

Date: 6 January 2000
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 105-DR FSB - Soil
Subject: Inorganics - Data Package No. H0538-RLN (SDG No. H0538)

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INTRODUCTION

This memo presents the results of data validation on Data Package No. H0538-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
BOWCH8	9/20/99	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.

All matrix spike results were acceptable.

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- 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 the chromium VI analysis. 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. H0538-RLN (SDG No. H0538) was submitted for validation and verified for completeness. The completion percentage was 100%.

- MAJOR DEFICIENCIES

- None found.

- MINOR DEFICIENCIES

- The PQL was exceeded for the chromium VI analysis. Under the BHI statement of work, no qualification is required.

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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

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

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DATA QUALIFICATION SUMMARY

SDG: H0538	REVIEWER: TLI	DATE: 1/6/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS: No qualifiers assigned			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 10/05/99

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

RECRA LOT #: 9909L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	BOWCH8	Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.0 u	MG/KG	3.0	1.0

Handwritten signature
11/6/00

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 10/01/99

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

RECRA LOT #: 9909L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	BOWCH6	% Solids	95.6	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0

Handwritten signature
11/4/00

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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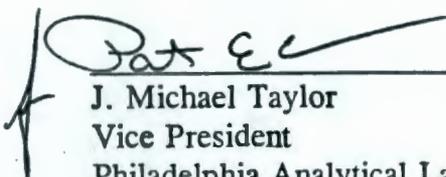
**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-075
RFW# : 9909L156
SDG# : H0538
SAF# : B99-075

W.O. # : 10985-001-001-9999-00
Date Received: 09-22-99

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

10-18-99
Date

njpli09-156

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# : 9909L156
SDG/SAF# : H0538/B99-075

W.O.# : 10985-001-001-9999-00
Date Received: 09-22-99

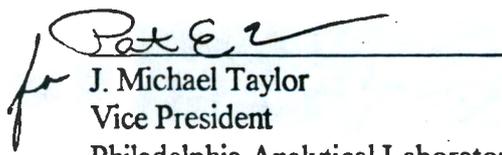
METALS CASE NARRATIVE

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.

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


for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory
mld/m09-156

10-6-99
Date



Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-075-16

Page 1 of 2

Collector
Fahlberg/Bechtel

Company Contact
Jason Adler

Telephone No.
373-4316

Project Coordinator
TRENT, SJ

Price Code 8L

Date Turnaround

Project Designation
105-DR FSB - Soil

Sampling Location
105 DR

SAF No.
B99-075

21 Days

Ice Chest No.
SMC 510

Field Logbook No.
EL-1281

Method of Shipment
FEDEX

Shipped To
FMA/RECRA
9-20-99

Offsite Property No.
A990263

Bill of Lading/Air Bill No.
4235 7952 9620 9610
05 9-21-99

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

Special Handling and/or Storage

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.

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.
BOWCH8	Soil	9-20-99	0930	X	X	X	

CHAIN OF POSSESSION	Sign/Print Names
Relinquished By K. Fahlberg Date/Time 9-20-99 1335	Received By REF 1-C Date/Time 9-20-99 1335
Relinquished By Ref 1-C Date/Time 9-21-99 0930	Received By C. Mic. Date/Time 9-21-99 0930
Relinquished By C. Mic. Date/Time 9-21-99 1400	Received By FEDEX Date/Time 9-21-99 1400
Relinquished By FEDEX Date/Time 9-22-99 10945	Received By D. Y. [Signature] Date/Time 9-22-99 10945

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

COLLECTOR UNAVAILABLE TO SIGN

COC

9909L156

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

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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		
Ice Chest No. SML 510	Offsite Property No. A990263	Method of Shipment FEDEX			
Shipped To FMA/RECRA 9-20-99	Bill of Lading/Air Bill No. 4235 7952 9620 9610		059-2-99		
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						
Special Handling and/or Storage	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.						
Sample No.	Matrix *	Sample Date	Sample Time								
10VCH8	Soil	9-20-99	0930	X	X	X					130mL 208
100028											

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By S. Fahlberg / J. Behnke 9-20-99	Received By Ref 1-C 9-20-99	(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 COLLECTOR UNAVAILABLE TO SIGN COC 9909L156	Soil Water Vapor Other Solid Other Liquid
Relinquished By Ref 1-C 9-21-99 0930	Received By C. Miller 9-21-99 0930		
Relinquished By C. Miller 9-21-99 1400	Received By FEDEX 9-21-99 1400		
Relinquished By FEDEX 9-22-99 10945	Received By D. [Signature] 9-22-99/0945		
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 105 DR FS13					
VALIDATOR: TL		LAB: Rect		DATE: 11/22/99	
CASE:			SDG: H0538		
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-B46/ICP	<input type="checkbox"/> SW-B46/GFAA	<input checked="" type="checkbox"/> SW-B46/Hg	<input type="checkbox"/> SW-B46 Cyanide	<input checked="" type="checkbox"/> CRUI	<input type="checkbox"/>
SAMPLES/MATRIX	BOWC H8				
	sent				

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: _____

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: CRUI - IR 4g + phot

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: _____

Date: 6 January 2000
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 105-DR FSB - Soil
Subject: Radiochemistry - Data Package No. H0538-TNU (SDG No. H0538)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0538-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
BOWCH8	9/20/99	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.

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- **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.

- **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 or matrix spike recovery is 70-130% (or 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

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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.

- **Detection Levels**

Reported analytical detection levels are compared against the 105DR PQLs to ensure that laboratory detection levels meet the required criteria. The following had reported MDAs above the PQL: Europium-155. 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. H0538 (SDG No. H0538) was submitted for validation and verified for completeness. The completion rate was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to the lack of a matrix spike analysis, all carbon-14 and tritium 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 had reported MDAs above the PQL: Europium-155. 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

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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.

Appendix 2

Summary of Data Qualification

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DATA QUALIFICATION SUMMARY

SDG: H0538	REVIEWER: TLI	DATE: 1/6/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Carbon-14	J	All	No matrix spike analysis

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: BECHTEL-HANFORD																					
Laboratory: TNU																					
Case	SDG: H0538																				
Sample Number	BOWCH8																				
Location	C-2																				
Remarks																					
Sample Date	09/20/99																				
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	6.91	J																		
Technetium-99	15	0.148	U																		
Uranium-233/234	1	0.324																			
Uranium-235	1	0.067	U																		
Uranium-238	1	0.333																			
Plutonium-238	1	0.004	U																		
Plutonium-239/40	1	0.011	U																		
Nickel-63	30	0.839	U																		
Americium-241	1	-0.004	U																		
Potassium-40		15.0																			
Barium-133			U U																		
Cobalt 60	0.1		U U																		
Cesium 137	0.1	1.96																			
Europium 152	0.2		U U																		
Europium 154	0.2		U U																		
Europium 155	0.1		U U																		
Radium-226			U U																		
Radium-228			U U																		
Thorium-228			U U																		
Thorium-232			U U																		
Americium-241 (GEA)			U U																		
Uranium-238 (GEA)			U U																		
Uranium-235 (GEA)			U U																		

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TMA / RICHMOND
SAMPLE DELIVERY GROUP H0538

N909154-01

BOWCH8

DATA SHEET

SDG <u>7215</u>	Client/Case no <u>Hanford</u>	SDG <u>H0538</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909154-01</u>	Client sample id <u>BOWCH8</u>	
Dept sample id <u>7215-001</u>	Location/Matrix <u>105 DR</u>	<u>SOLID</u>
Received <u>09/22/99</u>	Collected <u>09/20/99 09:00</u>	
% solids <u>94.8</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	6.91	3.1	5.0	50	U J	C
Technetium 99	14133-76-7	0.148	0.31	0.54	15	U	TC
Uranium 233/234	U-233/234	0.324	0.11	0.071	1.0	U	U
Uranium 235	15117-96-1	0.067	0.045	0.086	1.0	U	U
Uranium 238	U-238	0.333	0.11	0.071	1.0	U	U
Plutonium 238	13981-16-3	0.004	0.021	0.044	1.0	U	PU
Plutonium 239/240	PU-239/240	0.011	0.021	0.044	1.0	U	PU
Nickel 63	13981-37-8	0.839	1.4	2.3	30	U	NI_L
Americium 241	14596-10-2	-0.004	0.023	0.047	1.0	U	AM
Potassium 40	13966-00-2	15.0	8.3	0.60			GAM
Barium 133	13981-41-4	U		0.054		UX	GAM
Cobalt 60	10198-40-0	U		<u>0.062</u>	0.050	U	GAM
Cesium 137	10045-97-3	1.96	0.091	0.064	0.10		GAM
Europium 152	14683-23-9	U		<u>0.16</u>	0.10	U	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
Radium 226	13982-63-3	U		<u>0.14</u>	0.10	U	GAM
Radium 228	15262-20-1	U		<u>0.30</u>	0.20	U	GAM
Thorium 228	14274-82-9	U		0.10		U	GAM
Thorium 232	TH-232	U		0.30		U	GAM
Americium 241	14596-10-2	U		0.060		U	GAM
Uranium 238	U-238	U		6.5		U	GAM
Uranium 235	15117-96-1	U		0.20		U	GAM

105-DR FSB-Soil

Handwritten: 1/6/00

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 11

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>10/18/99</u>

000011

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0538 is composed of one solid (soil) sample designated under SAF No. B99-075 with a Project Designation of: 105-DR FSB-Soil.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the TNU Sample Receipt Checklist. The results for Gamma Scan, Isotopic Plutonium and Carbon-14 were transmitted to BHI via facsimile on October 8, 1999 while the remaining analytes were reported via fax to BHI 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. A recount was performed on the sample (B0WCH8).

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 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.



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 99-009	Field Logbook No. EL-1281	Method of Shipment FEDEX			
Shipped To TMA/RECRA RF 9.20.99	Offsite Property No. A: 99.0262	Bill of Lading/Air Bill No. 4235 7952 9620			
		COA R105P4 2800			

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.					
-----------------	--	---------------------	----------------------------	---	---------------------------------------	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time							
30WCH8	Soil	9.20.99	0900				X			BOW CC8

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 COC	Soil Water Vapor Other Solid Other Liquid
Fahlberg/Behnke	9.20.99	RF 1-C	9.20.99		
Rel 1-C	9.21.99 0930	C NICE	9.21.99 0930		
C NICE	9.21.99 1400	FEDEX	9.21.99 1400		
Relinquished By	Date/Time	Received By	Date/Time		
FedEx	9-22-99 10:00	TNU M. Goldenberg	9-22-99		

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

Appendix 5

Data Validation Supporting Documentation

C00015

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 10SDR FSB			DATA PACKAGE: H0538		
VALIDATOR: TL		LAB: TNV		DATE: 11/22/99	
CASE:			SDG: H0538		
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	
<input type="checkbox"/> Total Uranium	<input type="checkbox"/> Radium-22	<input type="checkbox"/> Tritium	<input checked="" type="checkbox"/> Pu-239	<input checked="" type="checkbox"/> Cs-137	
SAMPLES/MATRIX: BOWCH8					
Sc.1					

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
- 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: HC-99 -05

U238 004

- 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: MS-1R

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: _____

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: RS 137 EU152 EU153 EU155 U235 (gen) U235 (gen)

CO66

Date: 6 January 2000
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 105-DR FSB - Soil
Subject: PCB - Data Package No. H0538-RLN (SDG No. H0538)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0538-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
BOVCH8	9/20/99	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" for non-detects. If holding times are exceeded by greater than two times the

000001

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 70% to 130%. 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.

Due to the lack of a MS/MSD analysis, all PCB results were qualified as estimates and flagged "J".

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.

Due to the lack of a MS/MSD analysis, no RPD could be calculated and therefore all PCB results were qualified as estimates and flagged "J".

- **Analytical Detection Levels**

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

- **Completeness**

Data Package No. H0538-RLN (SDG No. H0538) was submitted for validation and verified for completeness. The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

000003

MINOR DEFICIENCIES

Due to the lack of a MS/MSD analysis, all PCB results were qualified as estimates and flagged "J". Due to the lack of a MS/MSD analysis, no RPD could be calculated and therefore all PCB 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.

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

DATA QUALIFICATION SUMMARY

SDG: H0538	REVIEWER: TLI	DATE: 1/6/00	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
All	J	All	No MS/MSD analysis
All	J	All	No RPD due to the lack of a MS/MSD analysis

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-075
RFW#: 9909L156
SDG/SAF#: H0538/B99-075

W.O.#: 10985-001-001-9999-00
Date Received: 09-22-99

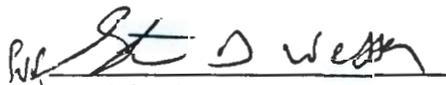
PCB

One (1) solid sample was collected on 09-20-99.

The sample and its associated QC samples were extracted on 09-28-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 10-02,03-99. 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. Due to insufficient sample volume, matrix spike QC could not be performed on any samples in this data set. However, blank spike QC were performed with these samples to demonstrate that systems were in control.
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
Vice President
Philadelphia Analytical Laboratory

10-15-99
Date

pefr:\group\data\pest\09L-156.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 8 pages.

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			
Chest No. SML 510	Field Logbook No. EL-1281	Method of Shipment FEDEX			
Shipped To FMA/RECRA 9-20-99	Offsite Property No. A990263	Bill of Lading/Air Bill No. 4235 7952 9620 9610 COA R105D142800			

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 - 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										
0WCH8	Soil	9-20-99	0900	X	X	X							ROW = C8

CHAIN OF POSSESSION	Sign/Print Names			SPECIAL INSTRUCTIONS				Matrix * Soil Water Vapor Other Solid Other Liquid	
	Relinquished By <i>Fahlberg</i>	Date/Time 9-20-99 1335	Received By <i>Ref 1-C</i>	Date/Time 9-20-99 1335	(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 COC 9909L156				
	Relinquished By <i>Ref 1-C</i>	Date/Time 9-21-99 0930	Received By <i>C. Miller</i>	Date/Time 9-21-99 0930					
	Relinquished By <i>Miller</i>	Date/Time 9-21-99 1400	Received By <i>FEDEX</i>	Date/Time 9-21-99 1400					
	Relinquished By <i>FEDEX</i>	Date/Time 9-22-99 10945	Received By <i>D. [Signature]</i>	Date/Time 9-22-99 10945					
LABORATORY SECTION	Received By	Title		Date/Time					
SAMPLE	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-F5B		DATA PACKAGE: H0538		
VALIDATOR:	TLI	LAB:	Recor	DATE: 11/22/99	
CASE:			SDG: H05.38		
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	Bowch				
Saul					

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

N/A
N/A
N/A
N/A
N/A
N/A

Comments: _____

4. BLANKS

- Were laboratory blanks analyzed? Yes No N/A
- Are laboratory 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 surrogates analyzed? Yes No N/A
- Are surrogate recoveries acceptable? Yes No N/A
- Were MS/MSD samples analyzed? Yes No N/A
- Are MS/MSD results acceptable? Yes No N/A
- Were LCS samples analyzed? Yes No N/A
- Are LCS results acceptable? Yes No N/A

Comments: NO LCS - J all
MS

PESTICIDE/PCB DATA VALIDATION CHECKLIST

5. 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: NO MS/MSD T all

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: _____
