02-07-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 11 soil samples.

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

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

4. Sample holding times as required by the method and/or contract were met.

5. The method blank for Chromium VI was within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike (MS) recovery for Insoluble Chromium VI was within the 75-125% control limits, however MS recovery for Soluble Chromium was below the control limits that may be attributed to sample inhomogeneity.

8. The replicate analyses 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

02-25-02
Date

njp\i02-936

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 16 pages.

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Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H1695

LVL LOT # :0202L936

DATE RECEIVED: 02/07/02

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B141C2						
% SOLIDS	001	S	02L%S013	02/05/02	02/08/02	02/11/02
% SOLIDS	001 REP	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	001	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C3						
% SOLIDS	002	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	002	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C4						
% SOLIDS	003	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	003	S	02LVI006	02/05/02	02/22/02	02/22/02
CHROMIUM VI	003 REP	S	02LVI006	02/05/02	02/22/02	02/22/02
CHROMIUM VI	003 MS	S	02LVI006	02/05/02	02/22/02	02/22/02
CHROMIUM VI	003 MSD	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C5						
% SOLIDS	004	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	004	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C6						
% SOLIDS	005	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	005	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C7						
% SOLIDS	006	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	006	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C8						
% SOLIDS	007	S	02L%S013	02/05/02	02/08/02	02/11/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H1695

LVL LOT # :0202L936

DATE RECEIVED: 02/07/02

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	007	S	02LVI006	02/05/02	02/22/02	02/22/02
B141C9						
% SOLIDS	008	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	008	S	02LVI006	02/05/02	02/22/02	02/22/02
B141D0						
% SOLIDS	009	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	009	S	02LVI006	02/05/02	02/22/02	02/22/02
B141D1						
% SOLIDS	010	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	010	S	02LVI006	02/05/02	02/22/02	02/22/02
B141D2						
% SOLIDS	011	S	02L%S013	02/05/02	02/08/02	02/11/02
CHROMIUM VI	011	S	02LVI006	02/05/02	02/22/02	02/22/02
LAB QC:						
CHROMIUM VI	MB1	S	02LVI006	N/A	02/22/02	02/22/02
CHROMIUM VI	MB1 BS	S	02LVI006	N/A	02/22/02	02/22/02
CHROMIUM VI	MB1 BSD	S	02LVI006	N/A	02/22/02	02/22/02

02

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-046	Page 3 of 3
llector MT Stankovich / Nielson	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 8L / Data Turnaround 21 Days
bject Designation 100 F Area - Full Protocol	Sampling Location 100-F-15		SAF No. B00-030	Air Quality ☐
e Chest No. See OSPC	Field Logbook No. EL-1535-3	COA R10F152000	Method of Shipment Federal Express	
ipped To TMA/RECRA	Offsite Property No. A020196		Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potential Radioactive
TIETO B13NPO

Special Handling and/or Storage
None/Cool 4C

Preservation	None	Cool 4C	None RT 25.02
Type of Container	sG	sG	sG
No. of Container(s)	1	1	1
Volume	250mL	125mL	60mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See Item (1) in Special Instructions.	Chromium Hex - 7196	Isotopic Plutonium; [redacted] ws 2-4-02
3141D2	SOIL	2-5-02	0745	✓	✓	

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R.L. Nielsen / R. Nielsen 2-5-02	1315	R.L. Nielsen / R Thorne 2.5.02	1315
R.L. Nielsen / R. Nielsen 2.5.02	1400	R.L. Nielsen / RL 3C 3728 2.5.02	1400
R.L. 3C 3728 2.6.02	0945	R.L. Nielsen / R Thorne 2.6.02	0945
R.L. Nielsen / R Thorne 2.6.02	0945	EL EL	
FEDEX 2-7-02	0935	Carl Hanf 2-7-02	0935
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

Sign/Print Names

SPECIAL INSTRUCTIONS
(1) ICP Metals - 6010A (Supertrace) ([redacted] Chromium, [redacted]
ws 2-4-02

SAMPLES STORED IN REF.#_____ AT THE 3728 SHIPPING FACILITY ON __/__/__. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON __/__/__ FOR SHIPMENT.
RT 25.02

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

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

BHI-EE-011 (10/99)

B00-030-046 Page 2 of 2

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Bechtel Hanford Inc.

lector MT Stankovich / Nielson	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ
ject Designation 00 F Area - Full Protocol	Sampling Location 100-F-15		SAF No. B00-030
Chest No. See OSPC	Field Logbook No. EL-1535-3	COA R10F152000	Method of Shipment Federal Express
ipped To TMA/RECRA	Offsite Property No. A020196		Bill of Lading/Air Bill No. See OSPC

Price Code 8L

Air Quality ☐

Data Turnaround 21 Days

OSSIBLE SAMPLE HAZARDS/REMARKS
Potential
adioactive
Tieto B13NPO

pecial Handling and/or Storage
None/Cool 4C

Preservation	None	Cool 4C	None
Type of Container	aG	aG	aG
No. of Container(s)	1	1	1
Volume	250mL	125mL	60mL
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	Isotopic Plutonium; [redacted]

RT 2-5-02

ms 2-4-02

000023

Sample No.	Matrix *	Sample Date	Sample Time										
3141C7	SOIL	2-5-02	0814	✓	✓								
3141C8	SOIL	2-5-02	0817	✓	✓								
3141C9	SOIL	2-5-02	0817	✓	✓								
3141D0	SOIL	2-5-02	0755	✓	✓								
3141D1	SOIL	2-5-02	0810	✓	✓								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] R. Nielson	2/5/02 1315	[signature] R. Thorer	2.5.02 1315
[signature] R. Thorer	2.5.02 1400	Ref 3C 3728	2.5.02 1400
Ref 3C 3728	2.6.02 0945	[signature] R. Thorer	2.6.02 0945
[signature] R. Thorer ERC	2.6.02 0945	FED EX	
FEDEX	2-7-02 0935	[signature]	2-7-02 0935

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) ([redacted] Chromium, [redacted]

m 2-4-02

SAMPLES STORED IN REF.# ____ AT THE 3728 SHIPPING FACILITY ON __/__/__. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON __/__/__ FOR SHIPMENT.

RT 2-5-02

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

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

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-046	Page 1 of 3

Collector: MT Stankovich / Nielson	Company Contact: Mike Stankovich; Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 100-F-15	SAF No.: B00-030	Air Quality ☐
Ice Chest No.: SEE OSPC	Field Logbook No.: EL-1535-3; COA: R10F152000	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A020196	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Possible Radioactive
TIE TO B3NP0

Special Handling and/or Storage
NONE / COOL 4C

Preservation	None	Cool 4C	None									
Type of Container	aG	aG	RT 2-5-02									
No. of Container(s)	1	1										
Volume	250mL	125mL	60mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	Isotopic Plutonium; [redacted] mo 2-4-02									

Sample No.	Matrix *	Sample Date	Sample Time										
B141C2	SOIL	2-5-02	0757	✓	✓								
B141C3	SOIL	2-5-02	0755	✓	✓								
B141C4	SOIL	2-5-02	0800	✓	✓								
B141C5	SOIL	2-5-02	0806	✓	✓								
B141C6	SOIL	2-5-02	0810	✓	✓								

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: R. Nielson	R. Nielson	2/5/02 1315
Received By/Stored In: R. Thorem	R. Thorem	2.5.02 1315
Relinquished By/Removed From: R. Thorem	R. Thorem	2.5.02 1400
Received By/Stored In: Ref 3C 3728	Ref 3C 3728	2.5.02 1400
Relinquished By/Removed From: Ref 3C 3728	Ref 3C 3728	2.6.02 0945
Received By/Stored In: R. Thorem	R. Thorem	2-6-02 0945
Relinquished By/Removed From: R. Thorem	R. Thorem	2.6.02 0945
Received By/Stored In: FEDEX	FEDEX	
Relinquished By/Removed From: FEDEX		2-7-02 0935
Received By/Stored In: Carlo Henry	Carlo Henry	2-7-02 0935
Relinquished By/Removed From		
Received By/Stored In		

SPECIAL INSTRUCTIONS
(1) ICP Metals - 6010A (Supertrace) ([redacted] Chromium, [redacted]
mo 2-4-02

SAMPLES STORED IN REF.#_____ AT THE 3728 SHIPPING FACILITY ON __/__/__. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON __/__/__ FOR SHIPMENT.
RT 2-5-02

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

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

BHI-EE-011 (10/99)

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

ALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100F-15			DATA PACKAGE: H1695		
VALIDATOR: TCI		LAB: LLI		DATE: 3/30/02	
CASE:			SDG: H1695		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide	CR VI	
SAMPLES/MATRIX					
B141C2	B141C3	B141C4	B141C5	B141C6	
B141C7	B141C8	B141C9	B141D0	B141D1	
B141D2					
			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: D2 – Tot CR

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:

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 02/25/02

LVL LOT #: 0202L936

CLIENT: TNUHANFORD B00-030 H1695
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LVI006-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/25/02

CLIENT: TNUHANFORD B00-030 H1695

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

LVL LOT #: 0202L936

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	B141C4	Soluble Chromium VI	3.3	0.41u	4.1	72.8	1.0
		Insoluble Chromium VI	1420	0.41u	1260	112.9	100
BLANK10	02LVI006-MB1	Soluble Chromium VI	3.9	0.40u	4.0	97.0	1.0
		Insoluble Chromium VI	1270	0.40u	1160	109.4	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/25/02

LVL LOT #: 0202L936

CLIENT: TNUHANFORD B00-030 H1695
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B141C2	% Solids	97.2	97.3	0.031	1.0
-003REP	B141C4	Chromium VI	0.41u	0.41u	NC	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/13/02

CLIENT: TNU-HANFORD B00-030

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

LVL LOT #: 0202L936

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0062-MB1	Chromium, Total	0.08 u	MG/KG	0.08	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/13/02

CLIENT: TNU-HANFORD B00-030

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

LVL LOT #: 0202L936

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B141C2	Chromium, Total	29.2	13.0	18.7	86.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/13/02

CLIENT: TNU-HANFORD B00-030

LVL LOT #: 0202L936

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B141C2	Chromium, Total	13.0	12.7	2.3	1.0

Date: 30 March 2002
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Area - Full Protocol - Waste Site 100-F-15
Subject: Radiochemistry - Data Package No. H1695-EB (SDG No. H1695)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H1695-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
B141C2	2/5/02	Soil	C	Isotopic plutonium
B141C3	2/5/02	Soil	C	Isotopic plutonium
B141C4	2/5/02	Soil	C	Isotopic plutonium
B141C5	2/5/02	Soil	C	Isotopic plutonium
B141C6	2/5/02	Soil	C	Isotopic plutonium
B141C7	2/5/02	Soil	C	Isotopic plutonium
B141C8	2/5/02	Soil	C	Isotopic plutonium
B141C9	2/5/02	Soil	C	Isotopic plutonium
B141D0	2/5/02	Soil	C	Isotopic plutonium
B141D1	2/5/02	Soil	C	Isotopic plutonium
B141D2	2/5/02	Soil	C	Isotopic plutonium

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). 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

One equipment blank (B141D2)was submitted for analysis. All equipment blank results were acceptable.

- **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 ±3 sigma. 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% or ±3 sigma, 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 Duplicate

One set of field duplicate samples were submitted for analysis (B141C3/B141D0). 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 100 Area Remedial Action Sampling and Analysis Plan target detection limits (TDLs) to ensure that laboratory detection levels meet the required criteria. All reported results met the analyte speciiec TDL.

- **Completeness**

Data package No. H1695 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-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

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

DATA QUALIFICATION SUMMARY

SDG: H1695	REVIEWER: TLI	DATE: 3/30/02	PAGE_1_OF_1_
COMMENTS: No qualifiers assigned			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

RADIOCHEMISTRY ANALYSIS, SOIL MATRIX, (PCi/G)

Project: BECHTEL-HANFORD																							
Laboratory: EB																							
Case	SDG: H1695																						
Sample Number		B141C2		B141C3		B141C4		B141C5		B141C6		B141C7		B141C8		B141C9		B141D0		B141D1		B141D2	
Location																		Duplicate				E. Blank	
Sample Date		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02		2/5/02	
Radiochemistry	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Plutonium-238	1	0	U	-0.034	U	-0.031	U	0	U	0.026	U	-0.040	U	0	U	0.027	U	-0.051	U	0	U	0	U
Plutonium-239/240	1	0.028	U	0	U	0	U	-0.028	U	0.026	U	0.040	U	0	U	0	U	0	U	0.029	U	0	U

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 H1695

R202027-01

B141C2

DATA SHEET

SDG	7223	Client/Case no	Hanford
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-01	Client sample id	B141C2
Dept sample id	7223-001	Location/Matrix	100-F-15
Received	02/07/02	Collected/Weight	02/05/02 07:57 93.0 g
% solids	97.0	Custody/SAF No	B00-030-046 B00-030

SDG H1695

SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0	0.057	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0.028	0.057	0.22	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141C3

R202027-02

DATA SHEET

SDG 7223	Client/Case no Hanford		SDG H1695
Contact Melissa C. Mannion	Contract No. 630		
Lab sample id R202027-02	Client sample id B141C3		
Dept sample id 7223-002	Location/Matrix 100-F-15		SOLID
Received 02/07/02	Collected/Weight 02/05/02 07:55	98.9 g	
% solids 97.6	Custody/SAF No B00-030-046	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	-0.034	0.068	0.26	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.068	0.26	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141C4

R202027-03

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-03	Client sample id	B141C4
Dept sample id	7223-003	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 08:00 84.7 g
% solids	97.5	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	-0.031	0.062	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.062	0.24	1.0	U	PU

100 F Area - Full Protocol

JK
3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

R202027-04

B141C5

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-04	Client sample id	B141C5
Dept sample id	7223-004	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 08:06 88.5 g
% solids	97.8	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0	0.055	0.21	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.028	0.055	0.21	1.0	U	PU

100 F Area - Full Protocol

JK
03/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141C6

R202027-05

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-05	Client sample id	B141C6
Dept sample id	7223-005	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 08:10 91.6 g
% solids	97.3	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0.026	0.053	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0.026	0.053	0.20	1.0	U	PU

100 F Area - Full Protocol

Rc
3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141C7

R202027-06

DATA SHEET

SDG	7223	Client/Case no	Hanford — SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-06	Client sample id	B141C7
Dept sample id	7223-006	Location/Matrix	100-F-15 — SOLID
Received	02/07/02	Collected/Weight	02/05/02 08:14 — 91.7 g
% solids	97.0	Custody/SAF No	B00-030-046 — B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	-0.040	0.080	0.31	1.0	U	PU
Plutonium 239/240	PU-239/240	0.040	0.080	0.31	1.0	U	PU

100 F Area - Full Protocol

pr
3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141C8

R202027-07

DATA SHEET

SDG	7223	Client/Case no	Hanford
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-07	Client sample id	B141C8
Dept sample id	7223-007	Location/Matrix	100-F-15
Received	02/07/02	Collected/Weight	02/05/02 08:17 111.2 g
% solids	98.4	Custody/SAF No	B00-030-046 B00-030

SDG H1695

SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0	0.058	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.058	0.22	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

R202027-08

B141C9

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-08	Client sample id	B141C9
Dept sample id	7223-008	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 08:17 86.0 g
% solids	97.4	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0.027	0.053	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.053	0.20	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

R202027-09

B141D0

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-09	Client sample id	B141D0
Dept sample id	7223-009	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 07:55 108.0 g
% solids	98.3	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	-0.051	0.051	0.24	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.051	0.19	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141D1

R202027-10

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-10	Client sample id	B141D1
Dept sample id	7223-010	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 08:10 91.4 g
% solids	97.1	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0	0.059	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0.029	0.059	0.22	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

R202027-11

B141D2

DATA SHEET

SDG	7223	Client/Case no	Hanford SDG H1695
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R202027-11	Client sample id	B141D2
Dept sample id	7223-011	Location/Matrix	100-F-15 SOLID
Received	02/07/02	Collected/Weight	02/05/02 07:45 101.0 g
% solids	99.5	Custody/SAF No	B00-030-046 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0	0.053	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.053	0.20	1.0	U	PU

100 F Area - Full Protocol

3/30/02

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/28/02

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1695 was composed of eleven 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 February 28, 2002.

2.0 ANALYSIS NOTES

2.1 Isotopic Plutonium 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

3/5/02

Date

Bechtel Hanford Inc. | **CHAIN OF CUSTODY/SAMPLE ANALYSIS**

Collector: MT Stankovich / Nielson	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Project Designation: 100 F Area - Full Protocol	Sampling Location: 100-F-15 H1695 (7223)		SAF No.: B00-030
Ice Chest No.: See OSPC	Field Logbook No.: EL-1535-3	COA: R10F152000	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A020169		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8L

Air Quality ☐

Data Turnaround: 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Potential Radioactive: TIETOB13NPO

Special Handling and/or Storage: NONE

Preservation	None	Cool 4C	None									
Type of Container	aG	aG	aG									
No. of Container(s)	1	1	1									
Volume	250mL	125mL	60mL									
	See item (1) in Special Instructions.	Chromium Hex - 7196	Isotopic Plutonium; [redacted]									

mo 2-4-02

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time										
B141C2 ✓	SOIL	2.5.02	0757			✓							
B141C3 ✓	SOIL	2.5.02	0755			✓							
B141C4 ✓	SOIL	2-5-02	0800			✓							
B141C5 ✓	SOIL	2-5-02	0806			✓							
B141C6 ✓	SOIL	2-5-02	0810			✓							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / R. Nielson	2/5/02 1315	R. Thoren	2.5.02 1315
R. Thoren	2-5-02 1400	Ref 3C 3728	2.5.02 1400
Ref 3C 3728	2-6-02 0945	R. Thoren	2.6.02 0945
R. Thoren	2.6.02 0945	FED EX	2-6-02 —
FED. EXPRESS	2-7-02 10:00	E Maestas / E. MAESTAS SCA-2	2-7-02 10:00

SPECIAL INSTRUCTIONS

(1) ~~ICP Metals 6010A (Supernate)~~ RT 2-5.02 ([redacted] Chromium, [redacted]

mo 2-4-02

SAMPLES STORED IN REF.#_____ AT THE 3728 SHIPPING FACILITY ON __/__/__. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON __/__/__ FOR SHIPMENT.

RT 2-5.02

Matrix *: S=Soil, SE=Sediment, SO=Solid, SI=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solid, DL=Drum Liquid, 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 (10/99)

000024

Bechtel Hanford Inc.

Collector: MT Stankovich / Nielson	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Project Designation: 100 F Area - Full Protocol	Sampling Location: 100-F-15 H1695 (7223)		SAF No.: B00-030
Ice Chest No.: See OSPC	Field Logbook No.: EL-1535-3	COA: R10F152000	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: A0201169		Bill of Lading/Air Bill No.: See OSPC

Price Code: 8L

Data Turnaround: 21 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Potential Radioactive
TIE TO B13NPO

Special Handling and/or Storage
NONE

Preservation	None	Cool 4C	None
Type of Container	sG	sG	sG
No. of Container(s)	1	1	1
Volume	250mL	250mL	60mL

SAMPLE ANALYSIS

	See Item (1) in Special Instructions.	Chromium Hex - 7196	Isotopic Plutonium; [redacted]
Sample No. / Matrix * / Sample Date / Sample Time			
B141C7 ✓ SOIL 2-5-02 0814			✓
B141C8 ✓ SOIL 2-5-02 0817			✓
B141C9 ✓ SOIL 2-5-02 0817			✓
B141D0 ✓ SOIL 2-5-02 0755			✓
B141D1 ✓ SOIL 2-5-02 0810			✓

MS 2-4-02

CHAIN OF POSSESSION

Relinquished By/Removed From (Sign/Print Names)	Date/Time	Received By/Stored In (Sign/Print Names)	Date/Time
R. Nielson	2/5/02 1315	R. Thore	2-5-02 1315
R. Thore	2-5-02 1400	Ref. SC 3728	2-5-02 1400
Ref. SC 3728	2-6-02 0945	R. Thoren	2-6-02 0945
R. Thoren	2-6-02 0945	[illegible]	2-6-02
Fed. Express	2-7-02 10AM	E. Martinez	2-7-02 10AM

SPECIAL INSTRUCTIONS
RT 2-6-02
(1) ICP Metals - 6010A (Superfund) ([redacted] Chromium; [redacted])

M 2-4-02

SAMPLES STORED IN REF # ____ AT THE 3728 SHIPPING FACILITY ON __/__/__. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON __/__/__ FOR SHIPMENT.

RT 2-6-02

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

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

BHI-EE-011 (10/99)

000025

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-046	Page 2 of 2
Collector: MT Stankovich / Nielson	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 100-F-15 H1695 (7223)		SAF No.: B00-030	Air Quality ☐
Ice Chest No.: See OSPC	Field Logbook No.: EL-1535-3	COA: R10F152000	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A020169		Bill of Lading/Air Bill No.: See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS
Potential Radioactive
TIETO B13NPO

Special Handling and/or Storage
NONE

Preservation	None	Cool 4C	None								
Type of Container	aG	aG	aG								
No. of Container(s)	1	1	1								
Volume	250mL	125mL	60mL								
SAMPLE ANALYSIS	See Item (1) in Special Instructions.	Chromium Hex - 7196	Isotopic Plutonium; [redacted]	WS 2-4-02							

Sample No.	Matrix *	Sample Date	Sample Time									
B141D2 ✓	SOIL	2-5-02	0745			✓						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] R. Nielson	2/8/02 1315	R. Thorer	1315 2.5.02
R. Thorer	2-5-02 1400	Ref 3C 3728	2.5.02 1400
Ref 3C 3728	2.6.02 0945	R. Thorer	2.6.02 0945
R. Thorer	2.6.02 0945	FED EX	2-6-02
FED. EXPRESS	2-7-02 10:00	E. Maestas E. MAESTAS	2-7-02 10:00

SPECIAL INSTRUCTIONS
(1) ICP Metals - 6010A (Supertrace) ([redacted] Chromium, [redacted]
RT 2-5-02
WS 2-4-02

SAMPLES STORED IN REF.#_____ AT THE 3728 SHIPPING FACILITY ON __/__/__. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON __/__/__ FOR SHIPMENT.
RT 2-5-02

Matrix *
S=Soil
SB=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liquid
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 (10/99)

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100-F-15			DATA PACKAGE: H1695		
VALIDATOR: TLI		LAB: EB		DATE: 3/30/02	
CASE:			SDG: H1695		

ANALYSES PERFORMED

Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy	
Total Uranium	Radium-22	Tritium			

SAMPLES/MATRIX

B141C2 B141C3 B141C4 B141C5 B141C6 B141C7
B141C8 B141C9 B141D0 B141D1 B141D2

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) ..... ☒ 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: _____

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: _____

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: D3/Ce

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: all were TDLs

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

R202027-13

METHOD BLANK

SDG 7223	Client/Case no Hanford	SDG H1695	
Contact Melissa C. Mannion	Contract No. 630		
Lab sample id R202027-13	Client sample id Method Blank		
Dept sample id 7223-013	Material/Matrix	SOLID	
	SAF No B00-030		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Plutonium 238	13981-16-3	0	0.061	0.23	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.061	0.23	1.0	U	PU

100 F Area - Full Protocol

QC-BLANK 41176

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

Lab Control Sample

R202027-12

LAB CONTROL SAMPLE

SDG 7223
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1695
Case no No. 630

Lab sample id R202027-12
Dept sample id 7223-012

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-030

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
Plutonium 238	22.5	2.2	0.20	1.0		PU	24.6	0.98	91	84-116	80-120
Plutonium 239/240	25.8	2.5	0.20	1.0		PU	26.4	1.1	98	83-117	80-120

100 F Area - Full Protocol

QC-LCS 41175

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/28/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1695

B141C5

R202027-14

DUPLICATE

SDG 7223
Contact Melissa C. Mannion

DUPLICATE
Lab sample id R202027-14
Dept sample id 7223-014

% solids 97.8

ORIGINAL
Lab sample id R202027-04
Dept sample id 7223-004
Received 02/07/02
% solids 97.8

Client/Case no Hanford SDG H1695
Case no No. 630

Client sample id B141C5
Location/Matrix 100-F-15 SOLID
Collected/Weight 02/05/02 08:06 88.5 g
Custody/SAF No B00-030-046 B00-030

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
Plutonium 238	0.020	0.040	0.15	1.0	U	PU	0	0.055	0.21	U	-	
Plutonium 239/240	0	0.040	0.15	1.0	U	PU	-0.028	0.055	0.21	U	-	

100 F Area - Full Protocol

QC-DUP#4 41177

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/28/02

FAX

TECHLAW, INC.

3115 Loma Court
Tenino, WA 98589
509-521-6693

To: Jeanette Duncan

From: Bruce Christian

Pages: 1

Date: 9 April 2002

Information Request #1

H1695-Inorganic & rad

New SAP provided post validation.

Review Comment Record (RCR)

1. Date	2. Review No.
4/03/02	BHI/QA2009
3. Project	**4. Page**
100F Area	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
SDG No.: H1695	100F Area Full Protocol – Waste Sites 100-F-15	Claude Stacey	BHI/QA	H0-16/372-9208

17. Comment Submittal Approval:

Organization Manager (Optional) — Date

10. Agreement with indicated comment disposition(s)

Reviewer/Point of Contact

Author/Originator

11. CLOSED

04/18/02 Date — Reviewer/Point of Contact

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Radiochemistry: Page 010, Sample B141C7, Pu-239/240 results are –0.040. Lab results indicate results should be 0.040.		Cancel	
2	Inorganic: OK No comments.			
3				
4				
5				
6				

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Friday, April 05, 2002 2:58 PM
To: Duncan, Jeanette M; Fukumoto, Joyce A
Subject: Review of Validation Reports for SDG H1695

The following are my comments on the validation reports for SDG H1695

All: The 100 Area SAP has been revised. Revision 3 was issued in December 2001. The references to the SAP should be revised to the current version.

Radiochemistry: The new revision to the SAP has some different TDL requirements. Pu isotopic TDLs have changed. The values on pg 10 should be revised to the new numbers and the text changed to reflect the fact that TDLs were met for all analytes. Also, The Pu-239/240 value shown on pg. 10 for B141C7 should be 0.040 not -0.040.

Inorganics: No comments

Rich Weiss

FAX: (509) 372-9487

facsimile transmittal

To: Bruce Christian Fax:

From: Jeanette Duncan Date: 4-09-02

Re: Pages:

CC:

Bruce -

Review comments for HLPS.

Jeanette

Review Comment Record (RCR)

1. Date	2. Review No.
4/03/02	BHI/QA2009
3. Project	4. Page
100F Area	Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
SDG No.: H1695	100F Area Full Protocol – Waste Sites 100-F-15	Claude Stacey	BHI/QA	H0-16/372-9208

17. Comment Submittal Approval:

Organization Manager (Optional) _____ Date _____

10. Agreement with indicated comment disposition(s)

Reviewer/Point of Contact _____ Date _____

Author/Originator _____

11. CLOSED

Reviewer/Point of Contact _____ Date _____

Author/Originator _____

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Radiochemistry: Page 010, Sample B141C7, Pu-239/240 results are –0.040. Lab results indicate results should be 0.040.			
2	Inorganic: OK No comments.			
3	.			
4				
5				
6				

Fukumoto, Joyce A

From: Thomson, Jill E
Sent: Wednesday, April 03, 2002 10:44 AM
To: Fukumoto, Joyce A
Subject: Validation drafts

Hi Joyce,

That was easy - Those are such small packages! I don't have any changes to request on either the 100-F-2 or 100-F-15 validation packages. Catherine (the site lead for those two packages) is fine with my call on it. Can we recycle the drafts? Thanks!

Jill Thomson
509.372.9031
Regulatory Support and Environmental Sciences
CH2M HILL Hanford, Inc.
Environmental Restoration Contract

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Inorganics: No comments

Rich Weiss