METALS DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9309L997-WES-1309 (923-E418, Filename 9309L997.MET)

9413225.393

MEMORANDUM

FEB 1994
RECEIVED
TQO

TO: 200-UP-2 Project QA Record

February 18, 1994

FR: Susan Winter, Golder Associates Inc.

RE: METALS DATA VALIDATION SUMMARY FOR DATA PACKAGE: 9309L997-WES-1309 (923-E418, Filename 9309L997.MET)

INTRODUCTION

This memo presents the results of data validation on data package 9309L997-WES-1309 prepared by the Weston Analytics laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09342 B09343	09/15/93 09/15/93	SOIL SOIL	SEE NOTE 1
Note 1. All samples were analyzed for CLP TAL metals, titanium and cyanide.			

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

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

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

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

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. A total~~ of two samples were validated in this data package with a total of 50 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

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MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data as estimated.

Holding Times

- Mercury analysis was performed out of holding time for samples B09342 and B09343. Therefore, the associated results have been qualified as estimated (UJ).

Laboratory Blanks

- Nickel was detected in the continuing calibration blank at a negative concentration. Attachments 2 and 5 provide a summary of the sample affected, data qualification applied and supporting documentation.

Matrix Spike

- The matrix spike percent recovery (MS %R) for lead and titanium were unacceptable. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied and supporting documentation.

ICP Serial Dilution

- ICP serial dilution percent difference (%D) for aluminum, calcium, iron, magnesium, and manganese were greater than 10% and the sample results greater than fifty times the IDL. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied and supporting documentation.

GFAA Analytical Spikes

- Selenium and thallium GFAA analytical spikes for sample B09343 were unacceptable. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied and supporting documentation.

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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

94W3225.1397

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 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 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 contract required detection limit (CRDL) but greater than the instrument detection limit (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.

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ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

94U3225.1399

DATA QUALIFICATION SUMMARY

SDG: 9309L997-WES-1309	VALIDATOR:	DATE: February 15, 1994	PAGE 1 OF 1
COMMENTS: METALS			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
MERCURY	UJ	B09342 B09343	ANALYZED OUT OF HOLDING TIME
NICKEL	BJ	B09343	PRESENT IN CCB AT A NEGATIVE CONCENTRATION
LEAD	J	B09342 B09343	MS %R <75% BUT >30%
TITANIUM	J	B09342 B09343	MS %R >125%
ALUMINUM	J	B09342 B09343	ICP SERIAL DILUTION >10% AND SAMPLE RESULTS ARE >50xIDL
CALCIUM	J	B09342 B09343	ICP SERIAL DILUTION >10% AND SAMPLE RESULTS ARE >50xIDL
IRON	J	B09342 B09343	ICP SERIAL DILUTION >10% AND SAMPLE RESULTS ARE >50xIDL
MAGNESIUM	J	B09342 B09343	ICP SERIAL DILUTION >10% AND SAMPLE RESULTS ARE >50xIDL
MANGANESE	J	B09342 B09343	ICP SERIAL DILUTION >10% AND SAMPLE RESULTS ARE >50xIDL
SELENIUM	UJ	B09343	GFAA ANALYTICAL SPIKE <85%
THALLIUM	UJ	B09343	GFAA ANALYTICAL SPIKE <85%

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ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

94/3225.1401

9413225.1402

Validated Data Summary, Data Package: 9309L997-WES-1309

	Samp#	B09342		B09343	
	Date	9-15-93		9-15-93	
	Location	299-W19-97		299-W19-95	
	Depth	101.00 - 103.30		105.00 - 107.50	
	Type	---		---	
	Comments	SPLIT		SPLIT	
Parameter	Units	Result	Q	Result	Q
ALUMINUM	MG/KG	3510.000	J	3650.000	J
ANTIMONY	MG/KG	8.770	U	8.350	U
ARSENIC	MG/KG	2.100		2.200	
BARIUM	MG/KG	54.700		41.200	
BERYLLIUM	MG/KG	0.190	U	0.180	U
CADMIUM	MG/KG	0.950	U	0.910	U
CALCIUM	MG/KG	6790.000	J	7670.000	J
CHROMIUM	MG/KG	6.500		5.800	
COBALT	MG/KG	4.300	B	4.700	B
COPPER	MG/KG	7.800		6.800	
IRON	MG/KG	9090.000	J	8730.000	J
LEAD	MG/KG	5.700	J	4.300	J
MAGNESIUM	MG/KG	2930.000	J	3060.000	J
MANGANESE	MG/KG	197.000	J	209.000	J
MERCURY	MG/KG	0.050	UJ	0.050	UJ
NICKEL	MG/KG	5.500	B	3.400	BJ
POTASSIUM	MG/KG	972.000		862.000	B
SELENIUM	MG/KG	0.380	U	0.360	UJ
SILVER	MG/KG	1.330	U	1.270	U
SODIUM	MG/KG	105.000	B	104.000	B
THALLIUM	MG/KG	0.380	U	0.360	UJ
VANADIUM	MG/KG	15.300		14.500	
ZINC	MG/KG	23.400		23.100	
CYANIDE	MG/KG	1.050	U	2.930	
TITANIUM	MG/KG	394.000	J	368.000	J

Verified
2/18/94

600-

SOG 93099L997-WES-1309

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W19-9597
B09342
101-103.3'
Split sample

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP999

Matrix (soil/water): SOIL Lab Sample ID: 930999701

Level (low/med): LOW Date Received: 9/17/93

% Solids: 95.1

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	3510.00		E	P	
7440-36-0	Antimony	8.77	U		P	
7440-38-2	Arsenic	2.10			F	
7440-39-3	Barium	54.70			P	
7440-41-7	Beryllium	.19	U		P	
7440-43-9	Cadmium	.95	U		P	
7440-70-2	Calcium	6790.00		E	P	
7440-47-3	Chromium	6.50			P	
7440-48-4	Cobalt	4.30	B		P	
7440-50-8	Copper	7.80			P	
7439-89-6	Iron	9090.00		E	P	
7439-92-1	Lead	5.70		N*	F	
7439-95-4	Magnesium	2930.00		E	P	
7439-96-5	Manganese	197.00		E	P	
7439-97-6	Mercury	.05	~~U~~		CV	
7440-02-0	Nickel	5.50	B		P	
7440-09-7	Potassium	972.00			P	
7782-49-2	Selenium	.38	U		F	
7440-22-4	Silver	1.33	U		P	
7440-23-5	Sodium	105.00	B		P	
7440-28-0	Thallium	.38	U		F	
7440-62-2	Vanadium	15.30			P	
7440-66-6	Zinc	23.40			P	
	Cyanide	1.05	U		C	
	Titanium	394.			P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN verified 2/15/94 03/90

94/3225.1403

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
299-W19-95
B09343
105-107.5'
Split Sample

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP997

Matrix (soil/water): SOIL Lab Sample ID: 930999702

Level (low/med): LOW Date Received: 9/17/93

% Solids: 96.8

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

CAS No.	Analyte	Concentration	C	Q	M	Q
7429-90-5	Aluminum	3650.00	—	E	P	J
7440-36-0	Antimony	8.35	U		P	
7440-38-2	Arsenic	2.20			F	
7440-39-3	Barium	41.20			P	
7440-41-7	Beryllium	.18	U		P	
7440-43-9	Cadmium	.91	U		P	
7440-70-2	Calcium	7670.00	—	E	P	J
7440-47-3	Chromium	5.80			P	
7440-48-4	Cobalt	4.70	B		P	
7440-50-8	Copper	6.80			P	
7439-89-6	Iron	8730.00	—	E	P	
7439-92-1	Lead	4.30	—	NS*	F	
7439-95-4	Magnesium	3060.00	—	E	P	
7439-96-5	Manganese	209.00	—	E	P	
7439-97-6	Mercury	.05	~~U~~		CV	UJ
7440-02-0	Nickel	3.40	~~B~~		P	UJ
7440-09-7	Potassium	862.00	B		P	
7782-49-2	Selenium	.36	~~U~~	W	F	UJ
7440-22-4	Silver	1.27	U		P	
7440-23-5	Sodium	104.00	B		P	
7440-28-0	Thallium	.36	~~U~~		F	UJ
7440-62-2	Vanadium	14.50			P	
7440-66-6	Zinc	23.10			P	
	Cyanide	2.93			C	
	Titanium	368.	—		P	J

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN Sec. Sied 03/90

Stellinto 2/15/94

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~~0030~~

94/3225.1404

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

PHI 3225 1405

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

Client: WESTINGHOUSE HANFORD
RFW #: 9309L997

W.O. #: 06168-002-001-9999-00
Date Received: 09-11-93

CLP METALS

1. This narrative covers the analyses of two (2) soil samples.

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 except for mercury in the following samples:

   List samples
   9309L997-001, 002

   1.) Due to instrument failure, the above samples were analyzed six (6) days past the hold time for mercury.

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:

RFW #	Element	%Difference	RFW #	Element	%Difference
001	Aluminum	13.2	001	Magnesium	14.6
	Calcium	13.8		Manganese	17.1
	Iron	14.4			

9411325.1406

WESTON

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)
except for:

RFW #	Element	%Recovery
001	Lead	52.6

For analytes where the Matrix Spike is out of control, a Post-digestion Matrix Spike and Serial Dilution are performed (exception allowed for Ag).

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

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 except for:

RFW #	Element	%RPD
001	Lead	28.0

13. Method of Standard Additions (MSA) analyses was performed on the following sample:

Element	Sample #
Lead	002

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 IC1 and 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.

94A3225.1407

WESTON

18. The ICB was run before the ICV for Cyanide on the raw data printout.

91/3225.408

Raymond A. Siery
Inorganic Section Manager
Lionville Analytical Laboratory

11.2.93
Date

mlj/cip-met.nar

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 9-15-93

Ice Chest No.: SML 364

Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: 2536956202

Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: WESTON

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED 93092L997

Sample Identification

1) RAD B09342

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

2) B09343

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

PER 9-16-93

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)		
Relinquished by: 1050	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time: 9-17-93 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

016

~~0007~~

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9413225.1410

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: 9309L997-WES-1309
VALIDATOR: [illegible]	LAB: Weston	DATE: 02/14/94
CASE:		SDG: 9309L997-WES-1309

ANALYSES PERFORMED

☒ CLP/ICP	☒ CLP/GFAA	☒ CLP/Hg	☒ CLP/Cyanide	☒ Titanium (ICP)	☐
☐ SW-846/ICP	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846 Cyanide	☐	☐

SAMPLES/MATRIX Soil

B09342

B09343

9413225.1411

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: Mercury was analyzed at 5 holding time for both samples. Therefore, the Hg sample results have been qualified as estimated (UJ).

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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? See comments below. . Yes No N/A
Were preparation blanks analyzed? . . . . . Yes No N/A
Are preparation blank results acceptable? See comments below. Yes No N/A
Were field/trip blanks analyzed? . . . . . Yes No N/A
Are field/trip blank results acceptable? . . . . . Yes No N/A
Comments: ① ICB/CCB: Qualify Ni result for sample BC9343 as estimated (BJ) due to neg. blank value.
② Prep Blank - All sample results are greater than 5 or 10 times the assoc. blank concentration. Therefore, no qualification was required.

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:

9413225.1412

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? See below. . . . . Yes No N/A

Comments: Both B09342 and B09343 are defined as field split samples. However, the corresponding data for the corresponding samples are not currently available. The field splits will be compared to the original sample in the quarterly report.

7. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required? . . . . . Yes No N/A

Are duplicate injection %RSD values acceptable? . . . . . Yes No N/A

Were analytical spikes performed as required? . . . . . Yes No N/A

Are analytical spike recoveries acceptable? . . . . . Yes No N/A

Was MSA performed as required? . . . . . Yes No N/A

Are MSA results acceptable? . . . . . Yes No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

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

Are all results supported in the raw data? . . . . . Yes No N/A

Are results calculated properly? . . . . . Yes No N/A

Do results meet the CRDLs? . . . . . Yes No N/A

Comments: The sample results were calculated properly. However, the MSSR for Cobalt and ICP Serial dilution %D for manganese were incorrectly calculated by the laboratory. The calculation corrections are noted on the associated lab forms following this page.

9413225.1413

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary): The case narrative incorrectly noted that the %RPD for lead exceeded control limits. This was due to the use of water sample criteria (20%) instead of soil sample criteria (35%). No qualification required

9413225.1414

Validated 3/25/94

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NOV 1993
RECEIVED
SDLA

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 09/17/93 RFW LOT # :9309L997

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
B09342							
SILVER, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/23/93	38
SILVER, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/23/93	
SILVER, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/23/93	
ALUMINUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	37
ALUMINUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
ALUMINUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
ARSENIC, TOTAL	001	S	93L6933	09/15/93	10/12/93	10/23/93	38
ARSENIC, TOTAL	001 REP	S	93L6933	09/15/93	10/12/93	10/23/93	
ARSENIC, TOTAL	001 MS	S	93L6933	09/15/93	10/12/93	10/23/93	
BARIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	37
BARIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
BARIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
BERYLLIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
BERYLLIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
BERYLLIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
CALCIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
CALCIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
CALCIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
CADMIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
CADMIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
CADMIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
COBALT, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
COBALT, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
COBALT, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
CHROMIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
CHROMIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
CHROMIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
COPPER, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
COPPER, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
COPPER, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
IRON, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93	
IRON, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93	
IRON, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93	
MERCURY, TOTAL	001	S	93C0306	09/15/93	10/13/93	10/19/93	34
MERCURY, TOTAL	001 REP	S	93C0306	09/15/93	10/13/93	10/19/93	

Qualify Hg results for B09342 and B09343 as estimated (UJ).

2/14/94

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 09/17/93 RFW LOT # :9309L997

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 MS	S	93C0306	09/15/93	10/13/93	10/19/93 34
POTASSIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93 37
POTASSIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
POTASSIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
MAGNESIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93
MAGNESIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
MAGNESIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
MANGANESE, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93
MANGANESE, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
MANGANESE, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
SODIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93
SODIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
SODIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
NICKEL, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93
NICKEL, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
NICKEL, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
LEAD, TOTAL	001	S	93L6933	09/15/93	10/12/93	10/23/93 38
LEAD, TOTAL	001 REP	S	93L6933	09/15/93	10/12/93	10/23/93
LEAD, TOTAL	001 MS	S	93L6933	09/15/93	10/12/93	10/23/93
ANTIMONY, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93 37
ANTIMONY, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
ANTIMONY, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
SELENIUM, TOTAL	001	S	93L6933	09/15/93	10/12/93	10/23/93 38
SELENIUM, TOTAL	001 REP	S	93L6933	09/15/93	10/12/93	10/23/93
SELENIUM, TOTAL	001 MS	S	93L6933	09/15/93	10/12/93	10/23/93
TITANIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93 37
TITANIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
TITANIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
THALLIUM, TOTAL	001	S	93L6933	09/15/93	10/12/93	10/23/93 38
THALLIUM, TOTAL	001 REP	S	93L6933	09/15/93	10/12/93	10/23/93
THALLIUM, TOTAL	001 MS	S	93L6933	09/15/93	10/12/93	10/23/93
VANADIUM, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93 37
VANADIUM, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
VANADIUM, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
ZINC, TOTAL	001	S	93L6934	09/15/93	10/12/93	10/22/93
ZINC, TOTAL	001 REP	S	93L6934	09/15/93	10/12/93	10/22/93
ZINC, TOTAL	001 MS	S	93L6934	09/15/93	10/12/93	10/22/93
Cyanide B09343				9/15/93	9/29/93	9/29/93 14
SILVER, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/23/93 38

2/14/94

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 09/17/93 RFW LOT # :9309L997

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93 37
ARSENIC, TOTAL	002	S	93L6933	09/15/93	10/12/93	10/23/93 38
BARIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93 37
BERYLLIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
CALCIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
CADMIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
COBALT, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
CHROMIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
COPPER, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
IRON, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
MERCURY, TOTAL	002	S	93C0306	09/15/93	10/13/93	10/19/93 34
POTASSIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93 37
MAGNESIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
MANGANESE, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
SODIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
NICKEL, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
LEAD, TOTAL	002	S	93L6933	09/15/93	10/12/93	10/23/93 38
ANTIMONY, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93 37
SELENIUM, TOTAL	002	S	93L6933	09/15/93	10/12/93	10/23/93 38
TITANIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93 37
THALLIUM, TOTAL	002	S	93L6933	09/15/93	10/12/93	10/23/93 38
VANADIUM, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93 37
ZINC, TOTAL	002	S	93L6934	09/15/93	10/12/93	10/22/93
Cyanide				9/15/93	9/27/93	9/28/93 13

LAB QC:

SILVER LABORATORY	LC1 BS	S	93L6934	N/A	10/12/93	10/23/93
SILVER LABORATORY	LC2 BS	S	93L6934	N/A	10/12/93	10/23/93
SILVER, TOTAL	MB1	S	93L6934	N/A	10/12/93	10/23/93
ALUMINUM LABORTORY	LC1 BS	S	93L6934	N/A	10/12/93	10/22/93
ALUMINUM LABORTORY	LC2 BS	S	93L6934	N/A	10/12/93	10/22/93
ALUMINUM, TOTAL	MB1	S	93L6934	N/A	10/12/93	10/22/93
ARSENIC LABORATORY	LC1 BS	S	93L6933	N/A	10/12/93	10/23/93
ARSENIC LABORATORY	LC2 BS	S	93L6933	N/A	10/12/93	10/23/93
ARSENIC, TOTAL	MB1	S	93L6933	N/A	10/12/93	10/23/93
BARIUM LABORATORY	LC1 BS	S	93L6934	N/A	10/12/93	10/22/93
BARIUM LABORATORY	LC2 BS	S	93L6934	N/A	10/12/93	10/22/93
BARIUM, TOTAL	MB1	S	93L6934	N/A	10/12/93	10/22/93

2/14/94

BLANK AND SAMPLE DATA SUMMARY

SDG: 93091.997-WES-1309	VALIDATOR: [illegible]	DATE: 2/15/94	PAGE 1 OF 1
COMMENTS: Laboratory Blank			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ICB2	Nickel	-15	B		ug/L	1x2 = 30	ug/L	B09343	BJ

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.: CLP997

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

9413225.1419

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	48.0	U	48.0	U	48.0	U	48.0	U	9.600	U	P
Antimony	46.0	U	46.0	U	46.0	U	46.0	U	9.200	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	.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	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Calcium	28.0	U	28.0	U	28.0	U	28.0	U	5.600	U	P
Chromium	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Cobalt	7.0	U	7.0	U	7.0	U	7.0	U	1.400	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	8.1	B	1.400	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	.560	B	F
Magnesium	58.0	U	58.0	U	58.0	U	58.0	U	11.600	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	-.400	B	P
Mercury	.1	U	.1	U	.1	U			.050	U	CV
Nickel	12.0	U	12.0	U	-15.0	B	12.0	U	2.400	U	P
Potassium	905.0	U	905.0	U	905.0	U	905.0	U	181.000	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Sodium	47.0	U	47.0	U	47.0	U	47.0	U	9.400	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Vanadium	4.6	B	3.0		3.0	U	3.3	B	.600	U	P
Zinc	3.0	U	3.0	U	3.0	U	3.0	U	1.200	B	P
Cyanide	10.0	U	10.0	U	10.0	U			1.000	U	C

FORM III - IN 03/90

~~Assoc w/~~ 2/15/94

Assoc w/ B-9342

Assoc w/ B-9343

2/15/94

025

~~0034~~

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B09342S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP997

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 95.1

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	82.0000		8.7722	U	95.30	86.0		P
Arsenic	75-125	9.3000		2.1000		7.60	94.7		F
Barium	75-125	421.7000		54.7000		381.40	96.2		P
Beryllium	75-125	8.7000		.1907	U	9.50	91.2		P
Cadmium	75-125	9.0000		.9535	U	9.50	94.2		P
Calcium									NR
Chromium	75-125	41.8000		6.5000		38.10	92.7		P
Cobalt	75-125	94.7000		4.3000	B	95.30	94.9 ~~99.3~~		P
Copper	75-125	51.5000		7.8000		47.70	92.0		P
Iron									NR
Lead	75-125	7.7000		5.7000		3.80	52.6	N	F
Magnesium									NR
Manganese	75-125	286.2000		196.7000		95.30	93.9		P
Mercury	75-125	.4950		.0526	U	.53	93.4		CV
Nickel	75-125	95.5000		5.5000	B	95.30	94.4		P
Potassium									NR
Selenium	75-125	1.6000		.3814	U	1.90	84.2		F
Silver	75-125	8.1000		1.3349	U	9.50	84.8		P
Sodium									NR
Thallium		8.8000		.3814	U	9.50	92.6		F
Vanadium	75-125	106.7000		15.3000		95.30	95.9		P
Zinc	75-125	112.9000		23.4000		95.30	93.9		P
Cyanide									NR

Comments: Cobalt %R = $\left(\frac{94.7 - 4.3}{95.3}\right) \times 100 = 94.86 = 94.9\%$

FORM V (Part 1) - IN 03/90

Qualify lead sample results as estimated (J).

2/14/94

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 10/27/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9309L997

WORK ORDER: 06168-002-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B09342	Silver, Total	8.1	1.9 u	9.5	85.3	1.0
		Aluminum, Total	4020	3510	381	132 *	1.0
		Arsenic, Total	9.3	2.1	7.6	94.7	1.0
		Barium, Total	422	54.7	381	96.2	1.0
		Beryllium, Total	8.7	0.95u	9.5	91.6	1.0
		Calcium, Total	12600	6790	4770	123	1.0
		Cadmium, Total	9.0	0.95u	9.5	94.7	1.0
		Cobalt, Total	94.7	9.5 u	95.3	99.4	1.0
		Chromium, Total	41.8	6.5	38.1	92.7	1.0
		Copper, Total	51.5	7.8	47.7	91.6	1.0
		Iron, Total	9430	9090	191	180 *	1.0
		Mercury, Total	0.50	0.10u	0.53	94.1	1.0
		Potassium, Total	5270	972	4770	90.1	1.0
		Magnesium, Total	7700	2930	4770	100	1.0
		Manganese, Total	286	197	95.3	93.9	1.0
		Sodium, Total	4670	954 u	4770	97.9	1.0
		Nickel, Total	95.5	7.6 u	95.3	100	1.0
		Lead, Total	7.7	5.7	3.8	52.6	1.0
		Antimony, Total	82.0	11.4 u	95.3	86.0	1.0
		Selenium, Total	1.6	0.95u	1.9	84.2	1.0
		Titanium, Total	667	394	191	143	1.0
		Thallium, Total	8.8	1.9 u	9.5	92.6	1.0
		Vanadium, Total	107	15.3	95.3	95.9	1.0
		Zinc, Total	113	23.4	95.3	93.9	1.0

Qualify titanium sample results as estimated (J).

2/15/94

9413225.1421

027

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U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B09342L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP997

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	18413.30		20845.51		13.2	E	P
Antimony	46.00	U	230.00	U			P
Arsenic							
Barium	287.00		333.50	B	16.2		P
Beryllium	1.00	U	5.00	U			P
Cadmium	5.00	U	25.00	U			P
Calcium	35596.50		40509.49		13.8	E	P
Chromium	33.90		34.00	B	.3		P
Cobalt	22.80	B	46.50	B	103.9		P
Copper	40.90		57.50	B	40.6		P
Iron	47655.20		54534.00		14.4	E	P
Lead							
Magnesium	15361.80		17606.50	B	14.6	E	P
Manganese	1031.50		1171.50		~~17.1~~	E	P
Mercury							
Nickel	28.90	B	60.00	U	100.0		P
Potassium	5098.50		8157.50	B	60.0		P
Selenium							
Silver	7.00	U	35.00	U			P
Sodium	549.70	B	794.00	B	44.4		P
Thallium							
Vanadium	80.30		96.50	B	20.2		P
Zinc	122.80		140.00		14.0		P

13.6

FORM IX - IN

03/90

$$Mn\ \%D = \frac{|\cancel{303}\ 1031.5 - 1171.5|}{1031.5} \times 100 = 13.6\%$$

Qualify Al, Ca, Fe, Mg & Mn results as estimated (J).

2/15/94

-028

~~0047~~

9413225.1422

ACCURACY DATA SUMMARY

93091-997-WES-1309

SDG:	VALIDATOR:	DATE: 2/15/94	PAGE 1 OF 1	
COMMENTS: GFAA Analytical Spikes				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09343	Lead	80.4	B09343	None - analyzed by MSA
B09343	Selenium	78.9	B09343	UJ
B09343	Thallium	83.4	B09343	UJ

SEMIVOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE:
9309L997-WES-1309 (923-E418, Filename 9309L997.BNA)

9417225.1424

FEB 1994
RECEIVED
100

MEMORANDUM

TO: 200-UP-2 Project QA Record

February 18, 1994

FR: Susan Winter, Golder Associates Inc.

RE: SEMIVOLATILE ORGANIC DATA VALIDATION SUMMARY FOR DATA PACKAGE: 9309L997-WES-1309 (923-E418, Filename 9309L997.BNA)

9413225.1425

INTRODUCTION

This memo presents the results of data validation on data package 9309L997-WES-1309 prepared by the Weston Analytics laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09342 B09343	09/15/93 09/15/93	SOIL SOIL	SEE NOTE 1
Note 1. All samples were analyzed for CLP TCL semivolatiles.			

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

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

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. A total of two samples were validated in this data package with a total of 128 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

001

MAJOR DEFICIENCIES

The following major deficiencies were identified during data validation which required qualification of data as unusable.

- Tentatively identified compounds (TIC) identified as aldol condensate compounds have been qualified as unusable (R) since they are suspected laboratory contaminants. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied and supporting documentation. However, these qualifications do not affect the percent completeness since the TICs are not TCL compounds.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Continuing Calibration

- Continuing calibration verification percent difference (CCV %D) for pentachlorophenol was greater than 25%. Therefore, the associated result for sample B09342 has been qualified as estimated (UJ).

Laboratory Blanks

- Several compounds, as listed in Attachment 2, were detected in the associated laboratory blanks. Therefore, associated results less than five or ten times the respective blank concentration have been qualified as undetected (U).

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.

9413225.1426

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9413225.1427

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

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.

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.

91A3225.1428

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9113225.1429

DATA QUALIFICATION SUMMARY

SDG: 9309L997-WES-1309	VALIDATOR:	DATE: February 18, 1994	PAGE 1 OF 1
COMMENTS: SEMIVOLATILE ORGANICS			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
PENTACHLOROPHENOL	UJ	B09342	CCV %D >25%
BIS(2-ETHYLHEXYL)PHTHALATE	U	B09342	PRESENT IN BLANK
TIC - UNKNOWN @ 7.03 MIN.	U	B09342	PRESENT IN BLANK
TIC - ALDOL CONDENSATE @ 6.04, 6.65, 8.07, AND 9.39 MIN.	R	B09342	LABORATORY CONTAMINANT
TIC - ALDOL CONDENSATE @ 6.05, 6.66, 8.08, 8.63, AND 9.40 MIN.	R	B09343	LABORATORY CONTAMINANT
NAPHTHALENE	U	B09343	PRESENT IN BLANK
2-METHYLNAPHTHALENE	U	B09343	PRESENT IN BLANK
ACENAPHTHYLENE	U	B09343	PRESENT IN BLANK
DIBENZOFURAN	U	B09343	PRESENT IN BLANK
FLUORENE	U	B09343	PRESENT IN BLANK
PHENANTHRENE	U	B09343	PRESENT IN BLANK
ANTHRACENE	U	B09343	PRESENT IN BLANK
CARBAZOLE	U	B09343	PRESENT IN BLANK
FLUORANTHENE	U	B09343	PRESENT IN BLANK
PYRENE	U	B09343	PRESENT IN BLANK
BENZO(A)ANTHRACENE	U	B09343	PRESENT IN BLANK
CHRYSENE	U	B09343	PRESENT IN BLANK
BIS(2-ETHYLHEXYL)PHTHALATE	U	B09343	PRESENT IN BLANK
TIC - UNKNOWN @ 7.04 MIN.	U	B09343	PRESENT IN BLANK
TIC - UNKNOWN @ 18.48 MIN.	JN	B09342	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES
TIC - ORGANIC ACID @ 21.25 MIN.	JN	B09342 B09342	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES
TIC - ADIPATE @ 23.99 MIN.	JN	B09342	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES
TIC - UNKNOWN @ 24.65 MIN.	JN	B09342	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES
TIC - UNKNOWN @ 24.66 MIN.	JN	B09343	IDENTIFIED AS A VALID RESULT USING DATA VALIDATION PROCEDURES

9413225.1430

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

94/3225.1431

Validated Data Summary, Data Package: 9309L997-WES-1309

	Samp#	B09342		B09343	
	Date	9-15-93		9-15-93	
	Location	299-W19-97		299-W19-95	
	Depth	101.0 - 103.3		105.0 - 107.5	
	Type	---		---	
	Comments	SPLIT		SPLIT	
Parameter	Units	Result	Q	Result	Q
PHENOL	UG/KG	18.000	J	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	350.000	U	340.000	U
2-CHLOROPHENOL	UG/KG	350.000	U	340.000	U
1,3-DICHLOROBENZENE	UG/KG	350.000	U	340.000	U
1,4-DICHLOROBENZENE	UG/KG	350.000	U	340.000	U
1,2-DICHLOROBENZENE	UG/KG	350.000	U	340.000	U
2-METHYLPHENOL	UG/KG	350.000	U	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	350.000	U	340.000	U
4-METHYLPHENOL	UG/KG	350.000	U	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	350.000	U	340.000	U
HEXACHLOROETHANE	UG/KG	350.000	U	340.000	U
NITROBENZENE	UG/KG	350.000	U	340.000	U
ISOPHORONE	UG/KG	350.000	U	340.000	U
2-NITROPHENOL	UG/KG	350.000	U	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	350.000	U	340.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	350.000	U	340.000	U
2,4-DICHLOROPHENOL	UG/KG	350.000	U	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	350.000	U	340.000	U
NAPHTHALENE	UG/KG	550.000		340.000	U
4-CHLOROANILINE	UG/KG	350.000	U	340.000	U
HEXACHLOROBUTADIENE	UG/KG	350.000	U	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	350.000	U	340.000	U
2-METHYLNAPHTHALENE	UG/KG	70.000	J	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	350.000	U	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	350.000	U	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	880.000	U	850.000	U
2-CHLORONAPHTHALENE	UG/KG	350.000	U	340.000	U
2-NITROANILINE	UG/KG	880.000	U	850.000	U
DIMETHYLPHTHALATE	UG/KG	350.000	U	340.000	U
ACENAPHTHYLENE	UG/KG	60.000	J	340.000	U
3-NITROANILINE	UG/KG	880.000	U	850.000	U
ACENAPHTHENE	UG/KG	26.000	J	340.000	U

Verified.
3/18/94

Validated Data Summary, Data Package: 9309L997-WES-1309

	Sample#	B09342		B09343	
	Date	9-15-93		9-15-93	
	Location	299-W19-97		299-W19-95	
	Depth	101.0 - 103.3		105.0 - 107.5	
	Type	---		---	
	Comments	SPLIT		SPLIT	
Parameter	Units	Result	Q	Result	Q
2,4-DINITROPHENOL	UG/KG	880.000	U	850.000	U
4-NITROPHENOL	UG/KG	880.000	U	850.000	U
DIBENZOFURAN	UG/KG	73.000	J	340.000	U
2,4-DINITROTOLUENE	UG/KG	350.000	U	340.000	U
2,6-DINITROTOLUENE	UG/KG	350.000	U	340.000	U
DIETHYLPHTHALATE	UG/KG	350.000	U	340.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	350.000	U	340.000	U
FLUORENE	UG/KG	84.000	J	340.000	U
4-NITROANILINE	UG/KG	880.000	U	850.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	880.000	U	850.000	U
N-NITROSODIPHENYLAMINE	UG/KG	350.000	U	340.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	350.000	U	340.000	U
HEXACHLOROBENZENE	UG/KG	350.000	U	340.000	U
PENTACHLOROPHENOL	UG/KG	880.000	UJ	850.000	U
PHENANTHRENE	UG/KG	300.000	JB	340.000	U
ANTHRACENE	UG/KG	58.000	J	340.000	U
CARBAZOLE	UG/KG	45.000	J	340.000	U
DI-N-BUTYLPHTHALATE	UG/KG	17.000	J	19.000	J
FLUORANTHENE	UG/KG	190.000	JB	340.000	U
PYRENE	UG/KG	140.000	J	340.000	U
BUTYLBENZYLPHTHALATE	UG/KG	350.000	U	340.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	350.000	U	340.000	U
BENZO(A)ANTHRACENE	UG/KG	59.000	J	340.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	350.000	U	340.000	U
CHRYSENE	UG/KG	60.000	J	340.000	U
DI-N-OCTYLPHTHALATE	UG/KG	350.000	U	340.000	U
BENZO(B)FLUORANTHENE	UG/KG	42.000	J	340.000	U
BENZO(K)FLUORANTHENE	UG/KG	45.000	J	340.000	U
BENZO(A)PYRENE	UG/KG	48.000	J	340.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	27.000	J	340.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	350.000	U	340.000	U
BENZO(G,H,I)PERYLENE	UG/KG	19.000	J	340.000	U

Verified.
[illegible] 2/18/94

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SOG 9309L997-WES-1309

CLIENT SAMPLE NO. 299-W19-97

B09342

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

101'-103.3'
Field Split

Matrix: (soil/water) SOIL

Lab Sample ID: 9309L997-001

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

Lab File ID: A100516

Level: (low/med) LOW

Date Received: 09/17/93

% Moisture: 5 decanted: (Y/N)

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/05/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	18	J
111-44-4	bis(2-Chloroethyl)ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-di-n-propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	550	
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-methylphenol	350	U
91-57-6	2-Methylnaphthalene	70	J
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	880	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	880	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	60	J
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	880	U
83-32-9	Acenaphthene	26	J

Q

verified 3/16/94

9413225.1434

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
299-W19-97

B09342
101' - 103.3'
Field Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL — Lab Sample ID: 9309L997-001

Sample wt/vol: 30.0 (g/mL) G — Lab File ID: A100516

Level: (low/med) LOW — Date Received: 09/17/93

% Moisture: 5 decanted: (Y/N)__ — Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL) — Date Analyzed: 10/05/93

Injection Volume: 2.0(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	Q
51-28-5	2,4-Dinitrophenol	880	U	
100-02-7	4-Nitrophenol	880	U	
132-64-9	Dibenzofuran	73	J	
121-14-2	2,4-Dinitrotoluene	350	U	
84-66-2	Diethylphthalate	350	U	
7005-72-3	4-Chlorophenyl-phenylether	350	U	
86-73-7	Fluorene	84	J	
100-01-6	4-Nitroaniline	880	U	
534-52-1	4,6-Dinitro-2-methylphenol	880	U	
86-30-6	N-Nitrosodiphenylamine (1)	350	U	
101-55-3	4-Bromophenyl-phenylether	350	U	
118-74-1	Hexachlorobenzene	350	U	
87-86-5	Pentachlorophenol	880	~~U~~	UJ
85-01-8	Phenanthrene	300	JB	
120-12-7	Anthracene	58	J	
86-74-8	Carbazole	45	J	
84-74-2	Di-n-butylphthalate	17	J	
206-44-0	Fluoranthene	190	JB	
129-00-0	Pyrene	140	J	
85-68-7	Butylbenzylphthalate	350	U	
91-94-1	3,3'-Dichlorobenzidine	350	U	
56-55-3	Benzo(a)anthracene	59	J	
218-01-9	Chrysene	60	J	
117-81-7	bis(2-Ethylhexyl)phthalate	350 ~~29~~	~~JB~~	U
117-84-0	Di-n-octyl phthalate	350	U	
205-99-2	Benzo(b)fluoranthene	42	J	
207-08-9	Benzo(k)fluoranthene	45	J	
50-32-8	Benzo(a)pyrene	48	J	
193-39-5	Indeno(1,2,3-cd)pyrene	27	J	
53-70-3	Dibenz(a,h)anthracene	350	U	
191-24-2	Benzo(g,h,i)perylene	19	J	

(1) - Cannot be separated from Diphenylamine

verified 2/16/94

FORM 1 SV-2 3/90

9413225.1435

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
299-W319-97

B09342
101'-103.3'

Field Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9309L997-001

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

Lab File ID: A100516

Level: (low/med) LOW

Date Received: 09/17/93

% Moisture: 5 decanted: (Y/N)__

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/05/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.9

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
~~1.~~	~~ALDOL CONDENSATE~~	~~6.04~~	~~1000~~	~~JAB~~
~~2.~~	~~ALDOL CONDENSATE~~	~~6.65~~	~~40000~~	~~JAB~~
3.	UNKNOWN	7.03	80	~~JB~~
~~4.~~	~~ALDOL CONDENSATE~~	~~8.07~~	~~200~~	~~JA~~
~~5.~~	~~ALDOL CONDENSATE~~	~~9.39~~	~~100~~	~~JA~~
6.	UNKNOWN	18.48	100	~~J~~
7.	ORGANIC ACID	21.35	200	~~J~~
8.	ADIPATE	23.99	70	~~J~~
9.	UNKNOWN	24.65	300	~~J~~

Q
RR
RR
RRRRRRRR

Verified
2/16/94

FORM 1 SV-TIC 3/90

9413225.1436

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
299-W19-95
B09343
105-107.5
Field Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL — Lab Sample ID: 9309L997-002

Sample wt/vol: 30.3 (g/mL) G — Lab File ID: A100714

Level: (low/med) LOW — Date Received: 09/17/93

% Moisture: 3 decanted: (Y/N)__ — Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL) — Date Analyzed: 10/07/93

Injection Volume: 2.0(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.7

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

CAS NO.	COMPOUND	ug/Kg	Q	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 ~~210~~	~~JB~~	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 ~~25~~	~~JB~~	U
77-47-4	Hexachlorocyclopentadiene	340	U	
88-06-2	2,4,6-Trichlorophenol	340	U	
95-95-4	2,4,5-Trichlorophenol	850	U	
91-58-7	2-Chloronaphthalene	340	U	
88-74-4	2-Nitroaniline	850	U	
131-11-3	Dimethylphthalate	340	U	
208-96-8	Acenaphthylene	340 ~~19~~	~~JB~~	U
606-20-2	2,6-Dinitrotoluene	340	U	
99-09-2	3-Nitroaniline	850	U	
83-32-9	Acenaphthene	340	U	

verified 2/16/94

FORM 1 SV-1 3/90

9413225.1437

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO. 299-W19-95

B09343 105-107.5

Field Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9309L997-002

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: A100714

Level: (low/med) LOW

Date Received: 09/17/93

% Moisture: 3 decanted: (Y/N)__

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/07/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	Q
51-28-5	2,4-Dinitrophenol	850	U	
100-02-7	4-Nitrophenol	850	U	
132-64-9	Dibenzofuran	340 ~~24~~	~~JB~~	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 ~~32~~	~~JB~~	U
100-01-6	4-Nitroaniline	850	U	
534-52-1	4,6-Dinitro-2-methylphenol	850	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	850	U	
85-01-8	Phenanthrene	340 ~~120~~	~~JB~~	U
120-12-7	Anthracene	340 ~~25~~	~~JB~~	U
86-74-8	Carbazole	340 ~~16~~	~~JB~~	U
84-74-2	Di-n-butylphthalate	19	J	
206-44-0	Fluoranthene	340 ~~71~~	~~JB~~	U
129-00-0	Pyrene	340 ~~59~~	~~JB~~	U
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	340	U	
56-55-3	Benzo(a)anthracene	340 ~~21~~	~~JB~~	U
218-01-9	Chrysene	340 ~~20~~	~~JB~~	U
117-81-7	bis(2-Ethylhexyl)phthalate	340 ~~49~~	~~JB~~	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	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 3/90

Verified 2/16/94

014 ~~0032~~

PW13225.1438

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
299-W19-95
B09343
105-107.5'
Field Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9309L997-002

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: A100714

Level: (low/med) LOW

Date Received: 09/17/93

% Moisture: 3 decanted: (Y/N)__

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/07/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.7

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Q
~~1.~~	~~ALDOL CONDENSATE~~	~~6.85~~	~~900~~	~~JA~~	R
~~2.~~	~~ALDOL CONDENSATE~~	~~6.66~~	~~30000~~	~~JA~~	R
3.	UNKNOWN	7.04	90	~~JB~~	U
~~4.~~	~~ALDOL CONDENSATE~~	~~8.08~~	~~100~~	~~JA~~	R
~~5.~~	~~ALDOL CONDENSATE~~	~~8.63~~	~~100~~	~~JA~~	R
~~6.~~	~~ALDOL CONDENSATE~~	~~9.40~~	~~90~~	~~JA~~	R
7.	ORGANIC ACID	21.35	200	~~J~~	UJ
8.	UNKNOWN	24.66	200	~~J~~	UJ

Verified 2/16/94

FORM 1 SV-TIC 3/90

9413225.1439

VESTON, INC.
YTICAL LABORATORY
CASE NARRATIVE

W.O. #: 06168-002-001-9999-00
Date Received: 09-17-93

NT 4

OF-CUSTODY DOCUMENTATION

0441 3225 1440

oil samples collected on 09-15-93.

id analyzed according to criteria set forth in CLP
ompounds on 10-05,07-93.

esults accompanying these sample results and a
during their analyses:

ed in these samples.

n EPA QC limits.

spike recoveries were outside EPA QC limits.

hin EPA QC limits.

-MB1 contained the common contaminants
hthalate and the target compounds Naphthalene,
ene, Dibenzofuran, Fluorene, Phenanthrene,
thene, Pyrene, Benzo(a)anthracene, Chrysene,
luoranthene, Benzo(a)pyrene, Indeno(1,2,3-
at levels less than the CRQL.

IB1 contained the common contaminant Bis(2-
compounds Phenanthrene and Fluoranthene at

ntion time criteria were met.

10.27.93
Date

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2

Collection Date: 9-15-93

Ice Chest No.: SML 364

Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: 2536956202

Offsite Property No.:

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: WESTON

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED 93092997

Sample Identification

1) RAD B09342

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

001

2) B09343

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

002

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

~~RER 9-16-93~~

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

Relinquished by:	Received by:	Date/Time:
1050 [signature] 9-16-93		
Relinquished by: [signature]	Received by: [signature]	Date/Time: 9-17-93 1700
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

IMENT 5

ORTING DOCUMENTATION

9413225.1442

02, Rev. 2

IDATION CHECKLIST

C	D	E
ATA PACKAGE: 9309L997-WES-1309		
	DATE: 02/15/94	
DG: 9309L997-WES-1309		
RFORMED		
CLP rhivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
	☐	☐

RRATIVE

resent? . . . . . Yes No N/A

. . . . . Yes No N/A

. . . . . Yes No N/A

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: CCV 3D for Pentachlorophenol, assoc. w/ sample B09342, was >25%. Therefore, the assoc. result was qualified as estimated (UJ).

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: See attached blank forms for blank contamination.

Associated results less than five or ten times the respective blank concentration have been qualified as undetected (U). See the last page of this checklist for further comments.

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 MS & MSD %R for 2,4-dinitrotoluene are above the control limits as 94% and 93%, respectively. No qualification is required as the MS/MSD recovery - above the 10%.

2/13/94

9413225.1443

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: Samples B09342 and B09343 were identified as field splits and will be compared to the original sample in the quarterly project 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:

9413225.1444

GC/MS ORGANIC DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary):

Blanks

The results for phenanthrene and fluoranthene in sample B0934L were not qualified as undetected (U) since the sample concentrations are greater than five times the blank concentration. 2/18/94

Missing page

The semivolatile data package was missing the page numbered '45'. No qualification was required since the data was still fully validatable

2/18/94

2/18/94

9413225.1445

Roy F. Weston, Inc. - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 09/17/93 RFW LOT # :9309L997

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	# Days	ANALYSIS	# Days
B09342	001	S	93LE1690	09/15/93	09/27/93	12	10/05/93	8
B09343	002	S	93LE1687	09/15/93	09/27/93		10/07/93	
B09343	002 MS	S	93LE1687	09/15/93	09/27/93		10/07/93	
B09343	002 MSD	S	93LE1687	09/15/93	09/27/93		10/07/93	

LAB QC:

SBLK	MB1	S	93LE1690	N/A	09/27/93	10/05/93
SBLK	MB1 BS	S	93LE1690	N/A	09/27/93	10/05/93
SBLK	MB1 BSD	S	93LE1690	N/A	09/27/93	10/05/93
SBLK	MB1	S	93LE1687	N/A	09/27/93	10/07/93
SBLK	MB1 BS	S	93LE1687	N/A	09/27/93	10/07/93

Samples were extracted and analyzed within the required holding time. No qualification is required.

2/15/94

9413225.1446

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9309L997-002

MATRIX Spike - Sample No.: B09343 Level (low/med): LOW

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	MS CONCENTRATION UG/KG	MS % REC #	QC LIMITS REC.
Phenol	2580	0	1570	61	26 - 90
2-Chlorophenol	2580	0	1700	66	25 -102
1,4-Dichlorobenzene	1720	0	1080	63	28 -104
N-Nitroso-di-n-prop.(1)	1720	0	1430	83	41 -126
1,2,4-Trichlorobenzene	1720	0	1260	73	38 -107
4-Chloro-3-methylphenol	2580	0	2050	79	26 -103
Acenaphthene	1720	0	1340	78	31 -137
4-Nitrophenol	2580	0	2570	99	11 -114
2,4-Dinitrotoluene	1720	0	1620	94 *	28 - 89
Pentachlorophenol	2580	0	2600	101	17 -109
Pyrene	1720	59.3	1610	90	35 -142

COMPOUND	SPIKE ADDED UG/KG	MSD CONCENTRATION UG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Phenol	2560	1480	58	5	35	26 - 90
2-Chlorophenol	2560	1570	61	7	50	25 -102
1,4-Dichlorobenzene	1710	1030	60	4	27	28 -104
N-Nitroso-di-n-prop.(1)	1710	1460	86	3	38	41 -126
1,2,4-Trichlorobenzene	1710	1190	70	4	23	38 -107
4-Chloro-3-methylphenol	2560	1860	72	9	33	26 -103
Acenaphthene	1710	1260	74	5	19	31 -137
4-Nitrophenol	2560	2600	101	2	50	11 -114
2,4-Dinitrotoluene	1710	1580	93 *	1	47	28 - 89
Pentachlorophenol	2560	2580	101	0	47	17 -109
Pyrene	1710	1690	95	5	36	35 -142

(1) N-Nitroso-di-n-propylamine No qualification is required.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS:

2/15/94

9413225.1447

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9309L997

Instrument ID: 5971A Calibration Date: 10/05/93 Time: 0851

Lab File ID: A100502 Init. Calib. Date(s): 10/04/93 10/04/93

Init. Calib. Times: 0857 1224

Assoc. w/ R09342

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.531	1.842		-20.3	
4-Chlorophenyl-phenylether	0.617	0.686	0.400	-11.2	25.0
Fluorene	1.102	1.230	0.900	-11.6	25.0
4-Nitroaniline	0.345	0.429		-24.3	
4,6-Dinitro-2-methylphenol	0.175	0.204		-16.6	
N-Nitrosodiphenylamine (1)	0.417	0.460		-10.3	
4-Bromophenyl-phenylether	0.200	0.238	0.100	-19.0	25.0
Hexachlorobenzene	0.256	0.293	0.100	-14.5	25.0
Pentachlorophenol	0.167	0.212	0.050	-26.9	25.0
Phenanthrene	0.902	0.955	0.700	-5.9	25.0
Anthracene	0.904	0.959	0.700	-6.1	25.0
Carbazole	0.707	0.861		-21.8	
Di-n-butylphthalate	1.277	1.487		-16.4	
Fluoranthene	0.923	1.048	0.600	-13.5	25.0
Pyrene	1.303	1.268	0.600	2.7	25.0
Butylbenzylphthalate	0.745	0.828		-11.1	
3,3'-Dichlorobenzidine	0.402	0.465		-15.7	
Benzo(a)anthracene	1.085	1.167	0.800	-7.6	25.0
Chrysene	0.997	1.047	0.700	-5.0	25.0
bis(2-Ethylhexyl)phthalate	0.936	1.058		-13.0	
Di-n-octyl phthalate	2.141	2.221		-3.7	
Benzo(b)fluoranthene	1.386	1.363	0.700	1.7	25.0
Benzo(k)fluoranthene	1.298	1.281	0.700	1.3	25.0
Benzo(a)pyrene	1.287	1.332	0.700	-3.5	25.0
Indeno(1,2,3-cd)pyrene	1.277	1.241	0.500	2.8	25.0
Dibenz(a,h)anthracene	1.033	0.999	0.400	3.3	25.0
Benzo(g,h,i)perylene	1.182	1.132	0.500	4.2	25.0
Nitrobenzene-d5	0.427	0.488	0.200	-14.3	25.0
2-Fluorobiphenyl	1.229	1.363	0.700	-10.9	25.0
Terphenyl-d14	0.847	0.874	0.500	-3.2	25.0
Phenol-d5	1.910	1.851	0.800	3.1	25.0
2-Fluorophenol	1.792	1.844	0.500	-2.9	25.0
2,4,6-Tribromophenol	0.167	0.197		-18.0	
2-Chlorophenol-d4	1.421	1.514	0.800	-6.5	25.0
1,2-Dichlorobenzene-d4	0.833	0.886	0.400	-6.4	25.0

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-2 3/90 Rev.

9413225.1448

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL — Lab Sample ID: 93LE1690-MB1

Sample wt/vol: 30.0 (g/mL) G — Lab File ID: A100513

Level: (low/med) LOW — Date Received: 09/27/93

% Moisture: _____ decanted: (Y/N)__ — Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL) — Date Analyzed: 10/05/93

Injection Volume: 2.0(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y — pH: 7.0 — Assoc. w/ B09342

CAS NO.	COMPOUND	CONCENTRATION UNITS: (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	21	J	x5 = 105
120-12-7	Anthracene	330	U	
86-74-8	Carbazole	330	U	
84-74-2	Di-n-butylphthalate	330	U	
206-44-0	Fluoranthene	11	J	x5 = 55
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	13	J	x10 = 130
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

2/16/94

027

~~0200~~

9411325.1440

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 93LE1690-MB1

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

Lab File ID: A100513

Level: (low/med) LOW

Date Received: 09/27/93

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

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/05/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0

Assoc. w/ 809342

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.01	200	JA
2.	ALDOL CONDENSATE	6.56	4000	JA
3.	UNKNOWN	7.01	70	J

x5=350

FORM 1 SV-TIC 3/90

2/16/94

9413275.1450

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 93LE1687-MB1

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

Lab File ID: A100712

Level: (low/med) LOW

Date Received: 09/27/93

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

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/07/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Assoc w/B09343

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-di-n-propylamine	330	U	
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	U	
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
111-91-1	bis(2-Chloroethoxy)methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	270	J	XS=1350
106-47-8	4-Chloroaniline	330	U	
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-methylphenol	330	U	
91-57-6	2-Methylnaphthalene	32	J	XS=160
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	840	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	840	U	
131-11-3	Dimethylphthalate	330	U	
208-96-8	Acenaphthylene	28	J	XS=140
606-20-2	2,6-Dinitrotoluene	330	U	
99-09-2	3-Nitroaniline	840	U	
83-32-9	Acenaphthene	330	U	

2/16/94

FORM 1 SV-1 3/90

~~0223~~

029

9413225.1451

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 93LE1687-MB1

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

Lab File ID: A100712

Level: (low/med) LOW

Date Received: 09/27/93

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

Date Extracted: 09/27/93

Concentrated Extract Volume: 500(uL)

Date Analyzed: 10/07/93

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0

Assoc. w/ B09343

CAS NO.	COMPOUND	CONCENTRATION UNITS: (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	33	J	x5 = 165
121-14-2	2,4-Dinitrotoluene	330	U	
84-66-2	Diethylphthalate	24	J	x5-10 = 240
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	40	J	x5=200
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	150	J	x5 = 750
120-12-7	Anthracene	33	J	x5 = 165
86-74-8	Carbazole	22	J	x5 = 110
84-74-2	Di-n-butylphthalate	330	U	
206-44-0	Fluoranthene	96	J	x5 = 480
129-00-0	Pyrene	80	J	x5 = 400
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	330	U	
56-55-3	Benzo(a)anthracene	27	J	x5 = 135
218-01-9	Chrysene	27	J	x5 = 135
117-81-7	bis(2-Ethylhexyl)phthalate	21	J	x10 = 210
117-84-0	Di-n-octyl phthalate	330	U	
205-99-2	Benzo(b)fluoranthene	18	J	x5 = 90
207-08-9	Benzo(k)fluoranthene	20	J	x5 = 100
50-32-8	Benzo(a)pyrene	27	J	x5 = 135
193-39-5	Indeno(1,2,3-cd)pyrene	12	J	x5 = 60
53-70-3	Dibenz(a,h)anthracene	330	U	
191-24-2	Benzo(g,h,i)perylene	16	J	x5 = 80

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 3/90

2/16/94

9413225.1452

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK

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Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0

Assoc. w/ B09343

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

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.03	90	J

x5=450

9413225.1453

FORM 1 SV-TIC 3/90