

PROJECT FILE RECORDS TRANSMITTAL

0051493

Transmittal No: SM-99-315

Transmittal Date: 05/24/99

Originator: J. M. Duncan

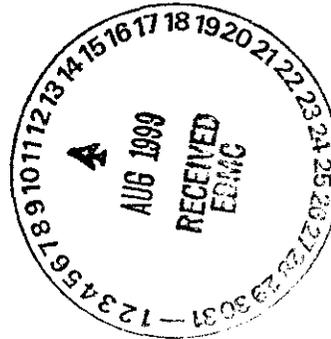
Organization: ERC Sample
ManagementDocument Number (data package ID Number):
H0165-TMA/RECRAERC Project: 216-A-29 Ditch Water
Project

Document Description:

Analytical laboratory data package summary which includes case narratives, chain of custody documentation, analytical results, and any applicable sample anomaly documentation.

X Validation Summary

**Please Note: ■ Analytical results are pulled from a larger data package. Pagination is true of the originating data package.



<h1>Review Comment Record (RCR)</h1>	1. Date 9/28/98	2. Review No. BHI/QA98009
	3. Project 216-A-29 Ditch	4. Page Page 1 of 1

5. Document Number(s)/Title(s) H0165-RLN (SDG No. HO165)	6. Program/Project/ Building Number 216-A-29 Ditch - Water	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	PCB: The table in the Introduction under analysis states to see Note 1. There is no Note 1. In addition the Chain of Custody calls for the analysis to be by method 8080; whereas, the laboratory narrative states method 8081 was used.		<i>corrected</i>	
2	Radiochemistry: The laboratory narrative and the "Radiochemistry Data Validation Checklist" states the sample matrix to be soil; whereas, the matrix was water.		<i>corrected</i>	
3	All: Pages need paginated		<i>corrected</i>	
			<i>PKSE 9/30/98</i>	

Date: 25 September 1998
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 216-A-29 Ditch - Water
Subject: PCB - Data Package No. H0165-RLN (SDG No. H0165)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0165-QES 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
BOP6Y0	7/6/98	Water	C	PCBs by EPA 8081

Data validation was conducted in accordance with the BHI validation statement of work (BHI 1997). 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 were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Water samples must be extracted within 7 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 limit, all associated detected sample results are qualified as estimates and flagged "J" and all nondetects are rejected and flagged "UR".

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RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 216-A-29 Ditch Soil			DATA PACKAGE: H0165		
VALIDATOR: TLI		LAB:		DATE:	
CASE:			SDG: H0165-THU		
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> Scopes Alpha/Beta	<input checked="" type="checkbox"/> Strontium-90	<input type="checkbox"/> Technetium-99	<input 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 type="checkbox"/>		
SAMPLES/MATRIX BOP640					
soil water					

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: _____

Date: 25 September 1998
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 216-A-29 Ditch - Water
Subject: Inorganics - Data Package No. H0165-RLN (SDG No. H0165)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H0165-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
BOP6Y0	7/6/98	Water	C	See Note 1

1- ICP metals by 6010A; mercury by 7470A

Data validation was conducted in accordance with the BHI validation statement of work. 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 mercury and ICP metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be analyzed within six (6) months for ICPmetels metals and 28 days for mercury.

All holding times were acceptable.

- **Blanks**

Preparation Blanks

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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 (in ug/L) 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.

Equipment Blanks

One equipment blank (BOP6Y0) was submitted for analysis. Barium and chromium were detected in the equipment blank. Under WHC guidelines, no qualification is required. No other analytes above the CRQL were detected in the equipment blank.

- **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 75% to 125%. 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 74% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 125% or less than 75% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 125% and a sample result less than the IDL, no qualification is required.

All matrix spike recovery 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 35% 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".

Due to a RPD outside QC limits, the chromium result in sample BOP6Y0 was qualified as an estimate and flagged "J".

All other laboratory duplicate recovery results were acceptable.

- **Analytical Detection Levels**

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

- **Completeness**

Data package No. H0165-RLN (SDG No. H0165) was submitted for validation and verified for completeness. The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to a RPD outside QC limits, the chromium result is sample BOP6Y0 was

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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.

REFERENCES

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

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Appendix 1

Glossary of Data Reporting Qualifiers

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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).

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Appendix 2
Summary of Data Qualification

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Recre LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 08/12/98

CLIENT: TNU-MANFORD

RECRA LOT #: 9807L796

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOP6YO	Silver, Total	1.1	u	UG/L 1.1	1.0
		Arsenic, Total	3.3	u	UG/L 3.3	1.0
		Barium, Total	0.84	u	UG/L 0.20	1.0
		Cadmium, Total	0.50	u	UG/L 0.50	1.0
		Chromium, Total	6.3	u	UG/L 1.1	1.0
		Mercury, Total	0.10	u	UG/L 0.10	1.0
		Lead, Total	2.5	u	UG/L 2.5	1.0
		Selenium, Total	4.0	u	UG/L 4.0	1.0

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9/21/98

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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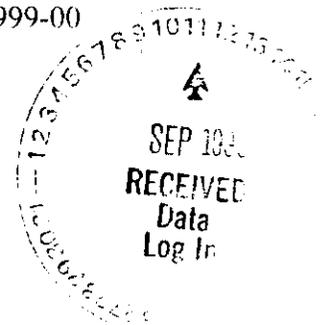
a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

Recra LabNet Philadelphia Analytical Report

Client : TNU-HANFORD
RFW# : 98071.796
SDG/SAF# : H0165/B98-093

W.O.# : 10985-001-001-9999-00
Date Received: 07-10-98



METALS CASE NARRATIVE

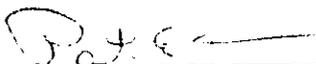
1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits.
7. All preparation/method blanks were within method criteria. 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) and matrix spike duplicate (MSD) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. All MSs and MSDs were within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.
12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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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 14 pages.

OTK

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.



Chuck Stefanosky
Laboratory Director
Lionville Analytical Laboratory
mld/m07-796

9-20-10
Date

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02

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B98-093-01

Page 1 of 1

Collector Robert Fahlberg / <i>D.L. Barons</i>	Company Contact Scott Petersen	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Data Turnaround 15 Days
Project Designation 216-A-29 Ditch - Water	Sampling Location 200 East	SAF No. B98-093		
Ice Chest No.	Field Logbook No. <i>EL 1381</i>	Method of Shipment Hand deliver		
Shipped To <i>DAS 7-6-98</i> <i>TMA</i>	Offsite Property No.	Bill of Lading/Air Bill No.		
Waste Designation D002, D006, U133, and WT02.	COA			

POSSIBLE SAMPLE HAZARDS/REMARKS

Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	HNO3 to pH <2	HNO3 to pH <2
Type of Container	P	aG	P	P	aG	aG	R	
No. of Container(s)		1	1	1	2	2	3	3
Special Handling and/or Storage Cool 4C	Volume	20ml	500ml	500ml	1000ml	1000ml	1000ml	1000ml

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SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	Mercury - 7470 - (CV)	See item (1) in Special Instructions	Gross Alpha, Gross Beta	Pesticides - 8080	Semi-VOA - 8270A (TCL)	Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60)	Strontium-89/90 - Total Sr	
B0P6Y0	Water	7-6-98	1215	X	X	X	X	X	X	X	X	BOP714
												BOP713
												DAS 7/9/98

CHAIN OF POSSESSION	Sign/Print Names		SPECIAL INSTRUCTIONS (1) ICP Metals - 6010A (Supertace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) <i>Note: Above indicated sample containers shipped to RECRA, Livermore, PA. Other analytical shipped to thermo Richmond CA DAS 7/9/98</i>	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids L = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other		
	Relinquished By <i>Peter Nielsen</i>	Date/Time <i>7/9/98</i>			Received By <i>FedEx</i>	Date/Time <i>7/9/98</i>
	Relinquished By <i>Jedey</i>	Date/Time <i>7/10/98</i>			Received By <i>Joder</i>	Date/Time <i>7/10/98 1000</i>
	Relinquished By	Date/Time			Received By	Date/Time

LABORATORY SECTION	Received By <i>Joder</i>	Title Sample Custodian	S.S. 4235 7951 3838	Date/Time 7/10/98 1000
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time

Appendix 5

Data Validation Supporting Documentation

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INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT:			DATA PACKAGE:	H0165	
VALIDATOR:	TLI	LAB:	TWRN	DATE:	9/13/98
CASE:			SDG:	H0165	
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> CLP/ICP	<input type="checkbox"/> CLP/GFAA	<input checked="" type="checkbox"/> CLP/Hg	<input type="checkbox"/> CLP/Cyanide	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> SW-846/ICP	<input type="checkbox"/> SW-846/GFAA	<input type="checkbox"/> SW-846/Hg	<input type="checkbox"/> SW-846 Cyanide	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX	BOP640				
water					

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: _____

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A-19

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: Berium in blank - No qual req

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: Spike dup ok - Chromium not in dup J

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: _____

INORGANICS PRECISION REPORT 08/12/98

CLIENT: TNU-MANFORD

RECRA LOT #: 9807L796

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE RPD		
-001REP	BOP6YO	Silver, Total	1.1 u	1.1 u	NC	1.0
		Arsenic, Total	3.3 u	3.3 u	NC	1.0
		Barium, Total	0.84	0.55	41.7	1.0
		Cadmium, Total	0.50u	0.50u	NC	1.0
		Chromium, Total	6.3	1.1 u	not 200	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Lead, Total	2.5 u	2.5 u	NC	1.0
		Selenium, Total	4.0 u	4.0 u	NC	1.0

*Correction
MEL 8/25/98*

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ATG

Date: 25 September 1998
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 216-A-29 Ditch - Water
Subject: PCB - Data Package No. H0165-RLN (SDG No. H0165)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0165-QES 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
B0P6YO	7/6/98	Water	C	See note 1

Data validation was conducted in accordance with the BHI validation statement of work (BHI 1997). 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
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- Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

- **Holding Times**

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Water samples must be extracted within 7 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 limit, all associated detected sample results are qualified as estimates and flagged "J" and all nondetects are rejected and flagged "UR".

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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.

Equipment Blanks

One equipment blank (BOP6Y0) was submitted for analysis. No analytes were detected in the equipment blank.

- **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 using six compounds and must be within the established laboratory quality control limits. 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 recovery 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

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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 35%. 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 RPD results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against CRQLs to ensure that laboratory detection levels meet the required criteria. All reported detection limits were at or below the CRQLs.

- **Completeness**

Data Package No. H0165-RLN (SDG No. H0165) was submitted for validation and verified for completeness. The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

000003

MINOR DEFICIENCIES

None found.

REFERENCES

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

000004

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).

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Appendix 2

Summary of Data Qualification

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DATA QUALIFICATION SUMMARY

SDG: H0165	REVIEWER: TLI	DATE: 09/25/98	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

000009

Project: BECHTEL-HANFORD																									
Laboratory: Recra LabNet																									
Case		SDG: H0165																							
Sample Number		BOP6Y0																							
Location		216-A-29																							
Remarks																									
Sample Date		07/06/98																							
Pest/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
alpha-BHC		0.052	U																						
Beta-BHC		0.052	U																						
Delta-BHC		0.052	U																						
Gamma-BHC (Lindane)		0.052	U																						
Heptachlor		0.052	U																						
Aldrin		0.052	U																						
Heptachlor epoxide		0.052	U																						
Endosulfan I		0.052	U																						
Dieldrin		0.1	U																						
4,4'-DDE		0.1	U																						
Endrin		0.1	U																						
Endosulfan II		0.1	U																						
4,4'-DDD		0.1	U																						
Endosulfan sulfate		0.1	U																						
4,4'-DDT		0.1	U																						
Methoxychlor		0.52	U																						
Endrin ketone		0.1	U																						
Endrin Aldehyde		0.1	U																						
Alpha-chlordane		0.052	U																						
Gamma-chlordane		0.052	U																						
Toxaphene		5.2	U																						
Arochlor-1016	33	1	U																						
Arochlor-1221	33	2.1	U																						
Arochlor-1232	33	1	U																						
Arochlor-1242	33	1	U																						
Arochlor-1248	33	1	U																						
Arochlor-1254	33	1	U																						
Arochlor-1260	33	1	U																						

000010

Sample Information	Cust ID:	BOP6YO	PBLKIL	PBLKIL BS	PBLKIL BSD
	RFW#:	001	98LE1187-MB1	98LE1187-MB1	98LE1187-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L

2004

Surrogate:	Decachlorobiphenyl	47 %	118 %	112 %	124 %
	Tetrachloro-m-xylene	102 %	90 %	78 %	72 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl					
Alpha-BHC	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
Beta-BHC	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
Delta-BHC	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.052 U	0.050 U	85 %	90 %	90 %
Heptachlor	0.052 U	0.050 U	80 %	80 %	80 %
Aldrin	0.052 U	0.050 U	70 %	65 %	65 %
Heptachlor epoxide	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.10 U	0.10 U	90 %	92 %	92 %
4,4'-DDE	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10 U	0.10 U	112 %	120 %	120 %
Endosulfan II	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10 U	0.10 U	88 %	90 %	90 %
Methoxychlor	0.52 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin aldehyde	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-Chlordane	0.052 U	0.050 U	0.050 U	0.050 U	0.050 U
Toxaphene	5.2 U	5.0 U	5.0 U	5.0 U	5.0 U
Aroclor-1016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.1 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

gw 08-07-98

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

000011

8/21/98

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012



a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD
RFW# : 9807L796
SDG/SAF: H0165/B98-093

W.O.# : 10985-001-001-9999-00
Date Received : 07-10-98

PESTICIDE/PCB

One (1) water sample was collected on 07-06-98.

The sample and its associated QC samples were extracted on 07-13-98 and analyzed on 07-21-98 according to Recra OPs based on SW846, 3rd Edition, Method 3520 and Method 8081.

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 upon receipt has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis were met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All initial calibrations associated with this data set were within acceptance criteria.
7. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.



Per S
Stefanosky

Chuck Stefanosky
Laboratory Director
Lionville Analytical Laboratory

08-18-98
Date

jeh pcb-07.796 pp

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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004

Collector Robert Lahlberg / <i>D.L. Barons</i>	Company Contact Scott Petersen	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Data Turnaround 15 Days
Project Designation 216 A-29 Ditch - Water	Sampling Location 200 East	SAF No. B98-093		
Ice Chest No.	Field Logbook No. <i>EL 1381</i>	Method of Shipment Hand deliver		700
Shipped To <i>DW 7-6-98</i> <i>TMA</i>	Offsite Property No.	Bill of Lading/Air Bill No.		
Waste Designation D002, D006, U133, and WT02			COA	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	HNO ₃ to pH <2	HNO ₃ to pH <2	HNO ₃ to pH <2	Cool 4C	Cool 4C	HNO ₃ to pH <2	HNO ₃ to pH <2
	Type of Container	P	aG	P	P	aG	aG	P	P
	No. of Container(s)		1	1	1	2	2	3	3
	Special Handling and/or Storage Cool 4C	Volume	20ml	500ml	500ml	1000ml	1000ml	1000ml	1000ml

SAMPLE ANALYSIS	Activity Scan	Mercury - 7470 - (CV)	See item (1) in Special Instructions	Gross Alpha Gross Beta	Pesticides - 8080	Semi-VOA - 8270A (TCL)	Gamma Spectroscopy (Water) (Cesium-137) (Coast-60)	Strontium-89,90 - Total Sr
	000014							
Sample No	Matrix *	Sample Date	Sample Time					
B0P6Y0	Water	7-6-98	1215	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>Robert Nielsen</i>	Date/Time <i>7/10/98</i>	(1) ICP Metals - 6010A (Supertrace) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver] Note: Above indicated sample containers shipped to RECREA Council, PA. Other analytes shipped to thermo Richmond CA DAS 7/9/98	S - Soil
Received By <i>Fred Eck</i>	Date/Time <i>7/10/98</i>		SE - Sediment
Relinquished By <i>Deley</i>	Date/Time <i>7/10/98</i>		SO - Solid
Received By <i>Joder</i>	Date/Time <i>7/10/98</i>		SL - Sludge
Relinquished By	Date/Time	W - Water	
Received By	Date/Time	WA - Water	
Relinquished By	Date/Time	O - Oil	
Received By	Date/Time	A - Air	
Relinquished By	Date/Time	DS - Drum Solids	
Received By	Date/Time	DL - Drum Liquids	
Relinquished By	Date/Time	T - Tissue	
Received By	Date/Time	WI - Wipe	
Relinquished By	Date/Time	L - Liquid	
Received By	Date/Time	V - Vegetation	
Relinquished By	Date/Time	X - Other	
LABORATORY SECTION	Received By <i>Joder</i>	Title <i>Sample Custodian</i>	Date/Time <i>7/10/98</i>
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By <i>S.S</i>	Date/Time <i>7/10/98</i>

Appendix 5
Data Validation Supporting Documentation

000015

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 216-A-29			DATA PACKAGE: H0165		
VALIDATOR: TLI	LAB: RLU		DATE: 9/18/90		
CASE:			SDG: H0165		
ANALYSES PERFORMED					
<input type="checkbox"/> CLP3/90	<input type="checkbox"/> SW-846 8080	<input checked="" type="checkbox"/> SW-846 8081	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX	BOP640				
wath					

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**

[Signature] 000016

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: Equip Blank

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: _____

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: _____

Date: 25 September 1998
To: Bechtel Hanford, Inc. (technical representative)
From: TechLaw, Inc.
Project: 216-A-29 Ditch - Water
Subject: Radiochemistry - Data Package No. H0165-TNU (SDG No. H0165)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0165-TNU which was prepared by Thermo NUtec (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
BOP6Y0	7/6/98	Water	C	See note 1

1 - Gamma spectroscopy; gross alpha & gross beta; strontium-90; gamma spec.

Data validation was conducted in accordance with the BHI validation statement of work (BHI 1997). 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.

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 elevated to the MDA and qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

Equipment Blanks

One equipment blank (BOP6Y0) was submitted for analysis. No analytes were detected in the equipment blank.

- **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 recovery range is 70% to 130%, while that for a matrix spike is 60% to 140%. 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.

All 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 35 percent for soil samples and 20 percent for water samples, 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

000002

CRDL for water samples. If either the original or replicate value is below the CRDL, the applicable control limits are less than or equal to the CRDL for water samples and less than or equal to two times the CRDL for soil samples. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

- **Detection Levels**

Reported laboratory detection levels are reviewed to ensure that they are at or below the contract required MDA. All reported MDAs were at or below the analyte-specific CRDL.

- **Completeness**

Data Package No. H0165 (SDG No. H0165) was submitted for validation and verified for completeness. The completion rate 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.

000003

Appendix 1

Glossary of Data Reporting Qualifiers

000004

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.

000005

Appendix 2
Summary of Data Qualification

000006

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000008

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0165

N807037-01

B0P6Y0

DATA SHEET

SDG <u>7483</u>	Client/Case no <u>Hanford</u>	<u>SDG H0165</u>
Contact <u>N. Joseph Verville</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N807037-01</u>	Client sample id <u>B0P6Y0</u>	
Dept sample id <u>7483-001</u>	Location/Matrix <u>WATER</u>	
Received _____	Collected <u>07/06/98 12:15</u>	
	Custody/SAF No <u>B98-093-01</u>	<u>B98-093</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.099	0.36	0.72	3.0	U	80A
Gross Beta	12587-47-2	-0.66	1.1	2.0	4.0	U	80B
Total Strontium	SR-89/90	-0.065	0.14	0.18	2.0	U	SR
GAMMA SCAN ANALYTES		U					
Potassium 40	13966-00-2	U		160		U	GAM
Cobalt 60	10198-40-0	U		19	25	U	GAM
Cesium 137	10045-97-3	U		13	15	U	GAM
Europium 152	14683-23-9	U		35	50	U	GAM
Europium 154	15585-10-1	U		44	50	U	GAM
Europium 155	14391-16-3	U		21	50	U	GAM

000010

pk
9/21/98

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>08/14/98</u>

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000011

Thermo NUTech

2030 Wright Avenue

P.O. Box 40

Richmond, CA 94804-00

TEL (510) 235-0300 • FAX (510) 235-0304

August 14, 1998

Ms. Doris Ayres
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352

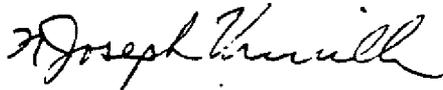
Reference: P.O. #TRB-SBB-207925
Thermo Nutech N8-07-037-7483, SDN H0165

Dear Ms. Ayres:

Enclosed is the data report for one soil sample designated under SAF No. B98-093 received at Thermo Nutech on July 10, 1998. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this data.

Sincerely,



N. Joseph Verville
Program Manager

/jv

Enclosure: Data Package



000012

Case Narrative

1.0 GENERAL

Thermo Nutech Sample Delivery Group H0165 is comprised of a single soil sample designated under SAF No. B98-093 with a Project Designation of : 216-A-29 Ditch - Water

The samples were received as stated on the Chain-of-Custody documents.

2.0 ANALYSIS NOTES

2.1 Gross Alpha/Gross Beta Analyses

The LCS recovery for the initial gross alpha analysis was 65%. The sample was reanalyzed with new QC samples. No problems were encountered with the reanalysis.

2.2 Strontium-90 Analyses

No problems were encountered with the analyses.

2.3 Gamma Scan Analyses

No problems were encountered with the analyses.



000013

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B98-093-01

Page 1 of 1

Collector Robert Fahberg / <i>D.L. Barons</i>	Company Contact Scott Petersen	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Data Turnaround 15 Days
Project Designation 216-A-29 Ditch - Water	Sampling Location 200 East	Field Logbook No. <i>EL 1381</i>	SAF No. B98-093	
Ice Chest No. <i>ERC-96-061</i>	Offsite Property No.	Method of Shipment Hand deliver		
Shipped To <i>Quanterra Incorporated TMA</i>		Bill of Lading/Air Bill No.		
Waste Designation D002, D006, U133, and WFT02.		COA		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	HNO3 to pH	HNO3 to pH	HNO3 to pH	Cool 4C	Cool 4C	HNO3 to pH	HNO3 to pH
	Type of Container	P	aG	P	P	aG	aG	P	P
	No. of Container(s)	1	1	1	1	1	1	1	1
Special Handling and/or Storage Cool 4C	Volume	20ml	500ml	500ml	1000ml	1000ml	1000ml	1000ml	1000ml

SAMPLE ANALYSIS	Activity Scan	Mercury - 7470 - (CV)	See Item (1) in Special Instructions.	Gross Alpha; Gross Beta	Pesticides - 8090	Seml. VOA - 8270A (TCL)	Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60)	Strontium-89,90 - Total Sr
	<i>000014</i>							

Sample No.	Matrix *	Sample Date	Sample Time								
B0P6Y0	Water	7-6-98	1215	X	X	X	X	X	X	X	X
											<i>BOP714</i>
											<i>WFT09 DAS</i>
											<i>7/9/98</i>

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>R. Nelson</i>	Date/Time <i>7/10/98</i>	Received By <i>F. Elex</i>	Date/Time
Relinquished By	Date/Time	Received By <i>R. S. G. King</i>	Date/Time <i>7/10/98 1130</i>
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS
 (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver)
 Note: Above indicated sample containers shipped directly to *Thompson Richmond Co. RECRA, Lionville, PA* Other analytes sent to *RECRA Lionville, PA*
RECRA, Richmond, CA DAS 7/9/98

Matrix *
 S - Soil
 SE - Sediment
 SO - Solid
 SL - Sludge
 W - Water
 O - Oil
 A - Air
 DS - Dioxin/Sulfide
 DL - Dioxin/Lipids
 T - Tissue
 WI - Waste
 L - Liquid
 V - Volatile
 X - Other

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

Appendix 5

Data Validation Supporting Documentation

000015

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: _____

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: _____

AA

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: No detected analytes

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: _____

A-4

Date: 25 September 1998
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 216-A-29 Ditch - Water
Subject: Semivolatiles - Data Package No. H0165-RLN (SDG No. H0165)

INTRODUCTION

This memo presents the results of data validation on Summary Data Package No. H0165-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
BOP6Y0	7/6/98	Water	C	Semivolatiles by EPA 8270

Data validation was conducted in accordance with the BHI validation statement of work. 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 were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Water samples must be extracted within 7 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater 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 limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

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Holding times were met for all samples.

- **Blanks**

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

Due to laboratory blank contamination, sample results for di-n-butylphthalate and bis(2-ethylhexyl)phthalate were raised to the CRQL and flagged "U".

All other method blank results were acceptable.

Equipment Blanks

One equipment blank (BOP6Y0) was submitted for analysis. No analytes were detected above the IDL in the equipment blank.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate Recoveries

Matrix spike/matrix spike duplicate 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/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within established laboratory quality control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected 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.

000002

Due to the lack of a matrix spike and matrix spike duplicate analysis, all sample results were qualified as estimates and flagged "J".

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the CRQL are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

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 by the RPD between the recoveries of duplicate matrix spike analyses performed on a sample. For samples analyzed using SW-846 protocol, results must be within RPD limits of +/-20% for water samples and +/- 35% for solid samples. 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 matrix spike and matrix spike duplicate analysis, no RPDs could be calculated.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against CRQLs to ensure that laboratory detection levels meet the required criteria. The IDLs for 2,4,5-trichlorophenol, 3-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, 4,6-dinitro-2-methylphenol, pentachlorophenol, and 2-nitroaniline were above the CRDL. Under the BHI validation SOW, no qualification is required.

000003

- **Completeness**

Data package No. H0165 (SDG No. H0165) was submitted for validation and verified for completeness. The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to laboratory blank contamination, sample results for di-n-butylphthalate and bis(2-ethylhexyl)phthalate were raised to the CRQL and flagged "U". Due to the lack of a matrix spike and matrix spike duplicate analysis, all sample 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.

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Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validators in compliance with the 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 same 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 usable for decision-making purposes).

000006

Appendix 2

Summary of Data Qualification

000007

DATA QUALIFICATION SUMMARY

SDG: H0165	REVIEWER: TLI	DATE: 09/25/98	PAGE_1_ OF_1_
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Di-n-butylphthalate and Bis(2-ethylhexyl)phthalate	U	All	Laboratory blank contamination
All	J	All	No MS/MSD analysis

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: BECHTEL-HANFORD																		
Laboratory: RECRA LabNet																		
Case:		SDG: H0165																
Sample Number		BOP6Y0																
Location		216-A-29																
Remarks																		
Sample Date		7/6/98																
Extraction Date		7/13/98																
Analysis Date		8/19/98																
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Phenol	10	10	UJ															
bis(2-Chloroethyl)ether	10	10	UJ															
2-Chlorophenol	10	10	UJ															
1,3-Dichlorobenzene	10	10	UJ															
1,4-Dichlorobenzene	10	10	UJ															
1,2-Dichlorobenzene	10	10	UJ															
2-Methylphenol	10	10	UJ															
2,2'-oxybis(1-Chloropropane)	10	10	UJ															
4-Methylphenol	10	10	UJ															
N-Nitroso-di-n-propylamine	10	10	UJ															
Hexachloroethane	10	10	UJ															
Nitrobenzene	10	10	UJ															
Isophorone	10	10	UJ															
2-Nitrophenol	10	10	UJ															
2,4-Dimethylphenol	10	10	UJ															
bis(2-Chloroethoxy)methane	10	10	UJ															
2,4-Dichlorophenol	10	10	UJ															
1,2,4-Trichlorobenzene	10	10	UJ															
Naphthalene	10	10	UJ															
4-Chloroaniline	10	10	UJ															
Hexachlorobutadiene	10	10	UJ															
4-Chloro-3-methylphenol	10	10	UJ															
2-Methylnaphthalene	10	10	UJ															
Hexachlorocyclopentadiene	10	10	UJ															
2,4,6-Trichlorophenol	10	10	UJ															
2,4,5-Trichlorophenol	25	26	UJ															
2-Chloronaphthalene	10	10	UJ															
2-Nitroaniline	25	26	UJ															
Dimethylphthalate	10	10	UJ															
Acenaphthylene	10	10	UJ															
2,6-Dinitrotoluene	10	10	UJ															

000010

Project: BECHTEL-HANFORD																	
Laboratory: RECRA LabNet																	
Case:		SDG: H0165															
Sample Number		BOP6Y0															
Location		216-A-29															
Remarks																	
Sample Date		7/8/98															
Extraction Date		7/13/98															
Analysis Date		8/19/98															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	25	26	UJ														
Acenaphthene	10	10	UJ														
2,4-Dinitrophenol	25	26	UJ														
4-Nitrophenol	25	26	UJ														
Dibenzofuran	10	10	UJ														
2,4-Dinitrotoluene	10	10	UJ														
Diethylphthalate	10	0.6	UJ														
4-Chlorophenyl-phenyl ether	10	10	UJ														
Fluorene	10	10	UJ														
4-Nitroaniline	25	26	UJ														
4,6-Dinitro-2-methylphenol	25	26	UJ														
N-Nitrosodiphenylamine	10	10	UJ														
4-Bromophenyl-phenylether	10	10	UJ														
Hexachlorobenzene	10	10	UJ														
Pentachlorophenol	25	26	UJ														
Phenanthrene	10	10	UJ														
Anthracene	10	10	UJ														
Carbazole	10	10	UJ														
Di-n-butylphthalate	10	10	UJ														
Fluoranthene	10	10	UJ														
Pyrene	10	10	UJ														
Butylbenzylphthalate	10	10	UJ														
3,3'-Dichlorobenzidine	10	10	UJ														
Benzo(a)anthracene	10	10	UJ														
Chrysene	10	10	UJ														
bis(2-Ethylhexyl)phthalate	10	10	UJ														
Di-n-octylphthalate	10	10	UJ														
Benzo(b)fluoranthene	10	10	UJ														
Benzo(k)fluoranthene	10	10	UJ														
Benzo(a)pyrene	10	10	UJ														
Indeno(1,2,3-cd)pyrene	10	10	UJ														
Dibenz(a,h)anthracene	10	10	UJ														
Benzo(g,h,i)perylene	10	10	UJ														

000011

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 09/04/98 14:30

RFW Batch Number: 9807L796

Client: TNU-HANFORD

Work Order: 10985001001

Page: 1a

Sample Information	Cust ID:	BOP6YO	SBLKEP	SBLKEP BS
RFW#:	001	98LE1181-MB1	98LE1181-MB1	
Matrix:	WATER	WATER	WATER	
D.F.:	1.00	1.00	1.00	
Units:	UG/L	UG/L	UG/L	

Surrogate	Nitrobenzene-d5	79 %	90 %	77 %
Recovery	2-Fluorobiphenyl	70 %	82 %	69 %
	Terphenyl-d14	69 %	84 %	73 %
	Phenol-d5	62 %	75 %	74 %
	2-Fluorophenol	65 %	78 %	72 %
	2,4,6-Tribromophenol	58 %	82 %	70 %

Compound	10 U	10 U	77 %
Phenol	10 U	10 U	10 U
bis(2-Chloroethyl) ether	10 U	10 U	75 %
2-Chlorophenol	10 U	10 U	10 U
1,3-Dichlorobenzene	10 U	10 U	60 %
1,4-Dichlorobenzene	10 U	10 U	10 U
1,2-Dichlorobenzene	10 U	10 U	10 U
2-Methylphenol	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10 U	10 U	10 U
4-Methylphenol	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10 U	10 U	71 %
Hexachloroethane	10 U	10 U	10 U
Nitrobenzene	10 U	10 U	10 U
Isophorone	10 U	10 U	10 U
2-Nitrophenol	10 U	10 U	10 U
2,4-Dimethylphenol	10 U	10 U	10 U
bis(2-Chloroethoxy) methane	10 U	10 U	10 U
2,4-Dichlorophenol	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10 U	10 U	67 %
Naphthalene	10 U	10 U	10 U
4-Chloroaniline	10 U	10 U	10 U
Hexachlorobutadiene	10 U	10 U	10 U
4-Chloro-3-methylphenol	10 U	10 U	71 %
2-Methylnaphthalene	10 U	10 U	10 U
Hexachlorocyclopentadiene	10 U	10 U	10 U
2,4,6-Trichlorophenol	10 U	10 U	10 U
2,4,5-Trichlorophenol	26 U	25 U	25 U

* = Outside of EPA CLP QC limits.

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19/21/98

2004

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000014



RECRA
LabNet

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

**Recra LabNet Philadelphia
Analytical Report**

Client: TNU HANFORD
RFW #: 9807L796
SDG/SAF #: H0165/B98-093

W.O. #: 10985-001-001-9999-00
Date Received: 07-10-98

SEMIVOLATILE

One (1) water sample was collected on 07-06-98.

The sample and its associated QC samples were extracted on 07-13-98 and analyzed according to criteria set forth in SW 846 Method 8270 for Semivolatile target compounds on 08-19,20-98.

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 upon receipt has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis were met.
3. A non-target compound was detected in sample BOP6Y0.
4. All surrogate recoveries were within EPA QC limits.
5. All blank spike recoveries were within EPA QC limits.
6. The method blank contained the common laboratory contaminants di-n-Butylphthalate and bis(2-Ethylhexyl)phthalate at levels less than the CRQL.



for Chuck Stefanosky
Chuck Stefanosky
Laboratory Director
Lionville Analytical Laboratory

9-9-98
Date

000015

mmz:bnz-07-796b.cn

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 19 pages

AAI

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B98-093-01	Page 1 of 1
Collector Robert Jahlberg / <i>D.L. Barons</i>	Company Contact Scott Petersen	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Data Turnaround 15 Days		
Project Designation 216-A-29 Ditch - Water	Sampling Location 200 East	Field Logbook No. <i>EL 1381</i>	SAF No. B98-093	Method of Shipment Hand deliver		
Ice Chest No.	Offsite Property No.	Bill of Lading/Air Bill No.			<i>DAS</i>	
Shipped To <i>DAS 7-6-98</i> <i>TMA</i>	Waste Designation D002, D006, U133, and WT02			COA		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	Cool 4C	Cool 4C	HNO3 to pH <2	HNO3 to pH <2
		Type of Container	P	aG	P	P	aG	aG	P
	No. of Container(s)		1	1	1	2	2	3	3
Special Handling and/or Storage Cool 4C	Volume	20ml	500ml	500ml	1000ml	1000ml	1000ml	1000ml	1000ml

SAMPLE ANALYSIS				Activity Scan	Mercury - 1470 - (CV)	See item (1) in Special Instructions	Gross Alpha Gross Beta	Pesticides - 8080	Semi-VOA - 8270A (TCL)	Gamma Spectroscopy (Water) (Cesium-137) (Cobalt-60)	Strontium-89,90 - Total Sr
Sample No.	Matrix *	Sample Date	Sample Time								
BOP6Y0	Water	7-6-98	1215	X	X	X	X	X	X	X	X
				<i>DAS 7/9/98</i>			<i>DAS 7/9/98</i>			<i>DAS 7/9/98</i>	<i>DAS 7/9/98</i>

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By <i>Steve Nielsen</i>	Date/Time <i>7/9/98</i>	Received By <i>Fred Eck</i>	Date/Time <i>7/10/98</i>	(1) ICP Metals - 6010A (Supertrace) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver] <i>Note: Above indicated sample containers shipped to RECREA, Livermore, CA. Other analytes shipped to thermo Richmond CA DAS 7/9/98</i>				S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil AU - Drum Solids DS - Drum Liquids TS - Tissue WI - Wipe LI - Liquid V - Vegetation X - Other	
Relinquished By <i>Jedey</i>	Date/Time	Received By <i>Joder</i>	Date/Time <i>7/10/98</i>						
Relinquished By	Date/Time	Received By	Date/Time						
Relinquished By	Date/Time	Received By	Date/Time						
LABORATORY SECTION	Received By <i>Joder</i>	Title <i>Sample Custodian</i>	Disposal Method <i>S.S 4235 7951 3838</i>	Date/Time <i>7/10/98</i>					
FINAL SAMPLE DISPOSITION									

Appendix 5

Data Validation Supporting Documentation

000017

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT: 24-A-29	DATA PACKAGE: H0165				
VALIDATOR: TLI	LAB: RLN		DATE: 9/18/98		
CASE:			SDG: H0165		
ANALYSES PERFORMED					
<input type="checkbox"/> CLP Volatiles	<input type="checkbox"/> SW-846 8240 (cap column)	<input type="checkbox"/> SW-846 8260 (packed column)	<input type="checkbox"/> CLP Semivolatiles	<input checked="" type="checkbox"/> SW-846 8270 (cap column)	<input type="checkbox"/> SW-846 (packed column)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX <u>BOP640</u>					
<u>wa</u>					

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: _____

ASJ

000018

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? Yes No
Are initial calibrations acceptable? Yes No
Are continuing calibrations acceptable? Yes No

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: Equip Blank
di-n-butyl phthalate
bis(2 ethyl hexyl) phthalate } same to CRQL + 10 + 0

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? Yes No N/A
Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A
Were MS/MSD samples analyzed? Yes No N/A
Are MS/MSD results acceptable? Yes No N/A

Comments: No MSD

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD 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: NO MSD J/05 all

7. SYSTEM PERFORMANCE

Were internal standards analyzed? Yes No N/A

Are internal standard areas acceptable? Yes No N/A

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

Comment: :

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

Has the laboratory properly identified and coded all TIC? Yes No N/A

Comments: +4, 2, +, 3 nitroquoline 245 trichlorophenol 24 dinitrophenol
46 Dinitro 2 methyl phenol pentachlorophenol over CRQL

000020

AS