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Date: 6 January 2000
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 105-DR FSB - Soil
Subject: Inorganics - Data Package No. H0542-RLN (SDG No. H0542)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H0542-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
BOWCH9	9/22/99	Soil	C	See note 1
BOWCJ2	9/22/99	Soil	C	See note 1

1 - ICP metals by 6010B (lead); mercury by 7471A; chromium VI by 7196A

Data validation was conducted in accordance with the BHI validation statement of work and "Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils" (DOE/RL-99-35). 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 six (6) months for lead, 30 days for chromium VI and 28 days for mercury.

All holding times were acceptable.

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- **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.

- **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.

Due to a matrix spike percent recovery of 131%, the mercury result in sample BOWCJ2 was qualified as an estimate and flagged "J".

All other matrix spike 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 20% 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.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 105DR PQLs to ensure that laboratory detection levels meet the required criteria. The PQL was exceeded for chromium VI in all samples. Under the BHI statement of work, no qualification is required. All other reported laboratory detection levels met the analyte specific PQL.

- **Completeness**

Data package No. H0542-RLN (SDG No. H0542) was submitted for validation and verified for completeness. The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to a matrix spike percent recovery of 131%, the mercury result in sample BOWCJ2 was qualified as an estimate 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 PQL was exceeded for chromium VI in all 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-99-35, *Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils*.

Interoffice Memorandum 056910, Joan Kessner to Distribution, *Hexavalent Chromium Analytical Holding Time*, 4 March 1998.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

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.

Appendix 2

Summary of Data Qualification

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DATA QUALIFICATION SUMMARY

SDG: H0542	REVIEWER: TLI	DATE: 1/6/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Radium-226	J	All	RPD
Carbon-14	J	All	No matrix spike

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: BECHTEL-HANFORD																					
Laboratory: TNU																					
Case		SDG: H0542																			
Sample Number		B0WCH9				B0WCJ2															
Location		C-2				C-1															
Remarks																					
Sample Date		09/22/99				09/22/99															
Radiochemistry	CRDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Carbon-14	50	15.8	J	5.10	J																
Technetium-99	15	0.098	U	-0.188	U																
Uranium-233/234	1	0.282		0.557																	
Uranium-235	1	0.031	U	0.067	U																
Uranium-238	1	0.308		0.390																	
Plutonium-238	1	0.021	U	0.013	U																
Plutonium-239/40	1	1.23		0.206																	
Nickel-63	30	102		32.3																	
Americium-241	1	0.269		0.071																	
Potassium-40		9.23		9.56																	
Barium-133			U U		U U																
Cobalt 60	0.1	4.29		0.675																	
Cesium 137	0.1	9.92		17.4																	
Europium 152	0.2	15.2		2.68																	
Europium 154	0.2	2.24		0.582																	
Europium 155	0.1		U U		U U																
Radium-226		0.189	J	0.334	J																
Radium-228		0.602		0.526																	
Thorium-228		0.394		0.504																	
Thorium-232		0.602		0.526																	
Americium-241 (GEA)			U U		U U																
Uranium-238 (GEA)			U U		U U																
Uranium-235 (GEA)			U U		U U																

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TMA / RICHMOND
SAMPLE DELIVERY GROUP H0542

N909172-01

BOWCH9

DATA SHEET

SDG <u>7218</u>	Client/Case no <u>Hanford</u>	SDG <u>H0542</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909172-01</u>	Client sample id <u>BOWCH9</u>	
Dept sample id <u>7218-001</u>	Location/Matrix <u>105 DR</u>	<u>SOLID</u>
Received <u>09/24/99</u>	Collected <u>09/22/99 12:50</u>	
% solids <u>97.5</u>	Custody/SAF No <u>B99-075-16</u>	<u>B99-075</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	15.8	3.2	4.9	50	J	C
Technetium 99	14133-76-7	0.098	0.39	0.53	15	U	TC
Uranium 233/234	U-233/234	0.282	0.11	0.065	1.0	U	U
Uranium 235	15117-96-1	0.031	0.041	0.079	1.0	U	U
Uranium 238	U-238	0.308	0.11	0.065	1.0	U	U
Plutonium 238	13981-16-3	0.021	0.028	0.046	1.0	U	PU
Plutonium 239/240	PU-239/240	1.23	0.15	0.033	1.0		PU
Nickel 63	13981-37-8	102	4.1	3.1	30		NI_L
Americium 241	14596-10-2	0.269	0.084	0.087	1.0	U	AM
Potassium 40	13966-00-2	9.23	0.69	0.44			GAM
Barium 133	13981-41-4	U		0.085		UX	GAM
Cobalt 60	10198-40-0	4.29	0.12	<u>0.060</u>	0.050		GAM
Cesium 137	10045-97-3	9.92	0.16	<u>0.11</u>	0.10		GAM
Europium 152	14683-23-9	15.2	0.33	<u>0.29</u>	0.10		GAM
Europium 154	15585-10-1	2.24	0.24	<u>0.22</u>	0.10		GAM
Europium 155	14391-16-3	U		<u>0.21</u>	0.10	U	GAM
Radium 226	13982-63-3	0.189	0.11	<u>0.15</u>	0.10	J	GAM
Radium 228	15262-20-1	0.602	0.26	<u>0.34</u>	0.20		GAM
Thorium 228	14274-82-9	0.394	0.070	0.10			GAM
Thorium 232	TH-232	0.602	0.26	0.34			GAM
Americium 241	14596-10-2	U		0.24		U	GAM
Uranium 238	U-238	U		13		U	GAM
Uranium 235	15117-96-1	U		0.25		U	GAM

105-DR FSB-Soil

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1/6/00

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>10/19/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0542

N909172-02

B0WCJ2

DATA SHEET

SDG <u>7218</u>	Client/Case no <u>Hanford</u>	SDG <u>H0542</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909172-02</u>	Client sample id <u>B0WCJ2</u>	
Dept sample id <u>7218-002</u>	Location/Matrix <u>105 DR</u>	<u>SOLID</u>
Received <u>09/24/99</u>	Collected <u>09/22/99 13:10</u>	
% solids <u>92.9</u>	Custody/SAF No <u>B99-075-17</u>	<u>B99-075</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Carbon 14	14762-75-5	5.10	2.8	4.5	50	U J	C
Technetium 99	14133-76-7	-0.188	0.27	0.41	15	U	TC
Uranium 233/234	U-233/234	0.557	0.16	0.089	1.0	U	U
Uranium 235	15117-96-1	0.067	0.045	0.086	1.0	U	U
Uranium 238	U-238	0.390	0.13	0.071	1.0	U	U
Plutonium 238	13981-16-3	0.013	0.021	0.035	1.0	U	PU
Plutonium 239/240	PU-239/240	0.206	0.053	0.038	1.0	U	PU
Nickel 63	13981-37-8	32.3	2.3	2.4	30		NI_L
Americium 241	14596-10-2	0.071	0.047	0.070	1.0	U	AM
Potassium 40	13966-00-2	9.56	1.1	0.74			GAM
Barium 133	13981-41-4	U		0.13		UX	GAM
Cobalt 60	10198-40-0	0.675	0.13	<u>0.10</u>	0.050		GAM
Cesium 137	10045-97-3	17.4	0.30	<u>0.11</u>	0.10		GAM
Europium 152	14683-23-9	2.68	0.34	<u>0.40</u>	0.10		GAM
Europium 154	15585-10-1	0.582	0.28	<u>0.29</u>	0.10		GAM
Europium 155	14391-16-3	U		<u>0.22</u>	0.10	U	GAM
Radium 226	13982-63-3	0.334	0.18	<u>0.22</u>	0.10	J	GAM
Radium 228	15262-20-1	0.526	0.36	<u>0.42</u>	0.20		GAM
Thorium 228	14274-82-9	0.504	0.12	0.15			GAM
Thorium 232	TH-232	0.526	0.36	0.42			GAM
Americium 241	14596-10-2	U		0.12		U	GAM
Uranium 238	U-238	U		15		U	GAM
Uranium 235	15117-96-1	U		0.32		U	GAM

105-DR FSB-Soil

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1/4/00

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>10/19/99</u>

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0542 is composed of two solid (soil) samples designated under SAF No. B99-075 with a Project Designation of: 105-DR FSB-Soil. The remainder of the sample was shipped to RECRA on September 27, 1999 after enough material was removed to perform the NUC chemistry.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the TNU Sample Receipt Checklist. The results were reported to BHI via fax on October 18, 1999.

2.0 ANALYSIS NOTES

2.1 Gamma Scan Analyses

No problems were encountered during the course of the analyses.

2.2 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.3 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.4 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.5 Americium-241 Analyses

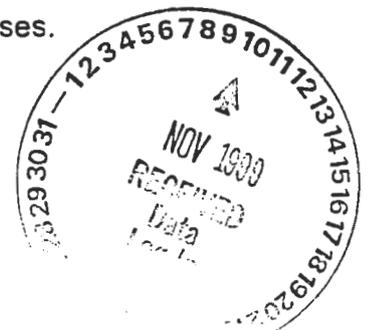
No problems were encountered during the course of the analyses.

2.6 Technetium-99 Analyses

No problems were encountered during the course of the analyses. A recount was performed on sample B0WCJ2 and the Blank. The Tc99 activity observed in the blank sample was slightly greater than the blank sample MDA however was less than the RDL.

2.7 Nickel-63 Analyses

No problems were encountered during the course of the analyses.



CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-075-17

Page 1 of 1

Collector Fahlberg/Behnke	Company Contact Jason Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation 105-DR FSB - Soil	Sampling Location 105 DR	Field Logbook No. EL-1281	SAF No. B99-075		
Top Chest No. RF 123456 99-005 SML 596	Offsite Property No. A990269	Method of Shipment Fed Ex			
Shipped To TMA/REACT RF 9.22.99		Bill of Lading/Air Bill No. 423579529734			
			COA RIGS D42800		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C	None	None						
	Type of Container	aG	aG	aG	aG						
	No. of Container(s)	1	1	1	1						
	Special Handling and/or Storage	Volume	60mL	60mL	60mL	500mL					

SAMPLE ANALYSIS	Chromium Hex - 7196	PCBs - 1080 (Aroclor-1254)	ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV)	See item (1) in Special Instructions.						
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Sample No.	Matrix *	Sample Date	Sample Time										
B0WCJ2	Soil	9.22.99	1310										Bow cc9
B0WCJ3	Soil	RF											
B0WCJ4	Soil	9.22.99											
B0WCJ5	Soil												

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By R. Fahlberg	Date/Time 9-22-99 1535	Received By Ref 15	Date/Time 9-22-99 1525
Relinquished By Ref 1-C	Date/Time 9/23/99 1130	Received By Chil	Date/Time 9/23/99 1130
Relinquished By C. Mice	Date/Time 9/23/99 1400	Received By FEDEX	Date/Time 9/23/99 1400
Relinquished By Fed Ex	Date/Time 10:00 9-24-99	Received By TNU M. Goldensberg	Date/Time 9-24-99
		(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Technetium-99	Soil Water Vapor Other Solid Other Liquid
		COLLECTOR UNAVAILABLE TO SIGN COC	

LABORATORY SECTION	Received By	Disposal Method	Disposed By
FINAL SAMPLE DISPOSITION			

Collector Fahlberg/Behnke	Company Contact Jason Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation 105-DR FSB - Soil	Sampling Location 105 DR	SAF No. B99-075			
Ice Chest No. SML 596	Field Logbook No. EL-1281	Method of Shipment FedEx			
Shipped To TMA/RECRA RS 9-22-99	Offsite Property No. A990270	Bill of Lading/Air Bill No. 087952 423579529734			
COA R105D42800					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cool 4C	None	None
	Type of Container	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1
	Volume	60mL	60mL	60mL	500mL
Special Handling and/or Storage					

SAMPLE ANALYSIS		Chromium Hex - 7196	PCBs - 8080 (Aroclor-1254)	ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV)	See item (1) in Special Instructions.
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Sample No.	Matrix *	Sample Date	Sample Time							
B0WCH9	Soil	9-22-99	1250							X
B0WCJ0	Soil	_____	_____							
B0WCJ1	Soil	_____	_____							

080016

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>K. Fahlberg</i>	Date/Time 1535 9-22-99	Received By <i>Ref 1-C</i>	Date/Time 1535 9-22-99
Relinquished By <i>Ref 4-C</i>	Date/Time 9-22-99 11:30	Received By <i>Chico</i>	Date/Time 9/23/99 11:30
Relinquished By <i>Chico</i>	Date/Time 9-23-99 1400	Received By <i>FEDEX</i>	Date/Time 9/23/99 1400
Relinquished By <i>FedEx</i>	Date/Time 10:00 9-24-99	Received By <i>TNU M. Goldinberg</i>	Date/Time 9-24-99

SPECIAL INSTRUCTIONS:
 (1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Technetium-99
 Entire contents of sample sent to TMA in one 500 ml bottle.
 TMA will place unalike in 60ml bottles provided and send to RECRA, After their analysis, COLLECTOR UNAVAILABLE TO SIGN COA

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

Appendix 5

Data Validation Supporting Documentation

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	105-DR-FSB		DATA PACKAGE: H0542		
VALIDATOR:	TLI	LAB:	DATE: 11/22/99		
CASE:			SDG: H0542		
ANALYSES PERFORMED					
<input type="checkbox"/> Gross Alpha/Beta	<input type="checkbox"/> Strontium-90	<input checked="" type="checkbox"/> Technetium-99	<input checked="" type="checkbox"/> Alpha Spectroscopy	<input checked="" type="checkbox"/> Gamma Spectroscopy	XCI4
<input type="checkbox"/> Total Uranium	<input type="checkbox"/> Radium-22	<input type="checkbox"/> Tritium	XCI4	XU-63	
SAMPLES/MATRIX	BOWCIR		BOWCH7		
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: _____

- 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 Yes
- 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: TC-99 - sample undetected BOUCHS - ~~OK~~
EU-152, EU-154, EU-155 - above the CRDL
U238 (gpa) U235 (gpa) above

- 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: R J C14

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: RA 224 - J RA 224 - J 55% NO CRDL

228

Plutonium 228 - J

- 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: _____

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: Both Coto, CS137, EU 152/54/55 Am241 U238 U235 (sm)

ALC

DUPLICATE

SDG <u>7218</u>		Client/Case no <u>Hanford</u> <u>SDG H0542</u>	
Contact <u>Kevin C. Johnson</u>		Case no <u>TRB-SBB-207925</u>	
DUPLICATE		ORIGINAL	
Lab sample id <u>N909172-05</u>	Lab sample id <u>N909172-01</u>	Client sample id <u>BOWCH9</u>	
Dept sample id <u>7218-005</u>	Dept sample id <u>7218-001</u>	Location/Matrix <u>105 DR</u> <u>SOLID</u>	
	Received <u>09/24/99</u>	Collected <u>09/22/99 12:50</u>	
% solids <u>97.5</u>	% solids <u>97.5</u>	Custody/SAF No <u>B99-075-16</u> <u>B99-075</u>	

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Carbon 14	14.1	3.7	5.7	50	J	C	15.8	3.2	4.9	J	11	53
Technetium 99	0.450	0.33	0.44	15	JB	TC	0.098	0.39	0.53	U	128	281
Uranium 233/234	0.314	0.11	0.081	1.0	J	U	0.282	0.11	0.065	J	11	79
Uranium 235	0.051	0.041	0.079	1.0	U	U	0.031	0.041	0.079	U	-	-
Uranium 238	0.314	0.11	0.065	1.0	J	U	0.308	0.11	0.065	J	2	76
Plutonium 238	0.013	0.019	0.030	1.0	U	PU	0.021	0.028	0.046	U	-	-
Plutonium 239/240	1.28	0.15	0.030	1.0		PU	1.23	0.15	0.033		4	28
Nickel 63	99.4	3.7	2.5	30		NI_L	102	4.1	3.1		3	23
Americium 241	0.242	0.10	0.098	1.0	J	AM	0.269	0.084	0.087	J	11	77
Potassium 40	9.38	0.90	0.63			GAM	9.23	0.69	0.44		2	37
Barium 133	U		0.10		UX	GAM	U		0.085	UX	-	-
Cobalt 60	4.64	0.17	0.097	0.050		GAM	4.29	0.12	0.060		8	33
Cesium 137	10.8	0.22	0.16	0.10		GAM	9.92	0.16	0.11		8	32
Europium 152	16.7	0.40	0.36	0.10		GAM	15.2	0.33	0.29		9	32
Europium 154	2.36	0.30	0.31	0.10		GAM	2.24	0.24	0.22		5	41
Europium 155	U		0.31	0.10	U	GAM	U		0.21	U	-	-
Radium 226	0.332	0.17	0.23	0.10		GAM	0.189	0.11	0.15		55	121
Radium 228	0.464	0.37	0.51	0.20	U	GAM	0.602	0.26	0.34		26	131
Thorium 228	0.510	0.11	0.15			GAM	0.394	0.070	0.10		26	54
Thorium 232	0.464	0.37	0.51		U	GAM	0.602	0.26	0.34		26	131
Americium 241	U		0.26		U	GAM	U		0.24	U	-	-
Uranium 238	U		17		U	GAM	U		13	U	-	-
Uranium 235	U		0.37		U	GAM	U		0.25	U	-	-

105-DR FSB-Soil

QC-DUP#1 31964

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>10/19/99</u>

Review Comment Record (RCR)

1. Date
1/17/00

2. Review No.
BHI/QA0009

3. Project
105-DR

4. Page
Page 1 of 1

5. Document Number(s)/Title(s) SDG No. H0542	6. Program/Project/ Building Number 105-DR FSB - Soil	7. Reviewer Claude Stacey	8. Organization/Group BHI/QA	9. Location/Phone H0-16/372-9208
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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	Inorganic: Page 002, Matrix Spike states the matrix spike recoveries must fall between 75 to 125%. The SAP (DOE/RL-99-35) page II-7 list the % recovery for accuracy as 70 to 130%. In addition, the SAP has the precision criteria as ±30%; whereas, the validation report page 3 has it as 35%.		Corrected	
2	PCB: Page 02, Accuracy, Matrix Spike has the control limits as 50 to 150%; whereas, the SAP has Accuracy limits as 70 to 130%. In addition, on page 03, Precision has acceptance limits for the RPD as 35%; whereas, the SAP has the limit as 30%.		Corrected	
3	Radiochemistry: Page 002, Accuracy has limits as 70 - 130 for LCS and 60 - 140 for MS. The MS limits per the SAP should be 80 - 120 and 70 - 130 depending on the type of analysis. In addition, under precision the limit is specified as 35%; whereas, the SAP specifies 30%.		Corrected	
	Radiochemistry: Page 010, several of the PQLs listed are in error. Co-60, Cs-137 and Eu-155 are listed as 0.05; whereas, the SAP list the PQLs as 0.1. PQLs for Eu - 152 and 154 are listed as 0.1 on page 010 of the validation report; whereas, the SAP list the PQLs as 0.2		Corrected	

REVIEW OF VALIDATION PACKAGES – R.L. WEISS – JAN. 13, 2000

105-DR FSB

SDG H0551 – Inorganic & PCB packages: no comment, OK
Radiochemistry package: Pages 3 & 4 (Detection Levels) – comment regarding missed DL requirement for Cs-137 in sample B0WCJ8 not appropriate, laboratory reported detected for this isotope.

SDG H0542 – Inorganic & PCB packages: no comment, OK
Radiochemistry package: Page 2 (Laboratory Blanks, 2nd paragraph); Incorrect isotopes ("uranium"-152, "uranium"-154, "uranium"-155) identified, probably should be Europium isotopes. *correct*

SDG H0558 – Inorganic & PCB packages: no comment, OK
Radiochemistry package: Page 2 (Laboratory Blanks, 2nd paragraph); Delete this section, this project has no PQL for U-238 by GEA.

SDG H0483 – Inorganic & radiochemistry packages: no comment, OK
PCB package: additional information requested from laboratory for surrogate results for B0V3Y6. If data available, revision of package will be requested.

SDG H0472 Inorganic, PCB, & Radiochemistry packages: no comments, OK

100-D AREAS

SDG H0514 – Inorganic package: no comment, OK

SDG H0505 – Inorganic package: no comment, OK
Radiochemistry package: Page 3 & 4: Detection Levels; missed TDLS for U-238, U-235 for samples B0W653, B0W654, B0W657 should be identified as "(GEA)".

SDG H0490 – Radiochemistry package: no comment, OK

SDG H0553 – Inorganic & Radiochemistry packages: no comment, OK

SDG H0533 – Inorganic & Radiochemistry packages: no comment, OK
PCB package: additional information requested from laboratory for surrogate results for B0WBX6. If data available, revision of package will be requested.

Date: 6 January 2000
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 105-DR FSB - Soil
Subject: Radiochemistry - Data Package No. H0542-TNU (SDG No. H0542)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0542-TNU which was prepared by Thermo NUtech (TNU). 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
BOWCH9	9/22/99	Soil	C	See note 1
BOWCJ2	9/22/99	Soil	C	See note 1

1 - Gamma spectroscopy; alpha spectroscopy (isotopic uranium, isotopic plutonium and americium-241); nickel-63; carbon-14; technetium-99.

Data validation was conducted in accordance with the BHI validation statement of work and the "Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils" (DOE/RL-99-35). 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 with liquid scintillation requiring analysis within 7 days of distillation.

All holding times were acceptable.

000001

- **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.

All laboratory blank results were acceptable although the laboratory detection limits exceeded the PQL for europium-152, europium-154, and europium-155.

- **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 is 70-130% (80-120% for gamma spectroscopy). In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. 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 the lack of a matrix spike analysis, all carbon-14 results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

- **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.

Due to an RPD of 55%, all radium-226 results were qualified as estimates and flagged "J".

All other duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels are compared against the 105DR PQLs to ensure that laboratory detection levels meet the required criteria. The laboratory detection limit exceeded the PQL for europium-155 in both samples. Under the BHI statement of work, no qualification is required. All other reported laboratory MDAs were at or below the analyte-specific PQL.

- **Completeness**

Data Package No. H0542 (SDG No. H0542) was submitted for validation and verified for completeness. The completion rate was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to an RPD of 55%, all radium-226 results were qualified as estimates and flagged "J". Due to the lack of a matrix spike analysis, all carbon-14 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 laboratory detection limit exceeded the PQL for europium-155 in both 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-99-35, *Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils*.

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).

Appendix 2

Summary of Data Qualification

000007

DATA QUALIFICATION SUMMARY

SDG: H0542	REVIEWER: TLI	DATE: 1/6/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Mercury	J	BOWCJ2	MS percent recovery

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

INORGANICS DATA SUMMARY REPORT 10/08/99

CLIENT: TNU-HANFORD B99-075
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L173

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0WCJ2	Mercury, Total	0.05	MG/KG	0.02	1.0
		Lead, Total	2.9 u	MG/KG	2.9	1.0

gr
1/6/00

INORGANICS DATA SUMMARY REPORT 10/08/99

CLIENT: TNU-HANFORD B99-075
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L208

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	BOWCH9	Mercury, Total	0.01	u MG/KG	0.01	1.0
		Lead, Total	3.1	u MG/KG	3.1	1.0

ju
1/6/00

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 10/08/99

CLIENT: TNU-HANFORD B99-075
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L173

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOWCJ2	% Solids	91.9	%	0.01	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0

pas
1/6/00

000013

~~004~~

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 10/08/99

CLIENT: TNU-HANFORD E99-075
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L208

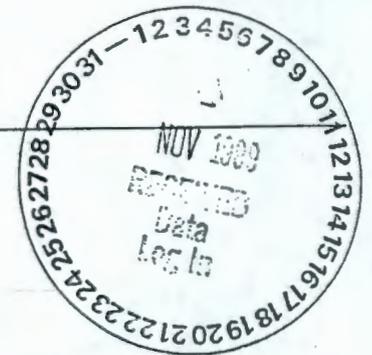
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOWCH9	% Solids	97.2	%	0.01	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0

mu
1/6/00

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000015



Recra LabNet Philadelphia Analytical Report **REVISION**

Client : TNU-HANFORD B99-075 RFW# : 9909L173 SDG# : H0542 SAF# : B99-075

W.O. # : 10985-001-001-9999-00 Date Received: 09-24-99

Original received 10/26/99 Daynes 11/9/99

INORGANIC CASE NARRATIVE

This narrative was revised to correct the SDG number.

- 1. This narrative covers the analyses of 1 soil sample. 2. The sample was 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.

J. Michael Taylor Vice President Philadelphia Analytical Laboratory

11-3-99 Date

njp&pef\109-173

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 10 pages.

**Recra LabNet Philadelphia
Analytical Report**



Client : TNU-HANFORD B99-075
RFW# : 9909L208
SDG# : H0542
SAF# : B99-075

W.O. # : 10985-001-001-9999-00
Date Received: 09-28-99

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was 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.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

10-28-99
Date

njpvi09-208

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 10 pages.



**Recra LabNet Philadelphia
Analytical Report
REVISION**

Client : TNU-HANFORD B99-075
RFW# : 9909L173
SDG/SAF# : H0542/B99-075

W.O.# : 10985-001-001-9999-00
Date Received: 09-24-99

*original
received 10/26/99
Daves
11/9/99*

METALS CASE NARRATIVE

This narrative was revised to correct the SDG number.

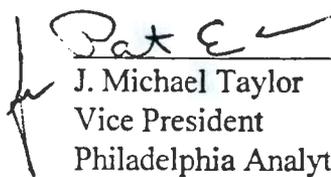
1. This narrative covers the analyses of 1 soil sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. When the Mercury matrix spike is out-of-control a serial dilution is performed.
12. The duplicate analysis for Mercury was outside the 20% Relative Percent Difference (RPD)

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 12 pages.

001

control limits. Refer to the Inorganics Precision Report.

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



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

mld/m09-173

11-3-95
Date



000019

~~002~~



**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-075

RFW# : 9909L208

SDG/SAF# : H0542/B99-075

W.O.# : 10985-001-001-9999-00

Date Received: 09-28-99

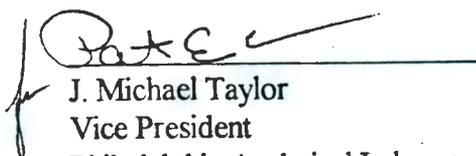
METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. All duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

01

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



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory
mid/m09-208

10-8-99
Date



000021



CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-075-17

Page 1

Collector Fahlberg/Behnke	Company Contact Jason Adler	Telephone No. 373-4316	Project Coordinator Trent, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation 105-DR FSB - Soil	Sampling Location 105 DR	SAF No. B99-075			
Ice Chest No. ERC-99-005	Field Logbook No. EL-1281	Method of Shipment Fed Express			
Shipped To MAVRECRE 9.22.99	Offsite Property No. A9902109	Bill of Lading/Air Bill No. 423579529745			
COA R05D42800					

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

173

Preservation	Cool 4C	Cool 4C	None	None					
Type of Container	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1					
Volume	60mL	60mL	60mL	500mL					

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Chromium Hex - 7196	PCBs - 8080 (Aroclor-1254)	ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV)	See item (1) in Special Instructions.			
B0WCJ2	Soil	9.22.99	1310	X	X	X				B0WCJ2
B0WCJ3	Soil	9.22.99								
B0WCJ4	Soil	9.22.99								
B0WCJ5	Soil									

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By <i>R. Fahlberg</i>	Date/Time 9-22-99 1535
Received By <i>Ref 1-C</i>	Date/Time 9-22-99 1535
Relinquished By <i>Ref 1-C</i>	Date/Time 9/23/99 130
Received By <i>Ref 1-C</i>	Date/Time 9/23/99 1130
Relinquished By <i>Chase</i>	Date/Time 9/23/99 1400
Received By <i>FEDEX</i>	Date/Time 9/23/99 1400
Relinquished By <i>Decker</i>	Date/Time 9/24/99 0930
Received By <i>Jenson</i>	Date/Time 9/24/99 0930

SPECIAL INSTRUCTIONS	Matrix *
(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Technetium-99	Soil Water Vapor Other Solid Other Liquid
COLLECTOR UNAVAILABLE TO SIGN COPY	

LABORATORY SECTION	Received By <i>Decker</i>	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

000022

012

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-075-16	Page 1
Collector Fahlberg/Behrke	Company Contact Jason Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days	EUV SDG H0542	
Project Designation 105-DR FSB - Soil	Sampling Location 105 DR	SAF No. B99-075					
Ice Chest No. SML 5AL6	Field Logbook No. EL-1281	Method of Shipment Fed Ex					
Shipped To FMA/RECRA 9.22.99	Offsite Property No. A990270	Bill of Lading/Air Bill No. 4235 7952 9734					
			COA R105 D4 2800				

POSSIBLE SAMPLE HAZARDS/REMARKS SDG# H0542	Preservation	Cool 4C	Co.1 4C	None	None						
	Type of Container	aG	aG	aG	aG						
	No. of Container(s)	1	1	1	1						
	Volume	60mL	60mL	60mL	500mL						
Special Handling and/or Storage											

SAMPLE ANALYSIS				Chromium Hex - 7196	PCBs - 8080 (Aroclor-1254)	ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (Cv)	See item (1) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time										
BOWCH9	Soil	9.22.99	1250	X	X	X							BOWCC8
BOWCJ0	Soil	9.22.99											
BOWCJ1	Soil	9.22.99											

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By R. Fahlberg	Date/Time 9.22.99 1535	Received By Ref 1-C	Date/Time 9.22.99 1535	(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Technetium-99				Soil Water Vapor Other Solid Other Liquid
Relinquished By Ref 1-C	Date/Time 9.23.99 11:30	Received By Chris	Date/Time 9/23/99 1130					
Relinquished By Chris	Date/Time 9/23/99 1400	Received By FEDEX	Date/Time 9/23/99 1400					
Relinquished By FedEx	Date/Time 9.28.99/0945	Received By D. Spier	Date/Time 9.28.99/0945					
LABORATORY SECTION	Received By	Title		COLLECTOR UNABLE TO SIGN LOC				Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By						Date/Time

000023

0190

Appendix 5

Data Validation Supporting Documentation

000024

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	105-DR F53		DATA PACKAGE: 140542		
VALIDATOR:	TL1	LAB:	RecrA	DATE: 11/22/99	
CASE:			SDG: H0542		
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 checked="" type="checkbox"/> SW-846/ICP	<input type="checkbox"/> SW-846/GFAA	<input checked="" type="checkbox"/> SW-846/Hg	<input type="checkbox"/> SW-846 Cyanide	<input checked="" type="checkbox"/> CRUI	<input type="checkbox"/>
SAMPLES/MATRIX	Bowc12 Bowc19				
	Sail				

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: _____

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: _____

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: Hg 131% J CS2 only

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: By 45.4 but w/in CRD

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: CRVI

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 10/08/99

CLIENT: TNU-HANFORD B99-075

RECRA LOT #: 9909L173

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B0WCJ2	Mercury, Total	0.27	0.05	0.17	131.2	1.0
		Lead, Total	48.1	2.9 u	51.3	93.8	1.0

000028

017

Date: 6 January 2000
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 105-DR FSB - Soil
Subject: PCB - Data Package No. H0542-RLN (SDG No. H0542)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0542-RLN prepared by Recra LabNet (RLN). A list of the 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
BOWCH9	9/22/99	Soil	C	EPA 8082*
BOWCJ2	9/22/99	Soil	C	EPA 8082*

*Equivalent to the requested method (EPA 8080).

Data validation was conducted in accordance with the BHI validation statement of work and the "Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils" (DOE/RL-99-35). 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**

Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ"

000001

for non-detects. If holding times are exceeded by greater than two times the limit, all associated detected sample results are qualified as estimates and flagged "J" and all nondetects are rejected and flagged "UR".

Holding times were met for all samples.

- **Blanks**

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than CRQL. If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged "U". If the sample result is less than five times the blank concentration and less than CRQL, the result is qualified as undetected and elevated to the CRQL.

All method blank target compound results were acceptable.

- **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 analyses are performed in duplicate and must be within either control limits established by the laboratory or 70% to 130% if no laboratory limits are established. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Nondetected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All matrix spike results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Nondetected compounds with surrogate

recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Nondetected compounds with surrogate recoveries above the upper control limit require no qualification.

All surrogate recovery results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All matrix spike/matrix spike duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 105DR to ensure that laboratory detection levels meet the required criteria. All reported laboratory detection levels met the analyte specific PQL.

- **Completeness**

Data Package No. H0542-RLN (SDG No. H0542) was submitted for validation and verified for completeness. 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-99-35, *Sample and Analysis Plan for 105F and 105DR Phase III Below Grade Structures and Underlying Soils*.

Appendix 1
Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with the procedures herein 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. 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.
- NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).
- N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2
Summary of Data Qualification

000007

DATA QUALIFICATION SUMMARY

SDG: H0542	REVIEWER: TLI	DATE: 1/6/00	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

Project: BECHTEL-HANFORD																									
Laboratory: Recra LabNet																									
Case		SDG: H0542																							
Sample Number		BOWCJ2				BOWCH9																			
Location		C-1				C-2																			
Remarks																									
Sample Date		09/22/99				09/22/99																			
PCB	CRDL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Arochlor-1016	100	NA		34	U																				
Arochlor-1221	100	NA		67	U																				
Arochlor-1232	100	NA		34	U																				
Arochlor-1242	100	NA		34	U																				
Arochlor-1248	100	NA		34	U																				
Arochlor-1254	100	36	U	34	U																				
Arochlor-1260	100	NA		34	U																				
NA = Not analyzed																									

000010

004

Sample Information	Cust ID:	B0WCH9	B0WCH9	B0WCH9	PBLKWH	PBLKWH BS
RFW#:	001	001 MS	001 MS	001 MSD	99LE1208-MB1	99LE1208-MB1
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	100 %	105 %	115 %	112 %	115 %
	Decachlorobiphenyl	86 %	96 %	105 %	103 %	106 %
-----fl-----fl-----fl-----fl-----fl-----fl-----fl-----						
Aroclor-1016		34 U	68 U	68 U	33 U	33 U
Aroclor-1221		67 U	140 U	140 U	67 U	67 U
Aroclor-1232		34 U	68 U	68 U	33 U	33 U
Aroclor-1242		34 U	68 U	68 U	33 U	33 U
Aroclor-1248		34 U	68 U	68 U	33 U	33 U
Aroclor-1254		34 U	90 %	98 %	33 U	83 %
Aroclor-1260		34 U	68 U	68 U	33 U	33 U

000012

Handwritten signature
10-20-99

Handwritten signature
12/13/99

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



**Recra LabNet Philadelphia
Analytical Report
REVISION**

Client: TNU-HANFORD B99-075
RFW#: 9909L173
SDG/SAF#: H0542/B99-075

W.O.#: 10985-001-001-9999-00
Date Received: 09-24-99

*Original
received 10/26/99
Daves 11/9/99*

PCB

This narrative was revised to correct the SDG number.

One (1) solid sample was collected on 09-22-99.

The sample and its associated QC samples were extracted on 10-05-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 10-08-99. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The sample and its associated QC samples received a sulfuric acid and sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-3-99
Date

pefr:\group\data\pest\09L-173.pcb

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 7 pages.

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**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B99-075
RFW#: 9909L208
SDG/SAF#: H0542/B99-075

W.O.#: 10985-001-001-9999-00
Date Received: 09-28-99

PCB

One (1) soil sample was collected on 09-22-99.

The sample and its associated QC samples were extracted on 10-06-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 12-08-99. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The sample and its associated QC samples received a sulfuric acid and sulfur cleanup.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

J. Michael Taylor

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

10-22-99

Date

pefr:\group\data\pest\09L-208.pcb

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 7 pages.

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-075-17

Page 1 of 1

Director Fahlberg/Behnke	Company Contact Jason Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation 105-DR FSB - Soil	Sampling Location 105 DR	Field Logbook No. EL-1281	SAF No. B99-075	100	
Chest No. ERC-99-005	Offsite Property No. A990269	Method of Shipment Fed Express	Bill of Lading/Air Bill No. 423579529745		
Shipped To FNA/RECRA 9.22.99			COA R65D42800		

POSSIBLE SAMPLE HAZARDS/REMARKS Special Handling and/or Storage	Preservation	Cool 4C	Cool 4C	None	None							
	(173)	Type of Container	aG	aG	aG	aG						
	No. of Container(s)	1	1	1	1							
	Volume	60mL	60mL	60mL	500mL							

SAMPLE ANALYSIS				Chromium Hex - 7196	PCBs - 8080 (Aroclor-1254)	ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV)	See item (1) in Special Instructions.						
000016	Sample No.	Matrix *	Sample Date	Sample Time									
	WGCJ2	Soil	9.22.99	1310	X	X	X						Bowling
	WGCJ3	Soil	9.22.99										
	WGCJ4	Soil	9.22.99										
	WGCJ5	Soil											

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *		
Relinquished By	Date/Time	Received By	Date/Time	(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Technetium-99 COLLECTOR UNAVAILABLE TO SIGN FOR	Soil Water Vapor Other Solid Other Liquid
<i>[Signature]</i>	9-22-99 1535	<i>[Signature]</i>	9-22-99 1535		
Relinquished By	Date/Time	Received By	Date/Time		
<i>[Signature]</i>	9/23/99 130	<i>[Signature]</i>	9/23/99 1130		
Relinquished By	Date/Time	Received By	Date/Time		
<i>[Signature]</i>	9/23/99 1400	FEDEX	9/23/99 1400		
Relinquished By	Date/Time	Received By	Date/Time		
<i>[Signature]</i>	9/24/99 0930	<i>[Signature]</i>	9/24/99 0930		

LABORATORY SECTION	Received By	Disposal Method	Disposed By	Date/Time

Director Ahlberg/Behnke	Company Contact Jason Adler	Telephone No. 373-4316	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation 05-1DR FSB - Soil	Sampling Location 105 DR	SAF No. B99-075	EUV SDG H0542		
Chest No. SML 5916	Field Logbook No. EL-1281	Method of Shipment Fed Ex			
Shipped To MA/RECRA 9.22.99	Offsite Property No. A990270	Bill of Lading/Air Bill No. 4235 7952 9734			

200

COA R105 D4 2800

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	Cool 4C	Cr:4C	None	None
	Type of Container	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1
	Volume	60mL	60mL	60mL	500mL

SDG# H0542

SPECIAL HANDLING AND/OR STORAGE	Chromium Hex - 7196	PCBs - 8080 (Aroclor-1254)	ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV)	See item (1) in Special Instructions.
	SAMPLE ANALYSIS			

Sample No.	Matrix *	Sample Date	Sample Time								
VCH9	Soil	9-22-99	1250	X	X	X					Row 28
VCJ0	Soil	9-22-99									
VCJ1	Soil	9-22-99									

CHAIN OF POSSESSION	Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix * Soil Water Vapor Other Solid Other Liquid
	Acquired By <i>[Signature]</i>	Date/Time 1535 9-22-99	Received By <i>[Signature]</i>	Date/Time 1535 9-22-99	(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Americium-241; Carbon-14; Nickel-63; Technetium-99		
	Acquired By <i>[Signature]</i>	Date/Time 9-23-99 11:30	Received By <i>[Signature]</i>	Date/Time 9/23/99 1130			
	Acquired By <i>[Signature]</i>	Date/Time 9/23/99 1400	Received By <i>[Signature]</i>	Date/Time 9/23/99 1400			
	Acquired By <i>[Signature]</i>	Date/Time 9-28-99/0945	Received By <i>[Signature]</i>	Date/Time 9-28-99/0945			
LABORATORY SECTION	Received By	Title		COLLECTOR UNABLE TO SIGN C.O.C.			Date/Time
FINAL SAMPLE SECTION	Disposal Method	Disposed By				Date/Time	

Appendix 5
Data Validation Supporting Documentation

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 105 DR FSB					
VALIDATOR: TLI		LAB: REGRA		DATE: 12/13/99	
CASE:		SDG: H0542			
ANALYSES PERFORMED					
<input type="checkbox"/> CLP3/90	<input type="checkbox"/> SW-846 8080	<input type="checkbox"/> SW-846 8081	<input checked="" type="checkbox"/> 8082	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX	BOUCHS		BOUCJ2		
					So. 1

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: _____

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (METHOD 8080 AND 8081)

Are DDT retention times acceptable Yes No N/A

Are calibration standard retention times acceptable? Yes No N/A

Are DDT and endrin breakdowns acceptable? Yes No N/A

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are DBC retention times acceptable? Yes No N/A
Is the GC/MS tuning/performance check acceptable? Yes No N/A

Comments: _____

3.2 CALIBRATIONS (METHOD 8080 AND 8081)

Are EVAL standard calibration factors and %RSD values acceptable? Yes No N/A
Are quantitation column calibration factor %RSD values acceptable? Yes No N/A
Were the analytical sequence requirements met? Yes No N/A
Are continuing calibration %D values acceptable? Yes No N/A

Comments: _____

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Was the initial calibration sequence performed? Yes No N/A
Was the resolution acceptable in the resolution check mix? . . Yes No N/A
Is resolution acceptable in the PEM, INDA and INDB? Yes No N/A
Are DDT and Endrin breakdowns acceptable? Yes No N/A
Are retention times in PEMs and calibration mixes acceptable? . Yes No N/A
Are RPD values in the PEMs acceptable? Yes No N/A
Are %RSD values acceptable? Yes No N/A

Comments: _____

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Were the analytical sequence requirements met? Yes No N/A
Is resolution acceptable in the PEMs? Yes No N/A
Are initial calibrations acceptable? Yes No N/A

PESTICIDE/PCB DATA VALIDATION CHECKLIST

Are retention times acceptable in the PEMs, INDA and INDB mixes?	Yes	No	N/A
Are RPD values in the PEMs acceptable?	Yes	No	N/A
Are the DDT and endrin breakdowns acceptable?	Yes	No	N/A
Was GPC cleanup performed?	Yes	No	N/A
Is the GPC calibration check acceptable?	Yes	No	N/A
Was Florisil cleanup performed?	Yes	No	N/A
Is the Florisil performance check acceptable?	Yes	No	N/A

Comments: _____

4. BLANKS

Were laboratory blanks analyzed?	<input checked="" type="radio"/> Yes	No	N/A
Are laboratory blank results acceptable?	<input checked="" type="radio"/> Yes	No	N/A
Were field/trip blanks analyzed?	Yes	<input checked="" type="radio"/> No	N/A
Are field/trip blank results acceptable?	Yes	No	<input checked="" type="radio"/> N/A

Comments: _____

5. ACCURACY

Were surrogates analyzed?	<input checked="" type="radio"/> Yes	No	N/A
Are surrogate recoveries acceptable?	<input checked="" type="radio"/> Yes	No	N/A
Were MS/MSD samples analyzed?	<input checked="" type="radio"/> Yes	No	N/A
Are MS/MSD results acceptable?	<input checked="" type="radio"/> Yes	No	N/A
Were LCS samples analyzed?	Yes	No	<input checked="" type="radio"/> N/A
Are LCS results acceptable?	Yes	No	<input checked="" type="radio"/> N/A

Comments: _____

PESTICIDE/PCB DATA VALIDATION CHECKLIST

6. PRECISION

- Are MS/MSD RPD values acceptable? Yes No N/A
- Are laboratory duplicate results 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. SYSTEM PERFORMANCE

- Is chromatographic performance acceptable? Yes No N/A
- Are positive results resolved acceptably? Yes No N/A

Comments: _____

8. COMPOUND IDENTIFICATION AND QUANTITATION

- Is compound identification acceptable? Yes No N/A
- Is compound quantitation acceptable? Yes No N/A

Comments: _____

9. REPORTED RESULTS AND QUANTITATION LIMITS

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

Comments: _____

A-B