

Date: 17 October 2000
 To: Bechtel Hanford, Inc. (technical representative)
 From: TechLaw, Inc.
 Project: 100-H Areas - Full Protocol - Waste Site 116-H-3
 Subject: Radiochemistry - Data Package No. H0943-TR (SDG No. H0943)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0943-TR which was prepared by ThermoRetec (TR). 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
BOYWX1	8/1/00	Soil	C	See note 1
BOYWX2	8/1/00	Soil	C	See note 1
BOYWW8	8/1/00	Soil	C	See note 1
BOYWW9	8/1/00	Soil	C	See note 1
BOYWX0	8/1/00	Soil	C	See note 1

1 - Gamma spectroscopy.

Data validation was conducted in accordance with the BHI validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 5 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

DATA QUALITY OBJECTIVES

- **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.

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All holding times were acceptable.

- **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 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.

Due to sample BOYWX0 not being analyzed with the blank, all gamma spectroscopy results were qualified as estimates and flagged "J".

All other blank results were acceptable.

Equipment Blank

One equipment blank (BOYWX2) was submitted for analysis. Potassium-40, radium-226, radium-228, thorium-228 and thorium-232 were detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Accuracy is evaluated by analyzing distilled water or field samples spiked with known amounts of radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample and matrix spike 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, rejected, or not qualified, depending on the activity of the individual sample.

Due to sample BOYWX0 not being analyzed with the LCS, all gamma spectroscopy results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

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- **Precision**

Analytical precision is expressed by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. Precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the CRDL and the RPD is less than 30 percent, the results are acceptable. If either activities are less than five times the CRDL, a control limit of less than or equal to two times the CRDL is used for soil samples and less than or equal to the CRDL for water samples. If either the original or replicate value is below the CRDL, the applicable control limits are less than or equal to the CRDL for water samples and less than or equal to two times the CRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicates

One set of field duplicates (BOYWW8/BOYWX1) were submitted for analysis. The results were compared using the same criteria as for a laboratory duplicate. 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) or the contract specified MDA if no TDL was specified, to ensure that laboratory detection levels meet the required criteria. The following analytes were reported above their TDL: Europium-155, uranium-238, uranium-235 and americium-241 in all samples; cobalt-60 in sample BOYWX1; and europium-154 in samples BOYWW8 and BOYWX1. Under the BHI statement of work, no qualification is required. All other reported laboratory MDAs were at or below the analyte-specific TDL or contract specified MDA.

- **Completeness**

Data Package No. H0943 (SDG No. H0943) was submitted for validation and verified for completeness. The completion rate was 100%.

MAJOR DEFICIENCIES

None found.

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MINOR DEFICIENCIES

Due to sample BOYWX0 not being analyzed with the LCS or blank, all gamma spectroscopy results were qualified as estimates and flagged "J". Data flagged "J" is an estimate, but under the BHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The following analytes were reported above their TDL: Europium-155, uranium-238, uranium-235 and americium-241 in all samples; cobalt-60 in sample BOYWX1; and europium-154 in samples BOYWW8 and BOYWX1. Under the BHI statement of work, no qualification is required.

REFERENCES

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

DOE/RL-96-22, Rev. 1, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 1998.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.
- UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a 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 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 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 QC deficiency.

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Appendix 2

Summary of Data Qualification

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DATA QUALIFICATION SUMMARY

SDG: H0943	REVIEWER: TLI	DATE: 10/17/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J	BOYWX0	Sample not analyzed with the LCS and blank

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: BECHTEL-HANFORD																					
Laboratory: TR																					
Case		SDG: H0943																			
Sample Number		BOYWX1		BOYWX2		BOYWW8		BOYWW9		BOYWX0											
Location		116-H-3		116-H-3		116-H-3		116-H-3		116-H-3											
Remarks		Duplicate		E. Blank																	
Sample Date		8/1/00		8/1/00		8/1/00		8/1/00		8/1/00											
Radiochemistry	CRDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Potassium-40		12.2		4.42		11.9		15.1		14.8	J										
Cobalt 60	0.05	U	U	U	U	U	U	0.836		0.661	J										
Cesium 137	0.05	U	U	U	U	U	U	0.197		10.2	J										
Radium-226		0.449		0.129		0.429		0.462		0.463	J										
Radium-228		0.582		0.163		0.548		0.619		0.546	J										
Europium 152	0.1	0.221		U	U	0.195		23.1		2.44	J										
Europium 154	0.1	U	U	U	U	U	U	2.10		0.233	J										
Europium 155	0.05	U	U	U	U	U	U	U	U	U	U										
Thorium-228		0.511		0.210		0.489		0.623		0.595	J										
Thorium-232		0.582		0.163		0.548		0.619		0.546	J										
Uranium-235 (GEA)	0.1	U	U	U	U	U	U	U	U	U	U										
Uranium-238 (GEA)	0.1	U	U	U	U	U	U	U	U	U	U										
Americium-241 (GEA)	0.1	U	U	U	U	U	U	U	U	U	U										

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TMA / RICHMOND
 SAMPLE DELIVERY GROUP H0943

R008021-04

BOYWK1

DATA SHEET

SDG <u>7453</u>	Client/Case no <u>Hanford</u>	SDG <u>H0943</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R008021-04</u>	Client sample id <u>BOYWK1</u>	
Dept sample id <u>7453-004</u>	Location/Matrix <u>116-H-3-DEEP ZONE</u>	<u>SOLID</u>
Received <u>08/03/00</u>	Collected <u>08/01/00 10:45</u>	
† solids <u>99.7</u>	Custody/SAF No <u>B99-042-053</u>	<u>B99-042</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	12.2	0.94	0.39			GAM
Cobalt 60	10198-40-0	U		<u>0.11</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		0.044	0.10	U	GAM
Radium 226	13982-63-3	0.449	0.089	0.097	0.10		GAM
Radium 228	15262-20-1	0.582	0.17	0.20	0.20		GAM
Europium 152	14683-23-9	0.221	0.088	<u>0.11</u>	0.10		GAM
Europium 154	15585-10-1	U		<u>0.16</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.11</u>	0.10	U	GAM
Thorium 228	14274-82-9	0.511	0.048	0.053			GAM
Thorium 232	TH-232	0.582	0.17	0.20			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.5		U	GAM
Americium 241	14596-10-2	U		0.15	1.0	U	GAM

100 H Area - Full Protocol

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Lab id <u>TMNC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/23/00</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0943

R008021-05

BOYWX2

DATA SHEET

SDG <u>7453</u>	Client/Case no <u>Hanford</u>	SDG <u>H0943</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R008021-05</u>	Client sample id <u>BOYWX2</u>	
Dept sample id <u>7453-005</u>	Location/Matrix <u>116-H-3-DEEP ZONE</u>	<u>SOLID</u>
Received <u>08/03/00</u>	Collected <u>08/01/00 10:00</u>	
† solids <u>100.0</u>	Custody/SAF No <u>B99-042-053</u>	<u>B99-042</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	4.42	0.46	0.27			GAM
Cobalt 60	10198-40-0	U		0.026	0.050	U	GAM
Cesium 137	10045-97-3	U		0.024	0.10	U	GAM
Radium 226	13982-63-3	0.129	0.046	0.048	0.10		GAM
Radium 228	15262-20-1	0.163	0.11	0.12	0.20	J	GAM
Europium 152	14683-23-9	U		0.058	0.10	U	GAM
Europium 154	15585-10-1	U		0.079	0.10	U	GAM
Europium 155	14391-16-3	U		0.083	0.10	U	GAM
Thorium 228	14274-82-9	0.210	0.037	0.038			GAM
Thorium 232	TH-232	0.163	0.11	0.12			GAM
Uranium 235	15117-96-1	U		0.11		U	GAM
Uranium 238	U-238	U		3.2		U	GAM
Americium 241	14596-10-2	U		0.18	1.0	U	GAM

100 H Area - Full Protocol

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/23/00</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0943

R008021-01

BOYWWS

DATA SHEET

<u>SDG 7453</u>	Client/Case no <u>Hanford</u>	<u>SDG H0943</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R008021-01</u>	Client sample id <u>BOYWWS</u>	
Dept sample id <u>7453-001</u>	Location/Matrix <u>116-H-3-DEEP ZONE</u>	<u>SOLID</u>
Received <u>08/03/00</u>	Collected <u>08/01/00 10:45</u>	
‡ solids <u>99.7</u>	Custody/SAF No <u>B99-042-052</u>	<u>B99-042</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	11.9	0.97	0.56		U	GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.042	0.10	U	GAM
Radium 226	13982-63-3	0.429	0.084	0.085	0.10		GAM
Radium 228	15262-20-1	0.548	0.22	0.23	0.20		GAM
Europium 152	14683-23-9	0.195	0.072	0.097	0.10		GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.489	0.046	0.048			GAM
Thorium 232	TH-232	0.548	0.22	0.23			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		5.2		U	GAM
Americium 241	14596-10-2	U		0.15	1.0	U	GAM

100 H Area - Full Protocol

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/23/00</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0943

R008021-02

BOYWW9

DATA SHEET

SDG <u>7453</u>	Client/Case no <u>Hanford</u>	SDG <u>H0943</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R008021-02</u>	Client sample id <u>BOYWW9</u>	
Dept sample id <u>7453-002</u>	Location/Matrix <u>116-H-3-DEEP ZONE</u>	<u>SOLID</u>
Received <u>08/03/00</u>	Collected <u>08/03/00 10:20</u>	
% solids <u>99.7</u>	Custody/SAF No <u>B99-042-052</u>	<u>B99-042</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	15.1	0.85	0.44			GAM
Cobalt 60	10198-40-0	0.836	0.084	<u>0.069</u>	0.050		GAM
Cesium 137	10045-97-3	0.197	0.087	<u>0.11</u>	0.10		GAM
Radium 226	13982-63-3	0.462	0.14	<u>0.18</u>	0.10		GAM
Radium 228	15262-20-1	0.619	0.26	<u>0.36</u>	0.20		GAM
Europium 152	14683-23-9	23.1	0.42	<u>0.32</u>	0.10		GAM
Europium 154	15585-10-1	2.10	0.25	<u>0.24</u>	0.10		GAM
Europium 155	14391-16-3	U		<u>0.40</u>	0.10	U	GAM
Thorium 228	14274-82-9	0.623	0.096	0.13			GAM
Thorium 232	TH-232	0.619	0.26	0.36			GAM
Uranium 235	15117-96-1	U		0.41		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.77	1.0	U	GAM

100 H Area - Full Protocol

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/23/00</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0943

R008021-03

BOYWX0

DATA SHEET

SDG <u>7453</u>	Client/Case no <u>Hanford</u>	SDG <u>H0943</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R008021-03</u>	Client sample id <u>BOYWX0</u>	
Dept sample id <u>7453-003</u>	Location/Matrix <u>116-H-3-DEEP ZONE</u>	<u>SOLID</u>
Received <u>08/03/00</u>	Collected <u>08/01/00 10:35</u>	
% solids <u>99.6</u>	Custody/SAF No <u>B99-042-052</u>	<u>B99-042</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Potassium 40	13966-00-2	14.6	0.72	0.27			GAM
Cobalt 60	10198-40-0	0.661	0.042	0.029	0.050		GAM
Cesium 137	10045-97-3	10.2	0.11	0.046	0.10		GAM
Radium 226	13982-63-3	0.463	0.069	0.075	0.10		GAM
Radium 228	15262-20-1	0.546	0.10	0.12	0.20		GAM
Europium 152	14683-23-9	2.44	0.10	<u>0.11</u>	0.10		GAM
Europium 154	15585-10-1	0.233	0.094	<u>0.11</u>	0.10		GAM
Europium 155	14391-16-3	U		0.084	0.10	U	GAM
Thorium 228	14274-82-9	0.595	0.043	0.056			GAM
Thorium 232	TH-232	0.546	0.10	0.12			GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.17	1.0	U	GAM

100 H Area - Full Protocol

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/23/00</u>

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0943 was composed of five solid (soil) samples designated under SAF No. B99-042 with a Project Designation of: 100 H Area – Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on August 23rd, 2000.

ANALYSIS NOTES

2.1 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.



Collector R. Nielson/R. Fahberg	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation 100 H Area - Full Protocol	Sampling Location 116-H-3 - Deep Zone	H0943 (7453)	SAF No. B99-042	Air Quality <input type="checkbox"/>	
Ice Chest No. #2 (3DF3)	Field Logbook No. EL-1500-2	COA R116H32600	Method of Shipment Federal Express		
Shipped To TMA/RECRA TMA	Office Property No. A000286	BM of Lading/Air Bill No. 42357453 7824			

POSSIBLE SAMPLE HAZARDS/REMARKS none	Preservation	Cool 4C	None								
	Type of Container	CG	P								
	No. of Container(s)	1	1								
	Volume	1000ml									

SAMPLE ANALYSIS

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See item (1) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time								
B0YWX1	SOIL ✓	8-1-00	1045	X	X						
B0YWX2	SOIL ✓	8-1-00	1000	X	X						

Tip to B04670 ✓

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By R. Nielson/R. Fahberg	Date/Time 8/1/00	Received By R. Thoren	Date/Time 8-1-00 1600	(1) Gamma Spectroscopy (Caesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)				<ul style="list-style-type: none"> S-Sol SS-Sulfonated SO-Solid S-Sludge W - Water O-Oil A-Air DS-Drum Spills DL-Drum Liquid T-Tissue W-Wipe L-Liquid V-Vegetable X-Other
Relinquished By R. Thoren	Date/Time 8-2-00 1430	Received By FE06N	Date/Time 08-02-00					
Relinquished By Fahberg	Date/Time 08/03/00	Received By E. S. S. S. S.	Date/Time 08/03/00					
Relinquished By	Date/Time	Received By	Date/Time					

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: R. Nielson/R. Fahberg	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ
Project Designation 100 H Area - Full Protocol	Sampling Location 116-H-3 - Deep Zone	H0943 (7453)	
Ice Chest No. #2 (30F3)	Field Logbook No. EL-1500-2	COA R116E32600	Method of Shipment Federal Express
Shipped To TMA/RCRA	Office Property No. A0000286	Bill of Lading/Air Bill No. 42357453-7824	
Price Code 8L		Data Turnaround 21 Days	
Air Quality <input type="checkbox"/>			

POSSIBLE SAMPLE HAZARDS/REMARKS none	Preservation	Cool/C	None										
	Type of Container	20	P										
	No. of Container(s)		1										
	Volume	125ml	1000ml.										

Special Handling and/or Storage: TUE TO

SAMPLE ANALYSIS

BOULTO

Sample No.	Matrix *	Sample Date	Sample Time							
BOYWW8	SOIL	8/1/00	1045	X	X					
BOYWW9	SOIL	8/1/00	1020	X	X					
BOYWX0	SOIL	8/1/00	1035	X	X					

CHAIN OF POSSESSION		Sign/Print Names	
Dispatched By R. Nielson	Date/Time 8/1/00 1600	Received By P. Thonon	Date/Time 8/1/00 1600
Dispatched By P. Thonon	Date/Time 8/2/00 1430	Received By FED EX	Date/Time 08-02-00
Dispatched By FED EXPRESS	Date/Time 08-03-00 10 AM	Received By E. Seguro	Date/Time 08/03/00
Dispatched By	Date/Time	Received By	Date/Time
Dispatched By	Date/Time	Received By	Date/Time
Dispatched By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

FAXED

8/3/00

Matrix *

- S-Solid
- SL-Solid
- SO-Solid
- S-String
- W-Water
- O-Oil
- A-Air
- DS-Dust Settling
- DL-Dust Liquid
- T-Tissue
- W-Wipe
- L-Liquid
- V-Vegetation
- O-Other

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

Appendix 5

Data Validation Supporting Documentation

000020

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	116-4-3		DATA PACKAGE: H0943		
VALIDATOR:	TLI	LAB: TR	DATE: 10/8/00		
CASE:			SDG: H0943		
ANALYSES PERFORMED					
<input type="checkbox"/> Gross Alpha/Beta	<input type="checkbox"/> Strontium-90	<input type="checkbox"/> Technetium-99	<input type="checkbox"/> Alpha Spectroscopy	<input type="checkbox"/> Gamma Spectroscopy	
<input type="checkbox"/> Total Uranium	<input type="checkbox"/> Radium-22	<input type="checkbox"/> Tritium	<input type="checkbox"/>		
SAMPLES/MATRIX	BOYWX1	BOYWX2	BOYWW8		
	BOYWW9	BOYWX0			
			Soil		

1. Completeness ~~N/A~~
 Technical verification forms present? Yes No ~~N/A~~

Comments: _____

2. Initial Calibration ~~N/A~~
 Instruments/detectors calibrated within
 one year of sample analysis? Yes No N/A
 Initial calibration acceptable? Yes No N/A
 Standards NIST traceable? Yes No N/A
 Standards Expired? Yes No N/A

Comments: _____

Handwritten signature
 000021

3. Continuing Calibration N/A
- Calibration checked within one week of sample analysis? . . . Yes No N/A
- Calibration check acceptable? Yes No N/A
- Calibration check standards NIST traceable? Yes No N/A
- Calibration check standards expired? Yes No N/A

Comments: _____

4. Blanks N/A
- Method blank analyzed? 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? Yes No N/A

Comments: _____

EB Wx2 L40, RA226, RA228, Th 228, Th 232

5. Matrix Spikes N/A
- Matrix spike analyzed? Yes No N/A
- Spike recoveries acceptable? Yes No N/A
- Spike source traceable? Yes No N/A
- Spike source expired? Yes No N/A
- Transcription/Calculation Errors? Yes No N/A

Comments: _____

ACE 000022

6. Laboratory Control Samples N/A
LCS analyzed? Yes No N/A
LCS recoveries acceptable? Yes No N/A
LCS traceable? Yes No N/A
Transcription/Calculation Errors? Yes No N/A

Comments: _____

7. Chemical Recovery N/A
Chemical carrier added? Yes No N/A
Chemical recovery acceptable? Yes No N/A
Chemical carrier traceable? Yes No N/A
Chemical carrier expired? Yes No N/A
Transcription/Calculation errors? Yes No N/A

Comments: _____

8. Duplicates N/A
Duplicates Analyzed? Yes No N/A
RPD Values Acceptable? Yes No N/A
Transcription/Calculation Errors? Yes No N/A

Comments: _____

9. Field QC Samples 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: X1/w8

10. Holding Times

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

Comments: _____

11. Results and Detection Limits (Levels D & E) N/A

- Results reported for all required sample analyses? Yes No N/A
- Results supported in raw data? Yes No N/A
- Results Acceptable? Yes No N/A
- Transcription/Calculation errors? Yes No N/A
- MDA's meet required detection limits? Yes No N/A
- Transcription/calculation errors? Yes No N/A

Comments: 154, 155 238 235 Am241 COU w8

	<u>155</u>	<u>238</u>	<u>235</u>	<u>241</u>		<u>w9</u>
	<u>155</u>	<u>X</u>	<u>X</u>	<u>X</u>		<u>X0</u>
<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X1</u>
	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>		<u>X2</u>

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0943

R008021-08

BOYXK0

DUPLICATE

SDG <u>7453</u>	Client/Case no <u>Hanford</u>	SDG <u>H0943</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>TRC-SBB-207925</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R008021-08</u>	Lab sample id <u>R008021-03</u>	Client sample id <u>BOYXK0</u>
Dept sample id <u>7453-008</u>	Dept sample id <u>7453-003</u>	Location/Matrix <u>116-H-3-DEEP ZONE</u> <u>SOLID</u>
	Received <u>08/03/00</u>	Collected <u>08/01/00 10:35</u>
‡ solids <u>99.6</u>	‡ solids <u>99.6</u>	Custody/SAP No <u>B99-042-052</u> <u>B99-042</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Potassium 40	13.9	1.0	0.57			GAM	14.6	0.72	0.27		5	34	
Cobalt 60	0.579	0.084	<u>0.072</u>	0.050		GAM	0.661	0.042	0.029		13	39	
Cesium 137	9.54	0.20	<u>0.11</u>	0.10		GAM	10.2	0.11	0.046		7	32	
Radium 226	0.616	0.17	<u>0.18</u>	0.10		GAM	0.463	0.069	0.075		28	60	
Radium 228	0.608	0.29	<u>0.34</u>	0.20		GAM	0.546	0.10	0.12		11	86	
Europium 152	2.16	0.28	<u>0.33</u>	0.10		GAM	2.44	0.10	<u>0.11</u>		12	37	
Europium 154	0.206	0.20	<u>0.22</u>	0.10	U	GAM	0.233	0.094	<u>0.11</u>		12	154	
Europium 155	U		<u>0.19</u>	0.10	U	GAM	U		0.084	U	-		
Thorium 232	0.618	0.090	0.12			GAM	0.595	0.043	0.056		4	40	
Thorium 232	0.608	0.29	0.34			GAM	0.546	0.10	0.12		11	86	
Uranium 235	U		0.30		U	GAM	U		0.13	U	-		
Uranium 238	U		8.8		U	GAM	U		4.5	U	-		
Americium 241	U		0.27	1.0	U	GAM	U		0.17	U	-		

100 H Area - Full Protocol

QC-DUP#3 35385

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 10

000025

Lab id <u>TMA/C</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>1.06</u>
Report date <u>08/23/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H0943

R008021-06

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7453</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R008021-06</u> Dept sample id <u>7453-006</u>	Client/Case no <u>Hanford</u> SDG H0943 Case no <u>TRC-SDB-207925</u> Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAP No <u>899-042</u>
---	--

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS
Cobalt 60	0.276	0.029	0.013	0.050	GAM	0.284	0.011	97	73-127	80-120
Cesium 137	0.310	0.025	0.015	0.10	GAM	0.335	0.013	93	76-124	80-120

100 H Area - Full Protocol

QC-LCS #35363

000026

Lab id <u>TMAEC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>1.06</u>
Report date <u>08/23/00</u>

TMA / RICHMOND
 SAMPLE DELIVERY GROUP H0943

R008021-07

Method Blank

METHOD BLANK

SDG <u>7453</u>	Client/Case no <u>Hanford</u>	SDG <u>H0943</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R008021-07</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7453-007</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B99-042</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Potassium 40	13966-00-2	U		0.19		U	GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.032	0.10	U	GAM
Radium 228	15262-20-1	U		0.082	0.20	U	GAM
Europium 152	14683-23-9	U		0.030	0.10	U	GAM
Europium 154	15585-10-1	U		0.062	0.10	U	GAM
Europium 155	14391-16-3	U		0.024	0.10	U	GAM
Thorium 228	14274-82-9	U		0.019		U	GAM
Thorium 232	TH-232	U		0.082		U	GAM
Uranium 235	15117-96-1	U		0.047		U	GAM
Uranium 238	U-238	U		2.0		U	GAM
Americium 241	14596-10-2	U		0.015	1.0	U	GAM

100 H Area - Full Protocol

QC-BLANK #35384

000027

Lab id	<u>TMANC</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-DS</u>
Version	<u>3.06</u>
Report date	<u>08/23/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H0943

Client <u>Hanford</u>
Contract <u>TRC-SBB-207925</u>
Contract <u>SDG H0943</u>

Test <u>GAM Matrix SOLID</u>
SDG <u>7453</u>
Contact <u>Melissa C. Mannion</u>

METHOD SUMMARY
GAMMA SCAN
GAMMA SPECTROSCOPY

RESULTS

LAB	RAW	SUF-			
IDENT SAMPLE ID	SAMPLE ID	TEST FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6929-111					
YMW8	R008021-01	7453-001	U	U	
YMW9	R008021-02	7453-002	0.836	0.197	
YMX0	R008021-03	7453-003	0.661	10.2	
YMX1	R008021-04	7453-004	U	U	
YMX2	R008021-05	7453-005	U	U	
LK (QC ID=35384)	R008021-07	7453-007	U	U	
CS (QC ID=35383)	R008021-06	7453-006	ok	ok	
Duplicate (R008021-03)	R008021-08	7453-008	ok	ok	
Nominal values and limits from method					
10 H Area - Full Protocol			RDLs (pCi/g)	0.050	0.10

METHOD PERFORMANCE

LAB	RAW	SUF-	MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
IDENT SAMPLE ID	SAMPLE ID	TEST FIX	pCi/g	g	PAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YKED	DETECTOR
Preparation batch 6929-111 2σ prep error 15.0 % Reference Lab Notebook 6929 pg. 111															
OYWS	R008021-01		<u>0.13</u>	894					103			7	08/07/00	08/08	02,03,00
OYWS9	R008021-02		<u>0.43</u>	844					101			7	08/07/00	08/08	MB,05,00
OYMX0	R008021-03		<u>0.092</u>	832					149			13	08/07/00	08/14	MB,07,00
OYMX1	R008021-04		<u>0.12</u>	891					101			7	08/07/00	08/08	02,03,00
OYMX2	R008021-05		<u>0.056</u>	832					101			7	08/07/00	08/08	MB,05,00
LK (QC ID=35384)	R008021-07		0.031	832					102				08/07/00	08/08	01,01,00
CS (QC ID=35383)	R008021-06		0.013	832					102				08/07/00	08/08	01,04,00
Duplicate (R008021-03)	R008021-08		<u>0.24</u>	832					111			14	08/07/00	08/15	02,03,00
(QC ID=35385)															
Nominal values and limits from method															
			0.050	832					100					180	

PROCEDURES	REFERENCE	GAMMAHI
CP-060		Soil Preparation, rev 2
CP-100		Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD	MDA	<u>0.14</u> ± <u>0.27</u>
FOR 8 SAMPLES	YIELD	_____ ± _____

Lab id	<u>TMMC</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-CMS</u>
Version	<u>3.06</u>
Report date	<u>08/23/00</u>

000028

Date: 17 October 2000
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100-H Areas - Full Protocol - Waste Site 116-H-3 (Deep Zone)
Subject: Inorganics - Data Package No. H0943-RLN (SDG No. H0943)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H0943-RLN prepared by RECRA LabNet (RLN). 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
BOYWX1	8/1/00	Soil	C	See note 1
BOYWX2	8/1/00	Soil	C	See note 1
BOYWW8	8/1/00	Soil	C	See note 1
BOYWW9	8/1/00	Soil	C	See note 1
BOYWX0	8/1/00	Soil	C	See note 1

1 - Chromium VI by 7196A

Data validation was conducted in accordance with the BHI validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL May 1998). Appendices 1 through 5 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

DATA QUALITY OBJECTIVES

- **Holding Times**

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

All holding times were acceptable.

000001

- **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 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 although the TDL was exceeded for chromium VI.

Equipment Blank

One equipment blank (BOYWX2) was submitted for analysis. Chromium VI was detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Matrix Spike

Matrix spike 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.

000002

All matrix spike recovery results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Laboratory duplicate sample analyses are used to measure laboratory precision and sample homogeneity. Results must be within RPD limits of plus or minus 30% for solid samples. If RPD values are out of specification and the sample concentration is greater than five times the CRDL, all associated sample results are qualified as estimated and flagged "J". If RPD values are plus or minus two times the CRDL and the sample concentration is less than five times the CRDL, all associated sample results are qualified as estimated and flagged "J/UJ". The performance criteria for aqueous laboratory duplicates are an RPD less than 30% for positive sample results greater than five times the CRDL or plus or minus the CRDL for positive sample results less than five times the CRDL. Sample results outside the criteria are qualified as estimates and flagged "J/UJ".

All laboratory duplicate results were acceptable.

Field Duplicates

One set of field duplicates (BOYWW8/BOYWX1) were submitted for analysis. The results were compared using the same criteria as for a laboratory duplicate. 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 or the CRDL if no TDL was specified, to ensure that laboratory detection levels meet the required criteria. The TDL was exceeded for chromium VI in all undetected samples. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H0943-RLN (SDG No. H0943) was submitted for validation and verified for completeness. The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

000003

MINOR DEFICIENCIES

The TDL was exceeded for chromium VI in all undetected samples. Under the BHI statement of work, no qualification is required.

REFERENCES

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

DOE/RL-96-22, Rev. 1, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, May 1998.

000004

Appendix 1

Glossary of Data Reporting Qualifiers

000005

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

- U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a 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 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 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 QC deficiency.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

000006

Appendix 2
Summary of Data Qualification

000007

DATA QUALIFICATION SUMMARY

SDG: H0943	REVIEWER: TLI	DATE: 10/17/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

000011

10/12/00
W

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DICTION	FACTOR
-001	BOYKX1	Chromium VI % Solids	99.8	%	0.01	1.0	1.0
-002	BOYKX1	Chromium VI % Solids	99.7	%	0.01	1.0	1.0
-003	BOYKX3	Chromium VI % Solids	99.7	%	0.01	1.0	1.0
-004	BOYKX3	Chromium VI % Solids	99.6	%	0.01	1.0	1.0
-005	BOYKX0	Chromium VI % Solids	99.1	%	0.01	1.0	1.0

RECEIVED LOT #: 00081080

CLIENT: TMO-HANFORD 895-042
WORK ORDER: 1038E-001-001-999-00

INORGANICS DATA SUMMARY REPORT 08/29/00

Receiv Labrec - Knoxville

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012



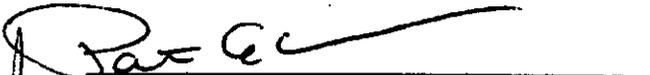
**Recra LabNet Philadelphia
Analytical Report**

**Client : TNU-HANFORD B99-042
RFW# : 0008L080
SDG# : H0943
SAF# : B99-042**

**W.O. # : 10985-001-001-9999-00
Date Received: 08-03-00**

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 5 soil samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The cooler temperature was recorded on the chain-of-custody.
5. The method blank for Chromium VI was within method criteria.
6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.
7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.
8. The replicate analyses 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 data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



**J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory**
ajp108-080

09-12-00
Date

Appendix 5
Data Validation Supporting Documentation

000016

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	116-H-3		DATA PACKAGE: H0943		
VALIDATOR:	FLI	LAB: RCR#	DATE: 10/8/00		
CASE:	SDG: H0943				
ANALYSES PERFORMED					
<input type="checkbox"/> CLP/ICP	<input type="checkbox"/> CLP/GFAA	<input type="checkbox"/> CLP/Hg	<input type="checkbox"/> CLP/Cyanide	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SW-846/ICP	<input type="checkbox"/> SW-846/GFAA	<input type="checkbox"/> SW-846/Hg	<input type="checkbox"/> SW-846 Cyanide	<input checked="" type="checkbox"/> CRUI	<input type="checkbox"/>
SAMPLES/MATRIX	BOYWX1	BOYWX2	BOYWW8		
	BOYWW9	BOYWX0			
			Seal		

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? Yes No **N/A**

Is a case narrative present? **Yes** No N/A

Comments: _____

2. HOLDING TIMES

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

Comments: _____

~~A-12~~ 000017

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments?	Yes	No	N/A
Are initial calibrations acceptable?	Yes	No	N/A
Are ICP interference checks acceptable?	Yes	No	N/A
Were ICV and CCV checks performed on all instruments?	Yes	No	N/A
Are ICV and CCV checks acceptable?	Yes	No	N/A

Comments: _____

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses? Yes	No	N/A	
Are ICB and CCB results acceptable?	Yes	No	N/A
Were preparation blanks analyzed?	Yes	No	N/A
Are preparation blank results acceptable?	Yes	No	N/A
Were field/trip blanks analyzed?	Yes	No	N/A
Are field/trip blank results acceptable?	Yes	No	N/A

Comments: CRVI above det limit

CRVI is EB

5. ACCURACY

Were spike samples analyzed?	Yes	No	N/A
Are spike sample recoveries acceptable?	Yes	No	N/A
Were laboratory control samples (LCS) analyzed?	Yes	No	N/A
Are LCS recoveries acceptable?	Yes	No	N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

- Were laboratory duplicates analyzed? Yes No N/A
- Are laboratory duplicate samples RPD values acceptable? Yes No N/A
- Were ICP serial dilution samples analyzed? Yes No N/A
- Are ICP serial dilution %D values acceptable? Yes No N/A
- Are field duplicate RPD values acceptable? Yes No N/A
- Are field split RPD values acceptable? Yes No N/A

Comments: _____

7. FURNACE AA QUALITY CONTROL

- Were duplicate injections performed as required? Yes No N/A
- Are duplicate injection %RSD values acceptable? Yes No N/A
- Were analytical spikes performed as required? Yes No N/A
- Are analytical spike recoveries acceptable? Yes No N/A
- Was MSA performed as required? Yes No N/A
- Are MSA results acceptable? Yes No N/A

Comments: _____

8. REPORTED RESULTS AND DETECTION LIMITS

- Are results reported for all requested analyses? Yes No N/A
- Are all results supported in the raw data? Yes No N/A
- Are results calculated properly? Yes No N/A
- Do results meet the CRDLs? Yes No N/A

Comments: all undetectable over

226

000020

SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATES	ND	DILUTION
00185	BOYCKI	% Solids	99.8	0.400	NC	1.0
00186		Chromium VI	0.400	0.400	NC	1.0

CLIENT: TWO-HANDED 899-042
 WORK ORDER: 10988-001-001-9999-00
 REC'D LOT #: 00081080

ROGER LABREC - IDONVILLE
 INORGANIC PRECISION REPORT 08/29/00

Reetra Labbet - Lionville

INORGANICS ACCURACY REPORT 06/29/00

CLIENT: TRU-HAMFORD 899-042
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 00081880

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	RECOVERY	DILUTION FACTOR (SPK)
-001	BOYCKI	Soluble Chromium VI	4.2	0.40u	4.0	101.4	1.0
		Insoluble Chromium VI	928	0.40u	1180	78.8	100
BLANK10	001VI045-NR1	Soluble Chromium VI	3.7	0.40u	4.0	91.4	1.0
		Insoluble Chromium VI	1080	0.40u	1180	93.1	100

000021

JK

Recora Labbet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/29/00

CLIENT: TRU-MANAGED 899-042

WORK ORDER: 10905-001-001-9999-00

RECORA LOT #: 00081000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LV1045-RB1	Chromium VI	0.40 u	MG/ML	0.40	1.0

000022

005

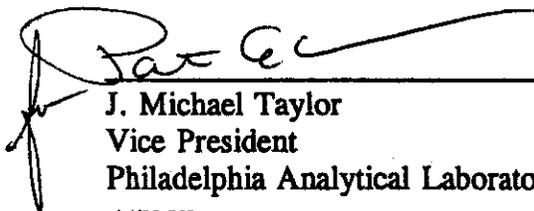
**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-042
RFW# : 0008L080
SDG# : H0943
SAF# : B99-042

W.O. # : 10985-001-001-9999-00
Date Received: 08-03-00

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 5 soil samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The cooler temperature was recorded on the chain-of-custody.
5. The method blank for Chromium VI was within method criteria.
6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.
7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.
8. The replicate analyses 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 data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory
rjp\08-080

09-12-00
Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	___ D2216-80		
% Moisture	___ D2216-80		___ ILMO4.0 (e)
% Solids	✓ D2216-80		___ ILMO4.0 (e)
% Volatile Solids	___ D2216-80		
ASTM Extraction in Water	___ D3987-81/85		
BTU	___ D240-87		
CEC		___ 9081	___ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		___ 1110(mod) ___ 9045C	
Cyanide, Total		___ 9010B	___ ILMO4.0 (e)
Cyanide, Reactive		___ Section 7.3/9014	
Halides, Extractable Organic		___ 9020B	___ EPA 600/4/84-008
Halides, Total		___ 9020B	___ EPA 600/4/84-008
EP Toxicity		___ 1310A	
Flash Point		___ 1010	
Ignitability		___ 1010	
Oil & Grease		___ 9071A	
Carbon, Total Organic		___ 9060	___ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	___ D240-87(mod)	___ 5050	
Petroleum Hydrocarbons, Total Recoverable		___ 9071	___ EPA 418.1
pH, Soil		___ 9045C	
Sulfide, Reactive		___ Section 7.3/9030B	
Sulfide		___ 9030B(mod)	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Preparation Leach		___ 1312	
Paint Filter		___ 9095A	

Other: _____ Method: _____

Other: _____ Method _____

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 08/29/00

CLIENT: TNU-HANFORD B99-042
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0008L080

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOYWK1	‡ Solids Chromium VI	99.8 0.40 u	‡ MG/KG	0.01 0.40	1.0 1.0
-002	BOYWK2	‡ Solids Chromium VI	99.7 0.51	‡ MG/KG	0.01 0.40	1.0 1.0
-003	BOYWWS	‡ Solids Chromium VI	99.7 0.40 u	‡ MG/KG	0.01 0.40	1.0 1.0
-004	BOYWWS	‡ Solids Chromium VI	99.6 2.0	‡ MG/KG	0.01 0.40	1.0 1.0
-005	BOYWK0	‡ Solids Chromium VI	99.1 0.40 u	‡ MG/KG	0.01 0.40	1.0 1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 08/29/00

CLIENT: TNU-HANFORD B99-042
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0008L080

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	BOYWX1	Soluble Chromium VI	4.2	0.40u	4.0	101.4	1.0
		Insoluble Chromium VI	925	0.40u	1180	78.8	100
BLANK10	00LV1045-MB1	Soluble Chromium VI	3.7	0.40u	4.0	91.4	1.0
		Insoluble Chromium VI	1080	0.40u	1160	93.1	100

Reetra LabNet - Lincolnville

INORGANICS PRECISION REPORT 08/29/00

CLIENT: TWU-HANFORD B99-042

WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0008080

SAMPLE	SITE ID	ANALYTE	INITIAL	RESULT	REPLICATE	RPD	DILUTION
-001REP	BOYK1	Chromium VI		99.8	99.6	0.20	1.0
				0.40U	0.40U	MC	1.0

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-042

DATE RECEIVED: 08/03/00

RFW LOT # :0008L080

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

BOYWX1

* SOLIDS	001	S	00L*S117	08/01/00	08/09/00	08/10/00
* SOLIDS	001 REP	S	00L*S117	08/01/00	08/09/00	08/10/00
CHROMIUM VI	001	S	00LVI045	08/01/00	08/24/00	08/24/00
CHROMIUM VI	001 REP	S	00LVI045	08/01/00	08/24/00	08/24/00
CHROMIUM VI	001 MS	S	00LVI045	08/01/00	08/24/00	08/24/00
CHROMIUM VI	001 MSD	S	00LVI045	08/01/00	08/24/00	08/24/00

BOYWX2

* SOLIDS	002	S	00L*S117	08/01/00	08/09/00	08/10/00
CHROMIUM VI	002	S	00LVI045	08/01/00	08/24/00	08/24/00

BOYWX8

* SOLIDS	003	S	00L*S117	08/01/00	08/09/00	08/10/00
CHROMIUM VI	003	S	00LVI045	08/01/00	08/24/00	08/24/00

BOYWX9

* SOLIDS	004	S	00L*S117	08/01/00	08/09/00	08/10/00
CHROMIUM VI	004	S	00LVI045	08/01/00	08/24/00	08/24/00

BOYWX0

* SOLIDS	005	S	00L*S117	08/01/00	08/09/00	08/10/00
CHROMIUM VI	005	S	00LVI045	08/01/00	08/24/00	08/24/00

LAB QC:

CHROMIUM VI	MB1	S	00LVI045	N/A	08/24/00	08/24/00
CHROMIUM VI	MB1 BS	S	00LVI045	N/A	08/24/00	08/24/00
CHROMIUM VI	MB1 BSD	S	00LVI045	N/A	08/24/00	08/24/00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-042-053		Page 1 of 1			
Collector R. Nielson/R. Fahlberg		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator TRENT, SJ		Price Code 8L Data Turnaround 21 Days			
Project Designation 100 H Area - Full Protocol		Sampling Location 116-11-3 - Deep Zone		SAF No. B99-042		Air Quality <input type="checkbox"/>					
Ice Chest No. ERC 96-021 (30F3)		Field Logbook No. EL-1500-2		COA R116H32600		Method of Shipment Federal Express					
Shipped To TMA/RECRA Recra		Offsite Property No. A000261		Bill of Lading/Air Bill No. 42357953 7857							
POSSIBLE SAMPLE HAZARDS/REMARKS None				Preservation	Cool 4C	None					
				Type of Container	2G	P 100					
				No. of Container(s)	1	P 02					
				Volume	125mL	100mL					
Special Handling and/or Storage				Chromium Hex - 7196	See item (1) in Special Instructions.						
SAMPLE ANALYSIS											
Sample No.	Matrix *	Sample Date	Sample Time								
1 BOYWX1	SOIL	8-1-00	1045	X	X				TIP TO BOY670		
2 BOYWX2	SOIL	8-1-00	1000	X	X						
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By R. Nielson		Date/Time 8/1/00 11:00		Received By R. Thoren		Date/Time 8-1-00 1600		(1) - Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) 0009L080 2.9"			
Relinquished By R. Thoren		Date/Time 8/2/00 1430		Received By FEDEX		Date/Time					
Relinquished By How Ex		Date/Time 8/30/04 5		Received By D. [Signature]		Date/Time 8/30/04 5					
Relinquished By		Date/Time		Received By		Date/Time					
Relinquished By		Date/Time		Received By		Date/Time					
LABORATORY SECTION		Received By		Title				Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time			

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-042-052		Page 1 of 1																															
Collector R. Nielson/R. Fahberg		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator TRENT, SJ		Price Code 8L Data Turnaround 21 Days																															
Project Designation 100 H Area - Full Protocol		Sampling Location 116-H-3 - Deep Zone		SAF No. B99-042		Air Quality <input type="checkbox"/>																																	
Ice Chest No. ERC 96-021 (30F3)		Field Logbook No. EL-1500-2		COA R116H32600		Method of Shipment Federal Express																																	
Shipped To TMA/RECRA REAR		Offsite Property No. A000026		Bill of Lading/Air Bill No. 423579537857																																			
POSSIBLE SAMPLE HAZARDS/REMARKS NONE				Preservation		Cool 4C	None																																
				Type of Container		aG	P																																
				No. of Container(s)		1																																	
				Volume		125mL	1000mL																																
Special Handling and/or Storage				Chromium Hex - 7196		See item (1) in Special Instructions																																	
SAMPLE ANALYSIS																																							
Sample No.		Matrix *		Sample Date		Sample Time																																	
3 BOYWW8		SOIL		8/1/00		1045		X		X								TILT TO																					
4 BOYWW9		SOIL		8/1/00		1020		X		X								BOY1670																					
5 BOYWX0		SOIL		8/1/00		1035		X		X								↓																					
CHAIN OF POSSESSION										SPECIAL INSTRUCTIONS																													
Relinquished By R. Nielson/R. Fahberg					Date/Time 8/1/00 1600					Received By P. Thorne					Date/Time 8/1/00 1600					Matrix * S - Soil SE - Sediment SO - Solid S - Sludge W - Water U - Oil A - Air DS - Dried Solids DL - Dried Liquids T - Tissue WI - Wipe L - Liquid V - Vegetation X - Other																			
Relinquished By R. Thorne					Date/Time 8/20/00 1430					Received By FED EX																													
Relinquished By D. E.					Date/Time 8/30/00 0945					Received By D. E.					Date/Time 8/30/00 0945																								
Relinquished By					Date/Time					Received By					Date/Time																								
Relinquished By					Date/Time					Received By					Date/Time																								
LABORATORY SECTION										Received By										Title										Date/Time									
FINAL SAMPLE DISPOSITION										Disposal Method										Disposed By										Date/Time									

Duncan, Jeanette M

From: Callison, Stacey W
Sent: Thursday, October 26, 2000 3:18 PM
To: Duncan, Jeanette M
Cc: Nazarali, Alexander M
Subject: 116-H-3 Draft data validation

Jeanette -

On behalf of Alex, we do not have any comments on the subject.

Stacey

ERASED

OPTION

TEL NO.

PAGE RESULT

12087238944

09/09 OK

FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

Review Comment Record (RCR)

5. Document Number(s)/Title(s)
SDG No. H933

6. Program/Project/
Building Number
100-D Areas - Full
Protocol, Waste Sites
116-D-1A

17. Comment Submittal Approval:

10. Agreement with Indicated to:

Organization Manager (Optional)

Date

Rev#

Auth

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.)
1	Radiochemistry: OK No Comments.
2	Inorganic: OK No Comments.
3	
4	
5	

Review Comment Record (RCR)

1. Date
10/25/00

2. Review No.
QA-0045

3. Project
100-H

4. Page
Page 1 of 1

5. Document Number(s)/Title(s)

SDG No. H0943

6. Program/Project/
Building Number

100-H Areas - Full
Protocol, Waste Sites
116-H-3

7. Reviewer
Claude Stacey

8. Organization/Group
Quality Program

9. Location/Phone
372-9208

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Originator

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 3, Detection Levels, and Page 4, Minor Deficiencies, Eu-154 for sample B0YWW8 was reported above the required detection limit and needs to be added to the list.			
2	Inorganic: Page 010, the SDG is listed as H0924, it should be H0943.			
3				
4				
5				

Duncan, Jeanette M

From: Weiss, Richard L
Sent: Wednesday, October 18, 2000 11:56 AM
To: Duncan, Jeanette M
Subject: review of Validation Reports for Data Package H0943

Jeneatte,

The following are comments from review of the validation reports for data package SDG H0943:

Radionuclides - Page 3&4, Detection Levels & Minor Deficiencies; The TDL requirement was also missed for sample B0YWW8 for Europium-144.

Inorganics - No Comments.

Rich Weiss

**Rust Federal Services Hanford/Bechtel Hanford, Inc
Validation Services Request**

VSR No.: B01-003
Rev:

Validator: TechLaw

Project Coordinator: TRENT, SJ
Client: KERKOW, RB
Project: 100-DR-1 RM ACT
SAF Number: B99-005

QAPP Number:
SAP Number:
Level of Validation: C
Percent Validation:
~ 50%. Validate Group 3 Pipeline
samples only *H1020*

Validation Task Title: 100D Areas - Full Protocol - Waste Site Group 3 Small Pipelines

TPCN Number:

Cost Account Manager:

**Validation Procedure/Revision Number
to be utilized in validation:**

Chem: WHC-SD-EN-SPP-002/Rev 2
Rad: WHC-SD-EN-SPP-001/Rev 1

Summary Report Required?: No
**Validation Diskette
Deliverable Required?:** No

Summary Report Document Control Number:
(to be affixed to each page of the report in the upper right corner)

Comments:

This data package contains samples for 116-D-9 & Group 3 Small Pipelines. Please validate samples B106F5 thru B106F8 only for waste site Group 3 Small Pipelines. Please identify any problems with this request immediately upon receipt of this VSR.

Requested Validation Start Date

10/16/00

Requested Validation Completion Date

10/23/00

SYS NUM	Site NUM	SAMP NUM	SAMPLE CONTAINER
B99-005	H1020	B106H5	116-D-9 PIPE TRENCHES
B99-005	H1020	B106H2	116-D-9 PIPE TRENCHES
B99-005	H1020	B106H3	116-D-9 PIPE TRENCHES
B99-005	H1020	B106H4	116-D-9 PIPE TRENCHES 100-D
B99-005	H1020	B106H1	116-D-9 PIPE TRENCHES 100-D
B99-005	H1020	B106F7	GRP. 3 SMALL PIPELINES 100-D
B99-005	H1020	B106F8	GRP. 3 SMALL PIPELINES 100-D
B99-005	H1020	B106F5	GRP. 3 SMALL PIPELINES 100-D
B99-005	H1020	B106F6	GRP.3 SMALL PIPELINES 100-D

9-12-00 JA Congill / Jason Congill AFS.

Group 3 Small Pipelines
 Sz Verification Samples

Sub Unit	Sampling Area	Sample Point	Northing (WSP)	Easting (WSP)	Sample Number	Sample Date	Sample Time
D	D3	*** Composite ***			B106F5	9/12/2000	8:19
		D3-1	151636.06	573807.97	9-12-00 JA Congill / Jason Congill AFS.		
		D3-2	151636.00	573814.17			
		D3-4	151635.89	573827.13			
		D3-11	151639.94	573820.89			
	D4	*** Composite ***			B106F6	9/12/2000	8:30
		D4-3	151644.44	573828.10			
		D4-4	151647.08	573828.04			
		D4-7	151649.60	573823.49			
		D4-12	151655.96	573824.06			
	D5	*** Composite ***			B106F7	9/12/2000	8:22
		D5-1	151657.09	573814.16			
		D5-5	151659.78	573816.15			
		D5-7	151665.49	573809.83			
		D5-15	151647.94	573856.59			
	D6	*** Composite ***			B106F8	9/12/2000	8:33
		D6-1	151644.14	573861.20			
		D6-10	151654.79	573861.23			
		D6-13	151653.38	573857.83			
		D6-15	151663.00	573864.00			

JAC
9-12-00

JAC
9-12-00

116-D-9 Pipe Trench
 Sz Verification Samples

Sub Unit	Sampling Area	Sample Point	Northing (WSP)	Easting (WSP)	Sample Number	Sample Date	Sample Time
B	B6	*** Composite ***			B106H1	9/12/2000	8:00
		B6-1	151635.47	573744.65	9-12-00 JA Congill / Jason Congill AFS.		
		B6-10	151635.32	573748.48			
		B6-13	151628.45	573743.95			
		B6-15	151624.98	573740.68			
	B7	*** Composite ***			B106H2	9/12/2000	8:02
		*** Duplicate ***			B106H3	9/12/2000	8:02
		*** Split ***			B106H0	9/12/2000	8:02
		*** Equipment Blank ***			B106H4	9/12/2000	8:02
		B7-3	151631.90	573769.03			
		B7-4	151632.01	573762.33			
		B7-5	151548.34	573779.33			
		B7-11	151552.05	573782.89			
	B8	*** Composite ***			B106H5	9/12/2000	8:44
		B8-3	151562.41	573790.45			
		B8-4	151562.43	573798.32			
		B8-8	151558.13	573786.47			
		B8-13	151555.79	573792.92			

JAC
9-12-00

JAC
9-12-00

9-12-00 JA Congill / Jason Congill AFS.

NOT USED
 JAC 9-12-00

Continued on Page

Read and Understood By

JA Congill / Jason Congill

9-12-00

Bechtel Hanford Inc.
SAMPLING AUTHORIZATION FORM

[Handwritten Signature]
2/29/00

SAF Number: B99-005

Rev: 2

Program Type CERCLA

Project ID 100-DR-1 RM ACT

Project Type Remedial Action

Operable Unit 100-DR-1

Task ID 1

Round Number 0

SAF Title 100 D Areas - Full Protocol

Task Manager CORPUZ, FM

Requester KERKOW, RB

Charge Codes-

Project Samplers MULTIPLE

Project Coordinator TRENT, SJ

Estimated Start Date 10/01/98

Estimated Completion Date 09/30/00

SampleArea 100 Areas

Estimated Number of Samples 200

Sampling Organizations

ERC Field Sampling

Project Samplers

Laboratory/Turnaround/Data Deliverable

Matrix Soil

Primary: Radiological Counting Facility/ 24 Hours/Single Sheet Summary

Primary: TMA/RECRA/ 15 Days/Summary

Split: Quanterra Incorporated/ 15 Days/Summary

SAF Comment

** Revision 2 written to add VOA-8260A (TCL). Also the Am analysis was combined with the other isotopic analyses; Hg (CV) was combined with the ICP Metals (Supertrace) analytes.

** Revision 1 written to change the Pest 8080 method to Pest 8081 and PCBs 8082. This is due to method changes at the laboratory. Revised other FSR requirements (deleted GEA-add on, combined volumes, added Ba using the Supertrace method). An individual bottle set was created for Isotopic Uranium. Also the Requester was changed to Rick Kerkow.

** This SAF replaces B98-022.

** Sample media is Soil (SO).

** The Price Code is 8K.

** All appropriate COAs are on the attached Excel spreadsheet.

** DATA DELIVERABLE REQUIREMENTS -- Fax hard copies to: Sample Management (372-9487) . E-Mail EDDs to Richard L Weiss.

** Sample Management will send copies of all data to 100 D Analytical Staff, Attention Rick Kerkow

Date 02/28/00

SAFStatus: Revision Issued

2/28/00 11:30:00 AM

Bechtel Hanford Inc.

SAMPLING AUTHORIZATION FORM

SAF Number: B99-005

Rev: 2

(FAX: 373-1395; MSIN: X9-06).

COC Comments

****** Use a separate Chain of Custody for each waste site.

Date 02/28/00

SAFStatus: Revision Issued

2/28/00 11:30:00 AM

Bechtel Hanford Inc.

Field Sampling Requirements

Laboratory Analysis

Laboratory: Quanterra Incorporated

Matrix: Soil

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Gamma Spectroscopy Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155	GAMMA_GS	P 1 L	Full QC	None	6 Months
Isotopic Plutonium	PUISO_PLATE_AEA		Full QC		6 Months
Isotopic Uranium	UIISO_PLATE_AEA		Full QC		6 Months
Americium-241	AMCMISO_EIE_PLT_AEA		Full QC		6 Months
Strontium-89,90 -- Total Sr	SRTOT_SEP_PRECIP_GPC		Full QC		6 Months
Nickel-63	NI63_LSC	aG 60 mL	Full QC	None	6 Months
Activity Scan	ACTIVITY_SCAN	P 20 mL	Full QC	None	6 Months
Chromium Hex - 7196	7196_CR6	aG 60 mL	Full QC	Cool 4C	30 Days
VOA - 8260A (TCL)	8260_VOA_GCMS	G 20 g	Full QC	Cool 4C	14 Days
Semi-VOA - 8270A (TCL) Bis(2-ethylhexyl) phthalate	8270_SVOA_GCMS	aG 120 mL	Full QC	Cool 4C	14/40 Days
Pesticides - 8081	8081_PEST_GC	aG 250 g	Full QC	Cool 4C	14/40 Days
PCBs - 8082	8082_PCB_GC	aG 250 g	Full QC	Cool 4C	14/40 Days
ICP Metals - 6010A (SW-846) Chromium, Lead	6010_METALS_ICP	aG 60 mL	Full QC	None	6 Months
ICP Metals - 6010A (Supertrace) Arsenic, Barium, Cadmium, Chromium, Lead, Silver	6010_METALS_ICP	aG 60 mL	Full QC	None	6 Months

Key to Container Types

- | | |
|---|--|
| G = Glass | aG = Amber Glass |
| Gs = Glass w/ septum cap | aGs = Amber Glass w/ septum cap |
| Gs* = Glass w/septum cap-
no head space in container | aGs* = Amber Glass w/septum cap-
no head space in container |
| P = Plastic (Polyethylene) | |

FSR Comment:

SAF Number: B99-005

Rev: 2

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SAF Status: Revision Issued

2/28/00 11:30:00 AM

BHI-EE-001 (12/94)

Bechtel Hanford Inc.

Field Sampling Requirements

Laboratory Analysis

Laboratory: Quanterra Incorporated

Matrix: Soil

Mercury - 7471 - (CV)

7471_HG_CVAA

Full QC

28 Days

Isotopic Uranium

UIISO_PLATE_AEA

G/P 60 mL

Minimum

None

6 Months

Key to Container Types

G = Glass

Gs = Glass w/ septum cap

Gs* = Glass w/septum cap-
no head space in container

P = Plastic (Polyethylene)

aG = Amber Glass

aGs = Amber Glass w/ septum cap

aGs* = Amber Glass w/septum cap-
no head space in container

FSR Comment:

SAF Number: B99-005

Rev: 2

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SAF Status: Revision Issued

2/28/00 11:30:00 AM

BHI-EE-001 (12/94)

Bechtel Hanford Inc.

Field Sampling Requirements

Laboratory Analysis

Laboratory: **Radiological Counting Facility**

Matrix: **Soil**

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Rad Screen	RADSCREEN	P 20 mL only	Full QC	None	6 Months

Key to Container Types

G = Glass	aG = Amber Glass
Gs = Glass w/ septum cap	aGs = Amber Glass w/ septum cap
Gs* = Glass w/septum cap- no head space in container	aGs* = Amber Glass w/septum cap- no head space in container
P = Plastic (Polyethylene)	

FSR Comment:

SAF Number: B99-005

Rev: 2

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SAF Status: Revision Issued

2/28/00 11:30:00 AM

BH-EE-001 (12/94)

Bechtel Hanford Inc.

Field Sampling Requirements

Laboratory Analysis

Laboratory: TMA/RECRA

Matrix: Soil

Parameter / Analysis	Reference Method	Container / Volume	VolReq	Preservation	Holding Times
Gamma Spectroscopy Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155	GAMMA_GS	P 1 L	Full QC	None	6 Months
Isotopic Plutonium	PUISO_PLATE_AEA		Full QC		6 Months
Isotopic Uranium	UIISO_PLATE_AEA		Full QC		6 Months
Americium-241	AMCMISO_EIE_PLT_AEA		Full QC		6 Months
Strontium-89,90 -- Total Sr	SRTOT_SEP_PRECIP_GPC		Full QC		6 Months
Nickel-63	NI63_LSC	aG 60 mL	Full QC	None	6 Months
Chromium Hex - 7196	7196_CR6	aG 60 mL	Full QC	Cool 4C	30 Days
VOA - 8260A (TCL)	8260_VOA_GCMS	G 250 mL	Full QC	Cool 4C	14 Days
Semi-VOA - 8270A (TCL) Bis(2-ethylhexyl) phthalate	8270_SVOA_GCMS	aG 250 mL	Full QC	Cool 4C	14/40 Days
Pesticides - 8081	8081_PEST_GC	aG 250 g	Full QC	Cool 4C	14/40 Days
PCBs - 8082	8082_PCB_GC	aG 250 g	Full QC	Cool 4C	14/40 Days
ICP Metals - 6010A (SW-846) Arsenic, Chromium, Lead	6010_METALS_ICP	aG 250 mL	Full QC	None	6 Months
ICP Metals - 6010A (Supertrace) Barium, Chromium, Lead	6010_METALS_ICP_TR	G/P 250 mL	Full QC	None	6 Months
Mercury - 7471 - (CV)	7471_HG_CVAA		Full QC		28 Days

Key to Container Types

- | | |
|---|--|
| G = Glass | aG = Amber Glass |
| Gs = Glass w/ septum cap | aGs = Amber Glass w/ septum cap |
| Gs* = Glass w/septum cap-
no head space in container | aGs* = Amber Glass w/septum cap-
no head space in container |
| P = Plastic (Polyethylene) | |

FSR Comment:

SAF Number: B99-005

Rev: 2

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SAF Status: Revision Issued

2/28/00 11:30:00 AM

BHI-EE-001 (12/94)

Bechtel Hanford Inc.

Field Sampling Requirements

Laboratory Analysis

Laboratory: TMA/RECRA

Matrix: Soil

Isotopic Uranium

UIISO_PLATE_AEA

G/P 60 mL

Minimum

None

6 Months

Key to Container Types

G = Glass	aG = Amber Glass
Gs = Glass w/ septum cap	aGs = Amber Glass w/ septum cap
Gs* = Glass w/septum cap- no head space in container	aGs* = Amber Glass w/septum cap- no head space in container
P = Plastic (Polyethylene)	

FSR Comment:

SAF Number: B99-005
BHI-EE-001 (12/94)

Rev: 2

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SAF Status: Revision Issued

2/28/00 11:30:00 AM

Review Comment Record (RCR)

1. Date
10/25/00

2. Review No.
QA-0045

3. Project
100-H

4. Page
Page 1 of 1

5. Document Number(s)/Title(s)
SDG No. H0943

6. Program/Project/
Building Number

100-H Areas - Full
Protocol, Waste Sites
116-H-3

7. Reviewer
Claude Stacey

8. Organization/Group
Quality Program

9. Location/Phone
372-9208

17. Comment Submittal Approval:

18. Agreement with indicated comment disposition(s)

11. CLOSED

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Originator

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 3, Detection Levels, and Page 4, Minor Deficiencies, Eu-154 for sample B0YWW8 was reported above the required detection limit and needs to be added to the list.		<i>Carrie K</i>	
2	Inorganic: Page 010, the SDG is listed as H0924, it should be H0943.		<i>Carrie K</i>	
3				
4				
5				

Duncan, Jeanette M

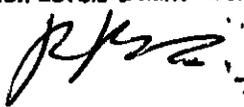
From: Weiss, Richard L
Sent: Wednesday, October 18, 2000 11:55 AM
To: Duncan, Jeanette M
Subject: review of Validation Reports for Data Package H0943

Jenette,

The following are comments from review of the validation reports for data package SDG H0943:

Radionuclides - Page 3&4, Detection Levels & Minor Deficiencies; The TDL requirement was also missed for sample BOYWWB for Europium-144.

Inorganics - No Comments.



Rich Weiss

OK
R22