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7 of 27

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ATTACHMENT 43
Page 1 of 18

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9401L205-WES-1478 (923-E418)

9403225.0710

MEMORANDUM

TO: 200-UP-2 Project QA Record

April 23, 1994

FR: Sandra Schildt, Golder Associates Inc.

RS for

RE: GENERAL CHEMISTRY ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc (Weston). 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	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: Samples were analyzed for IC anions and nitrate-nitrite using WHC approved methods.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 to this memo provide the following information:

- Attachment 1. Glossary of Data Reporting Qualifiers
- Attachment 2. Summary of Data Qualifications
- Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
- Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 6 determinations reported, all of which were deemed

Revised 4-25-94 001

9413225.0711

valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of the data.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

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ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9413225.0713

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

- B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.
- U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for sample aliquot size, dilution factors and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
- UJ - Indicates the constituent was analyzed for and was not detected. Due to a minor quality control deficiency identified during data validation, the concentration reported may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.
- BJ - Indicates the constituent was analyzed for and detected at a concentration less than the CRDL but greater than the IDL. Due to a minor quality control deficiency identified during data validation, The associated data have been qualified as estimated, but should be considered usable for decision making purposes.
- J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.
- UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.
- R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

9413225.0715

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9443225.0717

94/3225.0718

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Samp#	B09D10	
	Date	1-6-94	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
	Units	Result	Q
PERCENT SOLIDS	%	98.200	
CHLORIDE	MG/KG	21.700	
FLUORIDE	MG/KG	3.000	
CYANIDE	MG/KG	1.000	U
SULFATE	MG/KG	12.200	
NITRATE+NITRITE	MG-N/KG	61.400	

800~

*Verified
4/11/94*

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/02/94

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9401L205

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B09D0	% Solids	98.2	%	0.10	1.0
		Chloride by IC	21.7	MG/KG	1.3	1.0
		Fluoride by IC	3.0	MG/KG	2.5	1.0
		Cyanide, Total	1.0	MG/KG	1.0	1.0
		Sulfate by IC	12.2	MG/KG	1.3	1.0
		Nitrate Nitrite	61.4	MG-N/KG	5.1	50.0

6170-9225-0719

*Verified
KAS
3/31/94*

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ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9113225.0720



ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client : WESTINGHOUSE HANFORD
RFW# : 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

INORGANIC

The following is a summary of the quality control results and a description of any problems encountered during the analysis of this batch of samples:

1. All sample holding times as required by 40CFR136 were met.
2. All preparation blank results were below the required detection limits.
3. All laboratory control standards (blank spikes) were within the control limits of 80-120%. All %RPD were within the 20% guidance limit.
4. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.
5. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.
6. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit.
7. The analytical methods applied by the laboratory, unless otherwise requested, for the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).

RECORD COPY



J. Peter Hershey

J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

2-10-94

Date

4/2/94
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011

9401L205.072

94011205

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W.V. SETZER
 Company Contact L E ROGERS Telephone 376-7690
 Project Designation/Sampling Locations 200-UP-2 Collection Date 1-6-94
 Ice Chest No. EPS-11 Field Logbook No. EFL-1091
 Bill of Lading/Airbill No. NA Offsite Property No. ORST 17596
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to WESTON
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) RADIOACTIVE

Sample Identification 94011205-001

9403225-0722

1) BO98TO

- 1,500ml P:CLP;TAL Metals,Hg,Ti *Did not rec'd GAH ay*
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

SEP 1-10-94

3)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

Field Transfer of Custody Chain of Possession (Sign and Print Names)

Relinquished by: <i>W.V. Setzer</i> 1-6-94	Received by: <i>Loren E. Rogers</i>	Date/Time: 1-6-94 1115
Relinquished by: <i>Loren E. Rogers</i> 1-10-94	Received by: <i>W.V. Setzer</i>	Date/Time: 1-10-94 0715
Relinquished by: <i>W.V. Setzer</i>	Received by:	Date/Time:
Relinquished by: <i>FLDEX</i>	Received by: <i>FL</i>	Date/Time: 1-11-94 9:30

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:
Comments:		

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012

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9413225-0723

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	<u>E</u>
PROJECT:	200-UP-2		DATA PACKAGE: 94012205-WES-1478		
VALIDATOR:	<i>J. Schilt</i>	LAB:	<i>Wroton</i>	DATE: 3/31/94	
CASE:	NA		SDG: NA		
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> Anions/IC	<input type="checkbox"/> TOC	<input type="checkbox"/> TOX	<input type="checkbox"/> TPH-418.1	Oil and Grease	Alkalinity
<input type="checkbox"/> Ammonia	<input type="checkbox"/> BOD/COD	<input type="checkbox"/> Chloride	<input type="checkbox"/> Chromium-VI	<input type="checkbox"/> pH	<input checked="" type="checkbox"/> NO ₂ /NO ₃
<input type="checkbox"/> Sulfate	<input type="checkbox"/> TDS	<input type="checkbox"/> TKN	<input type="checkbox"/> Phosphate	<i>E 7 solids</i>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLES/MATRIX <i>BC9DT0 / soil</i>					

9413225.0724

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: _____

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

- Was initial calibration performed for all applicable analyses? Yes No N/A
- Are initial calibration results acceptable? Yes No N/A
- Was a calibration check performed for all applicable analyses? Yes No N/A
- Are calibration check results acceptable? Yes No 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: *Sample information was not provided. Field QC will be reviewed in the summary report.*

5. ACCURACY

- Were spike samples analyzed at the required frequency? Yes No N/A
- Are spike recoveries acceptable? Yes No N/A
- Were LCS analyses performed at the required frequency? Yes No N/A
- Are LCS recoveries acceptable? Yes No N/A

Comments: _____

6. PRECISION

- Were laboratory duplicate samples analyzed at the required frequency? Yes No N/A
- Are laboratory duplicate sample 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

9443225.0725

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments: *Sample information was not provided. Field OC will be reviewed in the summary report*

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? Yes No N/A

Comments: _____

8. REPORTED RESULTS AND DETECTION LIMITS

Are results reported for all requested analyses? Yes No N/A

Are 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: _____

9113225.0726

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ATTACHMENT 44

Page 1 of 26

METALS ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9401L205-WES-1478 (923-E418)

9401L205-0728

1994

MEMORANDUM

APR 1994
RECEIVED
TQQ

TO: ~~200-UP-2 Project QA Record~~

April 12, 1994

FR: Sandra Schildt, Golder Associates Inc.

RE: METALS ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: All samples were analyzed for CLP Target Analyte List (TAL) metals, cyanide, and titanium.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 to this memo provide the following information:

- Attachment 1. Glossary of Data Reporting Qualifiers
- Attachment 2. Summary of Data Qualifications
- Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
- Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5. Data Validation Supporting Documentation

A non-conformance report and record of disposition accompanied the metals fraction and are included in Attachment 4. No qualification of data was made due to the non-conformance.

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met with the exception of the minor deficiencies identified below.

Accuracy. Goals for accuracy were met with the exception of the minor deficiencies identified below.

Sample Result Verification. All sample results were supported in the raw data.

9413225.0729

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 25 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of the data as unusable.

MINOR DEFICIENCIES

The following is a summary of the minor deficiencies identified during validation which required qualification of data.

Laboratory Blanks

Positive Blanks. Antimony was detected at a positive concentration in the preparation blanks. Attachment 2 provides a summary of the samples and data qualification applied.

Laboratory Spikes

- Analytical spike recovery was unacceptable for arsenic. Attachment 2 and 5 provide a summary of the samples, data qualifications applied and supporting documentation.

Serial Dilution

- The percent difference (%D) of the ICP serial dilution was unacceptable for zinc. Attachment 2 provides a summary of the samples and data qualification applied.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1
GLOSSARY OF DATA REPORTING QUALIFIERS

947325.073

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

- B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.
- U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample detection limit corrected for sample aliquot size, dilution factors and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
- UJ - Indicates the constituent was analyzed for and was not detected. Due to a minor quality control deficiency identified during data validation, the concentration reported may not accurately reflect the sample detection limit. The associated data have been qualified as estimated but should be considered usable for decision making purposes.
- BJ - Indicates the constituent was analyzed for and detected at a concentration less than the CRDL but greater than the IDL. Due to a minor quality control deficiency identified during data validation, The associated data have been qualified as estimated, but should be considered usable for decision making purposes.
- J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.
- UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.
- R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

941225 0732

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

9413225.0733

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9443225.0735

9473225.0736

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Units	Result	Q
	ALUMINUM	MG/KG	4600.000
ANTIMONY	MG/KG	5.000	U
ARSENIC	MG/KG	2.000	BJ
BARIUM	MG/KG	67.900	
BERYLLIUM	MG/KG	0.200	U
CADMIUM	MG/KG	0.810	U
CALCIUM	MG/KG	8020.000	
CHROMIUM	MG/KG	8.600	
COBALT	MG/KG	5.600	B
COPPER	MG/KG	9.200	
IRON	MG/KG	10500.000	
LEAD	MG/KG	3.000	
MAGNESIUM	MG/KG	3400.000	
MANGANESE	MG/KG	252.000	
MERCURY	MG/KG	0.050	U
NICKEL	MG/KG	7.200	B
POTASSIUM	MG/KG	1150.000	
SELENIUM	MG/KG	0.410	U
SILVER	MG/KG	1.020	U
SODIUM	MG/KG	84.500	B
THALLIUM	MG/KG	0.410	U
VANADIUM	MG/KG	21.000	
ZINC	MG/KG	28.300	J
CYANIDE	MG/KG	1.020	U
TITANIUM	MG/KG	612.000	

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Handwritten notes:
 1/6/94
 1/6/94
 1/6/94

1
INORGANIC ANALYSIS DATA SHEET

B09DT0

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP205

Matrix (soil/water): SOIL Lab Sample ID: 940120501

Level (low/med): LOW Date Received: 1/11/94

% Solids: 98.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

9413225-0737

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4600.00	-		P
7440-36-0	Antimony	5.00	B		P
7440-38-2	Arsenic	2.00	B	W	F
7440-39-3	Barium	67.90			P
7440-41-7	Beryllium	.20	U		P
7440-43-9	Cadmium	.81	U		P
7440-70-2	Calcium	8020.00			P
7440-47-3	Chromium	8.60			P
7440-48-4	Cobalt	5.60	B		P
7440-50-8	Copper	9.20			P
7439-89-6	Iron	10500.00			P
7439-92-1	Lead	3.00			F
7439-95-4	Magnesium	3400.00			P
7439-96-5	Manganese	252.00			P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	7.20	B		P
7440-09-7	Potassium	1150.00			P
7782-49-2	Selenium	.41	U		F
7440-22-4	Silver	1.02	U		P
7440-23-5	Sodium	84.50	B		P
7440-28-0	Thallium	.41	U		F
7440-62-2	Vanadium	21.00			P
7440-66-6	Zinc	28.30	-	E	P
	Cyanide	1.02	U		C
	Titanium	61.2			

U
BJ

J

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts:

Comments:

Verified
3/31/94

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9443225.0738



Westinghouse
Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 1

2. Preprinted No. **051940**

QA Log No. **EQA-94-007**

3. P. O., W. O., or Job Control No. N/A

4. System/End Use Field Investigation

5. Item/Material Sample (soil)

6. Dwg./Spec./Other No. BO9DS9

7. Rev. N/A

8. Program/Project/Other 200-UP-12/ SAF 93-263

9. Safety Class N/A

10. ASME Code Items Yes No
(If yes, notify authorized inspector)

11. Supplier Name/Address Sampling and Mobile Labs

12. Notification of Potential Occurrence Required Yes No

13. Code: Lot/Hgrt/Serial N/A

14. Lot Size 1

15. Sample 1

16. Qty. Acc.

17. Inspection Criteria Dwg. Spec. Insp. Plan
 Other WHL-CM-77, EIT 5.1, Rev. 5, sec. 6.2, item 2 and WHL-CM-77, EIT 5.2, Rev. 5, sec. 5.2, item 18.2

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1	As stated in WHL-CM-77, EIT 5.1, Rev. 5, sec. 6.2, item 2 and item 2, the witness/Field Team leader shall initiate the Chain of Custody form and shall enter sample identification numbers or other unique sample description. Also stated in WHL-CM-77, EIT 5.2, Rev. 5, sec. 5.2, item 2: item 2: Prepare the Chain of Custody/Sample analysis Request (BC-6000-938) or Sample Analysis Request (2-6000-00) to accompany the samples to the analytical facility. Contrary to the above, the Chain of Custody was not initiated for the metals fraction for sample BO9DS9 that was sent to TMA.	Interim disposition is to review data from the metals analysis for this sample and the duplicate. The duplicate was sent to Weston (HEIS #B090T0). If metals results are less than detectable, the sample will be rejected through the NCR process and the NCR closed.

20. Originator's Signature [Signature] Date 4/27/94

23. Design Document Change Required? Yes, Doc. No. No

21. Cognizant QA Manager's Signature [Signature] Date 2/1/94

24. Corrective Action Required? Yes, No. No

25. Cognizant Engineer [Signature] Date 3/16/94

26. Technical Rep. [Signature] Date 3/15/94

QA Engineer [Signature] Date 3/15/94

27. Close Accept Reject Follow on NCR

QA/C Personnel 011 Date

941525.0739

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0012
Record of Disposition No.

DATE: January 18, 1994

LABORATORY: Weston

PROJECT TITLE/NO.: 200-UP-1

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B09DT0, B093H5, B093J4

DESCRIPTION OF EVENT:

a) Samples B09DS9 and B09DT0 were collected as field splits and targeted for shipment to TMA (primary) and Weston (split), respectively. During collection, the metals fraction (CLP TAL plus Ti) of sample B09DS9 was inadvertently omitted. A decision was made in the field to ship the metals fraction of sample B09DT0 to TMA to obtain a complete suite of analyses at the primary lab. This change was not reflected on the Weston Chain of Custody and Analytical Request form which indicated that a 500ml container was submitted for metals analysis. No metals fraction was received by Weston.

b) The Chain of Custody and Analytical Request form indicated that VOA fractions for samples B093H5 and B093J4 were shipped to Weston. Weston did not receive a VOA fraction for either of the two samples.

DISPOSITION OF SAMPLES:

Since sample B09DT0 was soil (chemically unpreserved), Weston was instructed to use remaining sample material from the other fractions to perform analysis for the requested metals (CLP; TAL plus Ti). VOA analysis for samples B093H5 and B093J4 was canceled.

APPROVAL SIGNATURES:

J. A. Lerch

OSM Project Coordinator (Print/Sign Name)

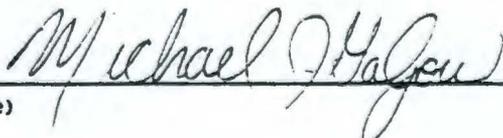


1/19/94

Date

M. J. Galgoul

Technical Representative (Print/Sign Name)



1/28/94

Date

N/A

Quality Assurance (Print/Sign Name)

Date

9113225.0740



ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client : WESTINGHOUSE HANFORD
RFW# : 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

METALS

1. This narrative covers the analysis of one (1) soil sample.
2. The samples were prepared and analyzed in accordance with the following protocols: CLP SOW 3/90.
3. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory and High Purity.
4. All analyses were performed within the required holding times.
5. All Initial and Continuing Calibration Verifications (ICV/CCV's) were within control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.
7. All Preparation/Method Blanks were below Reporting Limits.
8. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.
9. All Laboratory Control Samples (LCS) were within the 80-120% control limits.
10. All Serial Dilution percent differences were within USEPA SOW control limits except for:

<u>RFW #</u>	<u>Element</u>	<u>%Difference</u>
001	Zinc	15.5

11. All Matrix Spike recoveries were within the 75-125% control limits (exception allowed when sample concentration exceeds the spike added concentration by a factor of 4 or more).

Matrix spike analyses are not required for Al, Fe, Ca, Mg, Na, and K in soils.

[Handwritten signature]
4/11/94

013

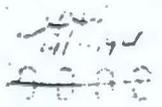


- 9113225.0742
12. All Duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits for samples values greater than 5X Reporting Limit, or +/- the Reporting Limits for sample values less than 5X Reporting Limit.
 13. Method of Standard Additions (MSA) analyses were not required.
 14. The code CV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). HG1 is complete with autosampler and software, but still requires manual digestion; HG2 is operated by the analyst, produces a strip chart and also requires manual digestion.
 15. HG1 requires less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionally scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 ml. For soils, 0.1 gram of sample is taken to a final volume of 50 ml (including all reagents).
 16. ICP Interelement Correction Factors for IC3 are included in this package but do not appear on EDD.
 17. The graphite furnace time that appears on form XIV is the time of the first injection. The time that appears on the data is the print time.
 18. A discrepancy exists between raw data and Form XIVs analytical spikes recovery calculations performed for graphite furnace AA analytes. Instrument software calculates spike recoveries based on absolute values below the IDL for sample results. This is hard-coded by the vendor and is currently not correctable. CLP convention (SOW ILM02.0, Exhibit E, Section V, Item 6, page E-20) requires that when values fall below the IDL, the sample result is equal to zero (0) for the purposes of calculating the percent recovery. The Form XIVs contain the correct calculation.



J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

3.1.94
Date



94011205

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W.V. SETZER

Company Contact L E ROGERS

Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2

Collection Date 1-6-94

Ice Chest No. EKS-11

Field Logbook No. EFL-1091

Bill of Lading/Airbill No. NA

Offsite Property No. ORST 17596

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to WESTON

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) RADIOACTIVE

Sample Identification

94011205-001

1) BO98TO

- 1,500ml P:CLP;TAL Metals,Hg,Ti *Did not rec'd 6/1/94*
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237, (PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237, (PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

3)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237, (PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

SEP 1-10-94

Field Transfer of Custody Chain of Possession (Sign and Print Names)

Relinquished by: <u>W.V. Setzer</u> <u>1115</u> <u>1-6-94</u>	Received by: <u>J. E. Rogers</u>	Date/Time: <u>1-6-94 1115</u>
Relinquished by: <u>J. E. Rogers</u> <u>0715</u> <u>1-10-94</u>	Received by: <u>W.V. Setzer</u>	Date/Time: <u>1-10-94 0715</u>
Relinquished by: <u>W.V. Setzer</u>	Received by:	Date/Time:
Relinquished by: <u>FLDHEX</u>	Received by: <u>[Signature]</u>	Date/Time: <u>1-11-94 9:30</u>

Final Sample Disposition

Disposal Method: Disposed by: Date/Time:

Comments:

9403225-0743

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9443225-0744

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3/31/94

VALIDATION LEVEL:	A	B	C	D	<u>E</u>
PROJECT:	<i>200-UP-2</i>		DATA PACKAGE: <i>9401L205-WES-1478</i>		
VALIDATOR:	<i>S. Schildt</i>		LAB: <i>Weston</i>	DATE: <i>3/31/94</i>	
CASE:	<i>West</i>		SDG: <i>N/A</i>		
ANALYSES PERFORMED					
<input checked="" type="checkbox"/> CLP/ICP	<input checked="" type="checkbox"/> CLP/GFAA	<input checked="" type="checkbox"/> CLP/Hg	<input checked="" 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 <i>B09 DTC Soil</i>					

9413225-0745

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: *Sample information was not provided. Field QC data will be reviewed in the summary report.*
Antimony detected in the prep blank

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: _____

9113225.0746

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: Sample information was not provided. Field QC
data will be reviewed in the summary report.
%D for zinc exceeded 10% while sample
result was > 50x IDL.

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: Recovery > 115% for Arsenic

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: _____

9113225.0747

U.S. EPA - CLP

3
BLANKS

Lab name: ROY F. WESTON, INC - L372 Contract: 6168-02-01
 Lab code: WESTON Case No.: WEST SAS No.: SDG No.: CLP205
 Preparation Blank Matrix (soil/water): SOIL
 Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

9413225.0752

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		M
		C	1	C	2	C	3	C	C		
Aluminum	27.0	U	27.0	U	-55.0	B	27.0	U	5.400	U	P
Antimony	19.0	U	23.4	B	19.0	U	19.0	U	5.500	B	P
Arsenic	2.0	U	2.0	U	-2.2	B			.400	U	F
Barium	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	.200	U	P
Cadmium	4.0	U	4.0	U	4.0	U	4.0	U	.800	U	P
Calcium	20.0	U	20.0	U	20.0	U	20.0	U	4.000	U	P
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	1.300	B	P
Cobalt	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Copper	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Iron	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Lead	2.0	U	2.0	U	2.0	U	-2.9	B	.400	U	F
Magnesium	-30.0	B	29.0	U	29.0	U	29.0	U	5.800	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	.200	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.050	U	CV
Nickel	9.0	U	9.0	U	9.0	U	9.0	U	1.800	U	P
Potassium	938.0	U	938.0	U	938.0	U	938.0	U	197.600	B	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Sodium	48.0	U	50.3	B	48.0	U	48.0	U	12.200	B	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Vanadium	4.0	U	4.0	U	4.0	U	4.0	U	.960	B	P
Zinc	2.0	U	2.0	U	2.0	U	2.0	U	.920	B	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	1.000	U	C

3/31/94 ~~0027~~
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U.S. EPA - CLP

9
ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B09DT0L

Lab Name: ROY F. WESTON, INC - L372

Contract: 6168-02-01

Lab Code: WESTON

Case No.: WEST

SAS No.:

SDG No.: CLP205

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	22599.10	-	22140.51	-	2.0	-	P
Antimony	24.40	B	254.00	B	941.0	-	P
Arsenic							
Barium	333.20		325.00	B	2.5		P
Beryllium	1.00	B	5.00	U	100.0		P
Cadmium	4.00	U	21.50	B	100.0		P
Calcium	39374.30		38888.01		1.2		P
Chromium	42.10		68.00		61.5		P
Cobalt	27.60	B	51.50	B	86.6		P
Copper	45.10		76.50	B	69.6		P
Iron	51473.50		52501.99		2.0		P
Lead							
Magnesium	16685.80		16656.50	B	.2		P
Manganese	1238.00		1209.50		2.3		P
Mercury							
Nickel	35.20	B	47.50	B	34.9		P
Potassium	5622.90		10402.50	B	85.0		P
Selenium							
Silver	5.00	U	42.50	B	100.0		P
Sodium	415.00	B	1097.50	B	164.5		P
Thallium							
Vanadium	103.10		124.50	B	20.8		P
Zinc	139.00		160.50		15.5	E	P

9413225.0753

FORM IX - IN

03/90

3/21/94 0037025

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~~9452475D~~

ATTACHMENT 15
Page 1 of 24

SEMIVOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9401L205-WES-1478 (923-E418)

9403225-0754

MEMORANDUM



TO: 200-UP-2 Project QA Record

April 12, 1994

FR: Sandra Schildt, Golder Associates Inc. *[Signature]*

RE: SEMIVOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/93	SOIL	SEE NOTE 1

Note 1: The samples were analyzed for CLP semivolatile target compound list (TCL) organics.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 to this memo provide the following information:

- Attachment 1. Glossary of Data Reporting Qualifiers
- Attachment 2. Summary of Data Qualifications
- Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
- Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

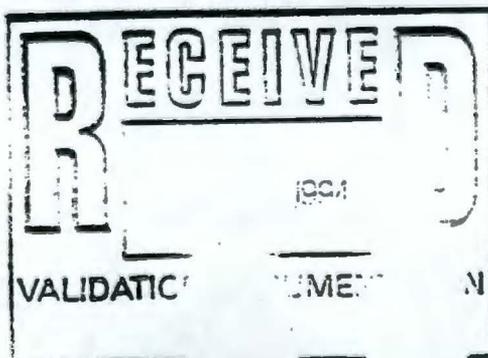
This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.



9401L205-0755

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 64 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following is a summary of the minor deficiencies identified during validation which required qualification of data.

Laboratory Blanks

- Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in the method blank. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied, and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the sample and identified as common laboratory contaminants, resulting in qualification of the results as unusable (R) as shown in Attachment 3.
- TICs were detected in the sample and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

9401L205-0756

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9473225.0757

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

- 9413225.0758
- B -** Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.
- U -** Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
- UJ -** Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
- J -** Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.
- NJ -** Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- N -** Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
- JN -** Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
- UJN -** Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected due to associated blank contamination.
- UR -** Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
- R -** Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

9113225.0759

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

1920 527E M6

9413225.0762

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Sampl Date	B09DT0	
	Location	1-6-94	
	Depth	---	
	Type	---	
	Comments	---	
	Units	Result	Q
PHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	340.000	U
2-CHLOROPHENOL	UG/KG	340.000	U
1,3-DICHLOROBENZENE	UG/KG	340.000	U
1,4-DICHLOROBENZENE	UG/KG	340.000	U
1,2-DICHLOROBENZENE	UG/KG	340.000	U
2-METHYLPHENOL	UG/KG	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	340.000	U
4-METHYLPHENOL	UG/KG	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	340.000	U
HEXACHLOROETHANE	UG/KG	340.000	U
NITROBENZENE	UG/KG	340.000	U
ISOPHORONE	UG/KG	340.000	U
2-NITROPHENOL	UG/KG	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	340.000	U
2,4-DICHLOROPHENOL	UG/KG	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	340.000	U
NAPHTHALENE	UG/KG	340.000	U
4-CHLOROANILINE	UG/KG	340.000	U
HEXACHLOROBUTADIENE	UG/KG	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	340.000	U
2-METHYLNAPHTHALENE	UG/KG	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	840.000	U
2-CHLORONAPHTHALENE	UG/KG	340.000	U
2-NITROANILINE	UG/KG	840.000	U
DIMETHYLPHTHALATE	UG/KG	340.000	U
ACENAPHTHYLENE	UG/KG	340.000	U
3-NITROANILINE	UG/KG	840.000	U
ACENAPHTHENE	UG/KG	340.000	U

800

10/1/94
11/1/94

9413225.0763

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Sampl#	B09D10	
	Date	1-6-94	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
	Units	Result	Q
2,4-DINITROPHENOL	UG/KG	840.000	U
4-NITROPHENOL	UG/KG	840.000	U
DIBENZOFURAN	UG/KG	340.000	U
2,4-DINITROTOLUENE	UG/KG	340.000	U
2,6-DINITROTOLUENE	UG/KG	340.000	U
DIETHYLPHTHALATE	UG/KG	340.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	340.000	U
FLUORENE	UG/KG	340.000	U
4-NITROANILINE	UG/KG	840.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	840.000	U
N-NITROSODIPHENYLAMINE	UG/KG	340.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	340.000	U
HEXACHLOROBENZENE	UG/KG	340.000	U
PENTACHLOROPHENOL	UG/KG	840.000	U
PHENANTHRENE	UG/KG	340.000	U
ANTHRACENE	UG/KG	340.000	U
CARBAZOLE	UG/KG	340.000	U
DI-N-BUTYLPHTHALATE	UG/KG	340.000	U
FLUORANTHENE	UG/KG	340.000	U
PYRENE	UG/KG	340.000	U
BUTYLBENZYLPHTHALATE	UG/KG	340.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	340.000	U
BENZO(A)ANTHRACENE	UG/KG	340.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	340.000	U
CHRYSENE	UG/KG	340.000	U
DI-N-OCTYLPHTHALATE	UG/KG	340.000	U
BENZO(B)FLUORANTHENE	UG/KG	340.000	U
BENZO(K)FLUORANTHENE	UG/KG	340.000	U
BENZO(A)PYRENE	UG/KG	340.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	340.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	340.000	U
BENZO(G,H,I)PERYLENE	UG/KG	340.000	U

600

Verified
4/11/94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

Lab Name: Rov F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

* Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) ug/Kg

Q

108-95-2-----	Phenol	340	U
111-44-4-----	bis(2-Chloroethyl) ether	340	U
95-57-8-----	2-Chlorophenol	340	U
541-73-1-----	1,3-Dichlorobenzene	340	U
106-46-7-----	1,4-Dichlorobenzene	340	U
95-50-1-----	1,2-Dichlorobenzene	340	U
95-48-7-----	2-Methylphenol	340	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5-----	4-Methylphenol	340	U
621-64-7-----	N-Nitroso-di-n-propylamine	340	U
67-72-1-----	Hexachloroethane	340	U
98-95-3-----	Nitrobenzene	340	U
78-59-1-----	Isophorone	340	U
88-75-5-----	2-Nitrophenol	340	U
105-67-9-----	2,4-Dimethylphenol	340	U
111-91-1-----	bis(2-Chloroethoxy) methane	340	U
120-83-2-----	2,4-Dichlorophenol	340	U
120-82-1-----	1,2,4-Trichlorobenzene	340	U
91-20-3-----	Naphthalene	340	U
106-47-8-----	4-Chloroaniline	340	U
87-68-3-----	Hexachlorobutadiene	340	U
59-50-7-----	4-Chloro-3-methylphenol	340	U
91-57-6-----	2-Methylnaphthalene	340	U
77-47-4-----	Hexachlorocyclopentadiene	340	U
88-06-2-----	2,4,6-Trichlorophenol	340	U
95-95-4-----	2,4,5-Trichlorophenol	840	U
91-58-7-----	2-Chloronaphthalene	340	U
88-74-4-----	2-Nitroaniline	840	U
131-11-3-----	Dimethylphthalate	340	U
208-96-8-----	Acenaphthylene	340	U
606-20-2-----	2,6-Dinitrotoluene	340	U
99-09-2-----	3-Nitroaniline	840	U
83-32-9-----	Acenaphthene	340	U

9413225-0764

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg Q

51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-butylphthalate	340	U
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)phthalate	340	U
117-84-0	Di-n-octyl phthalate	340	U
205-99-2	Benzo(b)fluoranthene	340	U
207-08-9	Benzo(k)fluoranthene	340	U
50-32-8	Benzo(a)pyrene	340	U
193-39-5	Indeno(1,2,3-cd)pyrene	340	U
53-70-3	Dibenz(a,h)anthracene	340	U
191-24-2	Benzo(g,h,i)perylene	340	U

340 320 ~~340~~ U

340 221 ~~340~~ U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

3/90

0033
0011

9413225.0765

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CONCENTRATION UNITS:

Number TICs found: 6

(ug/L or ug/Kg) ug/Kg

9413225.0766

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.00	70	Y JN
2.	ALDOL CONDENSATE	6.30	100	JA R
3.	ALDOL CONDENSATE	7.37	200	JA R
4.	ORGANIC ACID	16.13	200	Y JN
5.	PHOSPHATE	23.68	400	Y JN
6.	UNKNOWN	26.75	100	Y JN

[Signature]
4/11/94
~~0034~~
012

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9473225-0767



ROY F. WESTON, INC.
 LIONVILLE ANALYTICAL LABORATORY
 ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
 RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
 Date Received: 01-11-94

SEMIVOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were extracted on 01-13-94, 02-14-94 and analyzed according to criteria set forth in CLP SOW 3/90 for TCL Semivolatile target compounds on 01-24-94, 02-15-94.

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

1. Non-target compounds were detected in these samples.
2. All surrogate recoveries were within EPA QC limits.
3. All matrix spike recoveries were within EPA QC limits.

A matrix spike and a matrix spike duplicate for sample B09DT0 were extracted, in hold in batch 94LE0070; however there were several low recoveries in the matrix spike and consequently several RPD limits were exceeded. The MS and MSD were re-extracted out of hold and only the second set of spikes were reported; the first set of MS/MSD data is available upon client request.

4. All blank spike recoveries were within EPA QC limits.
5. The laboratory blank 94LE0070-MB1 contained the common contaminant Di-n-butylphthalate at a level less than the CRQL. The laboratory blank 94LE0305-MB1 contained the common contaminants Di-n-butylphthalate at a level less than 4x the CRQL, Butylbenzylphthalate at a level less than 3x the CRQL, and Bis(2-ethylhexyl)phthalate at a level less than the CRQL.
6. All internal standard area and retention time criteria were met.

J. Peter Hershey, Ph.D.
 Laboratory Manager
 Lionville Analytical Laboratory

03.01.94.

Date

0005
 014

9403225.0768

74011205

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, WU SETZER

Company Contact L E ROGERS

Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2

Collection Date 1.6.94

Ice Chest No. EFS-11

Field Logbook No. EFL-1091

Bill of Lading/Airbill No. NA

Offsite Property No. ORSC 17596

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to WESTON

Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) RADIOACTIVE

Sample Identification 94011205-001

9403225.0769

1) B098TO

- 1,500ml P:CLP;TAL Metals,Hg,Ti *Did not rec'd 6-1-94*
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

3)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

SEP 1-10-94

Field Transfer of Custody Chain of Possession (Sign and Print Names)

Relinquished by: <i>W.V. Setzer</i> 1115 1-6-94	Received by: <i>James Rogers</i>	Date/Time: 1-6-94 1115
Relinquished by: <i>James Rogers</i> 0715 1-10-94	Received by: <i>W.V. Setzer</i>	Date/Time: 1-10-94 0715
Relinquished by: <i>W.V. Setzer</i>	Received by:	Date/Time:
Relinquished by: <i>FLDAX</i>	Received by: <i>FL</i>	Date/Time: 1-11-94 9:30

Final Sample Disposition

Disposal Method: Disposed by: Date/Time:

Comments:

SEP 1-11-94
0013
015

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9443225.0770

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	B	E
PROJECT: 200-UP-2			DATA PACKAGE: 9401L205-WES-1478		
VALIDATOR: J. Schibelt		LAB: Weston		DATE: 4/4/94	
CASE: NA			SDG: NA		
ANALYSES PERFORMED					
<input type="checkbox"/> CLP Volatiles	<input type="checkbox"/> SW-846 8240 (cap column)	<input type="checkbox"/> SW-846 8260 (packed column)	<input checked="" type="checkbox"/> CLP Semivolatiles	<input 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: B09070/soil					

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: _____

9413225.0771

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? Yes No N/A
 Are initial calibrations acceptable? Yes No N/A
 Are continuing calibrations acceptable? Yes No 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: *Di-n-butylphthalate detected in blank. Qualification is summarized in attachment 2. Sample information not available, field QC results will be evaluated in the summary report. BEHP was detected on quantitation report but not reported on SBLK report. Concentration within 10% sample value. blank 4/11/04*

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: *The initial MS/MSD recoveries were low, therefore the MS/MSD samples were reextracted and rerun outside of the holding time with acceptable recoveries. No qualification required.*

9413225.0772

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: Sample information unavailable. field QC results will be evaluated in the summary report.

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

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

Comments: _____

9413225-0773

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

SBLK

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 94LE0070-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: L012406

Level: (low/med) LOW

Date Received: 01/13/94

* Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 7.0

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg Q

51-28-5-----	2,4-Dinitrophenol	840	U
100-02-7-----	4-Nitrophenol	840	U
132-64-9-----	Dibenzofuran	330	U
121-14-2-----	2,4-Dinitrotoluene	330	U
84-66-2-----	Diethylphthalate	330	U
7005-72-3-----	4-Chlorophenyl-phenylether	330	U
86-73-7-----	Fluorene	330	U
100-01-6-----	4-Nitroaniline	840	U
534-52-1-----	4,6-Dinitro-2-methylphenol	840	U
86-30-6-----	N-Nitrosodiphenylamine (1)	330	U
101-55-3-----	4-Bromophenyl-phenylether	330	U
118-74-1-----	Hexachlorobenzene	330	U
87-86-5-----	Pentachlorophenol	840	U
85-01-8-----	Phenanthrene	330	U
120-12-7-----	Anthracene	330	U
86-74-8-----	Carbazole	330	U
84-74-2-----	Di-n-butylphthalate	50	J
206-44-0-----	Fluoranthene	330	U
129-00-0-----	Pyrene	330	U
85-68-7-----	Butylbenzylphthalate	330	U
91-94-1-----	3,3'-Dichlorobenzidine	330	U
56-55-3-----	Benzo (a) anthracene	330	U
218-01-9-----	Chrysene	330	U
117-81-7-----	bis(2-Ethylhexyl) phthalate	330	U
117-84-0-----	Di-n-octyl phthalate	330	U
205-99-2-----	Benzo (b) fluoranthene	330	U
207-08-9-----	Benzo (k) fluoranthene	330	U
50-32-8-----	Benzo (a) pyrene	330	U
193-39-5-----	Indeno (1,2,3-cd) pyrene	330	U
53-70-3-----	Dibenz (a,h) anthracene	330	U
191-24-2-----	Benzo (g,h,i) perylene	330	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

3/90

Handwritten:
4/12/94
0155
022

9413225.0776

No	n/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	ZTot
58	NOT	FOUND							
59	NOT	FOUND							
60	NOT	FOUND							
61	NOT	FOUND							
62	NOT	FOUND							
63	NOT	FOUND							
64	NOT	FOUND							
65	NOT	FOUND							
66	NOT	FOUND							
67	NOT	FOUND							
68	NOT	FOUND							
69	NOT	FOUND							
70	149	1208	20:08	4	1.070	A BB	9001.	3.001 NG	0.28 ✓
71	NOT	FOUND							
72	NOT	FOUND							
73	NOT	FOUND							
74	NOT	FOUND							
75	NOT	FOUND							
76	NOT	FOUND							
77	149	1467	24:27	5	0.993	A BB	249.	0.210 NG	0.02 BE#A
78	NOT	FOUND							
79	NOT	FOUND							
80	NOT	FOUND							
81	NOT	FOUND							
82	NOT	FOUND							
83	NOT	FOUND							
84	NOT	FOUND							
85	NOT	FOUND							
86	NOT	FOUND							

220572677

specimen / LIMS - 1602/16/94

SB/K

VR/12/94

4/12/94
0172

9453549D

~~9452475D~~

ATTACHMENT 41

Page 1 of 24

SEMIVOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9401L205-WES-1478 (923-E418)

9403225.0778

MEMORANDUM

TO: 200-UP-2 Project QA Record

April 23, 1994

FR: Sandra Schildt, Golder Associates Inc. *RS for*

RE: SEMIVOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: The samples were analyzed for CLP semivolatile target compound list (TCL) organics.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 to this memo provide the following information:

- Attachment 1. Glossary of Data Reporting Qualifiers
- Attachment 2. Summary of Data Qualifications
- Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
- Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

9413225.0779

Revised
4-25-94 - 001
~~002~~

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 64 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following is a summary of the minor deficiencies identified during validation which required qualification of data.

Laboratory Blanks

- Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in the method blank. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied, and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the sample and identified as common laboratory contaminants, resulting in qualification of the results as unusable (R) as shown in Attachment 3.
- TICs were detected in the sample and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

9413225.0780

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9113225.0781

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

- 9443225-0782
- B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.
 - U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
 - UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
 - J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.
 - NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
 - UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected due to associated blank contamination.
 - UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
 - R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9443225.0783

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9413225.0785

9413225.0786

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Sampl#	B09D10	
	Date	1-6-94	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
	Units	Result	Q
PHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	340.000	U
2-CHLOROPHENOL	UG/KG	340.000	U
1,3-DICHLOROBENZENE	UG/KG	340.000	U
1,4-DICHLOROBENZENE	UG/KG	340.000	U
1,2-DICHLOROBENZENE	UG/KG	340.000	U
2-METHYLPHENOL	UG/KG	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	340.000	U
4-METHYLPHENOL	UG/KG	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	340.000	U
HEXACHLOROETHANE	UG/KG	340.000	U
NITROBENZENE	UG/KG	340.000	U
ISOPHORONE	UG/KG	340.000	U
2-NITROPHENOL	UG/KG	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	340.000	U
2,4-DICHLOROPHENOL	UG/KG	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	340.000	U
NAPHTHALENE	UG/KG	340.000	U
4-CHLOROANILINE	UG/KG	340.000	U
HEXACHLOROBUTADIENE	UG/KG	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	340.000	U
2-METHYLNAPHTHALENE	UG/KG	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	840.000	U
2-CHLORONAPHTHALENE	UG/KG	340.000	U
2-NITROANILINE	UG/KG	840.000	U
DIMETHYLPHTHALATE	UG/KG	340.000	U
ACENAPHTHYLENE	UG/KG	340.000	U
3-NITROANILINE	UG/KG	840.000	U
ACENAPHTHENE	UG/KG	340.000	U

800

1/11/94
 1/11/94
 1/11/94

9413225.0787

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Samp#		B09D10	
	Date	Location	1-6-94	---
	Depth	Type	---	---
	Comments		---	
Parameter	Units	Result	Q	
2,4-DINITROPHENOL	UG/KG	840.000	U	
4-NITROPHENOL	UG/KG	840.000	U	
DIBENZOFURAN	UG/KG	340.000	U	
2,4-DINITROTOLUENE	UG/KG	340.000	U	
2,6-DINITROTOLUENE	UG/KG	340.000	U	
DIETHYLPHTHALATE	UG/KG	340.000	U	
4-CHLOROPHENYL-PHENYLETHER	UG/KG	340.000	U	
FLUORENE	UG/KG	340.000	U	
4-NITROANILINE	UG/KG	840.000	U	
4,6-DINITRO-2-METHYLPHENOL	UG/KG	840.000	U	
N-NITROSODIPHENYLAMINE	UG/KG	340.000	U	
4-BROMOPHENYL-PHENYLETHER	UG/KG	340.000	U	
HEXACHLOROBENZENE	UG/KG	340.000	U	
PENTACHLOROPHENOL	UG/KG	840.000	U	
PHENANTHRENE	UG/KG	340.000	U	
ANTHRACENE	UG/KG	340.000	U	
CARBAZOLE	UG/KG	340.000	U	
DI-N-BUTYLPHTHALATE	UG/KG	340.000	U	
FLUORANTHENE	UG/KG	340.000	U	
PYRENE	UG/KG	340.000	U	
BUTYLBENZYLPHTHALATE	UG/KG	340.000	U	
3,3'-DICHLOROBENZIDINE	UG/KG	340.000	U	
BENZO(A)ANTHRACENE	UG/KG	340.000	U	
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	340.000	U	
CHRYSENE	UG/KG	340.000	U	
DI-N-OCTYLPHTHALATE	UG/KG	340.000	U	
BENZO(B)FLUORANTHENE	UG/KG	340.000	U	
BENZO(K)FLUORANTHENE	UG/KG	340.000	U	
BENZO(A)PYRENE	UG/KG	340.000	U	
INDENO(1,2,3-CD)PYRENE	UG/KG	340.000	U	
DIBENZ(A,H)ANTHRACENE	UG/KG	340.000	U	
BENZO(G,H,I)PERYLENE	UG/KG	340.000	U	

600

Verified
4/11/94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg Q

108-95-2-----	Phenol	340	U
111-44-4-----	bis(2-Chloroethyl)ether	340	U
95-57-8-----	2-Chlorophenol	340	U
541-73-1-----	1,3-Dichlorobenzene	340	U
106-46-7-----	1,4-Dichlorobenzene	340	U
95-50-1-----	1,2-Dichlorobenzene	340	U
95-48-7-----	2-Methylphenol	340	U
108-60-1-----	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5-----	4-Methylphenol	340	U
621-64-7-----	N-Nitroso-di-n-propylamine	340	U
67-72-1-----	Hexachloroethane	340	U
98-95-3-----	Nitrobenzene	340	U
78-59-1-----	Isophorone	340	U
88-75-5-----	2-Nitrophenol	340	U
105-67-9-----	2,4-Dimethylphenol	340	U
111-91-1-----	bis(2-Chloroethoxy)methane	340	U
120-83-2-----	2,4-Dichlorophenol	340	U
120-82-1-----	1,2,4-Trichlorobenzene	340	U
91-20-3-----	Naphthalene	340	U
106-47-8-----	4-Chloroaniline	340	U
87-68-3-----	Hexachlorobutadiene	340	U
59-50-7-----	4-Chloro-3-methylphenol	340	U
91-57-6-----	2-Methylnaphthalene	340	U
77-47-4-----	Hexachlorocyclopentadiene	340	U
88-06-2-----	2,4,6-Trichlorophenol	340	U
95-95-4-----	2,4,5-Trichlorophenol	840	U
91-58-7-----	2-Chloronaphthalene	340	U
88-74-4-----	2-Nitroaniline	840	U
131-11-3-----	Dimethylphthalate	340	U
208-96-8-----	Acenaphthylene	340	U
606-20-2-----	2,6-Dinitrotoluene	340	U
99-09-2-----	3-Nitroaniline	840	U
83-32-9-----	Acenaphthene	340	U

9113225.0788

Handwritten signature and date
4/11/94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg Q

51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-butylphthalate	340	U
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo (a) anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis (2-Ethylhexyl) phthalate	340	U
117-84-0	Di-n-octyl phthalate	340	U
205-99-2	Benzo (b) fluoranthene	340	U
207-08-9	Benzo (k) fluoranthene	340	U
50-32-8	Benzo (a) pyrene	340	U
193-39-5	Indeno (1,2,3-cd) pyrene	340	U
53-70-3	Dibenz (a,h) anthracene	340	U
191-24-2	Benzo (g,h,i) perylene	340	U

340 20 ~~28~~ LI

340 22 ~~28~~ U

(1) - Cannot be separated from Diphenylamine

0033
011

9443225-0789

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

CONCENTRATION UNITS:

Number TICs found: 6

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.00	70	J
2.	ALDOL CONDENSATE	6.30	100	JA
3.	ALDOL CONDENSATE	7.37	200	JA
4.	ORGANIC ACID	16.13	200	J
5.	PHOSPHATE	23.68	400	J
6.	UNKNOWN	26.75	100	J

JN
R
R
JN
JN
JN

9413225.0790

[Handwritten Signature]
~~0034~~
012

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9413225.0791



ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

SEMIVOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were extracted on 01-13-94, 02-14-94 and analyzed according to criteria set forth in CLP SOW 3/90 for TCL Semivolatile target compounds on 01-24-94, 02-15-94.

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

1. Non-target compounds were detected in these samples.
2. All surrogate recoveries were within EPA QC limits.
3. All matrix spike recoveries were within EPA QC limits.

A matrix spike and a matrix spike duplicate for sample B09DT0 were extracted, in hold in batch 94LE0070; however there were several low recoveries in the matrix spike and consequently several RPD limits were exceeded. The MS and MSD were re-extracted out of hold and only the second set of spikes were reported; the first set of MS/MSD data is available upon client request.

4. All blank spike recoveries were within EPA QC limits.
5. The laboratory blank 94LE0070-MB1 contained the common contaminant Di-n-butylphthalate at a level less than the CRQL. The laboratory blank 94LE0305-MB1 contained the common contaminants Di-n-butylphthalate at a level less than 4x the CRQL, Butylbenzylphthalate at a level less than 3x the CRQL, and Bis(2-ethylhexyl)phthalate at a level less than the CRQL.
6. All internal standard area and retention time criteria were met.

J. Peter Hershey

J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

03.01.94.

Date

Handwritten initials and date

94113225-0792

94011205

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W U SETZER
 Company Contact L E ROGERS Telephone 376-7690
 Project Designation/Sampling Locations 200-UP-2 Collection Date 1-6-94
 Ice Chest No. ERS-11 Field Logbook No. EFL-1091
 Bill of Lading/Airbill No. NA Offsite Property No. ORSC 17596
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to WESTON
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) RADIOACTIVE

Sample Identification 94011205-001

9403225-0793

1) BO98TO

- 1,500ml P:CLP;TAL Metals,Hg,Ti *Did not rec'd 6/18/94*
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154, Eu-155, K-40, Ru-106, Na-22 (PRO-042-5), U-235, U-234, U-238 (PRO-052-32) Np-237, (PRO-042-5) Pu-238, Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38, PRO-032-25) Tc-99 (PRO-032-78) Am-241, Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154, Eu-155, K-40, Ru-106, Na-22 (PRO-042-5), U-235, U-234, U-238 (PRO-052-32) Np-237, (PRO-042-5) Pu-238, Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38, PRO-032-25) Tc-99 (PRO-032-78) Am-241, Cm-244 (PRO-052-32 or PRO-062-109) Se-79

SEP 1-10-94

3)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154, Eu-155, K-40, Ru-106, Na-22 (PRO-042-5), U-235, U-234, U-238 (PRO-052-32) Np-237, (PRO-042-5) Pu-238, Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38, PRO-032-25) Tc-99 (PRO-032-78) Am-241, Cm-244 (PRO-052-32 or PRO-062-109) Se-79

Field Transfer of Custody Chain of Possession (Sign and Print Names)

Relinquished by: <i>W. V. Setzer</i> 1115 1-6-94	Received by: <i>James E. Rogers</i>	Date/Time: 1-6-94 1115
Relinquished by: <i>James E. Rogers</i> 0715 1-10-94	Received by: <i>W. V. Setzer</i>	Date/Time: 1-10-94 0715
Relinquished by: <i>W. V. Setzer</i>	Received by:	Date/Time:
Relinquished by: <i>FLDHX</i>	Received by: <i>SP</i>	Date/Time: 1-11-94 9:30

Final Sample Disposition

Disposal Method: _____ Disposed by: _____ Date/Time: _____

Comments:

SEP 11/94
0013
015

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9113225.0794

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	B	E
PROJECT:	200-UP-2		DATA PACKAGE: 9401K205-WES-1478		
VALIDATOR:	J. Schibdt	LAB:	Weston	DATE: 4/4/94	
CASE:	NA		SDG: NA		
ANALYSES PERFORMED					
<input type="checkbox"/> CLP Volatiles	<input type="checkbox"/> SW-846 8240 (cap column)	<input type="checkbox"/> SW-846 8260 (packed column)	<input checked="" type="checkbox"/> CLP Semivolatiles	<input 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>BC9DT0/soil</u>					

9413225.0795

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: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? Yes No N/A
 Are initial calibrations acceptable? Yes No N/A
 Are continuing calibrations acceptable? Yes No 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: *Di-n-butylphthalate detected in blank. Qualification is summarized in attachment 2. Sample information not available, field QC results will be evaluated in the summary report. BEHP was detected on quantitation report but not reported on SBLK report. Sample concentration within 110x sample value. 4/11/94*

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: *The initial MS/MSD recoveries were low, therefore the MS/MSD samples were re-extracted and rerun outside of the holding time with acceptable recoveries. No qualification required.*

9113225.0796

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: Sample information unavailable. field QC results will be evaluated in the summary report.

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

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

Comments: _____

9443225.0797

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 94LE0070-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: L012406

Level: (low/med) LOW

Date Received: 01/13/94

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 7.0

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg Q

51-28-5-----	2,4-Dinitrophenol	840	U
100-02-7-----	4-Nitrophenol	840	U
132-64-9-----	Dibenzofuran	330	U
121-14-2-----	2,4-Dinitrotoluene	330	U
84-66-2-----	Diethylphthalate	330	U
7005-72-3-----	4-Chlorophenyl-phenylether	330	U
86-73-7-----	Fluorene	330	U
100-01-6-----	4-Nitroaniline	840	U
534-52-1-----	4,6-Dinitro-2-methylphenol	840	U
86-30-6-----	N-Nitrosodiphenylamine (1)	330	U
101-55-3-----	4-Bromophenyl-phenylether	330	U
118-74-1-----	Hexachlorobenzene	330	U
87-86-5-----	Pentachlorophenol	840	U
85-01-8-----	Phenanthrene	330	U
120-12-7-----	Anthracene	330	U
86-74-8-----	Carbazole	330	U
84-74-2-----	Di-n-butylphthalate	50	J
206-44-0-----	Fluoranthene	330	U
129-00-0-----	Pyrene	330	U
85-68-7-----	Butylbenzylphthalate	330	U
91-94-1-----	3,3'-Dichlorobenzidine	330	U
56-55-3-----	Benzo (a) anthracene	330	U
218-01-9-----	Chrysene	330	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	330	U
117-84-0-----	Di-n-octyl phthalate	330	U
205-99-2-----	Benzo (b) fluoranthene	330	U
207-08-9-----	Benzo (k) fluoranthene	330	U
50-32-8-----	Benzo (a) pyrene	330	U
193-39-5-----	Indeno (1,2,3-cd) pyrene	330	U
53-70-3-----	Dibenz (a,h) anthracene	330	U
191-24-2-----	Benzo (g,h,i) perylene	330	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

3/90

84/12/94
0165
022

0080, 5723, 116

917325.00
100-57216

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
58	NOT	FOUND							
59	NOT	FOUND							
60	NOT	FOUND							
61	NOT	FOUND							
62	NOT	FOUND							
63	NOT	FOUND							
64	NOT	FOUND							
65	NOT	FOUND							
66	NOT	FOUND							
67	NOT	FOUND							
68	NOT	FOUND							
69	NOT	FOUND							
70	149	1208	20:08	4	1.070	A BB	9001.	3.001 NG	0.28 ✓
71	NOT	FOUND							
72	NOT	FOUND							
73	NOT	FOUND							
74	NOT	FOUND							
75	NOT	FOUND							
76	NOT	FOUND							
77	149	1467	24:27	5	0.993	A BB	249.	0.210 NG	0.02 BEH
78	NOT	FOUND							
79	NOT	FOUND							
80	NOT	FOUND							
81	NOT	FOUND							
82	NOT	FOUND							
83	NOT	FOUND							
84	NOT	FOUND							
85	NOT	FOUND							
86	NOT	FOUND							

speche / LIMS - 1602/16/94

SBR

VR/12/94

0172

9453549D

~~9452475B~~

ATTACHMENT 42

Page 1 of 19

VOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9401L205-WES-1478 (923-E418)

2080.5728.116
9443225.0802

MEMORANDUM

TO: 200-UP-2 Project QA Record

April 23, 1994

FR: Sandra Schildt, Golder Associates Inc. *RS for*

RE: VOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: The samples were analyzed for CLP volatile target compound list (TCL) organics.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 to this memo provide the following information:

- Attachment 1. Glossary of Data Reporting Qualifiers
- Attachment 2. Summary of Data Qualifications
- Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
- Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
- Attachment 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

Revised RS
4-25-94 : 001

9403225.0803

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 33 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

No minor deficiencies were identified during validation which required qualification of data.

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993, Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9443225.0805

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

- 9113225.0806
- B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.
 - U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.
 - UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.
 - J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.
 - NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.
 - JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.
 - UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected due to associated blank contamination.
 - UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.
 - R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

9113225.0807

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

9/17/2009 10:08:46

9413225.0810

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Sampl Date	B09DT0	
	Location	1-6-94	
	Depth	---	
	Type	---	
	Comments	---	
	Units	Result	Q
CHLOROMETHANE	UG/KG	10.000	U
BROMOMETHANE	UG/KG	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U
CHLOROETHANE	UG/KG	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U
ACETONE	UG/KG	10.000	U
CARBON DISULFIDE	UG/KG	10.000	U
1,1-DICHLOROETHENE	UG/KG	10.000	U
1,1-DICHLOROETHANE	UG/KG	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	10.000	U
CHLOROFORM	UG/KG	10.000	U
1,2-DICHLOROETHANE	UG/KG	10.000	U
2-BUTANONE	UG/KG	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	10.000	U
CARBON TETRACHLORIDE	UG/KG	10.000	U
BROMODICHLOROMETHANE	UG/KG	10.000	U
1,2-DICHLOROPROPANE	UG/KG	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	10.000	U
TRICHLOROETHENE	UG/KG	10.000	U
DIBROMOCHLOROMETHANE	UG/KG	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG	10.000	U
BENZENE	UG/KG	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	10.000	U
BROMOFORM	UG/KG	10.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U
2-HEXANONE	UG/KG	10.000	U
TETRACHLOROETHENE	UG/KG	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	10.000	U
TOLUENE	UG/KG	10.000	U
CHLOROBENZENE	UG/KG	10.000	U
ETHYLBENZENE	UG/KG	10.000	U
STYRENE	UG/KG	10.000	U
XYLENES (TOTAL)	UG/KG	10.000	U

6003

Handwritten signature
1/11/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: 0011312

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: not dec. 2

Date Analyzed: 01/13/94

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

9143225.0811

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----Trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

FORM 1 VOA

3/90

*Verified
01/13/94*

~~0027~~.00!

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B09DT0

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: 0011312

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: not dec. 2

Date Analyzed: 01/13/94

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

947325.0812

~~0028~~ *Handwritten initials and date 1/11/94*

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9/13/25.0813



ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

GC/MS VOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were analyzed according to criteria set forth in CLP SOW 03/90 for TCL Volatile target compounds on 01-13,14-94.

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

1. Non-target compounds were not detected in these samples.
2. All system monitoring compound (surrogate) recoveries were within EPA QC limits.
3. All matrix spike recoveries were within EPA QC limits.
4. The laboratory blanks contained the common contaminant Acetone at levels less than 3x the CRQL.
5. All internal standard area and retention time criteria were met.
6. Sample pH information has been reported in Section XI (Preparation Logs).

Margaret M. Sealy for

J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

2/14/94

Date

94011205

Westinghouse
Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W.U. SETZER
 Company Contact L E ROGERS Telephone 376-7690
 Project Designation/Sampling Locations 200-UP-2 Collection Date 1-6-94
 Ice Chest No. EKS-11 Field Logbook No. EFL-1091
 Bill of Lading/Airbill No. NA Offsite Property No. ORIS 17596
 Method of Shipment OVERNIGHT AIR SERVICE
 Shipped to WESTON
 Possible Sample Hazards/Remarks Keep samples at 4C (SOIL) RADIOACTIVE

Sample Identification 94011205-001

940325-0815

1) B09870

- 1,500ml P:CLP;TAL Metals,Hg,Ti *Did not rec'd 6/18/94*
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

SEP 1-10-94

3)

- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

Field Transfer of Custody Chain of Possession (Sign and Print Names)

Relinquished by: <i>W.U. Setzer</i> 1-6-94	Received by: <i>L.E. Rogers</i>	Date/Time: 1-6-94 1115
Relinquished by: <i>L.E. Rogers</i> 1-10-94	Received by: <i>W.U. Setzer</i>	Date/Time: 1-10-94 0715
Relinquished by: <i>W.U. Setzer</i>	Received by:	Date/Time:
Relinquished by: <i>FLDEX</i>	Received by: <i>SP</i>	Date/Time: 1-11-94 9:30

Final Sample Disposition

Disposal Method: Disposed by: Date/Time:

Comments:

0013
013

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9180-528716

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-UP-2	DATA PACKAGE: 94011-205-WES-1478				
VALIDATOR: A. Schulz	LAB: Weston		DATE: 4/4/94		
CASE: NA	SDG: N/A				
ANALYSES PERFORMED					
<input checked="" 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 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: B09070 / soil					

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: _____

9413225.0817

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? Yes No N/A
 Are initial calibrations acceptable? Yes No N/A
 Are continuing calibrations acceptable? Yes No 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: *Sample information was not provided.*
Field QC samples will be evaluated in the
summary report.
Acetone detected in Lab blank but no detect
in sample results ∴ no qualification.

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: _____

9113225.0818

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: Sample information was not available. Field QC results will be evaluated in the summary report.

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

Comments: _____

8. COMPOUND IDENTIFICATION AND QUANTITATION

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

Comments: Ion 43 indicative of 2-butanone, was detected at a concentration > 1 ug/L but the RIC was not included to verify presence of ion 72 which is required for positive identification. No qualification required. All reported results have non-detects.

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: _____

6180 5225.0819

