Date: 30 March 2002
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 100F Area - Full Protocol - Waste Site 100-F-2
Subject: Radiochemistry - Data Package No. H1699-EB (SDG No. H1699)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H1699-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 Level	Analysis
B141B3	2/13/02	Soil	C	See note 1
B141B4	2/13/02	Soil	C	See note 1
B141B5	2/13/02	Soil	C	See note 1
B141B6	2/13/02	Soil	C	See note 1
B141B7	2/13/02	Soil	C	See note 1
B141B8	2/13/02	Soil	C	See note 1

1-Total strontium; gamma spectroscopy (cesium-137).

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

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DATA QUALITY PARAMETERS

- **Holding Times**

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

  All holding times were acceptable.

- **Preparation (Method) Blanks**

  Laboratory Blanks

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

  All blank results were acceptable.

  Field (Equipment) Blank

  One equipment blank (B141B7) 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 (B141B3/B141B8). Field duplicate results are compared using the same criteria as for laboratory duplicates. The RPD for cesium-137 (52%) was outside QC limits. Under the BHI statement of work, no qualification is required. All other 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 specific TDL.

- **Completeness**

Data package No. H1699 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: H1699	REVIEWER: TLI	DATE: 3/30/02	PAGE_1_OF_1_
COMMENTS: No qualifiers assigned			

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

RADIOCHEMISTRY ANALYSIS, SOIL MATRIX, (PCi/G)

Project: BECHTEL-HANFORD																							
Laboratory: EB																							
Case	SDG: H1699																						
Sample Number		B141B3		B141B4		B141B5		B141B6		B141B7		B141B8											
Location										E. Blank		Duplicate											
Sample Date		2/13/02		2/13/02		2/13/02		2/13/02		2/13/02		2/13/02											
Radiochemistry	TDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total Strontium	1	0.156	U	0.033	U	0.086	U	0.057	U	-0.034	U	0.160	U										
Cesium-137	0.1	0.205		0.077		0.116		0.095		U	U	0.350											

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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 H1699

R202095-01 B141B3

DATA SHEET

SDG	7226	Client/Case no	Hanford	SDG H1699	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-01	Client sample id	B141B3		
Dept sample id	7226-001	Location/Matrix	100-F-2	SOLID	
Received	02/20/02	Collected/Weight	02/13/02 10:00	1594 g	
% solids	95.2	Custody/SAF No	B00-030-042	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.156	0.11	0.17	1.0	U	SR
Cesium 137	10045-97-3	0.205	0.051	0.054	0.10		GAM

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	03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-02 B141B4

DATA SHEET

SDG	7226	Client/Case no	Hanford		SDG H1699
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-02	Client sample id	B141B4		
Dept sample id	7226-002	Location/Matrix	100-F-2		SOLID
Received	02/20/02	Collected/Weight	02/13/02 10:15	2022 g	
% solids	98.2	Custody/SAF No	B00-030-042	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.033	0.12	0.24	1.0	U	SR
Cesium 137	10045-97-3	0.077	0.045	0.054	0.10	J	GAM

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	03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-03 B141B5

DATA SHEET

SDG	7226	Client/Case no	Hanford	SDG H1699	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-03	Client sample id	B141B5		
Dept sample id	7226-003	Location/Matrix	100-F-2	SOLID	
Received	02/20/02	Collected/Weight	02/13/02 10:20	1914 g	
% solids	97.6	Custody/SAF No	B00-030-042	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.086	0.13	0.24	1.0	U	SR
Cesium 137	10045-97-3	0.116	0.023	0.023	0.10		GAM

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	03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-04 B141B6

DATA SHEET

SDG	7226	Client/Case no	Hanford	SDG H1699	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-04	Client sample id	B141B6		
Dept sample id	7226-004	Location/Matrix	100-F-2	SOLID	
Received	02/20/02	Collected/Weight	02/13/02 10:30	1801 g	
% solids	93.7	Custody/SAF No	B00-030-042	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.057	0.14	0.26	1.0	U	SR
Cesium 137	10045-97-3	0.095	0.028	0.034	0.10	J	GAM

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	03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-05 B141B7

DATA SHEET

SDG	7226	Client/Case no	Hanford		SDG H1699
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-05	Client sample id	B141B7		
Dept sample id	7226-005	Location/Matrix	100-F-2		SOLID
Received	02/20/02	Collected/Weight	02/13/02 09:15	1714 g	
% solids	100.0	Custody/SAF No	B00-030-042	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	-0.034	0.15	0.33	1.0	U	SR
Cesium 137	10045-97-3	U		0.021	0.10	U	GAM

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	03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-06 B141B8

DATA SHEET

SDG	7226	Client/Case no	Hanford		SDG H1699
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-06	Client sample id	B141B8		
Dept sample id	7226-006	Location/Matrix	100-F-2		SOLID
Received	02/20/02	Collected/Weight	02/13/02 10:00	1678 g	
% solids	93.4	Custody/SAF No	B00-030-042	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Total Strontium	SR-RAD	0.160	0.16	0.30	1.0	U	SR
Cesium 137	10045-97-3	0.350	0.030	0.028	0.10		GAM

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	03/13/02

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1699 was composed of six solid (soil) samples designated under SAF No. B00-030 with a Project Designation of: 100 F Area – Full Protocol.

The samples were received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on March 13, 2002.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy Analyses

As requested on the chain-of-custody only Cs-137 was reported for the gamma spectroscopy 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."

Melissa C. Mannion
Program Manager

3/14/02
Date

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-042	Page 1 of 2
Collector: MT Stankovich	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-2 H1699 (7226)		SAF No.: B00-030	Air Quality ☐
Ice Chest No.: ERC-01-028	Field Logbook No.: EL-1535-3	COA: R100F22000	Method of Shipment: FED EX	
Shipped To: TMA/RECRA	Offsite Property No.: A Ø20116		Bill of Lading/Air Bill No.: 423579551081	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	None	None									
Type of Container	P	aG									
No. of Container(s)	1	1									
Volume	1000mL	60mL									

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions	Strontium-89,90 – Total Sr, Nickel-63, Carbon-14 total Strontium	RJN 2/6/02
B141B3	SOIL	2-13-02	1000	✓	✓	✓
B141B4	SOIL	2-13-02	1015	✓	✓	✓
B141B5	SOIL	2-13-02	1020	✓	✓	✓
B141B6	SOIL	2-13-02	1030	✓	✓	✓
B141B7	SOIL	2-13-02	0915	✓	✓	✓

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Mike Stankovich	2-13-02 1440	Ref 1A 3728	2-13-02 1440
Ref 1A 3728	2-19-02 1000	SJ GALE	2-19-02 1000
SJ GALE	2-19-02	FED EX	2-19-02
FED EXPRESS	2-20-02 4:35	SCA-2 E Maestas	2-20-02 4:35

SPECIAL INSTRUCTIONS RJN 2/6/02

(1) Gamma Spectroscopy (Cesium-137, ~~Cobalt-60, Europium-152, Europium-154, Europium-155~~)

T/E TO RAD SCREEN B14193

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/13/02. Collector not available to relinquish samples on 2/19/02 for shipment.

Matrix *: S=Soil, SS=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, R=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	B00-030-042	Page 2 of 2

Collector: MT Stankovich	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Project Designation: 100 F Area - Full Protocol	Sampling Location: 100-F-2 H1699 (7226)		SAF No.: B00-030
Ice Chest No.: ERC-01-028	Field Logbook No.: BL-1535-3	COA: R100F22000	Method of Shipment: FED EX
Shipped To: TMA/RECRA	Offsite Property No.: A020116		Bill of Lading/Air Bill No.: 4235795510 81

Price Code: 8L

Air Quality ☐

Data Turnaround: 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

Preservation	None	None									
Type of Container	P	sG									
No. of Container(s)	1	1									
Volume	1000mL ✓	60mL ✓									
SAMPLE ANALYSIS	See Item (1) in Special Instructions	~~Strontium-89,90 -- Tenth-day Method-60; Gamma-19~~ total Strontium									

000030

Sample No.	Matrix *	Sample Date	Sample Time									
B141B8	SOIL ✓	2-13-02 ✓	1000 ✓	✓	✓							

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: MT Stankovich	2-13-02 1490	Received By/Stored In: L.L. 1A 3728	2-13-02 1490
Relinquished By/Removed From: REF 1A 3728	21902 1000	Received By/Stored In: SJ GALE	21902 1000
Relinquished By/Removed From: SJ GALE	21902 1000	Received By/Stored In: FED EX	2-19-02
Relinquished By/Removed From: FED EXPRESS	2-20-02 4:35	Received By/Stored In: 8CA-2 E. MACSTAS	2-20-02 4:35
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 RJN 2/6/02

(1) Gamma Spectroscopy (Cesium-137, ~~Cobalt-60, Europium-152, Europium-154, Europium-155~~)

TIE TO RAD SCREEN B14193

Samples stored in Ref.# 1A at the 3728 Shipping Facility on 2/13/02.
Collector not available to relinquish samples on 2/19/02 for shipment.

Matrix *
S=Soil
SD=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

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100 Areas 100-F-2			DATA PACKAGE: H1699		
VALIDATOR: TLI		LAB: EIS		DATE: 3/30/02	
CASE:			SDG: H1699		
ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy	
Total Uranium	Radium-22	Tritium			
SAMPLES/MATRIX					
B141B3	B141B4	B141B5	B141B6	B141B7	B141B8
					Soil

1. Completeness ..... ~~Yes~~ No N/A

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

Comments: _____

2. Initial Calibration (Levels D, E) ..... ~~Yes~~ No 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:

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: _____

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: CS - w/in 2x RDL

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: CS 137 S220

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: SR70 – all ok

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-08 Method Blank

METHOD BLANK

SDG	7226	Client/Case no	Hanford	SDG H1699	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R202095-08	Client sample id	Method Blank		
Dept sample id	7226-008	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
Total Strontium	SR-RAD	0.019	0.16	0.32	1.0	U	SR
Cesium 137	10045-97-3	U		0.019	0.10	U	GAM

100 F Area - Full Protocol

QC-BLANK 41330

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7226
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1699
Case no No. 630

Lab sample id R202095-07
Dept sample id 7226-007

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
Total Strontium	22.5	0.70	0.22	1.0		SR	21.7	0.87	104	83-117	80-120
Cobalt 60	0.292	0.033	0.021	0.050		GAM	0.264	0.011	111	68-132	80-120
Cesium 137	0.353	0.030	0.022	0.10		GAM	0.315	0.013	112	70-130	80-120

100 F Area - Full Protocol

QC-LCS 41329

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/13/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1699

R202095-09 B141B4

DUPLICATE

SDG	7226			Client/Case no	Hanford SDG H1699
Contact	Melissa C. Mannion			Case no	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R202095-09	Lab sample id	R202095-02	Client sample id	B141B4
Dept sample id	7226-009	Dept sample id	7226-002	Location/Matrix	100-F-2 SOLID
		Received	02/20/02	Collected/Weight	02/13/02 10:15 2022 g
% solids	98.2	% solids	98.2	Custody/SAF No	B00-030-042 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 TOT	PROT LIMIT
Total Strontium	0.034	0.15	0.30	1.0	U	SR	0.033	0.12	0.24	U	-		
Cesium 137	0.142	0.035	0.035	0.10		GAM	0.077	0.045	0.054	J	59	85	

100 F Area - Full Protocol

QC-DUP#2 41331

Lab id	TNAMC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/13/02

Fukumoto, Joyce A

From: Weiss, Richard L
Sent: Wednesday, May 01, 2002 9:31 AM
To: Fukumoto, Joyce A
Subject: FW: Additional Correction to Rad Validation Package for SDG H1699

Joyce,

The changes Bruce made to H1699 look ok. I'm not sure if we can just substitute pg2 in the existing hardcopy. Please refresh my memory on the H1`377 page.

Rich

-----Original Message-----
From: Christian, Bruce [mailto:BChristian@TechLawInc.com]
Sent: Tuesday, April 30, 2002 10:13 PM
To: 'Weiss, Richard L '
Subject: RE: Additional Correction to Rad Validation Package for SDG H1699

see attached.

H1377w.qe H1699.rad

-----Original Message-----
From: Weiss, Richard L
To: 'bchristian@techlawinc.com'; Fukumoto, Joyce A
Sent: 4/29/02 7:07 PM
Subject: Additional Correction to Rad Validation Package for SDG H1699

Bruce,

Joyce brought the validation packages for H1699 over for review and I noted something else that needs to be corrected. With the changes TDL for total radioactive strontium, the comment on page 2 regarding a missed TDL in the batch blank is no longer correct.
Sorry that I didn't find this earlier.
Rich

Fukumoto, Joyce A

From: Weiss, Richard L
Sent: Monday, April 29, 2002 4:07 PM
To: 'bchristian@techlawinc.com'; Fukumoto, Joyce A
Subject: Additional Correction to Rad Validation Package for SDG H1699

Bruce,

Joyce brought the validation packages for H1699 over for review and I noted something else that needs to be corrected. With the changes TDL for total radioactive strontium, the comment on page 2 regarding a missed TDL in the batch blank is no longer correct.

Sorry that I didn't find this earlier.

Rich

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

H1699-rad

New SAP provided post validation.

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Friday, April 05, 2002 2:54 PM
To: Duncan, Jeanette M; Fukumoto, Joyce A
Subject: Review of Validation Report for SDG H1699

The following are my comments on the validation report for SDG H1699:

Radiochemistry: 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. Also, The new revision has some different TDL requirements. Total rad strontium and Cs-137 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.

Rich Weiss

Review Comment Record (RCR)

1. Date	2. Review No.
4/03/02	BHI/QA2008
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.: H1699	100F Area Full Protocol – Waste Sites 100-F-2	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

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: OK No comment.			
2	.			
3	.			
4				
5				
6				

APR 09 '02 12:06PM BHI S&D MANAGEMENT 509 372 9487

FAX: (509) 372-9487

facsimile transmittal

To: Bruce Christian Fax:

From: Jeanette Duncan Date:

Re: Pages:

CC:

Bruce -

Review comments for H1699. Not much to deal with except the SAP issue.

Looks like the only SDG that the SAP issue didn't come out in the Review comments is H1664. So, if you would deal with that outside the Review - that would work.

Jeanette.

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Friday, April 05, 2002 2:54 PM
To: Duncan, Jeanette M; Fukumoto, Joyce A
Subject: Review of Validation Report for SDG H1699

The following are my comments on the validation report for SDG H1699:

Radiochemistry: 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. Also, The new revision has some different TDL requirements. Total rad strontium and Cs-137 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.

Rich Weiss

Review Comment Record (RCR)

1. Date	2. Review No.
4/03/02	BHI/QA2008
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.: H1699	100F Area Full Protocol – Waste Sites 100-F-2	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: OK No comment.			
2	.			
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