START 9713523.0696

9201L926-WCS 0046379

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA USA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

JAN 1997 RECEIVED EDMC

July 30, 1992

Our ref: 913-1719
S/O/1552

Science Applications International Corporation
1845 Terminal Drive, Suite 202
Richland, Washington 99352

ATTENTION: Mr. P.K. Brockman

RE: 200-BP-1 DATA VALIDATION, TASK ORDER S-92-19, TRANSMITTAL OF REPORT

Dear Mr. Brockman:

Enclosed are four copies of the data validation summary report for data packages 9201L926, 9203L642, 9203L761, 9203L780, and 9204L871 produced under the referenced task order. This report has been reviewed by Mr. Ken Ridgway and his comments have been incorporated. Please distribute this report as follows:

- One copy with the original data package (blue folder) is to be delivered to Mr. Brian Sprouse or Ms. Tami Tonning at the WHC/EDMC offices at 350 Hills Street.
- One copy to Mark Buckmaster of WHC at 450 Hills Street.
- One copy of the report and Appendix A to Becky Bechtold of WHC at 450 Hills Street.

Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent Angelos
Task Manager

Donald M. Caldwell
Project Director

Enclosures

KMA/DMC/ah

9713523.0697

Report To

Westinghouse Hanford Company
Richland, Washington

Data Validation Report
200-BP-1 RI/FS
Data Package: 9201L926, 9203L642,
9203L761, 9203L780, 9204L871
Matrix: Soil/Water
Analysis Type: Organics/Metals/Wet Chemistry

Prepared By

Golder Associates Inc.
Redmond, Washington

July 30, 1992

913-1719

TABLE OF CONTENTS

		Page No.
1.	INTRODUCTION	1
2.	DATA QUALITY OBJECTIVES	1
3.	QUALIFIED DATA	2
	3.1 Major Deficiencies	2
	3.2 Minor Deficiencies	3
	3.2.1 Volatile Organics	3
	3.2.1 Semivolatile Organics	4
	3.2.3 Pesticide/PCB Organics	5
	3.2.2 Metals	6
	3.2.3 Wet Chemistry	7
4.	CONCLUSIONS	8
5.	REFERENCES	8

LIST OF TABLES

2-1 Field Duplicate Results

LIST OF APPENDICES

A As-Qualified Data Summary
B Data Review Supporting Documentation, SDG 9201L926
C Data Review Supporting Documentation, SDG 9203L642
D Data Review Supporting Documentation, SDG 9203L761
E Data Review Supporting Documentation, SDG 9203L780
F Data Review Supporting Documentation, SDG 9204L871

1. INTRODUCTION

This report presents the results of data validation on the following sample delivery groups and sample numbers which were analyzed by the Weston - Lionville, PA laboratory. The HEIS sample numbers and field QC associated with this group by SDG are:

Data Package ID	HEIS Sample Numbers	Matrix
SDG: 9201L926	B015Q3, B015Q5	Soil
SDG: 9203L642	B01SB5, B01SB9 B01S76	Soil Water
SDG: 9203L761	B01SD1, B01SD3, B01SD5	Soil
SDG: 9203L780	B01SF1, B01SF3, B01SF5	Soil
SDG: 9204L871:	B01S73, B01S78	Water

Sample identifications, locations and sample dates are provided in the tabular data summary provided in Attachment 3. Data validation was conducted in accordance with the Westinghouse Hanford Company statement of work (WHC 1991) and validation procedures (WHC 1992).

2. DATA QUALITY OBJECTIVES

Completeness

The data package was complete for all requested analyses and met the data quality objectives of the work plan. Data quality objectives for the project specified the use of CLP methods for the TCL volatiles and TAL metals/cyanide analytes and the use of standard methods for all other parameters.

Sample Quantitation Limits

Sample quantitation limits were met with the exception of minor differences due to sample volume and dilution factors.

Field Quality Control Samples

Volatile Trip Blanks and Method Blanks

Sample B01S76 was identified as a volatile trip blank. Target compounds were not detected in the sample.

Field Blanks and Equipment Blanks

Sample B01S73 was identified as a field blank, and B01S78 as an equipment blank. Target compounds were not detected with the exception of the tentatively identified compounds alkyl phenol (10 µg/L) and an unknown (70 µg/L), calcium (96.8 µg/L), copper (9.1 µg/L), sodium (165 µg/L), and nitrate+nitrite (0.23 mg-N/L) in sample B01S73, and the tentatively identified compounds alkyl phenol (8 µg/L) and an unknown (60 µg/L), iron (47.2 µg/L), sodium (131 µg/L), and nitrite+nitrate (0.23 mg-N/L) in sample B01S78.

Field Duplicates

Samples B015Q3 and B015Q5 in SDG 9201L926, samples B01SD1 and B01SD3 in SDG 9103L761, and samples B01SF1 and B01SF3 in SDG 9203L780 were identified as field duplicates. The results are summarized in Table 2-1.

Soil Split Sample

Sample B01SB5 in SDG 9203L642 was identified as a soil split sample. However, since the corresponding sample results were not available, the RPD values could not be calculated.

With the exception of the deficiencies identified in Section 3.0, the data quality objective goals of the work plan were met.

3. QUALIFIED DATA

This section presents a summary of the qualifications required based on validation of the subject data package.

3.1 Major Deficiencies

The following presents a summary of the rejected data.

Volatile Organics

- The 2-butanone results for samples B01S73, B01S78, B015Q3, and B015Q5 have been rejected since the initial calibration relative response factors (RRF) are less than 0.05.

Semivolatile Organics

- Aldol condensation and phthalate products detected in samples from SDGs: 9201L926, 9203L642, 9203L761, and 9203L780 have been rejected since they are suspected laboratory contaminants.

Pesticide/PCBs

- No deficiencies were identified requiring rejection of data.

Metals

- No deficiencies were identified requiring rejection of data.

Wet Chemistry

- Nitrate+nitrite results for samples B015S5 and B015B9 in SDG 9203L642 were rejected since the raw data was not included in the wet chemistry data package and therefore could not be validated.

3.2 Minor Deficiencies

The following qualifications were required as a result of the validation. Attachment 2 provides a summary of the samples affected.

3.2.1 Volatile Organics

Initial Calibrations

The following compounds and their associated SDGs exceeded the initial calibration relative standard deviation (RSD) limits of 30%:

- SDG 9203L642: Bromomethane (samples B01SB5 and B01SB9 only).

Sample results for the above compounds in their associated SDGs have been qualified as estimated (J for detects, UJ for non-detects).

Continuing Calibrations

The following compounds and their associated SDGs exceeded the continuing calibration percent difference (%D) limits of 25%:

- SDG 9201L926: Acetone, carbon tetrachloride, and bromoform.
- SDG 9203L642: Vinyl acetate, bromoform, and 2-hexanone (sample B01S76 only); Acetone (samples B01SB5 and B01SB9 only).

Sample results for the above compounds in their associated SDGs have been qualified as estimated (J for detects, UJ for non-detects).

Blanks

The following compounds were detected in the laboratory blanks.

- SDG 9201L926: Methylene chloride and acetone.
- SDG 9201L642: Methylene chloride, acetone, and toluene.
- SDG 9203L761: Methylene chloride and acetone.
- SDG 9203L780: Methylene chloride and acetone.
- SDG 9204L871: Methylene chloride.

All associated positive sample results for the above compounds in their respective SDGs have been qualified as undetected (U).

3.2.1 Semivolatile Organics

Holding Times

The following samples exceeded holding times:

- SDG 9204L871: Samples B01S73RE and B01S78RE were extracted out of holding time.

Sample results and quantitation limits for samples associated with the above SDGs have been qualified as estimated (J for detects, UJ for non-detects)

Continuing Calibrations

The following compounds and their associated SDGs exceeded the continuing calibration percent difference (%D) limits of 25%:

- SDG 9201L926: 4-Chloroaniline and 3-nitroaniline.
- SDG 9203L642: 3-Nitroaniline, 4-nitroaniline, 3,3'-dichlorobenzidine.
- SDG 9203L761: 3-Nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, pyrene, and benzo(k)fluoranthene.
- SDG 9203L780: 3-Nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, pyrene, and benzo(k)fluoranthene (sample B01SF1 only); 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, pyrene, and 3,3'-dichlorobenzidine (sample B01SF5 only); and 3-nitroaniline, 4-nitrophenol, 4-nitroaniline, and pyrene (sample B01SF3 only).

- SDG 9204L871: Benzoic acid, 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, phenanthrene, anthracene, di-n-butylphthalate, pyrene, and 3,3'-dichlorobenzidine (sample B01S73 only); 2,4-dinitrophenol, 4-nitrophenol, and benzo(b)fluoranthene (sample B01S78 only); and benzoic acid, 2,4-dinitrophenol, 4-nitrophenol, 4-nitroaniline, and 4,6-dinitro-2-methylphenol (samples B01S73RE and B01S78RE).

Sample results for the above compounds in their associated SDGs have been qualified as estimated (J for detects, UJ for non-detects).

Blanks

The following compounds were detected in the laboratory blanks.

- SDG 9201L926: Di-n-butylphthalate.
- SDG 9203L642: The tentatively identified compound labeled as a phthalate at 18.7 minutes.
- SDG 9203L761: Di-n-butylphthalate.
- SDG 9203L780: Di-n-butylphthalate.
- SDG 9204L871: Di-n-butylphthalate and bis(2-ethyl)hexylphthalate.

All associated positive sample results for the above compounds in their respective SDGs have been qualified as undetected (U).

3.2.3 Pesticide/PCB Organics

Result Quantitation

The three point standard calibration run for the positive 4,4'-DDT result in sample B01SF5 was not performed. The associated sample result has been qualified as estimated (J).

Quantitation Limits

Quantitation limits were reported incorrectly for the following samples. Since the samples were prepared by GPC the CRQL must be multiplied by a factor of 2 in accordance with the SOW.

- Samples B015Q3, B015Q5, B015B9, B015D1, B015D3, B015D5, B015F1, B015F3, and B015F5.

Dilution factors were reported incorrectly (0.5 as opposed to the correct factor of 1.0) for sample B01SB5. The sample quantitation limits have been corrected by multiplying by a factor of 2.

3.2.2 Metals

Blanks

The following analytes were detected in the laboratory blanks:

- SDG 9203L642: Chromium.
- SDG 9204L871: Vanadium and zinc.

Associated sample results for the above compounds have been qualified as non-detects (U).

Spike Sample Recovery

The following spike results exceeded the QC limits of 75% to 125%:

- SDG 9201L926: Lead, selenium, and silver (sample B015Q3 only); lead and manganese (sample B015Q5 only).
- SDG 9203L642: Manganese and selenium.
- SDG 9203L761: Selenium.
- SDG 9203L780: Antimony, selenium, and thallium.

Except where noted above, the associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

ICP Serial Dilution

The following serial dilution results exceeded the QC limits of 10% for analyte concentrations greater than 50 times the IDL:

- SDG 9201L926: Aluminum, calcium, iron, magnesium, manganese, and sodium.
- SDG 9203L642: Aluminum, calcium, iron, manganese, and magnesium.

The associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

Furnace AA Quality Control

The following GFAA analytical spikes exceeded the limits of 85% to 115% recovery:

- SDG 9201L926: Arsenic (sample B015Q5 which was analyzed by MSA, therefore, no qualification was required), lead (analyzed by MSA for samples B015Q3 and B015Q5), selenium (sample B015Q3 only), and thallium (sample B015Q3 only).
- SDG 9203L642: Selenium.
- SDG 9203L761: Selenium.
- SDG 9203L780: Selenium (samples B01SF1 and B01SF3 only).

Except where noted above, the associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

3.2.3 Wet Chemistry

Holding Times

The following analytes exceeded the holding times:

- SDG 9201L926: Nitrate, phosphate, and total organic carbon (sample B01SQ5 only).
- SDG 9203L642: Nitrate and phosphate.
- SDG 9203L780: Nitrate and phosphate.
- SDG 9203L761: Nitrate and phosphate.

All associated sample results for the above analytes have been qualified as estimated (J for detects, UJ for non-detects).

Spike Recovery

The following spike recoveries exceeded the limits of 75% to 125%:

- SDG 9201L926: Total organic carbon.

All associated sample results for the above analytes have been qualified as estimated (J).

4. CONCLUSIONS

Sections 1 through 3 present a summary of the data quality for the subject data package. The results contained in this report are acceptable for use as qualified with the exception of the major deficiencies as reported in Section 3.1.

The appendices provide supporting documentation and tabular summary of the qualified data. The original, as-received data package is enclosed for submittal to the project QA record.

5. REFERENCES

WHC, 1991, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision A, November 1991. Westinghouse Hanford Company, Richland, Washington.

WHC, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9713523.0707

TABLES

TABLE 2-1

FIELD DUPLICATE RESULTS, Page 1 of 3

ANALYTE	B015Q3	Q	B015Q5	Q	RPD[1]
Aluminum	4030	J	2690	J	40
Antimony	4.74	U	4.7	U	NC
Arsenic	2.0	B	2.9		37
Barium	45.8		38.6	B	17
Beryllium	0.31	B	0.22	B	34
Cadmium	0.85	B	0.61	U	33
Calcium	7730	J	9020	J	15
Chromium	7.5		5		40
Cobalt	4.8	B	3.2	B	40
Copper	8.8		7.9		11
Iron	12200	J	7770	J	44
Lead	3.6	J	3.5	J	3
Magnesium	3370	J	2780	J	19
Manganese	232	J	214	J	8
Mercury	0.05	U	0.05	U	NC
Nickel	8	B	7.7	B	4
Potassium	636	B	502	B	24
Selenium	0.41	UJ	0.41	U	NC
Silver	0.82	UJ	0.82	U	NC
Sodium	1800	J	1830	J	2
Thallium	0.41	UJ	0.41	U	NC
Vanadium	20		11.3		56
Zinc	24.7		19.0		26
Cyanide	1.03	U	1.02	U	NC
Bismuth	30.9	U	30.7	U	NC
Percent Solids	97		97.9		1
Nitrate	2740	J	3640	J	28
Cyanide	1.0	U	1.0	U	NC
Phosphate	13.1	J	4.4	J	99
Sulfate	197		154		25
Nitrate Nitrite, mg-N/Kg	932		709		27
TOC	177	J	183	J	3

[1]RPD = Relative Percent Difference.

NC = Result can not be calculated due to both sample results being not detected.

Results reported in units of mg/Kg except where noted.

TABLE 2-1

FIELD DUPLICATE RESULTS, Page 2 of 3

ANALYTE	B01SD1	Q	B01SD3	Q	RPD[1]
2-Chloronapthalene, µg/Kg	74	J	42	J	55
Aluminum	4350		4070		7
Antimony	7.45	U	7.14	U	NC
Arsenic	1.4	B	1.40	B	0
Barium	62.3		59.3		5
Beryllium	0.43	B	0.30	B	36
Cadmium	0.83	U	0.79	U	NC
Calcium	8130		7520		8
Chromium	5.5		5.6		2
Cobalt	7.7	B	7.3	B	5
Copper	13.5		9.1		39
Iron	14500		12800		12
Lead	3		2.6		14
Magnesium	3320		3080		7
Manganese	264		286		8
Mercury	0.05	U	0.05	U	NC
Nickel	9.0		7.8	B	14
Potassium	963	B	1000		4
Selenium	0.41	UJ	0.39	UJ	NC
Silver	1.66	U	1.59	U	NC
Sodium	148	B	129	B	14
Thallium	0.41	U	0.39	U	NC
Vanadium	28		22.7		21
Zinc	28.8		25.6		12
Cyanide	1.04	U	1.03	U	NC
Bismuth	31.1	U	29.8	U	NC
Percent Solids	96.6		97.3		1
Nitrate	70.7	J	45.8	J	43
Cyanide	1.0	U	1.0	U	NC
Phosphate	1.3	UJ	1.3	UJ	NC
Sulfate	22.6		47.2		70
Nitrate Nitrite, mg-N/Kg	16.3		15.5		5
TOC	2150		2120		1

[1]RPD = Relative Percent Difference.

NC = Result can not be calculated due to both sample results being not detected.

Results reported in units of mg/Kg except where noted.

TABLE 2-1

FIELD DUPLICATE RESULTS, Page 3 of 3

ANALYTE	B01SF1	Q	B01SF3	Q	RPD[1]
Toluene, µg/Kg	1	J	1	J	0
Bis(2-ethylhexyl)phthalate, µg/Kg	100	J	340	U	200
Aluminum	3990		4170		4
Antimony	7.47	UJ	7.42	UJ	1
Arsenic	1.01	B	1.10	B	8
Barium	63		65.8		4
Beryllium	0.23	B	0.23	B	0
Cadmium	0.83	U	0.82	U	NC
Calcium	4730		6130		26
Chromium	5.1		5.7		11
Cobalt	6.6	B	7.50	B	13
Copper	8.9		9.5		6
Iron	11600		12300		6
Lead	2.9		3.0		3
Magnesium	2850		2940		3
Manganese	229		245		7
Mercury	0.05	U	0.05	U	NC
Nickel	6.2	B	6.9	B	11
Potassium	1010	B	1080		7
Selenium	0.42	UJ	0.41	UJ	NC
Silver	1.66	U	1.65	U	NC
Sodium	99.6	B	106	B	6
Thallium	0.42	UJ	0.41	UJ	NC
Vanadium	19.5		21.5		10
Zinc	26.3		27.2		3
Cyanide	1.04	U	1.04	U	NC
Bismuth	31.1	U	30.9	U	NC
Percent Solids	96.4		96.4		0
Nitrate	50.8		53.0		4
Cyanide	1.0	U	1.0	U	NC
Phosphate	1.5		2.2		38
Sulfate	11.2		11.0		2
Nitrate Nitrite, mg-N/Kg	12.3		13.2		7
TOC	0.68		0.68		0

[1]RPD = Relative Percent Difference.

NC = Result can not be calculated due to both sample results being not detected.

Results reported in units of mg/Kg except where noted.

9713523.0711

APPENDIX A

AS QUALIFIED DATA SUMMARY

Laboratory Weston	SDG	9201L926		9201L926		9203L642		9203L642		9203L761		9203L761		9203L761		9203L780	
Sample Number		B015Q3		B015Q5		B01SB5		B01SB9		B01SD1		B01SD3		B01SD5		B01SF1	
Location		216-B-43A		216-B-43A		216-B-45C		216-B-45C		216-B-44A		216-B-44A		216-B-44A		216-B-48B	
		56.0-58.5		56.0-58.5		3.0-6.0		10.0-13.0		3.0-6.0		3.0-6.0		9.0-12.0		2.5-5.0	
Remarks		DUPLICATE		DUPLICATE		SOIL SPLIT				DUPLICATE		DUPLICATE				DUPLICATE	
Sample Date		01/02/92		01/02/92		03/10/92		03/10/92		03/18/92		03/18/92		03/18/92		03/20/92	
Analysis Date		01/07/92		01/07/92		03/17/92		03/17/92		03/26/92		03/26/92		03/27/92		03/27/92	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U	10	U	10	U	10	U	11	U	10	U
Bromomethane	10	10	U	10	U	10	UJ	10	UJ	10	U	10	U	11	U	10	U
Vinyl Chloride	10	10	U	10	U	10	U	10	U	10	U	10	U	11	U	10	U
Chloroethane	10	10	U	10	U	10	U	10	U	10	U	10	U	11	U	10	U
Methylene Chloride	5	5	U	5	U	5	U	5	U	13	U	14	U	14	U	9	U
Acetone	10	10	UJ	10	UJ	10	UJ	10	UJ	26	U	46	U	31	U	12	U
Carbon Disulfide	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,1-Dichloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,1-Dichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,2-Dichloroethene (total)	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Chloroform	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,2-Dichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
2-Butanone	10	10	R	10	R	10	U	10	U	10	U	10	U	11	U	10	U
1,1,1-Trichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Carbon Tetrachloride	5	5	UJ	5	UJ	5	U	5	U	5	U	5	U	6	U	5	U
Vinyl Acetate	10	10	U	10	U	10	U	10	U	10	U	10	U	11	U	10	U
Bromodichloromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,2-Dichloropropane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
cis-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Trichloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Dibromochloromethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,1,2-Trichloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Benzene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
trans-1,3-Dichloropropene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Bromoform	5	5	UJ	5	UJ	5	U	5	U	5	U	5	U	6	U	5	U
4-Methyl-2-pentanone	10	10	U	10	U	10	U	10	U	10	U	10	U	11	U	10	U
2-Hexanone	10	10	U	10	U	10	U	10	U	10	U	10	U	11	U	10	U
Tetrachloroethene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
1,1,2,2-Tetrachloroethane	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Toluene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	1	J
Chlorobenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Ethylbenzene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Styrene	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U
Xylene (total)	5	5	U	5	U	5	U	5	U	5	U	5	U	6	U	5	U

9713523.0712

Laboratory Weston	SDG	9203L780		9203L780		9203L780	
Sample Number		B01SF3		B01SF5		B01SF5RE	
Location		216-B-48B		216-B-48B		216-B-48B	
		2.5-5.0		10.0-12.5		10.0-12.5	
Remarks		DUPLICATE					
Sample Date		03/20/92		03/20/92		03/20/92	
Analysis Date		03/27/92		03/27/92		03/27/92	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U
Bromomethane	10	10	U	10	U	10	U
Vinyl Chloride	10	10	U	10	U	10	U
Chloroethane	10	10	U	10	U	10	U
Methylene Chloride	5	7	U	7	U	5	U
Acetone	10	18	U	23	U	12	U
Carbon Disulfide	5	5	U	5	U	5	U
1,1-Dichloroethene	5	5	U	5	U	5	U
1,1-Dichloroethane	5	5	U	5	U	5	U
1,2-Dichloroethene (total)	5	5	U	5	U	5	U
Chloroform	5	5	U	5	U	5	U
1,2-Dichloroethane	5	5	U	5	U	5	U
2-Butanone	10	10	U	10	U	10	U
1,1,1-Trichloroethane	5	5	U	5	U	5	U
Carbon Tetrachloride	5	5	U	5	U	5	U
Vinyl Acetate	10	10	U	10	U	10	U
Bromodichloromethane	5	5	U	5	U	5	U
1,2-Dichloropropane	5	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	5	U	5	U	5	U
Trichloroethene	5	5	U	5	U	5	U
Dibromochloromethane	5	5	U	5	U	5	U
1,1,2-Trichloroethane	5	5	U	5	U	5	U
Benzene	5	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	5	U	5	U	5	U
Bromoform	5	5	U	5	U	5	U
4-Methyl-2-pentanone	10	10	U	10	U	10	U
2-Hexanone	10	10	U	10	U	10	U
Tetrachloroethene	5	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	5	U	5	U	5	U
Toluene	5	1	J	1	J	1	J
Chlorobenzene	5	5	U	5	U	5	U
Ethylbenzene	5	5	U	5	U	5	U
Styrene	5	5	U	5	U	5	U
Xylene (total)	5	5	U	5	U	5	U

9132401.015

Laboratory Weston	SDG	9203L642		9204L871		9204L871	
Sample Number		B01S76		B01S73		B01S78	
Location		216-B-45C		216-B-48C		216-B-48C	
Remarks		TRIP BLANK		FIELD BLANK		EQUIP BLANK	
Sample Date		03/10/92		03/31/92		03/31/92	
Analysis Date		03/13/92		04/08/92		04/08/92	
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	10	U	10	U
Bromomethane	10	10	U	10	U	10	U
Vinyl Chloride	10	10	U	10	U	10	U
Chloroethane	10	10	U	10	U	10	U
Methylene Chloride	5	5	U	8	U	6	U
Acetone	10	10	U	10	U	10	U
Carbon Disulfide	5	5	U	5	U	5	U
1,1-Dichloroethene	5	5	U	5	U	5	U
1,1-Dichloroethane	5	5	U	5	U	5	U
1,2-Dichloroethene (total)	5	5	U	5	U	5	U
Chloroform	5	5	U	5	U	5	U
1,2-Dichloroethane	5	5	U	5	U	5	U
2-Butanone	10	10	U	10	R	10	R
1,1,1-Trichloroethane	5	5	U	5	U	5	U
Carbon Tetrachloride	5	5	U	5	U	5	U
Vinyl Acetate	10	10	UJ	10	U	10	U
Bromodichloromethane	5	5	U	5	U	5	U
1,2-Dichloropropane	5	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	5	U	5	U	5	U
Trichloroethene	5	5	U	5	U	5	U
Dibromochloromethane	5	5	U	5	U	5	U
1,1,2-Trichloroethane	5	5	U	5	U	5	U
Benzene	5	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	5	U	5	U	5	U
Bromoform	5	5	UJ	5	U	5	U
4-Methyl-2-pentanone	10	10	U	10	U	10	U
2-Hexanone	10	10	UJ	10	U	10	U
Tetrachloroethene	5	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	5	U	5	U	5	U
Toluene	5	5	U	5	U	5	U
Chlorobenzene	5	5	U	5	U	5	U
Ethylbenzene	5	5	U	5	U	5	U
Styrene	5	5	U	5	U	5	U
Xylene (total)	5	5	U	5	U	5	U

9155221.0714

Laboratory Weston	SDG	9201L926		9201L926		9203L642		9203L642		9203L761		9203L761		9203L761		9203L780	
Sample Number		B015Q3		B015Q5		B01SB5		B01SB9		B01SD1		B01SD3		B01SD5		B01SF1	
Location		216-B-43A		216-B-43A		216-B-45C		216-B-45C		216-B-44A		216-B-44A		216-B-44A		216-B-48B	
		56.0-58.5		56.0-58.5		3.0-6.0		10.0-13.0		3.0-6.0		3.0-6.0		9.0-12.0		2.5-5.0	
Remarks		DUPLICATE		DUPLICATE		SOIL SPLIT				DUPLICATE		DUPLICATE				DUPLICATE	
Sample Date		01/02/92		01/02/92		03/10/92		03/10/92		03/18/92		03/18/92		03/18/92		03/20/92	
Extraction Date		01/07/92		01/07/92		03/16/92		03/16/92		03/25/92		03/25/92		03/25/92		03/25/92	
Analysis Date		01/26/92		01/26/92		03/20/92		03/20/92		04/07/92		04/07/92		04/07/92		04/07/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
bis(2-Chloroethyl)ether	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2-Chlorophenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
1,3-Dichlorobenzene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
1,4-Dichlorobenzene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Benzyl Alcohol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
1,2-Dichlorobenzene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2-Methylphenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
bis(2-Chloroisopropyl)ether	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
4-Methylphenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
N-Nitroso-di-n-propylamine	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Hexachloroethane	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Nitrobenzene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Isophorone	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2-Nitrophenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,4-Dimethylphenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Benzoic acid	1600	1700	U	1700	U	1700	U	1700	U	1600	U	1700	U	1700	U	1700	U
bis(2-Chloroethoxy)methane	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,4-Dichlorophenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
1,2,4-Trichlorobenzene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Naphthalene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
4-Chloroaniline	330	340	UJ	340	UJ	350	U	350	U	330	U	340	U	330	U	340	U
Hexachlorobutadiene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
4-Chloro-3-methylphenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2-Methylnaphthalene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Hexachlorocyclopentadiene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,4,6-Trichlorophenol	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,4,5-Trichlorophenol	1600	1700	U	1700	U	1700	U	1700	U	1600	U	1700	U	1700	U	1700	U
2-Chloronaphthalene	330	340	U	340	U	350	U	350	U	74	J	42	J	65	J	340	U
2-Nitroaniline	1600	1700	U	1700	U	1700	U	1700	U	1600	U	1700	U	1700	U	1700	U
Dimethylphthalate	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Acenaphthylene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,6-Dinitrotoluene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
3-Nitroaniline	1600	1700	UJ	1700	UJ	1700	UJ	1700	UJ	1600	UJ	1700	UJ	1700	UJ	1700	UJ

9713523.0715

Laboratory Weston	SDG	9201L926		9201L926		9203L642		9203L642		9203L761		9203L761		9203L761		9203L780	
Sample Number		B015Q3		B015Q5		B01SB5		B01SB9		B01SD1		B01SD3		B01SD5		B01SF1	
Location		216-B-43A		216-B-43A		216-B-45C		216-B-45C		216-B-44A		216-B-44A		216-B-44A		216-B-48B	
		56.0-58.5		56.0-58.5		3.0-6.0		10.0-13.0		3.0-6.0		3.0-6.0		9.0-12.0		2.5-5.0	
Remarks		DUPLICATE		DUPLICATE		SOIL SPLIT				DUPLICATE		DUPLICATE				DUPLICATE	
Sample Date		01/02/92		01/02/92		03/10/92		03/10/92		03/18/92		03/18/92		03/18/92		03/20/92	
Extraction Date		01/07/92		01/07/92		03/16/92		03/16/92		03/25/92		03/25/92		03/25/92		03/25/92	
Analysis Date		01/26/92		01/26/92		03/20/92		03/20/92		04/07/92		04/07/92		04/07/92		04/07/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,4-Dinitrophenol	1600	1700	U	1700	U	1700	U	1700	U	1600	UJ	1700	UJ	1700	UJ	1700	UJ
4-Nitrophenol	1600	1700	U	1700	U	1700	U	1700	U	1600	UJ	1700	UJ	1700	UJ	1700	UJ
Dibenzofuran	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
2,4-Dinitrotoluene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Diethylphthalate	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
4-Chlorophenyl-phenyl ether	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Fluorene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
4-Nitroaniline	1600	1700	U	1700	U	1700	UJ	1700	UJ	1600	UJ	1700	UJ	1700	UJ	1700	UJ
4,6-Dinitro-2-methylphenol	1600	1700	U	1700	U	1700	U	1700	U	1600	U	1700	U	1700	U	1700	U
N-Nitrosodiphenylamine	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
4-Bromophenyl-phenylether	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Hexachlorobenzene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Pentachlorophenol	1600	1700	U	1700	U	1700	U	1700	U	1600	U	1700	U	1700	U	1700	U
Phenanthrene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Anthracene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Di-n-butylphthalate	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Fluoranthene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Pyrene	330	340	U	340	U	350	U	350	U	330	UJ	340	UJ	330	UJ	340	UJ
Butylbenzylphthalate	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
3,3'-Dichlorobenzidine	660	680	U	670	U	690	UJ	690	UJ	660	U	670	U	660	U	680	U
Benzo(a)anthracene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Chrysene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
bis(2-Ethylhexyl)phthalate	330	340	U	340	U	350	U	350	U	330	U	340	U	120	J	100	J
Di-n-octylphthalate	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Benzo(b)fluoranthene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Benzo(k)fluoranthene	330	340	U	340	U	350	U	350	U	330	UJ	340	UJ	330	UJ	340	UJ
Benzo(a)pyrene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Indeno(1,2,3-cd)pyrene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Dibenz(a,h)anthracene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Benzo(g,h,i)perylene	330	340	U	340	U	350	U	350	U	330	U	340	U	330	U	340	U
Aldol Condensate @ 5.65		1000	R	---		---		---		---		---		---		---	
Aldol Condensate @ 6.33		300	R	---		---		---		---		---		---		---	
Tributylphosphate @ 18.12		400	NJ	---		---		---		---		---		---		---	

9713523.0716

Laboratory Weston	SDG	9201L926		9201L926		9203L642		9203L642		9203L761		9203L761		9203L761		9203L780	
Sample Number		B015Q3		B015Q5		B01SB5		B01SB9		B01SD1		B01SD3		B01SD5		B01SF1	
Location		216-B-43A		216-B-43A		216-B-45C		216-B-45C		216-B-44A		216-B-44A		216-B-44A		216-B-48B	
		56.0-58.5		56.0-58.5		3.0-6.0		10.0-13.0		3.0-6.0		3.0-6.0		9.0-12.0		2.5-5.0	
Remarks		DUPLICATE		DUPLICATE		SOIL SPLIT				DUPLICATE		DUPLICATE				DUPLICATE	
Sample Date		01/02/92		01/02/92		03/10/92		03/10/92		03/18/92		03/18/92		03/18/92		03/20/92	
Extraction Date		01/07/92		01/07/92		03/16/92		03/16/92		03/25/92		03/25/92		03/25/92		03/25/92	
Analysis Date		01/26/92		01/26/92		03/20/92		03/20/92		04/07/92		04/07/92		04/07/92		04/07/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Adipate @ 26.47		20000	NJ	---		---		---		---		---		---		---	
Unknown @ 27.30		200	NJ	---		---		---		---		---		---		---	
Aldol Condensate @ 5.63		---		1000	R	---		---		---		---		---		---	
Aldol Condensate @ 6.33		---		300	R	---		---		---		---		---		---	
Unknown @ 7.17		---		300	NJ	---		---		---		---		---		---	
Tributylphosphate @ 18.10		---		500	NJ	---		---		---		---		---		---	
Adipate @ 26.40		---		200	NJ	---		---		---		---		---		---	
Unknown @ 27.28		---		300	NJ	---		---		---		---		---		---	
Unknown @ 5.83		---		---		---		---		100	NJ	---		---		---	
Aldol Condensate @ 6.75		---		---		---		---		300	R	---		---		---	
Unknown @ 9.02		---		---		---		---		100	NJ	---		---		---	
Phthalate @ 18.30		---		---		---		---		600	R	---		---		---	
Adipate @ 21.72		---		---		---		---		4000	NJ	---		---		---	
Unknown @ 6.73		---		---		---		---		---		200	NJ	---		---	
Phthalate @ 18.27		---		---		---		---		---		300	R	---		---	
Aldol Condensate @ 6.75		---		---		---		---		---		---		200	R	---	
Unknown @ 8.95		---		---		---		---		---		---		200	NJ	---	
Phthalate @ 18.28		---		---		---		---		---		---		300	R	---	
Aldol Condensate @ 5.95		---		---		600	R	---		---		---		---		---	
Aldol Condensate @ 6.67		---		---		300	R	---		---		---		---		---	
Aldol Condensate @ 6.98		---		---		200	R	---		---		---		---		---	
Phthalate @ 18.67		---		---		300	U	---		---		---		---		---	
Aldol Condensate @ 5.97		---		---		---		900	R	---		---		---		---	
Aldol Condensate @ 6.68		---		---		---		300	R	---		---		---		---	
Aldol Condensate @ 7.00		---		---		---		200	R	---		---		---		---	
Unknown @ 7.73		---		---		---		200	NJ	---		---		---		---	
Phthalate @ 18.73		---		---		---		200	U	---		---		---		---	
Aldol @ 6.73		---		---		---		---		---		---		---		300	R
Unknown @ 7.30		---		---		---		---		---		---		---		200	NJ
Unknown @ 8.95		---		---		---		---		---		---		---		200	NJ
Unknown @ 15.32		---		---		---		---		---		---		---		100	NJ
Unknown @ 17.20		---		---		---		---		---		---		---		200	NJ
Phthalate @ 18.28		---		---		---		---		---		---		---		500	R
Phthalate @ 18.15		---		---		---		---		---		---		---		---	

9713523.0717

Laboratory Weston	SDG	9203L780		9203L780	
Sample Number		B01SF3		B01SF5	
Location		216-B-48B		216-B-48B	
		2.5-5.0		10.0-12.5	
Remarks		DUPLICATE			
Sample Date		03/20/92		03/20/92	
Extraction Date		03/25/92		03/25/92	
Analysis Date		04/09/92		04/08/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q
Phenol	330	340	U	330	U
bis(2-Chloroethyl)ether	330	340	U	330	U
2-Chlorophenol	330	340	U	330	U
1,3-Dichlorobenzene	330	340	U	330	U
1,4-Dichlorobenzene	330	340	U	330	U
Benzyl Alcohol	330	340	U	330	U
1,2-Dichlorobenzene	330	340	U	330	U
2-Methylphenol	330	340	U	330	U
bis(2-Chloroisopropyl)ether	330	340	U	330	U
4-Methylphenol	330	340	U	330	U
N-Nitroso-di-n-propylamine	330	340	U	330	U
Hexachloroethane	330	340	U	330	U
Nitrobenzene	330	340	U	330	U
Isophorone	330	340	U	330	U
2-Nitrophenol	330	340	U	330	U
2,4-Dimethylphenol	330	340	U	330	U
Benzoic acid	1600	1700	U	1700	U
bis(2-Chloroethoxy)methane	330	340	U	330	U
2,4-Dichlorophenol	330	340	U	330	U
1,2,4-Trichlorobenzene	330	340	U	330	U
Naphthalene	330	340	U	330	U
4-Chloroaniline	330	340	U	330	U
Hexachlorobutadiene	330	340	U	330	U
4-Chloro-3-methylphenol	330	340	U	330	U
2-Methylnaphthalene	330	340	U	330	U
Hexachlorocyclopentadiene	330	340	U	330	U
2,4,6-Trichlorophenol	330	340	U	330	U
2,4,5-Trichlorophenol	1600	1700	U	1700	U
2-Chloronaphthalene	330	340	U	330	U
2-Nitroaniline	1600	1700	U	1700	U
Dimethylphthalate	330	340	U	330	U
Acenaphthylene	330	340	U	330	U
2,6-Dinitrotoluene	330	340	U	330	U
3-Nitroaniline	1600	1700	UJ	1700	U

9213524.0718

Laboratory Weston	SDG	9203L780		9203L780	
Sample Number		B01SF3		B01SF5	
Location		216-B-48B		216-B-48B	
		2.5-5.0		10.0-12.5	
Remarks		DUPLICATE			
Sample Date		03/20/92		03/20/92	
Extraction Date		03/25/92		03/25/92	
Analysis Date		04/09/92		04/08/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q
Acenaphthene	330	340	U	330	U
2,4-Dinitrophenol	1600	1700	U	1700	UJ
4-Nitrophenol	1600	1700	UJ	1700	UJ
Dibenzofuran	330	340	U	330	U
2,4-Dinitrotoluene	330	340	U	330	U
Diethylphthalate	330	340	U	330	U
4-Chlorophenyl-phenyl ether	330	340	U	330	U
Fluorene	330	340	U	330	U
4-Nitroaniline	1600	1700	UJ	1700	UJ
4,6-Dinitro-2-methylphenol	1600	1700	U	1700	U
N-Nitrosodiphenylamine	330	340	U	330	U
4-Bromophenyl-phenylether	330	340	U	330	U
Hexachlorobenzene	330	340	U	330	U
Pentachlorophenol	1600	1700	U	1700	U
Phenanthrene	330	340	U	330	U
Anthracene	330	340	U	330	U
Di-n-butylphthalate	330	340	U	330	U
Fluoranthene	330	340	U	330	U
Pyrene	330	340	UJ	330	UJ
Butylbenzylphthalate	330	340	U	330	U
3,3'-Dichlorobenzidine	660	670	U	670	UJ
Benzo(a)anthracene	330	340	U	330	U
Chrysene	330	340	U	330	U
bis(2-Ethylhexyl)phthalate	330	340	U	280	J
Di-n-octylphthalate	330	340	U	330	U
Benzo(b)fluoranthene	330	340	U	330	U
Benzo(k)fluoranthene	330	340	U	330	U
Benzo(a)pyrene	330	340	U	330	U
Indeno(1,2,3-cd)pyrene	330	340	U	330	U
Dibenz(a,h)anthracene	330	340	U	330	U
Benzo(g,h,i)perylene	330	340	U	330	U
Aldol Condensate @ 5.65		---		---	
Aldol Condensate @ 6.33		---		---	
Tributylphosphate @ 18.12		---		---	

9713523.0719

Laboratory Weston	SDG	9203L780		9203L780	
Sample Number		B01SF3		B01SF5	
Location		216-B-48B		216-B-48B	
		2.5-5.0		10.0-12.5	
Remarks		DUPLICATE			
Sample Date		03/20/92		03/20/92	
Extraction Date		03/25/92		03/25/92	
Analysis Date		04/09/92		04/08/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q
Adipate @ 26.47		- - -		- - -	
Unknown @ 27.30		- - -		- - -	
Aldol Condensate @ 5.63		- - -		- - -	
Aldol Condensate @ 6.33		- - -		- - -	
Unknown @ 7.17		- - -		- - -	
Tributylphosphate @ 18.10		- - -		- - -	
Adipate @ 26.40		- - -		- - -	
Unknown @ 27.28		- - -		- - -	
Unknown @ 5.83		- - -		- - -	
Aldol Condensate @ 6.75		- - -		- - -	
Unknown @ 9.02		- - -		- - -	
Phthalate @ 18.30		- - -		- - -	
Adipate @ 21.72		- - -		- - -	
Unknown @ 6.73		- - -		- - -	
Phthalate @ 18.27		- - -		- - -	
Aldol Condensate @ 6.75		- - -		- - -	
Unknown @ 8.95		- - -		- - -	
Phthalate @ 18.28		- - -		- - -	
Aldol Condensate @ 5.95		- - -		- - -	
Aldol Condensate @ 6.67		- - -		- - -	
Aldol Condensate @ 6.98		- - -		- - -	
Phthalate @ 18.67		- - -		- - -	
Aldol Condensate @ 5.97		- - -		- - -	
Aldol Condensate @ 6.68		- - -		- - -	
Aldol Condensate @ 7.00		- - -		- - -	
Unknown @ 7.73		- - -		- - -	
Phthalate @ 18.73		- - -		- - -	
Aldol @ 6.73		- - -		- - -	
Unknown @ 7.30		- - -		- - -	
Unknown @ 8.95		- - -		- - -	
Unknown @ 15.32		- - -		- - -	
Unknown @ 17.20		- - -		- - -	
Phthalate @ 18.28		- - -		- - -	
Phthalate @ 18.15		100	R	- - -	

9715230720

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L) 30-Jul-92

Laboratory Weston	SDG	9204L871		9204L871		9204L871		9204L871	
Sample Number		B01S73		B01S73RE		B01S78		B01S78RE	
Location		216-B-48C		216-B-48C		216-B-48C		216-B-48C	
Remarks		FIELD BLANK		FIELD BLANK		EQUIP BLANK		EQUIP BLANK	
Sample Date		03/31/92		03/31/92		03/31/92		03/31/92	
Extraction Date		04/06/92		04/27/92		04/06/92		04/27/92	
Analysis Date		04/17/92		04/30/92		04/22/92		04/30/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	11	U	21	UJ	11	U	21	UJ
bis(2-Chloroethyl)ether	10	11	U	21	UJ	11	U	21	UJ
2-Chlorophenol	10	11	U	21	UJ	11	U	21	UJ
1,3-Dichlorobenzene	10	11	U	21	UJ	11	U	21	UJ
1,4-Dichlorobenzene	10	11	U	21	UJ	11	U	21	UJ
Benzyl Alcohol	10	11	U	21	UJ	11	U	21	UJ
1,2-Dichlorobenzene	10	11	U	21	UJ	11	U	21	UJ
2-Methylphenol	10	11	U	21	UJ	11	U	21	UJ
bis(2-Chloroisopropyl)ether	10	11	U	21	UJ	11	U	21	UJ
4-Methylphenol	10	11	U	21	UJ	11	U	21	UJ
N-Nitroso-di-n-propylamine	10	11	U	21	UJ	11	U	21	UJ
Hexachloroethane	10	11	U	21	UJ	11	U	21	UJ
Nitrobenzene	10	11	U	21	UJ	11	U	21	UJ
Isophorone	10	11	U	21	UJ	11	U	21	UJ
2-Nitrophenol	10	11	U	21	UJ	11	U	21	UJ
2,4-Dimethylphenol	10	11	U	21	UJ	11	U	21	UJ
Benzoic acid	50	55	UJ	100	UJ	55	U	100	UJ
bis(2-Chloroethoxy)methane	10	11	U	21	UJ	11	U	21	UJ
2,4-Dichlorophenol	10	11	U	21	UJ	11	U	21	UJ
1,2,4-Trichlorobenzene	10	11	U	21	UJ	11	U	21	UJ
Naphthalene	10	11	U	21	UJ	11	U	21	UJ
4-Chloroaniline	10	11	U	21	UJ	11	U	21	UJ
Hexachlorobutadiene	10	11	U	21	UJ	11	U	21	UJ
4-Chloro-3-methylphenol	10	11	U	21	UJ	11	U	21	UJ
2-Methylnaphthalene	10	11	U	21	UJ	11	U	21	UJ
Hexachlorocyclopentadiene	10	11	U	21	UJ	11	U	21	UJ
2,4,6-Trichlorophenol	10	11	U	21	UJ	11	U	21	UJ
2,4,5-Trichlorophenol	50	55	U	100	UJ	55	U	100	UJ
2-Chloronaphthalene	10	11	U	21	UJ	11	U	21	UJ
2-Nitroaniline	50	55	U	100	UJ	55	U	100	UJ
Dimethylphthalate	10	11	U	21	UJ	11	U	21	UJ
Acenaphthylene	10	11	U	21	UJ	11	U	21	UJ
2,6-Dinitrotoluene	10	11	U	21	UJ	11	U	21	UJ
3-Nitroaniline	50	55	U	100	UJ	55	U	100	UJ
Acenaphthene	10	11	U	21	UJ	11	U	21	UJ

9713523.0721

SEMIVOLATILE ORGANIC ANALYSIS, WATER MATRIX, (ug/L) 30-Jul-92

Laboratory Weston	SDG	9204L871		9204L871		9204L871		9204L871	
Sample Number		B01S73		B01S73RE		B01S78		B01S78RE	
Location		216-B-48C		216-B-48C		216-B-48C		216-B-48C	
Remarks		FIELD BLANK		FIELD BLANK		EQUIP BLANK		EQUIP BLANK	
Sample Date		03/31/92		03/31/92		03/31/92		03/31/92	
Extraction Date		04/06/92		04/27/92		04/06/92		04/27/92	
Analysis Date		04/17/92		04/30/92		04/22/92		04/30/92	
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q
2,4-Dinitrophenol	50	55	UJ	100	UJ	55	UJ	100	UJ
4-Nitrophenol	50	55	UJ	100	UJ	55	UJ	100	UJ
Dibenzofuran	10	11	U	21	UJ	11	U	21	UJ
2,4-Dinitrotoluene	10	11	U	21	UJ	11	U	21	UJ
Diethylphthalate	10	11	U	21	UJ	11	U	21	UJ
4-Chlorophenyl-phenyl ethe	10	11	U	21	UJ	11	U	21	UJ
Fluorene	10	11	U	21	UJ	11	U	21	UJ
4-Nitroaniline	50	55	UJ	100	UJ	55	U	100	UJ
4,6-Dinitro-2-methylphenol	50	55	U	100	UJ	55	U	100	UJ
N-Nitrosodiphenylamine	10	11	U	21	UJ	11	U	21	UJ
4-Bromophenyl-phenylether	10	11	U	21	UJ	11	U	21	UJ
Hexachlorobenzene	10	11	U	21	UJ	11	U	21	UJ
Pentachlorophenol	50	55	U	100	UJ	55	U	100	UJ
Phenanthrene	10	11	UJ	21	UJ	11	U	21	UJ
Anthracene	10	11	UJ	21	UJ	11	U	21	UJ
Di-n-butylphthalate	10	11	UJ	21	UJ	11	U	21	UJ
Fluoranthene	10	11	U	21	UJ	11	U	21	UJ
Pyrene	10	11	UJ	21	UJ	11	U	21	UJ
Butylbenzylphthalate	10	11	U	21	UJ	11	U	21	UJ
3,3'-Dichlorobenzidine	20	22	UJ	42	UJ	22	U	42	UJ
Benzo(a)anthracene	10	11	U	21	UJ	11	U	21	UJ
Chrysene	10	11	U	21	UJ	11	U	21	UJ
bis(2-Ethylhexyl)phthalate	10	11	U	21	UJ	11	U	21	UJ
Di-n-octylphthalate	10	11	U	21	UJ	11	U	21	UJ
Benzo(b)fluoranthene	10	11	U	21	UJ	11	UJ	21	UJ
Benzo(k)fluoranthene	10	11	U	21	UJ	11	U	21	UJ
Benzo(a)pyrene	10	11	U	21	UJ	11	U	21	UJ
Indeno(1,2,3-cd)pyrene	10	11	U	21	UJ	11	U	21	UJ
Dibenz(a,h)anthracene	10	11	U	21	UJ	11	U	21	UJ
Benzo(g,h,i)perylene	10	11	U	21	UJ	11	U	21	UJ
Alkyl Phenol @ 17.28	---	---		10	NJ	---		---	
Unknown @ 27.68	---	---		70	NJ	---		---	
Alkyl Phenol @ 17.29	---	---		---		---		8	NJ
Unknown @ 27.69	---	---		---		---		60	NJ

9713523.0722

Laboratory Weston	SDG	9201L926		9201L926		9203L642		9203L642		9203L761		9203L761		9203LI761		9203L780	
Sample Number		B015Q3		B015Q5		B01SB5		B01SB9		B01SD1		B01SD3		B01SD5		B01SF1	
Location		216-B-43A		216-B-43A		216-B-45C		216-B-45C		216-B-44A		216-B-44A		216-B-44A		216-B-48B	
		56.0-58.5		56.0-58.5		3.0-6.0		10.0-13.0		3.0-6.0		3.0-6.0		9.0-12.0		2.5-5.0	
Remarks		DUPLICATE		DUPLICATE		SOIL SPLIT				DUPLICATE		DUPLICATE				DUPLICATE	
Sample Date		01/02/92		01/02/92		03/10/92		03/10/92		03/18/92		03/18/92		03/18/92		03/20/92	
Extraction Date		01/07/92		01/07/92		03/16/92		03/16/92		03/24/92		03/24/92		03/24/92		03/25/92	
Analysis Date		01/31/92		01/31/92		04/01/92		03/31/92		04/07/92		04/07/92		04/07/92		04/15/92	
Pesticide/PCB Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
beta-BHC	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
delta-BHC	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
gamma-BHC (Lindane)	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
Heptchlor	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
Aldrin	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
Heptachlor epoxide	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
Endosulfan I	8.0	16	U	16	U	8	U	17	U	17	U	16	U	17	U	16	U
Dieldrin	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
4,4'-DDE	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
Endrin	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
Endosulfan II	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
4,4'-DDD	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
Endosulfan sulfate	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
4,4'-DDT	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
Methoxychlor	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Endrin Ketone	16.0	32	U	32	U	17	U	34	U	34	U	32	U	34	U	32	U
alpha-Chlordane	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
gamma-Chlordane	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Toxaphene	160.0	320	U	320	U	170	U	340	U	340	U	320	U	340	U	320	U
Arochlor-1016	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Arochlor-1221	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Arochlor-1232	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Arochlor-1242	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Arochlor-1248	80.0	160	U	160	U	80	U	170	U	170	U	160	U	170	U	160	U
Arochlor-1254	160.0	320	U	320	U	170	U	340	U	340	U	320	U	340	U	320	U
Arochlor-1260	160.0	320	U	320	U	170	U	340	U	340	U	320	U	340	U	320	U

9713523.0723

Laboratory Weston	SDG	9203L780		9203L780	
Sample Number		B01SF3		B01SF5	
Location		216-B-48B		216-B-48B	
		2.5-5.0		10.0-12.5	
Remarks		DUPLICATE			
Sample Date		03/20/92		03/20/92	
Extraction Date		03/25/92		03/25/92	
Analysis Date		04/15/92		04/15/92	
Pesticide/PCB Compound	CRQL	Result	Q	Result	Q
alpha-BHC	8.0	17	U	16	U
beta-BHC	8.0	17	U	16	U
delta-BHC	8.0	17	U	16	U
gamma-BHC (Lindane)	8.0	17	U	16	U
Heptchlor	8.0	17	U	16	U
Aldrin	8.0	17	U	16	U
Heptachlor epoxide	8.0	17	U	16	U
Endosulfan I	8.0	17	U	16	U
Dieldrin	16.0	34	U	32	U
4,4'-DDE	16.0	34	U	32	U
Endrin	16.0	34	U	32	U
Endosulfan II	16.0	34	U	32	U
4,4'-DDD	16.0	34	U	32	U
Endosulfan sulfate	16.0	34	U	32	U
4,4'-DDT	16.0	34	U	6.2	J
Methoxychlor	80.0	170	U	160	U
Endrin Ketone	16.0	34	U	32	U
alpha-Chlordane	80.0	170	U	160	U
gamma-Chlordane	80.0	170	U	160	U
Toxaphene	160.0	340	U	320	U
Arochlor-1016	80.0	170	U	160	U
Arochlor-1221	80.0	170	U	160	U
Arochlor-1232	80.0	170	U	160	U
Arochlor-1242	80.0	170	U	160	U
Arochlor-1248	80.0	170	U	160	U
Arochlor-1254	160.0	340	U	320	U
Arochlor-1260	160.0	340	U	320	U

9715524.0749

Laboratory Weston	SDG	9204L871		9204L871	
Sample Number		B01S73		B01S78	
Location		216-B-48C		216-B-48C	
Remarks		FIELD BLANK		EQUIP BLANK	
Sample Date		03/31/92		03/31/92	
Extraction Date		04/03/92		04/03/92	
Analysis Date		04/23/92		04/23/92	
Pesticide/PCB Compound	CRQL	Result	Q	Result	Q
alpha-BHC	0.05	0.052	U	0.052	U
beta-BHC	0.05	0.052	U	0.052	U
delta-BHC	0.05	0.052	U	0.052	U
gamma-BHC (Lindane)	0.05	0.052	U	0.052	U
Heptchlor	0.05	0.052	U	0.052	U
Aldrin	0.05	0.052	U	0.052	U
Heptachlor epoxide	0.05	0.052	U	0.052	U
Endosulfan I	0.05	0.052	U	0.052	U
Dieldrin	0.10	0.10	U	0.10	U
4,4'-DDE	0.10	0.10	U	0.10	U
Endrin	0.10	0.10	U	0.10	U
Endosulfan II	0.10	0.10	U	0.10	U
4,4'-DDD	0.10	0.10	U	0.10	U
Endosulfan sulfate	0.10	0.10	U	0.10	U
4,4'-DDT	0.10	0.10	U	0.10	U
Methoxychlor	0.50	0.52	U	0.52	U
Endrin Ketone	0.10	0.10	U	0.10	U
alpha-Chlordane	0.50	0.52	U	0.52	U
gamma-Chlordane	0.50	0.52	U	0.52	U
Toxaphene	1.00	1.0	U	1.0	U
Arochlor-1016	0.50	0.52	U	0.52	U
Arochlor-1221	0.50	0.52	U	0.52	U
Arochlor-1232	0.50	0.52	U	0.52	U
Arochlor-1242	0.50	0.52	U	0.52	U
Arochlor-1248	0.50	0.52	U	0.52	U
Arochlor-1254	1.00	1.0	U	1.0	U
Arochlor-1260	1.00	1.0	U	1.0	U

9713520.0725

Laboratory Weston	SDG	9201L926		9201L926		9203L642		9203L642		9203L761		9203L761		9203L761		9203L780	
Sample Number		B015Q3		B015Q5		B01SB5		B01SB9		B01SD1		B01SD3		B01SD5		B01SF1	
Location		216-B-43A		216-B-43A		216-B-45C		216-B-45C		216-B-44A		216-B-44A		216-B-44A		216-B-48B	
		56.0-58.5		56.0-58.5		3.0-6.0		10.0-13.0		3.0-6.0		3.0-6.0		9.0-12.0		2.5-5.0	
Remarks		DUPLICATE		DUPLICATE		SOIL SPLIT				DUPLICATE		DUPLICATE				DUPLICATE	
Sample Date		01/02/92		01/02/92		03/10/92		03/10/92		03/18/92		03/18/92		03/18/92		03/20/92	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	40	4030.00	J	2690.00	J	3520.00	J	3910.00	J	4350.00		4070.00		3760.00		3990.00	
Antimony	12	4.74	U	4.70	U	4.80	U	4.76	U	7.45	U	7.14	U	7.42	U	7.47	UJ
Arsenic	2	2.00	B	2.90		1.70	B	1.90	B	1.40	B	1.40	B	2.20		1.01	B
Barium	40	45.80		38.60	B	60.60		65.70		62.30		59.30		51.20		63.00	
Beryllium	1	0.31	B	0.22	B	0.23	B	0.29	B	0.43	B	0.30	B	0.35	B	0.23	B
Cadmium	1	0.85	B	0.61	U	0.63	U	0.62	U	0.83	U	0.79	U	0.82	U	0.83	U
Calcium	1000	7730.00	J	9020.00	J	5880.00	J	6870.00	J	8130.00		7520.00		6850.00		4730.00	
Chromium	2	7.50		5.00		4.70	U	6.80	U	5.50		5.60		5.30		5.10	
Cobalt	10	4.80	B	3.20	B	5.40	B	7.00	B	7.70	B	7.30	B	6.70	B	6.60	B
Copper	5	8.80		7.90		9.30		11.20		13.50		9.10		9.30		8.90	
Iron	20	12200.00	J	7770.00	J	10100.00	J	11300.00	J	14500.00		12800.00		12100.00		11600.00	
Lead	0.6	3.60	J	3.50	J	3.20		3.70		3.00		2.60		4.00		2.90	
Magnesium	1000	3370.00	J	2780.00	J	2400.00	J	3010.00	J	3320.00		3080.00		2890.00		2850.00	
Manganese	3	232.00	J	214.00	J	196.00	J	230.00	J	264.00		286.00		216.00		229.00	
Mercury	0.04	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Nickel	8	8.00	B	7.70	B	3.76	U	6.90	B	9.00		7.80	B	7.30	B	6.20	B
Potassium	1000	636.00	B	502.00	B	684.00	B	928.00	B	963.00	B	1000.00		733.00	B	1010.00	B
Selenium	1	0.41	UJ	0.41	U	0.42	UJ	0.41	UJ	0.41	UJ	0.39	UJ	0.41	UJ	0.42	UJ
Silver	2	0.82	UJ	0.82	U	0.84	U	0.83	U	1.66	U	1.59	U	1.65	U	1.66	U
Sodium	1000	1800.00	J	1830.00	J	133.00	U	329.00	B	148.00	B	129.00	B	250.00	B	99.60	B
Thallium	2	0.41	UJ	0.41	U	0.42	U	0.41	U	0.41	U	0.39	U	0.41	U	0.42	UJ
Vanadium	10	20.00		11.30		16.60		19.40		28.00		22.70		20.50		19.50	
Zinc	4	24.70		19.00		21.10		23.70		28.80		25.60		24.40		26.30	
Cyanide	2	1.03	U	1.02	U	1.04	U	1.04	U	1.04	U	1.03	U	1.05	U	1.04	U
Bismuth	12	30.90	U	30.70	U	31.30	U	31.10	U	31.10	U	29.80	U	30.90	U	31.10	U
% Solids	0.1	97		97.9		95.8		96.6		96.6		97.3		94.8		96.4	
Nitrate by IC	4	2740	J	3640	J	29.3	J	47.3	J	70.7	J	45.8	J	61.3	J	50.8	J
Phosphate by IC	4	13.1	J	4.4	J	1.7	J	1.3	UJ	1.3	UJ	1.3	UJ	1.3	UJ	1.5	J
Sulfate by IC	4	197		154		7.4		433		22.6		47.2		19.5		11.2	
Nitrate Nitrite	4	932		709		8.9	R	13.1	R	16.3		15.5		13.4		12.3	
Total Organic Carbon	50	177	J	183	J	---		---		2150		2120		2860		---	
Total Organic Carbon, Percent	0.05	---		---		0.61		0.72		---		---		---		0.68	

9/1352.0726

Laboratory Weston	SDG	9203L780		9203L780	
Sample Number		B01SF3		B01SF5	
Location		216-B-48B		216-B-48B	
		2.5-5.0		10.0-12.5	
Remarks		DUPLICATE			
Sample Date		03/20/92		03/20/92	
Inorganic Analytes	CRQL	Result	Q	Result	Q
Aluminum	40	4170.00		3910.00	
Antimony	12	7.42	UJ	7.36	UJ
Arsenic	2	1.10	B	2.10	
Barium	40	65.80		55.80	
Beryllium	1	0.23	B	0.20	U
Cadmium	1	0.82	U	0.82	U
Calcium	1000	6130.00		7380.00	
Chromium	2	5.70		5.80	
Cobalt	10	7.50	B	7.00	B
Copper	5	9.50		9.80	
Iron	20	12300.00		12200.00	
Lead	0.6	3.00		4.50	
Magnesium	1000	2940.00		3240.00	
Manganese	3	245.00		226.00	
Mercury	0.04	0.05	U	0.05	U
Nickel	8	6.90	B	7.80	B
Potassium	1000	1080.00		886.00	B
Selenium	1	0.41	UJ	0.41	UJ
Silver	2	1.65	U	1.64	U
Sodium	1000	106.00	B	226.00	B
Thallium	2	0.41	UJ	0.41	UJ
Vanadium	10	21.50		20.00	
Zinc	4	27.20		27.10	
Cyanide	2	1.04	U	1.03	U
Bismuth	12	30.90	U	30.70	U
% Solids	0.1	96.4		96.8	
Nitrate by IC	4	53	J	46.2	J
Phosphate by IC	4	2.2	J	1.3	UJ
Sulfate by IC	4	11		479	
Nitrate Nitrite	4	13.2		11.5	
Total Organic Carbon	50	- - -		- - -	
Total Organic Carbon, Percent	0.05	0.68		0.65	

9713523.0727

Laboratory Weston	SDG	9204L871		9204L871	
Sample Number		B01S73		B01S78	
Location		216-B-48C		216-B-48C	
Remarks		FIELD BLANK		EQUIP BLANK	
Sample Date		03/31/92		03/31/92	
Inorganic Analytes	CRQL	Result	Q	Result	Q
Aluminum	200	46.00	U	46.00	U
Antimony	60	36.00	U	36.00	U
Arsenic	10	2.00	U	2.00	U
Barium	200	7.00	U	7.00	U
Beryllium	5	1.00	U	1.00	U
Cadmium	5	4.00	U	4.00	U
Calcium	5000	96.80	B	62.00	U
Chromium	10	7.00	U	7.00	U
Cobalt	50	7.00	U	7.00	U
Copper	25	9.10	B	7.00	U
Iron	100	30.00	U	47.20	B
Lead	3	2.00	U	2.00	U
Magnesium	5000	69.00	U	69.00	U
Manganese	15	2.00	U	2.00	U
Mercury	0.2	0.10	U	0.10	U
Nickel	40	18.00	U	18.00	U
Potassium	5000	896.00	U	896.00	U
Selenium	5	2.00	U	2.00	U
Silver	10	8.00	U	8.00	U
Sodium	5000	165.00	B	131.00	B
Thallium	10	2.00	U	2.00	U
Vanadium	50	5.50	U	5.00	U
Zinc	20	15.40	U	6.00	U
Cyanide	10	20.00	U	10.00	U
Bismuth	150	150.00	U	150.00	U
Nitrate by IC, mg/L	0.5	0.1	U	0.1	U
Phosphate by IC, mg/L	0.5	0.1	U	0.1	U
Sulfate by IC, mg/L	0.5	0.1	U	0.1	U
Nitrate+Nitrite, mg-N/L	0.5	0.23		0.23	

9715523.0728

9713523.0729

APPENDIX B

DATA REVIEW SUPPORTING DOCUMENTATION

SDG: 9201L926

Samples: B015Q3, B015Q5

CONTAINS:

ATTACHMENT 1 - GLOSSARY OF DATA REPORTING QUALIFIERS
ATTACHMENT 2 - SUMMARY OF DATA QUALIFICATIONS
ATTACHMENT 3 - AS QUALIFIED LABORATORY DATA
ATTACHMENT 4 - DATA VALIDATION SUPPORTING DOCUMENTATION

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

B - Indicates the compound or analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL).

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to identified quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are usable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9713523.0731

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92011926	REVIEWER: [illegible]	DATE: 7/20/92	PAGE 1 OF 4
COMMENTS: Volatiles.			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
2-Butanone	R	B015Q3/B015Q5	ICV RRF<0.05
Acetone	UJ	B015Q3/B015Q5	CCV %D > 25%
Carbon Tet	UJ	↓	↓
Chloroform	UJ	↓	↓
Methyl	U	B015Q3/B015Q5	present in blank
Methylene	U (UJ)	↓	↓

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92011926	REVIEWER: [illegible]	DATE: 7/21/92	PAGE 2 OF 4
COMMENTS: Semi-VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4-Chloroaniline	UJ	All	CCV 807258
3-Nitroaniline	UJ	↓	↓
Di-n-octylphthalate	U	All	present in blank
Phenol, 2,4,5-trichloro-	R	All	laboratory contaminant

9713523.0734

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9201L926	REVIEWER: [illegible]	DATE: 7/16/92	PAGE 3 OF 4
COMMENTS: Metals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Lead	J	B015Q3	MS%R<75%
Selenium	UJ	B015Q3	↓
Silver	UJ	B015Q3	↓
Lead	J	B015Q5	MS%R<75%
Manganese	J	B015Q5	MS%R <30% and SR>IDL
Aluminum	J	B015Q3/B015Q5	ICP Serial Dilution >10% and SR>IDL
Calcium	J	↓	↓
Iron	J	↓	↓
Magnesium	J	↓	↓
Manganese	J	↓	↓
Sodium	J	↓	↓
Arsenic	none analyzed by MSA	B015Q5	GFAA Analytical spike out of control limits
Lead	none analyzed by MSA	B015Q3/B015Q5	↓
Selenium	UJ	B015Q3	↓
Thallium	UJ	B015Q3	↓

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9701L925	REVIEWER: [illegible]	DATE: 7/17/92	PAGE 4 OF 4
COMMENTS: Inst Chemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
TOC	J	B01SQ3 B01SQ5	MS SR > ~~IDL~~ 125 and SR > IDL.
Nitrate	J	B01SQ3/B01SQ5	Analyte out of holding time
Phosphate	J	B01SQ3/B01SQ5	
TOC	J	B01SQ5	

9713523.0736

ATTACHMENT 3

AS QUALIFIED LABORATORY DATA

9713523.0737

1A
VOLATILE ORGANICS ANALYSIS SHEET 0000018

CLIENT SAMPLE NO.
216-B-43A
B015Q3
56.0-58.5
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9201L926-001

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

Lab File ID: 0010710

Level: (low/med) LOW

Date Received: 01/04/92

% Moisture: not dec. 3

Date Analyzed: 01/07/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	5 ~~JB~~	U
67-64-1	Acetone	10 ~~B~~	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
~~78-93-3~~	~~2-Butanone~~	~~10~~	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

9213523.0738

1A
VOLATILE ORGANICS ANALYSIS SHEET 000023

CLIENT SAMPLE NO.
21L-B-43A S6.0-S8.5

B015Q5
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9201L926-002

Sample wt/vol: 5.20 (g/mL) G

Lab File ID: 0010709

Level: (low/med) LOW

Date Received: 01/04/92

% Moisture: not dec. 2

Date Analyzed: 01/07/92

Column: (pack/cap) PACK

Dilution Factor: 0.962

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

CAS NO.	COMPOUND		
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	5 ~~1~~	~~JB~~ U
67-64-1	Acetone	10 ~~6~~	~~JB~~
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
~~78-93-3~~	~~2-Butanone~~	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	~~U~~
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	~~U~~
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

7/21/92

9713523.0739 1B 0000019

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-43A 56.0-58.5

B015Q3
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9201L926-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V012607

Level: (low/med) LOW Date Received: 01/04/92

% Moisture: not dec. 2 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 9.3 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	1700	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

FORM 1 SV-1 12/88 Rev.

7/21/92

9213523.0740 000020

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-43A 56.0-58.5

B015Q3
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9201L926-001

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: V012607

Level: (low/med) LOW

Date Received: 01/04/92

% Moisture: not dec. 2 dec.

Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 9.3

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1700	~~U~~	ws
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1700	U	
100-02-7	4-Nitrophenol	1700	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	1700	U	
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	340 ~~40~~	~~J~~	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	680	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	Dibenzo(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 12/88 Rev.

7/21/92

9713523.0741 0000021

CLIENT SAMPLE NO.
216-B-43A 56.0-58.5

BO15Q3
Soil Duplicate

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9201L926-001

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: V012607

Level: (low/med) LOW

Date Received: 01/04/92

% Moisture: not dec. 2 dec.

Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 9.3

Dilution Factor: 1.00

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~ALDOL CONDENSATE~~	~~5.65~~	1000	JAB	R
~~2.~~	~~ALDOL CONDENSATE~~	~~6.33~~	300	JA	R
3.	TRIBUTYLPHOSPHATE	18.12	400	~~J~~	NJ
4.	ADIPATE	26.47	20000	~~J~~	NJ
5.	UNKNOWN	27.30	200	~~J~~	NJ

7/21/9

9213533.0742 1B 000036

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-43A 56.0-58.
B015Q5
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9201L926-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V012610

Level: (low/med) LOW Date Received: 01/04/92

% Moisture: not dec. 2 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 9.4 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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~~ UJ
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	1700	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

FORM 1 SV-1 12/88 Rev.

7/21/92

9213523.0743 1C 0000037

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-R-43A 56.0-58.5
B015Q5
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9201L926-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V012610

Level: (low/med) LOW Date Received: 01/04/92

% Moisture: not dec. 2 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 9.4 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1700	~~U~~ UJ
83-32-9	Acenaphthene	340	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	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	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
84-74-2	Di-n-Butylphthalate	340 ~~40~~	~~J~~ 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	670	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	Dibenzo(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 12/88 Rev.

9213523.0744 1F 0000038

CLIENT SAMPLE NO.
216-B-43A 56.0-58.5
BO15Q5
Soil Duplicate

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9201L926-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V012610

Level: (low/med) LOW Date Received: 01/04/92

% Moisture: not dec. 2 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 9.4 Dilution Factor: 1.00

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
~~1.~~	~~ALDOL CONDENSATE~~	~~5.63~~	1000	JAB
~~2.~~	~~ALDOL CONDENSATE~~	~~6.33~~	300	JA
3.	UNKNOWN	7.17	300	~~J~~
4.	TRIBUTYLPHOSPHATE	18.10	500	~~J~~
5.	ADIPATE	26.40	200	~~J~~
6.	UNKNOWN	27.28	300	~~J~~

RETYPED

FORM 1 SV-TIC 12/88 Rev.

7/21/92

9713523.0745 ID 0000016

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-43A

BO15Q3
56.0-58.5
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9201L926-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 01309203.22

Level: (low/med) LOW Date Received: 01/04/92

% Moisture: not dec. 3 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 01/31/92

GPC Cleanup: (Y/N) Y pH: 9.3 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	16	~~8.2~~	U
319-85-7	Beta-BHC		~~8.2~~	U
319-86-8	Delta-BHC		~~8.2~~	U
58-89-9	gamma-BHC (Lindane)		~~8.2~~	U
76-44-8	Heptachlor		~~8.2~~	U
309-00-2	Aldrin		~~8.2~~	U
1024-57-3	Heptachlor epoxide		~~8.2~~	U
959-98-8	Endosulfan I		~~8.2~~	U
60-57-1	Dieldrin	32	~~16~~	U
72-55-9	4,4'-DDE		~~16~~	U
72-20-8	Endrin		~~16~~	U
33213-65-9	Endosulfan II		~~16~~	U
72-54-8	4,4'-DDD		~~16~~	U
1031-07-8	Endosulfan sulfate		~~16~~	U
50-29-3	4,4'-DDT		~~16~~	U
72-43-5	Methoxychlor	160	~~82~~	U
53494-70-5	Endrin ketone	32	~~16~~	U
5103-71-9	alpha-Chlordane	160	~~82~~	U
5103-74-2	gamma-Chlordane	160	~~82~~	U
8001-35-2	Toxaphene	320	~~160~~	U
12674-11-2	Aroclor-1016	160	~~82~~	U
11104-28-2	Aroclor-1221	160	~~82~~	U
11141-16-5	Aroclor-1232	160	~~82~~	U
53469-21-9	Aroclor-1242	160	~~82~~	U
12672-29-6	Aroclor-1248	160	~~82~~	U
11097-69-1	Aroclor-1254	320	~~160~~	U
11096-82-5	Aroclor-1260	320	~~160~~	U

DER 2/4/92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.0746 0000021

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-43A

BO15Q5
56.0-58.5
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9201L926-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 01309203.27

Level: (low/med) LOW Date Received: 01/04/92

% Moisture: not dec. 2 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) N/A Date Analyzed: 01/31/92

GPC Cleanup: (Y/N) Y pH: 9.4 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	16	~~8.2~~	U
319-85-7	Beta-BHC		~~8.2~~	U
319-86-8	Delta-BHC		~~8.2~~	U
58-89-9	gamma-BHC (Lindane)		~~8.2~~	U
76-44-8	Heptachlor		~~8.2~~	U
309-00-2	Aldrin		~~8.2~~	U
1024-57-3	Heptachlor epoxide		~~8.2~~	U
959-98-8	Endosulfan I		~~8.2~~	U
60-57-1	Dieldrin	32	~~16~~	U
72-55-9	4,4'-DDE		~~16~~	U
72-20-8	Endrin		~~16~~	U
33213-65-9	Endosulfan II		~~16~~	U
72-54-8	4,4'-DDD		~~16~~	U
1031-07-8	Endosulfan sulfate		~~16~~	U
50-29-3	4,4'-DDT		~~16~~	U
72-43-5	Methoxychlor	160	~~82~~	U
53494-70-5	Endrin ketone	32	~~16~~	U
5103-71-9	alpha-Chlordane	160	~~82~~	U
5103-74-2	gamma-Chlordane	160	~~82~~	U
8001-35-2	Toxaphene	320	~~160~~	U
12674-11-2	Aroclor-1016	160	~~82~~	U
11104-28-2	Aroclor-1221	160	~~82~~	U
11141-16-5	Aroclor-1232	160	~~82~~	U
53469-21-9	Aroclor-1242	160	~~82~~	U
12672-29-6	Aroclor-1248	160	~~82~~	U
11097-69-1	Aroclor-1254	320	~~160~~	U
11096-82-5	Aroclor-1260	320	~~160~~	U

DER 2/4/92

FORM 1 PEST 12/88 Rev.

2/3/92

9713523.0747

0000023

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-R-43A
B015Q3
56.0-58.5
Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP926

Matrix (soil/water): SOIL Lab Sample ID: 920192601

Level (low/med): LOW Date Received: 1/04/92

% Solids: 97.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4030.00		E	P	
7440-36-0	Antimony	4.74	U		P	
7440-38-2	Arsenic	2.00	B	N	F	
7440-39-3	Barium	45.80			P	
7440-41-7	Beryllium	.31	B		P	
7440-43-9	Cadmium	.85	B		P	
7440-70-2	Calcium	7730.00		E*	P	
7440-47-3	Chromium	7.50			P	
7440-48-4	Cobalt	4.80	B		P	
7440-50-8	Copper	8.80			P	
7439-89-6	Iron	12200.00		E	P	
7439-92-1	Lead	3.60		NS	F	
7439-95-4	Magnesium	3370.00		E	P	
7439-96-5	Manganese	232.00		NE	P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	8.00	B		P	
7440-09-7	Potassium	636.00	B		P	
7782-49-2	Selenium	.41	U	NW	F	
7440-22-4	Silver	.82	U	N	P	
7440-23-5	Sodium	1800.00			P	
7440-28-0	Thallium	.41	U	W	F	
7440-62-2	Vanadium	20.00			P	
7440-66-6	Zinc	24.70			P	
	Cyanide	1.03	U		C	
7440-69-9	Bismuth	30.9	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

7/17/92

9713523.0748 0000024

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

215-R-43A

B015Q5

56.0-58.5

Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP926

Matrix (soil/water): SOIL Lab Sample ID: 920192602

Level (low/med): LOW Date Received: 1/04/92

% Solids: 97.9

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2690.00		E	P	
7440-36-0	Antimony	4.70	U		P	
7440-38-2	Arsenic	2.90		NS	F	
7440-39-3	Barium	38.60	B		P	
7440-41-7	Beryllium	.22	B		P	
7440-43-9	Cadmium	.61	U		P	
7440-70-2	Calcium	9020.00		E*	P	
7440-47-3	Chromium	5.00			P	
7440-48-4	Cobalt	3.20	B		P	
7440-50-8	Copper	7.90			P	
7439-89-6	Iron	7770.00		E	P	
7439-92-1	Lead	3.50		NS	F	
7439-95-4	Magnesium	2780.00		E	P	
7439-96-5	Manganese	214.00		NE	P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	7.70	B		P	
7440-09-7	Potassium	502.00	B		P	
7782-49-2	Selenium	.41	U	N	F	
7440-22-4	Silver	.82	U	N	P	
7440-23-5	Sodium	1830.00			P	
7440-28-0	Thallium	.41	U		F	
7440-62-2	Vanadium	11.30			P	
7440-66-6	Zinc	19.00			P	
	Cyanide	1.02	U		C	
7440-69-9	Bismuth	30.7			P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

7/17/93

9715523.0749

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/06/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9201L926

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B015Q3	% Solids	97.0	%	0.10
		Nitrate by IC	2740	MG/KG	1.3 J
	215-R-43A	Cyanide, Total	1.0 u	MG/KG	1.0
	Sample - 58.5	Phosphate by IC	13.1	MG/KG	2.6 J
	Total Comp Calc	Sulfate by IC	197	MG/KG	1.3
		Nitrate Nitrite	932	MG-N/KG	129
		Total Organic Carbon	177 ~~166~~ 87/17/92	MG/KG	89.0 J
-002	B015Q5	% Solids	97.9	%	0.10
		Nitrate by IC	3640	MG/KG	1.3 J
	215-R-43A	Cyanide, Total	1.0 u	MG/KG	1.0
	Sample - 58.5	Phosphate by IC	4.4	MG/KG	2.6 J
		Sulfate by IC	154	MG/KG	1.3
		Nitrate Nitrite	709	MG-N/KG	51.1
	Total Comp Calc	Total Organic Carbon	183	MG/KG	101 J

2/17/92

9713523.0750

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/6/92
LABORATORY: Houston	CASE: 92011926	SDG: 926
SAMPLES/MATRIX: B01503, B01505/Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC			X
Quantitation and calculation data for all TIC			X
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC			X

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? **Yes** No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? **Yes** No N/A

Do all tunes on all instruments meet the tuning criteria? **Yes** No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No **N/A**

Has the laboratory made any calculation or transciption errors? Yes **No** N/A

Have the proper significant figures been reported? **Yes** No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? **Yes** No N/A

Are all RSD values ≤30% (2/88 SOW)? **Yes** No N/A

Are all RRF values ≥0.05 (2/88 SOW)? Yes **No** N/A

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries <10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but >10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions present in the reference specrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

9713523.0758

COMMENTS (attach additional sheets as necessary):

Samples R01503 and R01505 were identified as field duplicates. All sample results were non-detects.

7/21/97

9412231759 Time Summary Pg 1 of 1

FEB 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B015Q3	001	S	92LVQ004	01/02/92	N/A	01/07/92
B015Q5	002	S	92LVQ004	01/02/92	N/A	01/07/92
B015Q5	002 MS	S	92LVQ004	01/02/92	N/A	01/07/92
B015Q5	002 MSD	S	92LVQ004	01/02/92	N/A	01/07/92

LAB QC:

VBLK	MB1	S	92LVQ004	N/A	N/A	01/07/92

7/20/92

Cu 97/35234.0760 Summary 000093 pg 1 of 2

6A

VOLATILE ORGANICS INTITIAL CALIBRATION DATA

Lab Name: Roy F. Weston, Inc. Contract: NONE

Case No.: LAB RFW Lot: _____

Instrument ID: 10500 Calibration Date(s): 12/27/91 12/27/91

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = 0122712 RRF50 = 0122708
RRF100= 0122709 RRF150= 0122710 RRF200= 0122711

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	0.980	1.633	1.355	1.721	1.514	1.441	20.2#
Bromomethane	1.393	1.995	1.617	2.234	2.081	1.864	18.7
Vinyl Chloride *	1.194	1.531	1.316	1.808	1.760	1.522	17.6*
Chloroethane	0.704	0.844	0.713	0.910	0.948	0.824	13.6
Methylene Chloride	1.207	1.329	1.158	1.283	1.267	1.249	5.4
Acetone	0.630	0.785	0.521	0.540	0.617	0.619	16.9
Carbon Disulfide	2.552	3.003	2.927	3.130	3.067	2.936	7.7
1,1-Dichloroethene *	1.249	1.364	1.273	1.301	1.252	1.288	3.7*
1,1-Dichloroethane #	2.370	2.670	2.475	2.532	2.429	2.495	4.6#
1,2-Dichloroethene (total)	1.291	1.395	1.386	1.432	1.383	1.377	3.8
Chloroform *	2.992	3.334	3.141	3.220	3.089	3.155	4.1*
1,2-Dichloroethane	2.515	2.799	2.579	2.649	2.539	2.616	4.4
2-Butanone	0.040	0.053	0.037	0.037	0.044	0.042	15.8
1,1,1-Trichloroethane	0.874	0.968	0.886	0.870	0.858	0.891	4.9
Carbon Tetrachloride	0.620	0.733	0.702	0.700	0.700	0.691	6.1
Vinyl Acetate	0.771	0.874	0.775	0.806	0.845	0.814	5.5
Bromodichloromethane	0.750	0.826	0.773	0.762	0.764	0.775	3.8
1,2-Dichloropropane *	0.444	0.382	0.402	0.401	0.399	0.406	5.7*
cis-1,3-Dichloropropene	0.482	0.513	0.521	0.595	0.589	0.540	9.2
Trichloroethene	0.417	0.450	0.417	0.495	0.486	0.453	8.2
Dibromochloromethane	0.479	0.582	0.554	0.617	0.623	0.571	10.2
1,1,2-Trichloroethane	0.320	0.355	0.327	0.353	0.366	0.344	5.7
Benzene	0.862	0.930	0.880	0.907	0.885	0.893	2.9
Trans-1,3-Dichloropropene	0.509	0.532	0.499	0.554	0.578	0.534	6.1
Bromoform #	0.365	0.476	0.422	0.473	0.503	0.448	12.2#
4-Methyl-2-pentanone	0.437	0.531	0.383	0.415	0.454	0.444	12.5
2-Hexanone	0.382	0.450	0.316	0.354	0.393	0.379	13.1
Tetrachloroethene	0.470	0.507	0.467	0.485	0.481	0.482	3.3
1,1,2,2-Tetrachloroethane #	0.561	0.688	0.537	0.588	0.632	0.601	10.0#
Toluene *	0.611	0.676	0.619	0.649	0.633	0.638	4.1*
Chlorobenzene #	0.922	0.962	0.864	0.890	0.866	0.901	4.6#
Ethylbenzene *	0.413	0.446	0.414	0.427	0.417	0.423	3.3*
Styrene	0.770	0.834	0.780	0.841	0.797	0.804	4.0
Xylene (total)	0.416	0.463	0.441	0.453	0.437	0.442	4.0
Toluene-d8	0.983	1.013	1.023	1.055	1.041	1.023	2.7
Bromofluorobenzene	0.753	0.754	0.760	0.789	0.772	0.766	2.0
1,2-Dichloroethane-d4	2.325	2.439	2.452	2.477	2.391	2.417	2.5

7/2/92

Cover Summary 000006 Pg 2 of 2

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9201L926

Instrument ID: 10500 Calibration Date: 01/07/92 Time: 1014

Lab File ID: 0010704 Init. Calib. Date(s): 12/27/91 12/27/91

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.441	1.157	19.7	#
Bromomethane		1.864	1.555	16.6	
Vinyl Chloride	*	1.522	1.154	24.2	*
Chloroethane		0.824	0.809	1.8	
Methylene Chloride		1.249	1.309	-4.8	
Acetone		0.619	1.020	-64.8	
Carbon Disulfide		2.936	2.469	15.9	
1,1-Dichloroethene	*	1.288	1.220	5.3	*
1,1-Dichloroethane	#	2.495	2.707	-8.5	#
1,2-Dichloroethene (total)		1.377	1.469	-6.7	
Chloroform	*	3.155	3.441	-9.1	*
1,2-Dichloroethane		2.616	3.154	-20.6	
2-Butanone		0.042	0.052	-23.8	
1,1,1-Trichloroethane		0.891	0.751	15.7	
Carbon Tetrachloride		0.691	0.474	31.4	
Vinyl Acetate		0.814	0.878	-7.9	
Bromodichloromethane		0.775	0.669	13.7	
1,2-Dichloropropane	*	0.406	0.412	-1.5	*
cis-1,3-Dichloropropene		0.540	0.525	2.8	
Trichloroethene		0.453	0.403	11.0	
Dibromochloromethane		0.571	0.474	17.0	
1,1,2-Trichloroethane		0.344	0.409	-18.9	
Benzene		0.893	0.973	-9.0	
Trans-1,3-Dichloropropene		0.534	0.530	0.7	
Bromoform	#	0.448	0.309	31.0	#
4-Methyl-2-pentanone		0.444	0.552	-24.3	
2-Hexanone		0.379	0.464	-22.4	
Tetrachloroethene		0.482	0.388	19.5	
1,1,2,2-Tetrachloroethane	#	0.601	0.691	-15.0	#
Toluene	*	0.638	0.668	-4.7	*
Chlorobenzene	#	0.901	0.964	-7.0	#
Ethylbenzene	*	0.423	0.440	-4.0	*
Styrene		0.804	0.852	-6.0	
Xylene (total)		0.442	0.479	-8.4	
Toluene-d8		1.023	1.004	1.9	
Bromofluorobenzene		0.766	0.804	-5.0	
1,2-Dichloroethane-d4		2.417	2.802	-15.9	

FORM VII VOA 5/88 Rev

1/20/92 1/21/92

Blank Summary 9713523.0762 1A 0008971 pg 1 of 1

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 92LV0004-MB1

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

Lab File ID: 0010705

Level: (low/med) LOW

Date Received: 01/07/92

% Moisture: not dec. 0

Date Analyzed: 01/07/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	~~1~~	~~J~~ x10=10
67-64-1	Acetone	~~4~~	~~J~~ x10=40
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

7/21/92

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/21/92
LABORATORY: Weston	CASE: 92011L926	SDG: 926
SAMPLES/MATRIX: B015Q3, B015Q5/Soil		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
MS/MSD report forms	X		

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	Yes	No	N/A
Do all tunes on all instruments meet the tuning criteria?	Yes	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	N/A
Has the laboratory made any calculation or transciption errors?	Yes	No	N/A
Have the proper significant figures been reported?	Yes	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results < 5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0770

COMMENTS (attach additional sheets as necessary):

Samples B015Q3 and B015Q5 were identified as field duplicates. All target compounds were non-detects.

[illegible]
7/01/9

9713523.0771

Holding Time Summary Pg 1 of 1

FEB 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B015Q3	001	S	92LE0025	01/02/92	01/07/92 5	01/26/92 19
B015Q3	001 MS	S	92LE0025	01/02/92	01/07/92	01/26/92
B015Q3	001 MSD	S	92LE0025	01/02/92	01/07/92	01/26/92
B015Q5	002	S	92LE0025	01/02/92	01/07/92	01/26/92

LAB QC:

SBLK	MB1	S	92LE0025	N/A	01/07/92	01/26/92
SBLK	MB1 BS	S	92LE0025	N/A	01/07/92	01/26/92

All holding times were met.

7/21/92

Cal 9213523.0772 Summary

0000092

Pg 1 of 1

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9201L926

Instrument ID: 4500V Calibration Date: 01/26/92 Time: 1326

Lab File ID: V012602 Init. Calib. Date(s): 01/24/92 01/24/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND		$\overline{RRF}$	RRF50	%D	
Phenol	*	2.200	2.073	5.8	*
bis(2-Chloroethyl)ether		1.743	1.652	5.2	
2-Chlorophenol		1.460	1.416	3.0	
1,3-Dichlorobenzene		1.431	1.404	1.9	
1,4-Dichlorobenzene	*	1.523	1.481	2.8	*
Benzyl alcohol		0.946	0.953	-0.7	
1,2-Dichlorobenzene		1.438	1.380	4.0	
2-Methylphenol		1.439	1.422	1.2	
bis(2-Chloroisopropyl)ether		2.489	2.464	1.0	
4-Methylphenol		1.460	1.450	0.7	
N-Nitroso-Di-n-propylamine	#	1.171	1.153	1.5	#
Hexachloroethane		0.602	0.585	2.8	
Nitrobenzene		0.392	0.389	0.8	
Isophorone		0.775	0.769	0.8	
2-Nitrophenol	*	0.183	0.180	1.6	*
2,4-Dimethylphenol		0.318	0.314	1.3	
Benzoic acid		0.181	0.167	7.7	
bis(2-Chloroethoxy)methane		0.496	0.487	1.8	
2,4-Dichlorophenol	*	0.243	0.238	2.1	*
1,2,4-Trichlorobenzene		0.250	0.240	4.0	
Naphthalene		0.912	0.938	-2.9	
4-Chloroaniline		0.412	0.284	31.1	
Hexachlorobutadiene	*	0.109	0.106	2.8	*
4-Chloro-3-methylphenol	*	0.278	0.275	1.1	*
2-Methylnaphthalene		0.590	0.577	2.2	
Hexachlorocyclopentadiene	#	0.216	0.212	1.9	#
2,4,6-Trichlorophenol	*	0.285	0.277	2.8	*
2,4,5-Trichlorophenol		0.327	0.277	15.3	
2-Chloronaphthalene		1.046	0.999	4.5	
2-Nitroaniline		0.401	0.368	8.2	
Dimethylphthalate		1.099	1.047	4.7	
Acenaphthylene		1.612	1.594	1.1	
2,6-Dinitrotoluene		0.287	0.281	2.1	
3-Nitroaniline		0.344	0.243	29.4	
Acenaphthene	*	0.941	0.906	3.7	*
2,4-Dinitrophenol	#	0.116	0.089	23.3	#
4-Nitrophenol	#	0.090	0.080	11.1	#

BKR 1/29/92

FORM VII SV-1 5/88 Rev.

2/11/92

7/21/92

Blank Summary

Pg 1 of 4

9213523.0773 0000109

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 92LE0025-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V012603

Level: (low/med) LOW Date Received: 01/07/92

% Moisture: not dec. 0 dec. Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 01/26/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	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	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	2) ~~330~~	~~U~~
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	670	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	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

7/21/92 x10 = 210

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/21/92

Blank Summary 92T5925.0774 00001 10 Pg 2 of 4

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 92LE0025-MB1

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

Lab File ID: V012603

Level: (low/med) LOW

Date Received: 01/07/92

% Moisture: not dec. 0 dec.

Date Extracted: 01/07/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 01/26/92

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

Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.68	900	JA

R

FORM 1 SV-TIC 12/88 Rev.

7/21/92

Blank Summary 9713523.0775 0000115 pg 3 of 4

Quantitation Report File: V012603

Data: V012603.TI
01/26/92 14:13:00
Sample: 92LE0025-MB1
Conds.: BNA/4500V 2 UL INJ. 30M RTX-5
Formula: V012601 Instrument: 4500V Weight: 0.007
Submitted by: 012692 Analyst: BKR Acct. No.: RFW

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C560	4-NITROPHENOL
52	C565	DIBENZOFURAN
53	C570	2,4-DINITROTOLUENE
54	C580	DIETHYLPHTHALATE
55	C585	4-CHLOROPHENYL-PHENYLETHER
56	C590	FLUORENE
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60		1,2-DIPHENYLHYDRAZINE (AZOBENZENE)
61	C625	4-BROMOPHENYL-PHENYLETHER
62	C630	HEXACHLOROBENZENE
63	C635	PENTACHLOROPHENOL
64	C640	PHENANTHRENE
65	C645	ANTHRACENE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68		BENZIDINE
69	C715	PYRENE
70	C720	BUTYLBENZYLPHTHALATE
71	C725	3,3'-DICHLOROBENZIDINE
72	C730	BENZO(A)ANTHRACENE
73	C745	BIS(2-ETHYLHEXYL)PHTHALATE
74	C740	CHRYSENE
75	C760	DI-N-OCTYLPHTHALATE
76	C765	BENZO(B)FLUORANTHENE
77	C770	BENZO(K)FLUORANTHENE
78	C775	BENZO(A)PYRENE
79	C780	INDENO(1,2,3-CD)PYRENE
80	C785	DIBENZ(A,H)ANTHRACENE
81	C790	BENZO(G,H,I)PERYLENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
53	NOT FOUND								
54	NOT FOUND								
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								
59	169	1076	17:56	4	0.891	A BB	790.	0.715 NG L1	0.11
60	NOT FOUND								
61	NOT FOUND								
62	NOT FOUND								

7/2/15

Blank Summary 9743523.0776 0000116 Pg 4 of 4

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
63	NOT FOUND								
64	NOT FOUND								
65	NOT FOUND								
66	149	1321	22:01	4	1.094	A BB	1691.	0.636 NG	0.09
67	NOT FOUND								
68	NOT FOUND								
69	NOT FOUND								
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
73	NOT FOUND								
74	NOT FOUND								
75	149	1771	29:31	6	0.938	A BB	218.	0.099 NG	0.01
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								
81	NOT FOUND								

LI

BLR
1/27/92

9713523.0777

CALCULATION SUMMARY - FORM B-6

92011-93L

SDG: 93L	REVIEWER: [illegible]	DATE: 7/21/97	PAGE 1 OF 1

COMMENTS:

$$ug/kg = \frac{(A_x)(I_s)(V_t)(D_f)}{(A_{is})(RRF)(V_i)(W_s)(D)}$$

Di-n-butyl phthalate in the blank

$$= \frac{(14.91)(40)(2000.0)(1)}{(79321)(1.342)(2)(30.0)(1)} = 21.18 \approx 21 \text{ ug/kg}$$

9713523.0778

WHC-SD-EN-SPP-002, Rev. 1

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 9201L926 200-BP-1	REVIEWER:	DATE: 7/23/92
LABORATORY: Weston	CASE: 9201L926	SDG: 926
SAMPLES/MATRIX: B01503, B01505/Soil S		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
Sample Data			
Sample reports	X		
Chromatograms	X		
GC integration reports	X		
Worksheets		X	
UV traces from GPC		X	
GC/MS confirmation spectra			X
Standards Data			
Pesticides Evaluation Standards Summary	X		
Pesticides/PCB Standards Summary	X		
Pesticides/PCB identification	X		
Pesticides standard chromatograms	X		
Raw QC Data			
Blank analysis report forms and chromatograms	X		
MS/MSD report forms and chromatograms	X		

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets	—	X	—
Reduction formulae	—	X	—
Instrument time logs	X	—	—
Chemist notebook pages	—	X	—
Sample preparation sheets	X	—	—

2. HOLDING TIMES

Were all samples extracted within holding time? (Yes) No N/A

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? (Yes) No N/A

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? (Yes) No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes (No) N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification? **Yes** No N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%? **Yes** No N/A

Have all standards been analyzed within 72 h of any sample? **Yes** No N/A

Has a 3-point calibration been conducted for DDT or toxaphene? Yes ~~No~~ N/A 7/13/92

Have all standards been analyzed at the start of each 72-h sequence? **Yes** No N/A

Have evaluation standards A, B, and C been analyzed within 72 h of any sample? **Yes** No N/A

Has the confirmation standard mix been analyzed after every five samples? **Yes** No N/A

Has evaluation standard B analyzed every 10 samples? **Yes** No N/A

Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards? Yes **No** N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

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

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors < 10.0% (< 15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	(No)	N/A
Do any samples show nondetects for surrogates?	Yes	(No)	N/A
Are any method blank surrogates out of specification?	Yes	(No)	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	(Yes)	No	N/A
Are MS/MSD recoveries within specification?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	(N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? **Yes** No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? **Yes** No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No **N/A**

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No **N/A**

Were positive results analyzed on disimilar columns? **Yes** No ~~N/A~~ 7/23/92

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No **N/A**

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No **N/A**

Has GC/MS confirmation been conducted on sample extract concentrations >10 ppm? Yes No **N/A**

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

7/23/93

Are results and quantitation limits calculated properly? GPC — ~~Yes~~ No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

These samples were prepared by G-FC Therefore the CRQL was multiplied by a factor of two.

Samples B01503 & B01505 were identified as field duplicates. All results are non-detects.

9213523.0787

Holding Time Summary

Pg 1 of 1

FEB 1992
RECEIVED
OSM DMO

Roy F. Weston, Inc. - Lionville Laboratory
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO15Q3	001	S	92LE0026	01/02/92	01/07/92 5	01/31/92 24
BO15Q3	001 MS	S	92LE0026	01/02/92	01/07/92	01/31/92
BO15Q3	001 MSD	S	92LE0026	01/02/92	01/07/92	01/31/92
BO15Q5	002	S	92LE0026	01/02/92	01/07/92	01/31/92

LAB QC:

PBLK	MB1	S	92LE0026	N/A	01/07/92	01/31/92
PBLK	MB1 BS	S	92LE0026	N/A	01/07/92	01/31/92

Holding times were met

[illegible] 2/13/92

[illegible] 2/13/92

Calibration Summary 9713523.0788 0000036 Pg 1 of 1

9

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 01309204.26

RFW Lot No.: 9201L926

Instrument ID: 04 GC Column ID: SP2100

All results are NO-no qual. is necessary.

DATE(S) OF ANALYSIS FROM: 01/31/92 TO: 01/31/92
TIME(S) OF ANALYSIS FROM: 0105 TO: 0532

DATE OF ANALYSIS 01/31/92
TIME OF ANALYSIS 1313
EPA SAMPLE NO. (STANDARD) INDA 21-67

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.18	2.16	2.20	9310105	2.20	8531535	N	8.4
Beta-BHC	2.32	2.30	2.34	3979935				
Delta-BHC	2.58	2.56	2.60	5734125				
gamma-BHC (Lindane)	2.52	2.50	2.54	8114881	2.53	7763185	N	4.3
Heptachlor	3.85	3.83	3.87	6002135	3.88	6138083	N	2.3
Aldrin	4.68	4.66	4.70	4893153				
Heptachlor epoxide	5.60	5.56	5.62	4729761				
Endosulfan I	6.87	6.84	6.90	3606665	6.92	3515383	N	2.5
Dieldrin	7.92	7.88	7.98	3228881	7.98	3020367	N	6.5
4,4'-DDE	7.73	7.68	7.78	3161897				
Endrin	8.80	8.74	8.86	1335723	8.86	1120743	N	16.1
Endosulfan II	8.98	8.93	9.03	1678695				
4,4'-DDD	9.66	9.59	9.73	1584797	9.75	1433475	N	9.5
Endosulfan sulfate	11.33	11.26	11.40	1171449				
4,4'-DDT	12.36	12.26	12.46	354427	12.46	382525	N	7.9
Methoxychlor	17.63	17.52	17.74	457521	17.79	452123	N	1.2
Endrin ketone	14.40	14.30	14.50	1387865				
alpha-Chlordane	6.96	6.90	7.00	3836331				
gamma-Chlordane	6.34	6.29	6.39	3882521				
Toxaphene	9.60	9.30	9.90	305532				
Aroclor-1016	3.39	3.36	3.42	1373731				
Aroclor-1221	2.16	2.14	2.18	423720				
Aroclor-1232	2.20	2.18	2.22	901510				
Aroclor-1242	3.39	3.37	3.41	1213791				
Aroclor-1248	3.40	3.37	3.43	1482341				
Aroclor-1254	6.64	6.59	6.69	1590157				
Aroclor-1260	11.01	10.92	11.10	1163127				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

9713523.0789

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/16/92
LABORATORY: Weston	CASE: 92aL926	SDG: 926
SAMPLES/MATRIX: B015Q3, B015Q5 / Soil		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports	X		
Sample Data			
Inorganic Analysis Data Sheets	X		
Standards Data			
Initial and Continuing Calibration Verification	X		
CRDL Standard for AA and ICP	X		
QC Summary			
Blanks	X		
ICP Interference Check Summary	X		
Spike Sample Recovery	X		
Post-Digestion Spike Sample Recovery	X		
Duplicate	X		
Laboratory Control Sample	X		
Standard Addition Results	X		
ICP Serial Dilutions	X		
Instrument Detection Limits	X		
ICP Interelement Correction Factors	X		
ICP Linear Ranges	X		
Preparation Log	X		
Analysis Run Log	X		
Raw Data			
ICP Raw Data	X		
Furnace AA Raw Data	X		
Mercury Raw Data	X		
Cyanide Raw Data	X		
Additional Data			
Internal laboratory chain-of-custody	X		
Laboratory Sample Preparation Records			

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	X		
Reduction Formulae		X	
Instrument Run Logs	X		
Chemist Notebook Pages		X	

2. HOLDING TIMES

Have all samples been analyzed within holding times? **Yes** No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? **Yes** No N/A

Are the correlation coefficients ≥0.995? **Yes** No N/A

Was a midrange cyanide standard distilled? **Yes** No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? **Yes** No N/A

Are the AB solution %R values within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

7/20/92

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Samples B01503 and B01505 were identified as field duplicates. The RPD range between 27 and 56%.

9/17/97

Hold: 9793523.0795 Summary Pg 1 of 4

FEB 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
B015Q3							
SILVER, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	3
SILVER, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
SILVER, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
ALUMINUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
ALUMINUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
ALUMINUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
ARSENIC, TOTAL	001	S	92L0250	01/02/92	01/23/92	01/27/92	25
ARSENIC, TOTAL	001 REP	S	92L0250	01/02/92	01/23/92	01/27/92	
ARSENIC, TOTAL	001 MS	S	92L0250	01/02/92	01/23/92	01/27/92	
BARIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	3
BARIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
BARIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
BERYLLIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
BERYLLIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
BERYLLIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
BISMUTH, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
BISMUTH, TOTAL REP	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
BISMUTH, TOTAL SPIKE	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
CALCIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
CALCIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
CALCIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
CADMIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
CADMIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
CADMIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
COBALT, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
COBALT, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
COBALT, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
CHROMIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
CHROMIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
CHROMIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
COPPER, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
COPPER, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
COPPER, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
IRON, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
IRON, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
IRON, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
MERCURY, TOTAL	001	S	92C0023	01/02/92	01/17/92	01/20/92	18

7/16/92

Holding 9713523.0796 Summary pg 3 of 4

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
MERCURY, TOTAL	001 REP	S	92C0023	01/02/92	01/17/92	01/20/92	18
MERCURY, TOTAL	001 MS	S	92C0023	01/02/92	01/17/92	01/20/92	
POTASSIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	34
POTASSIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
POTASSIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
MAGNESIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
MAGNESIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
MAGNESIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
MANGANESE, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
MANGANESE, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
MANGANESE, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
SODIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
SODIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
SODIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
NICKEL, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
NICKEL, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
NICKEL, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
LEAD, TOTAL	001	S	92L0250	01/02/92	01/23/92	01/28/92	26
LEAD, TOTAL	001 REP	S	92L0250	01/02/92	01/23/92	01/28/92	
LEAD, TOTAL	001 MS	S	92L0250	01/02/92	01/23/92	01/28/92	
ANTIMONY, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	34
ANTIMONY, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
ANTIMONY, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
SELENIUM, TOTAL	001	S	92L0250	01/02/92	01/23/92	01/27/92	25
SELENIUM, TOTAL	001 REP	S	92L0250	01/02/92	01/23/92	01/27/92	
SELENIUM, TOTAL	001 MS	S	92L0250	01/02/92	01/23/92	01/27/92	
THALLIUM, TOTAL	001	S	92L0250	01/02/92	01/23/92	01/27/92	
THALLIUM, TOTAL	001 REP	S	92L0250	01/02/92	01/23/92	01/27/92	
THALLIUM, TOTAL	001 MS	S	92L0250	01/02/92	01/23/92	01/27/92	
VANADIUM, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	34
VANADIUM, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
VANADIUM, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
ZINC, TOTAL	001	S	92L0251	01/02/92	01/23/92	02/05/92	
ZINC, TOTAL	001 REP	S	92L0251	01/02/92	01/23/92	02/05/92	
ZINC, TOTAL	001 MS	S	92L0251	01/02/92	01/23/92	02/05/92	
B015Q5							
SILVER, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/13/92	42
SILVER, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/13/92	

7/1/93

Hal: 9713523.0797 Summary pg 3 of 4

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SILVER, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/13/92 42
ALUMINUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92 41
ALUMINUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
ALUMINUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
ARSENIC, TOTAL	002	S	92L0294	01/02/92	01/28/92	01/30/92 28
ARSENIC, TOTAL	002 REP	S	92L0294	01/02/92	01/28/92	01/30/92
ARSENIC, TOTAL	002 MS	S	92L0294	01/02/92	01/28/92	01/30/92
BARIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92 41
BARIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
BARIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
BERYLLIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
BERYLLIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
BERYLLIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
BISMUTH, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
BISMUTH, TOTAL REP	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
BISMUTH, TOTAL SPIKE	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
CALCIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
CALCIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
CALCIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
CADMIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
CADMIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
CADMIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
COBALT, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
COBALT, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
COBALT, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
CHROMIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
CHROMIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
CHROMIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
COPPER, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
COPPER, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
COPPER, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
IRON, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
IRON, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
IRON, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
MERCURY, TOTAL	002	S	92C0023	01/02/92	01/17/92	01/20/92 18
POTASSIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92 41
POTASSIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92
POTASSIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92
MAGNESIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92
MAGNESIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92

Holding Time Summary pg 4 of 7

9713523.0798

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
MAGNESIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	41
MANGANESE, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92	
MANGANESE, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92	
MANGANESE, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	
SODIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92	
SODIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92	
SODIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	
NICKEL, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92	
NICKEL, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92	
NICKEL, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	
LEAD, TOTAL	002	S	92L0294	01/02/92	01/28/92	02/01/92	30
LEAD, TOTAL	002 REP	S	92L0294	01/02/92	01/28/92	02/01/92	
LEAD, TOTAL	002 MS	S	92L0294	01/02/92	01/28/92	02/01/92	
ANTIMONY, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92	41
ANTIMONY, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92	
ANTIMONY, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	
SELENIUM, TOTAL	002	S	92L0294	01/02/92	01/28/92	01/29/92	27
SELENIUM, TOTAL	002 REP	S	92L0294	01/02/92	01/28/92	01/29/92	
SELENIUM, TOTAL	002 MS	S	92L0294	01/02/92	01/28/92	01/29/92	
THALLIUM, TOTAL	002	S	92L0294	01/02/92	01/28/92	01/29/92	
THALLIUM, TOTAL	002 REP	S	92L0294	01/02/92	01/28/92	01/29/92	
THALLIUM, TOTAL	002 MS	S	92L0294	01/02/92	01/28/92	01/29/92	
VANADIUM, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92	41
VANADIUM, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92	
VANADIUM, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	
ZINC, TOTAL	002	S	92L0295	01/02/92	01/28/92	02/12/92	
ZINC, TOTAL	002 REP	S	92L0295	01/02/92	01/28/92	02/12/92	
ZINC, TOTAL	002 MS	S	92L0295	01/02/92	01/28/92	02/12/92	

LAB QC:

SILVER LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
ALUMINUM LABORTORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
BARIUM LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
BERYLLIUM LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
BISMUTH, LCS	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
CALCIUM LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
CADMIUM LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
COBALT LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92
CHROMIUM LABORATORY	LC1 BS	S	92L0251	N/A	01/23/92	02/05/92

7/6/92

Blank Summ 9713523.0799 0000036 Pg 1 of 2

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.: CLP926

Preparation Blank Matrix (soil/water): SOIL

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	83.0	U	83.0	U	83.0	U	83.0	U	16.600	U	P
Antimony	23.0	U	23.0	U	23.0	U	23.0	U	4.600	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Barium	38.0	U	38.0	U	38.0	U	38.0	U	7.600	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	.200	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	.600	U	P
Calcium	88.0	U	88.0	U	88.0	U	88.0	U	17.600	U	P
Chromium	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Cobalt	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Copper	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Iron	39.0	U	39.0	U	39.0	U	39.0	U	7.800	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Magnesium	78.0	U	78.0	U	78.0	U	78.0	U	15.600	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.050	U	CV
Nickel	18.0	U	18.0	U	18.0	U	18.0	U	3.600	U	P
Potassium	734.0	U	734.0	U	734.0	U	734.0	U	146.800	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	4.3	B	4.0	U	4.0	U	4.0	U	.800	U	P
Sodium	638.0	U	638.0	U	638.0	U	638.0	U	127.600	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Vanadium	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Zinc	4.0	U	4.0	U	4.0	U	4.0	U	5.5 1.100	B	P
Cyanide	20.0	U	20.0	U	20.0	U			1.000	U	C

FORM III - IN 03/90

Sample Results for silver are NC - no qualification is required

The sample results for zinc are greater than 5x the blank concentration. Therefore, no qualification was required. 7/16/92

7/16/92

9713523.0800 0000037 pg 2 of 2

Blank Summary

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.: CLP926

Preparation Blank Matrix (soil/water): SOIL

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

Assoc w/ B015Q5 only

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	83.0	U	83.0	U	83.0	U			16.600	U	P
Antimony	23.0	U	23.0	U	23.0	U			4.600	U	P
Arsenic			2.0	U					.400	U	F
Barium	38.0	U	38.0	U	38.0	U			7.600	U	P
Beryllium	1.0	U	1.0	U	1.0	U			.200	U	P
Cadmium	3.0	U	3.0	U	3.0	U			.600	U	P
Calcium	88.0	U	88.0	U	88.0	U			17.600	U	P
Chromium	6.0	U	6.0	U	6.0	U			1.200	U	P
Cobalt	5.0	U	5.0	U	5.0	U			1.000	U	P
Copper	6.0	U	6.0	U	6.0	U			1.200	U	P
Iron	39.0	U	39.0	U	39.0	U			7.800	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Magnesium	78.0	U	78.0	U	78.0	U			15.600	U	P
Manganese	2.0	U	2.0	U	2.0	U			.400	U	P
Mercury			.1	U	.1	U	.1	U	.050	U	CV
Nickel	18.0	U	18.0	U	18.0	U			3.600	U	P
Potassium	734.0	U	734.0	U	734.0	U			146.800	U	P
Selenium			2.0	U					.400	U	F
Silver	4.3 ~~43.0~~	B	5.4	B	8.1	B	9.2	B	.800	U	P
Sodium	638.0	U	638.0	U	638.0	U			127.600	U	P
Thallium			2.0	U					.400	U	F
Vanadium	5.0	U	5.0	U	5.0	U			1.000	U	P
Zinc	4.0	U	4.0	U	4.0	U			.800	U	P
Cyanide	20.0	U	20.0	U	20.0	U			1.000	U	C

FORM III - IN 03/90

CCB
Assoc w
B015Q5

Since Lab Sample B015Q5 is undetected, no qualification is required. 7/16/92

7/16/92

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B015Q3S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP926

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 97.0

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	80.6000		4.7426	U	103.10	78.2		P
Arsenic	75-125	8.5000		2.0000	B	8.20	78.0		F
Barium	75-125	419.7000		45.8000		412.40	90.7		P
Beryllium	75-125	9.0000		.3100	B	10.30	84.4 ~~87.2~~		P
Cadmium	75-125	9.3000		.8500	B	10.30	82.0 ~~84.4~~		P
Calcium									NR
Chromium	75-125	40.9000		7.5000		41.20	80.9		P
Cobalt	75-125	95.9000		4.8000	B	103.10	88.4		P
Copper	75-125	49.2000		8.8000		51.60	78.5		P
Iron									NR
Lead	75-125	5.7000		3.6000		4.10	51.2 ~~56.0~~	N	F
Magnesium									NR
Manganese	75-125	318.6001		232.0000		103.10	84.0		P
Mercury	75-125	.5340		.0516	U	.52	102.7		CV
Nickel	75-125	96.4000		8.0000	B	103.10	85.7		P
Potassium									NR
Selenium	75-125	1.5000		.4124	U	2.10	73.0	N	F
Silver	75-125	7.6000		.8248	U	10.30	73.6	N	P
Sodium									NR
Thallium	75-125	8.0000		.4124	U	10.30	77.6		F
Vanadium	75-125	114.5000		20.0000		103.10	91.7		P
Zinc	75-125	113.8000		24.7000		103.10	86.4		P
Cyanide	75-125	4.2600		1.0320	U	5.16	82.6		C

Comments:

Accuracy 9213525.0882 0000047 PC 2 of 2

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B015Q5S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP926

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 97.9

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	83.0000		4.7012	U	102.20	81.2		P
Arsenic	75-125	5.8000		2.9000		8.20	35.4	N	F
Barium	75-125	390.6001		38.6000	B	408.80	86.1		P
Beryllium	75-125	8.7000		.2200	B	10.20	83.1		P
Cadmium	75-125	8.9000		.6132	U	10.20	87.4		P
Calcium									NR
Chromium	75-125	38.6000		5.0000		40.90	82.1		P
Cobalt	75-125	92.3000		3.2000	B	102.20	87.2 ~~90.3~~		P
Copper	75-125	51.4000		7.9000		51.10	85.1 ~~87.2~~		P
Iron									NR
Lead	75-125	6.3000		3.5000		4.10	68.3 ~~63.3~~	N	F
Magnesium									NR
Manganese	75-125	244.7000		214.2000		102.20	29.8	N	P
Mercury									NR
Nickel	75-125	99.1000		7.7000	B	102.20	89.4		P
Potassium									NR
Selenium	75-125	1.5000		.4088	U	2.00	75.0		F
Silver	75-125	9.3000		.8176	U	10.20	90.6		P
Sodium									NR
Thallium	75-125	8.8000		.4088	U	10.20	86.0		F
Vanadium	75-125	98.2000		11.3000		102.20	85.0		P
Zinc	75-125	104.7000		19.0000		102.20	83.8		P
Cyanide									NR

Comments:

FORM V (Part 1) - IN 03/90

3/16/92

Pr 971552-0013 Summary 0000056 Pg 1 of 2

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B015Q3L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP926

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	19551.90		12945.50		33.8	E	P
Antimony	23.00	U	115.00	U			P
Arsenic							NR
Barium	222.20		190.00	U	50.5		P
Beryllium	1.50	B	5.00	U	100.0		P
Cadmium	4.10	B	15.00	U	100.0		P
Calcium	37487.30		26023.50		30.6	E	P
Chromium	36.40		30.00	U	100.0		P
Cobalt	23.50	B	25.00	U	100.0		P
Copper	42.60		30.00	U	100.0		P
Iron	59275.40		40674.49		31.4	E	P
Lead							NR
Magnesium	16321.80		11252.50	B	31.1	E	P
Manganese	1125.10		776.50		31.0	E	P
Mercury							NR
Nickel	38.60	B	90.00	U	100.0		P
Potassium	3086.50	B	3670.00	U	100.0		P
Selenium							NR
Silver	4.00	U	20.00	U			P
Sodium	8733.00		5516.50	B	36.8		P
Thallium							NR
Vanadium	97.00		42.00	B	56.7		P
Zinc	120.00		85.50	B	28.7		P

FORM IX - IN

03/90

7/17/97

P-97-3523.0004 Summary 0000057

U.S. EPA - CLP

9
ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B015Q5L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP926

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	13156.40		17381.00		32.1	E	P
Antimony	23.00	U	115.00	U			P
Arsenic							NR
Barium	188.80	B	231.00	B	22.4		P
Beryllium	1.10	B	5.00	U	100.0		P
Cadmium	3.00	U	15.00	U			P
Calcium	44116.70		60396.00		36.9	E	P
Chromium	24.60		30.00	U	100.0		P
Cobalt	15.80	B	25.00	U	100.0		P
Copper	38.60		57.00	B	47.7		P
Iron	38006.00		51983.01		36.8	E	P
Lead							NR
Magnesium	13624.20		18720.00	B	37.4	E	P
Manganese	1048.00		1428.00		36.2	E	P
Mercury							NR
Nickel	37.80	B	153.50	B	306.1		P
Potassium	2453.50	B	3670.00	U	100.0		P
Selenium							NR
Silver	4.00	U	21.50	B	100.0		P
Sodium	8944.30		11504.00	B	28.6		P
Thallium							NR
Vanadium	55.30		52.50	B	5.1		P
Zinc	93.10		129.50		39.1		P

FORM IX - IN

03/90

ACCURACY DATA SUMMARY - FORM B-4

SDG: 9101L926	REVIEWER: [illegible]	DATE: 7/2/91	PAGE 1 OF 1
COMMENTS: GFAA Analytical [illegible]			

SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B015Q5	Arsenic	69.3	B015Q5	None- Analyzed by MSA
B015Q3	Lead	80.1	B015Q3	None- Analyzed by MSA
B015Q5	Lead	79.3	B015Q5	None- Analyzed by MSA
B015Q3	[illegible]	105	B015Q3	UJ
B015Q5				
B015Q3	Thallium	83.0	B015Q3	UJ

PRECISION DATA SUMMARY - FORM B-5

SDG: [illegible]	REVIEWER: [illegible]	DATE: [illegible]	PAGE 1 OF 2
COMMENTS: Field duplicate pair.			

COMPOUND	SAMPLE ID: [illegible]	SAMPLE ID: [illegible]	RPD	SAMPLES AFFECTED	QUALIFIER
Aluminum	4020 J	2490 J	40		
Antimony	4.71 U	4.7 U	NC		
Arsenic	20 B	29 D	37		
Barium	45.8	38.6 B	17		
Beryllium	0.31 B	0.22 B	34		
Cadmium	0.85 B	0.61 U	33		
Calcium	7730 J	9010 J	15		
Chromium	7.5	5	40		
Cobalt	4.80 B	3.2 B	40		
Copper	8.8	7.9	11		
Iron	12200 J	7770 J	44		
Lead	3.6 J	2.5 J	3		
Magnesium	3370 J	2780 J	19		
Manganese	232 J	214 J	8		
Mercury	0.05 U	0.05 U	NC		
Nickel	8.8	7.7 B	4		
Potassium	634 B	502 B	24		

NC = Not Calculated

PRECISION DATA SUMMARY - FORM B-5

SDG: [illegible]	REVIEWER [illegible]	DATE: 7/17/92	PAGE 2 OF 2

COMMENTS: [illegible]

COMPOUND	SAMPLE ID: [illegible]	SAMPLE ID: [illegible]	RPD	SAMPLES AFFECTED	QUALIFIER
Selenium	0.41 UJ	0.41 U	NC		
Silver	0.82 UJ	0.82 U	NC		
Sodium	1800 J	1830 J	2		
Thallium	0.41 UJ	0.41 U	NC		
Vanadium	20	11.3	56		
Zinc	21.7	19.0	26		
Cyanide	1.03 U	1.03 U	NC		
Bismuth	3.09 U	3.09 U	NC		

NC = Not Calculated

9713523.0807

9713523.0808

CALCULATION SUMMARY - FORM B-6

9301L92b

SDG: 92b	REVIEWER: [illegible]	DATE: 7/16/92	PAGE 1 OF 1

COMMENTS:

$$\%R = \frac{SSR - SR}{SA} \times 100\%$$

B01SQ3 MS

Barium $\%R = \frac{9.0 - 0.31}{10.3} \times 100 = 84.4\%$

Cadmium $\%R = \frac{9.3 - 0.85}{10.3} \times 100 = 82.0\%$

Lead $\%R = \frac{5.7 - 3.6}{4.1} \times 100 = 51.2\%$

B01SQ5 MS

Cadmium $\%R = \frac{9.3 - 3.2}{10.2} \times 100 = 87.2\%$

Copper $\%R = \frac{51.4 - 7.9}{51.1} \times 100 = 85.1\%$

Lead $\%R = \frac{6.3 - 3.5}{4.1} \times 100 = 68.3\%$

9713523.0809

WHC-SD-EN-SPP-002, Rev. 1

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/12/92
LABORATORY: Hewlett	CASE: 9201L926	SDG: 926
SAMPLES/MATRIX: B015Q3 B015Q5 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports/Chain-of-Custody	X		
Sample Analysis Data Report Forms	X		
Standards Data	X		
QC Summary			
Blanks Summary Report Forms	X		
Spike Sample Recovery Report Forms	X		
Duplicate Sample Analysis Report Forms	X		
Laboratory Control Sample Report Forms	X		
Raw Data			
Ion Chromatograph Chromatograms	X		
TOC and TOX Instrument Printouts		TOC	TOX
Laboratory Bench Sheets	X		
Additional Data			
Laboratory Sample Preparation Logs	X		
Instrument Run Logs	X		
Internal Laboratory Chain-of-Custory		X	
Percent Solids Analysis Records	X		
Reduction Formulae	7/17/92 X	X	
Chemist Notebook Pages	X		

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes **(No)** N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥0.995? Yes No N/A

Was a balance check conducted prior to the TDS analysis? Yes No N/A

Was the titrant normality checked? Yes No N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency? Yes No N/A

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits? Yes No N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? TOC. Yes **(No)** N/A

Are instrument detection limits below the CRDL? **(Yes)** No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? **(Yes)** No N/A

Were project specific data quality objectives met for this analysis? **(Yes)** No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0813

WHC-SD-EN-SPP-002, Rev. 1

COMMENTS (attach additional sheets as necessary):

Samples B01S03 and B01S05 were identified as field duplicates. The RPD ranges from 12 to 99%.

9713523.0814

Holding Time Summary pg 1 of

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

DATE RECEIVED: 01/04/92 RFW LOT # :9201L926

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
B015Q3							
% SOLIDS	001	S	92LRS003	01/02/92	01/13/92	01/14/92	12
NITRATE BY IC	001	S	92LICA06	01/02/92	01/17/92	01/17/92	15
TOTAL CYANIDE	001	S	92LC010	01/02/92	01/14/92	01/14/92	12
TOTAL CYANIDE	001 REP	S	92LC010	01/02/92	01/14/92	01/14/92	
TOTAL CYANIDE	001 MS	S	92LC010	01/02/92	01/14/92	01/14/92	
TOTAL CYANIDE	001 MSD	S	92LC010	01/02/92	01/14/92	01/14/92	
PHOSPHATE BY IC	001	S	92LICA06	01/02/92	01/17/92	01/17/92	15
SULFATE BY IC	001	S	92LICA06	01/02/92	01/17/92	01/17/92	
NITRATE NITRITE	001	S	92LNO006	01/02/92	01/17/92	01/17/92	
NITRATE NITRITE	001 REP	S	92LNO006	01/02/92	01/17/92	01/17/92	
NITRATE NITRITE	001 MS	S	92LNO006	01/02/92	01/17/92	01/17/92	
NITRATE NITRITE	001 MSD	S	92LNO006	01/02/92	01/17/92	01/17/92	
TOTAL ORGANIC CARBON	001	S	92LTZ002	01/02/92	01/15/92	01/16/92	14
TOTAL ORGANIC CARBON	001 REP	S	92LTZ002	01/02/92	01/15/92	01/16/92	
TOTAL ORGANIC CARBON	001 MS	S	92LTZ002	01/02/92	01/15/92	01/16/92	
SUB-OUT TEST FOR SUB	001	S		01/02/92			
B015Q5							
% SOLIDS	002	S	92L%S008	01/02/92	01/14/92	01/15/92	13
% SOLIDS	002 REP	S	92L%S008	01/02/92	01/14/92	01/15/92	
NITRATE BY IC	002	S	92LICA07	01/02/92	01/18/92	01/18/92	16
NITRATE BY IC	002 REP	S	92LICA07	01/02/92	01/18/92	01/18/92	
NITRATE BY IC	002 MS	S	92LICA07	01/02/92	01/18/92	01/18/92	
NITRATE BY IC	002 MSD	S	92LICA07	01/02/92	01/18/92	01/18/92	
TOTAL CYANIDE	002	S	92LC011	01/02/92	01/14/92	01/14/92	12
PHOSPHATE BY IC	002	S	92LICA06	01/02/92	01/17/92	01/17/92	15
PHOSPHATE BY IC	002 REP	S	92LICA06	01/02/92	01/17/92	01/17/92	
PHOSPHATE BY IC	002 MS	S	92LICA06	01/02/92	01/17/92	01/17/92	
PHOSPHATE BY IC	002 MSD	S	92LICA06	01/02/92	01/17/92	01/17/92	
SULFATE BY IC	002	S	92LICA06	01/02/92	01/17/92	01/17/92	
SULFATE BY IC	002 REP	S	92LICA06	01/02/92	01/17/92	01/17/92	
SULFATE BY IC	002 MS	S	92LICA06	01/02/92	01/17/92	01/17/92	
SULFATE BY IC	002 MSD	S	92LICA06	01/02/92	01/17/92	01/17/92	
NITRATE NITRITE	002	S	92LNO006	01/02/92	01/17/92	01/17/92	
TOTAL ORGANIC CARBON	002	S	92LTZ006	01/02/92	02/03/92	02/04/92	33
SUB-OUT TEST FOR SUB	002	S		01/02/92			

LAB QC:

[illegible] 7/17/9

9713523.0815

Accuracy Summary

Pg 1 of 1

ROY F. WESTON INC.

INORGANICS ACCURACY REPORT 02/06/92

CLIENT: WESTINGHOUSE HANFORD

WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9201L926

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-001	B015Q3	Cyanide, Total	4.3	1.0 u	5.2	82.6
		Cyanide, Total MSD	4.7	1.0 u	5.2	91.6
		Nitrate Nitrite	2250	932	1290	102
		Nitrate Nitrite MSD	2190	932	1290	97.6
		Total Organic Carbon	831	166	525	127
-002	B015Q5	Nitrate by IC	8520	3640	5110	95.5
		Nitrate by IC MSD	8540	3640	5110	96.0
		Phosphate by IC	59.1	4.4	51.1	107
		Phosphate by IC MSD	59.0	4.4	51.1	107
		Sulfate by IC	212	154	51.1	112
		Sulfate by IC MSD	214	154	51.1	116
BLANK10	92LICA06-MB1	Nitrate by IC	50.3	1.2 u	50.0	101
		Phosphate by IC	51.4	2.5 u	50.0	103
		Sulfate by IC	51.1	1.2 u	50.0	102
BLANK10	92LNO006-MB1	Nitrate Nitrite	2.3	0.25u	2.5	91.1
		Nitrate Nitrite MSD	2.3	0.25u	2.5	91.2
BLANK20	92LNO006-MB2	Nitrate Nitrite	2.3	0.25u	2.5	92.4
BLANK10	92LTZ002-MB1	Total Organic Carbon	426	20.0 u	400	106
BLANK20	92LTZ002-MB2	Total Organic Carbon	421	20.0 u	400	105
BLANK10	92LICA07-MB1	Nitrate by IC	50.6	1.2 u	50.0	101
BLANK10	92LTZ006-MB1	Total Organic Carbon	419	20.0 u	400	105
BLANK20	92LTZ006-MB2	Total Organic Carbon	404	20.0 u	400	101

2/7/92

PRECISION DATA SUMMARY - FORM B-5

SDG: [illegible]	REVIEWER [illegible]	DATE: [illegible]	PAGE 1 OF 1
COMMENTS: Field Duplicate RPD			

COMPOUND	SAMPLE ID: [illegible]	SAMPLE ID: [illegible]	RPD	SAMPLES AFFECTED	QUALIFIER
Percent Solids	97	979	1		
Nitrate	2740 J	3140 J	28		
Cyanide	10 U	10 U	NC		
Phosphate	1.1 J	1.4 J	99		
Sulfate	191	151	25		
Nitrate - Nitrite	932	709	27		
TOC	177 J	183 J	3		

9713523.0816
WHC-SD-EN-SPP-002, Rev. 1

9713523.0817

CALCULATION SUMMARY - FORM B-6

9-2-1-92

SDG: 92b	REVIEWER: [illegible]	DATE: 7/17/92	PAGE 1 OF 1

COMMENTS:

TOC Results (mg/kg) = $\frac{ug}{(g\ Soil)\left(\frac{\%\ solids}{100}\right)}$

Sample PC1SQ3 (mg/kg) = $\frac{3.96}{(23.mg)(0.9197)}$ x1000 = 176.8 ~~20~~ 177 mg/kg

9713523.0818

APPENDIX C

DATA REVIEW SUPPORTING DOCUMENTATION

SDG: 9203L642

Samples: B01SB5, B01SB9, B01S76

CONTAINS:

ATTACHMENT 1 - GLOSSARY OF DATA REPORTING QUALIFIERS
ATTACHMENT 2 - SUMMARY OF DATA QUALIFICATIONS
ATTACHMENT 3 - AS QUALIFIED LABORATORY DATA
ATTACHMENT 4 - DATA VALIDATION SUPPORTING DOCUMENTATION

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

B - Indicates the compound or analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL).

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to identified quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are usable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9713523.0820

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9713523.0821

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9203L643	REVIEWER: [illegible]	DATE: 7/20/92	PAGE 1 OF 4
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Vinyl Acetate	UJ	B01576	CCV 207252
2-Hexanone	UJ	B01576	↓
Bromomethane	UJ	B01SR5, B01SR9	ICV R5D7302
Acetone	UJ/J	B01SR5, B01SR9	CCV 207252
Methyl [illegible]	U	B01576	present in blank
Acetone	U	↓	↓
Methyl [illegible]	U	B01SR5, B01SR9	present in blank
Acetone	U (UJ)	B01SR9	↓
Toluene	U	B01SR5/B01SR9	present in blank
Bromoform	UJ	B01576	CCV 207252

9713523.0822

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9303L642	REVIEWER: [illegible]	DATE: 7/22/92	PAGE 2 OF 4
COMMENTS: Semi-VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
3-Nitroaniline	UJ	B01SB5/B01SB9	CCV 8072520
4-Nitroaniline	UJ	↓ ↓	↓
3,3'-Dichlorobenzidine	UJ	↓ ↓	↓
Bis(2-ethylhexyl)phthalate	R	B01SB5/B01SB9	laboratory contaminant
Diethylphthalate	U	B01SB5	Present in blank
Dimethylphthalate	U	B01SB9	↓

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92021642	REVIEWER: [illegible]	DATE: 7/16/92	PAGE 3 OF 4
COMMENTS: Metals			
COMPOUND	**QUALIFIER**	**SAMPLES AFFECTED**	**REASON**
Chromium	U	B01SB5/B01SB9	Present in blank
Manganese	J	All (B01SB5 & B01SB9)	MS & R out of control limits
[illegible]	UJ	↓	↓
[illegible]	J	All	ECR Serial [illegible] out of control limits
[illegible]	J		
[illegible]	J		
Manganese	J	↓	↓ [illegible]
[illegible]	J	All	
[illegible]	UJ	All	GTHR Analytical [illegible] out of C.L.S.

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: [illegible]	REVIEWER: [illegible]	DATE: 7/17/92	PAGE 4 OF 4
COMMENTS: Wet Chemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate	J	All	Analyzed out of holding time
Phosphate	J/UJ	↓	↓
Nitrate+Nitrite-N	R	All	Raw data missing. ~~Com data package~~ Results could not be validated

9713523.0825

ATTACHMENT 3

AS QUALIFIED LABORATORY DATA

9713523.0826

1A

VOLATILE ORGANICS ANALYSIS SHEET 0000027

CLIENT SAMPLE NO.
216-R-45C 3.0-6.0

B01SB5
Soil Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L642-001

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

Lab File ID: B031718

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 4

Date Analyzed: 03/17/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	~~U~~ UJ
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~4~~	~~JB~~ U
67-64-1	Acetone	10	~~U~~ UJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5 ~~2~~	~~J~~ U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1

12/88 Rev.

7/20/92

9713523.0827

1A

VOLATILE ORGANICS ANALYSIS SHEET 0000036

CLIENT SAMPLE NO.
216-B-45C 10.0-13.0

B01SB9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L642-002

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

Lab File ID: B031719

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 3

Date Analyzed: 03/17/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U UJ
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	~~B~~ U
67-64-1	Acetone	10 ~~7~~	~~JB~~ ~~J~~ UJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5 ~~2~~	~~J~~ U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

7/20/92

9213523.0828 1A 0000047

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 216-B-45C

B01S76 Trip Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9203L642-003

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

Lab File ID: W031316

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. _____

Date Analyzed: 03/13/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
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	~~5~~ 4	~~JB~~	u
67-64-1	Acetone	~~10~~ 4	~~JB~~	u
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	~~U~~	UJ
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	Trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	~~U~~	UJ
108-10-1	4-Methyl-2-pentanone	10	U	
591-78-6	2-Hexanone	10	~~U~~	UJ
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

MH 7/29/92

FORM 1 V-1 12/88 Rev.

9213523.0829

1B 0000022

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 216-B-45C

B01SB5 3.0-6.0

Soil Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L642-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S032009

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 4 dec. Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
108-95-2	Phenol	350	U
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
100-51-6	Benzyl alcohol	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	350	U
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	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U

FORM 1 SV-1 12/88 Rev.

7/30/92

9213523.0830 0000023

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-45C
B01SB5
3.0-6.0
Soil Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L642-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S032009

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 4 dec. Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1700	~~U~~	UJ
83-32-9	Acenaphthene	350	U	
51-28-5	2,4-Dinitrophenol	1700	U	
100-02-7	4-Nitrophenol	1700	U	
132-64-9	Dibenzofuran	350	U	
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	350	U	
100-01-6	4-Nitroaniline	1700	~~U~~	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U	
85-01-8	Phenanthrene	350	U	
120-12-7	Anthracene	350	U	
84-74-2	Di-n-Butylphthalate	350	U	
206-44-0	Fluoranthene	350	U	
129-00-0	Pyrene	350	U	
85-68-7	Butylbenzylphthalate	350	U	
91-94-1	3,3'-Dichlorobenzidine	690	~~U~~	UJ
56-55-3	Benzo(a)anthracene	350	U	
218-01-9	Chrysene	350	U	
117-81-7	bis(2-Ethylhexyl)phthalate	350	U	
117-84-0	Di-n-Octyl phthalate	350	U	
205-99-2	Benzo(b)fluoranthene	350	U	
207-08-9	Benzo(k)fluoranthene	350	U	
50-32-8	Benzo(a)pyrene	350	U	
193-39-5	Indeno(1,2,3-cd)pyrene	350	U	
53-70-3	Dibenzo(a,h)anthracene	350	U	
191-24-2	Benzo(g,h,i)perylene	350	U	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/30/92

9713523.0831

1F

0000024

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
214-B-45C
B01SB5
3.0-6.0
Soil Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L642-001

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

Lab File ID: S032009

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 4 dec.

Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 7.6

Dilution Factor: 1.00

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~ALDOL CONDENSATE~~	~~5.95~~	~~600~~	~~JAB~~	R
~~2.~~	~~ALDOL CONDENSATE~~	~~6.67~~	~~300~~	~~JAB~~	R
~~3.~~	~~ALDOL CONDENSATE~~	~~6.98~~	~~200~~	~~JAB~~	R
4.	PHTHALATE	18.67	300	~~JB~~	U

FORM 1 SV-TIC

12/88 Rev.

7/30/92

9213523.0832 000036

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-45C

B01SB9
10.0-13.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L642-002

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

Lab File ID: S032012

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 5 dec.

Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 8.1

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
108-95-2	Phenol	350	U
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
100-51-6	Benzyl alcohol	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	350	U
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	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U

7/30/92

9213523.0833 0000037

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-45C

B01SB9
10.0-13.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L642-002

Sample wt/vol: 30.3 (g/mL) G Lab File ID: S032012

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 5 dec. Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 8.1 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1700	~~U~~
83-32-9	Acenaphthene	350	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	U
132-64-9	Dibenzofuran	350	U
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	350	U
100-01-6	4-Nitroaniline	1700	~~U~~
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
84-74-2	Di-n-Butylphthalate	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	690	~~U~~
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	350	U
117-84-0	Di-n-Octyl phthalate	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenzo(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/30/92

9713523.0834 0000038

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
210-B-45C

B01S39
10.0-13.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 92C3L642-002

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

Lab File ID: SC32012

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 5 dec.

Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 8.1

Dilution Factor: 1.00

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
~~1.~~	~~ALDOL CONDENSATE~~	~~5.97~~	~~900~~	~~JAB~~
2.	~~ALDOL CONDENSATE~~	~~6.68~~	~~300~~	~~JAB~~
~~3.~~	~~ALDOL CONDENSATE~~	~~7.00~~	~~200~~	~~JAB~~
4.	UNKNOWN	7.73	200	~~J~~
5.	PHTHALATE	18.73	200	~~JB~~

NO
7/30/92

FORM 1 SV-TIC

12/88 Rev.

9713523.0835 0000016

1D

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

216-B-45C

B01SB5

3.0-6.0

Soil Split

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L642-001

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

Lab File ID: 03309209.65

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 4 dec.

Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/01/92

GPC Cleanup: (Y/N) N pH: 8.5

Dilution Factor: ~~0.500~~ 1.0 7/24/92

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	8 ~~4.2~~	U
319-85-7	Beta-BHC	~~4.2~~	U
319-86-8	Delta-BHC	~~4.2~~	U
58-89-9	gamma-BHC (Lindane)	~~4.2~~	U
76-44-8	Heptachlor	~~4.2~~	U
309-00-2	Aldrin	~~4.2~~	U
1024-57-3	Heptachlor epoxide	~~4.2~~	U
959-98-8	Endosulfan I	~~4.2~~	U
60-57-1	Dieldrin	17 ~~8.4~~	U
72-55-9	4,4'-DDE	~~8.4~~	U
72-20-8	Endrin	~~8.4~~	U
33213-65-9	Endosulfan II	~~8.4~~	U
72-54-8	4,4'-DDD	~~8.4~~	U
1031-07-8	Endosulfan sulfate	~~8.4~~	U
50-29-3	4,4'-DDT	~~8.4~~	U
72-43-5	Methoxychlor	80 ~~42~~	U
53494-70-5	Endrin ketone	17 ~~8.4~~	U
5103-71-9	alpha-Chlordane	80 ~~42~~	U
5103-74-2	gamma-Chlordane	80 ~~42~~	U
8001-35-2	Toxaphene	170 ~~84~~	U
12674-11-2	Aroclor-1016	80 ~~42~~	U
11104-28-2	Aroclor-1221	80 ~~42~~	U
11141-16-5	Aroclor-1232	80 ~~42~~	U
53469-21-9	Aroclor-1242	80 ~~42~~	U
12672-29-6	Aroclor-1248	80 ~~42~~	U
11097-69-1	Aroclor-1254	170 ~~84~~	U
11096-82-5	Aroclor-1260	170 ~~84~~	U

DS 4-3-92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.0836 0005520

1D

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-45C

B01SB9
10.0-13.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L642-002

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

Lab File ID: 03309209.24

Level: (low/med) LOW

Date Received: 03/12/92

% Moisture: not dec. 3 dec.

Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 03/31/92

GPC Cleanup: (Y/N) Y pH: 8.9

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	17 ~~8.3~~	U
319-85-7	Beta-BHC	17 ~~8.3~~	U
319-86-8	Delta-BHC	17 ~~8.3~~	U
58-89-9	gamma-BHC (Lindane)	17 ~~8.3~~	U
76-44-8	Heptachlor	17 ~~8.3~~	U
309-00-2	Aldrin	17 ~~8.3~~	U
1024-57-3	Heptachlor epoxide	17 ~~8.3~~	U
959-98-8	Endosulfan I	17 ~~8.3~~	U
60-57-1	Dieldrin	34 ~~17~~	U
72-55-9	4,4'-DDE	34 ~~17~~	U
72-20-8	Endrin	34 ~~17~~	U
33213-65-9	Endosulfan II	34 ~~17~~	U
72-54-8	4,4'-DDD	34 ~~17~~	U
1031-07-8	Endosulfan sulfate	34 ~~17~~	U
50-29-3	4,4'-DDT	34 ~~17~~	U
72-43-5	Methoxychlor	170 ~~83~~	U
53494-70-5	Endrin ketone	34 ~~17~~	U
5103-71-9	alpha-Chlordane	170 ~~83~~	U
5103-74-2	gamma-Chlordane	170 ~~83~~	U
8001-35-2	Toxaphene	340 ~~170~~	U
12674-11-2	Aroclor-1016	170 ~~83~~	U
11104-28-2	Aroclor-1221	170 ~~83~~	U
11141-16-5	Aroclor-1232	170 ~~83~~	U
53469-21-9	Aroclor-1242	170 ~~83~~	U
12672-29-6	Aroclor-1248	170 ~~83~~	U
11097-69-1	Aroclor-1254	340 ~~170~~	U
11096-82-5	Aroclor-1260	340 ~~170~~	U

DS 4-3-92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.0837 0000017

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

21L-B-45C 3.0-6.

B01SB5

Soil Split

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP642

Matrix (soil/water): SOIL Lab Sample ID: 920364201

Level (low/med): LOW Date Received: 3/12/92

% Solids: 95.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3520.00		E	P	
7440-36-0	Antimony	4.80	U		P	
7440-38-2	Arsenic	1.70	B		F	
7440-39-3	Barium	60.60			P	
7440-41-7	Beryllium	.23	B		P	
7440-43-9	Cadmium	.63	U		P	
7440-70-2	Calcium	5880.00		E	P	
7440-47-3	Chromium	4.70			P	
7440-48-4	Cobalt	5.40	B		P	
7440-50-8	Copper	9.30			P	
7439-89-6	Iron	10100.00		E	P	
7439-92-1	Lead	3.20			F	
7439-95-4	Magnesium	2400.00		E	P	
7439-96-5	Manganese	196.00		NE	P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	3.76	U		P	
7440-09-7	Potassium	684.00	B		P	
7782-49-2	Selenium	.42	U	NW	F	
7440-22-4	Silver	.84	U		P	
7440-23-5	Sodium	133.00	U		P	
7440-28-0	Thallium	.42	U		F	
7440-62-2	Vanadium	16.60			P	
7440-66-6	Zinc	21.10			P	
	Cyanide	1.04	U		C	
7440-19-9	Zirconium	7.1	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

9713523.0838

000018

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B01SB9

10.5-13.0

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP642

Matrix (soil/water): SOIL Lab Sample ID: 920364202

Level (low/med): LOW Date Received: 3/12/92

% Solids: 96.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3910.00		E	P
7440-36-0	Antimony	4.76	U		P
7440-38-2	Arsenic	1.90	B		F
7440-39-3	Barium	65.70			P
7440-41-7	Beryllium	.29	B		P
7440-43-9	Cadmium	.62	U	E	P
7440-70-2	Calcium	6870.00			P
7440-47-3	Chromium	6.80			P
7440-48-4	Cobalt	7.00	B		P
7440-50-8	Copper	11.20			P
7439-89-6	Iron	11300.00		E	P
7439-92-1	Lead	3.70			F
7439-95-4	Magnesium	3010.00		E	P
7439-96-5	Manganese	230.00		NE	P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	6.90	B		P
7440-09-7	Potassium	928.00	B		P
7782-49-2	Selenium	.41	U	NW	F
7440-22-4	Silver	.83	U		P
7440-23-5	Sodium	329.00	B		P
7440-28-0	Thallium	.41	U		F
7440-62-2	Vanadium	19.40			P
7440-66-6	Zinc	23.70			P
	Cyanide	1.04	U		C
7440-69-9	Bismuth	31.1	U		P

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

3/16/92

9713523.0839

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/03/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9203L642

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	
-001	B01SB5	% Solids	95.8	%	0.10	
		Nitrate by IC	29.3	MG/KG	1.3	J
216-B-45C		Cyanide, Total	1.0 u	MG/KG	1.0	
3.0-6.0		Phosphate by IC	1.7	MG/KG	1.3	J
Soil Split		Sulfate by IC	7.4	MG/KG	1.3	
		~~Nitrate Nitrite~~	~~8.9~~	~~MG-N/KG~~	~~1.0~~	R
		Total Organic Carbon	0.61	%	0.010	
-002	B01SB9	% Solids	96.6	%	0.10	
		Nitrate by IC	47.3	MG/KG	1.3	J
216-B-45C		Cyanide, Total	1.0 u	MG/KG	1.0	
10.0-13.0		Phosphate by IC	1.3 ~~u~~	MG/KG	1.3	UJ
		Sulfate by IC	433	MG/KG	12.9	
		~~Nitrate Nitrite~~	~~13.1~~	~~MG-N/KG~~	~~5.2~~	R
		Total Organic Carbon	0.72	%	0.010	

[illegible] 7/12/92

9713523.0840

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9713523.0841

WHC-SD-EN-SPP-002, Rev. 1

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/20/92
LABORATORY: Quanta	CASE: 9203L642	SDG: 642
SAMPLES/MATRIX: B01SR5, B01SB9 / Soils, B01SZ6 / Water		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	Y		
Data Summary	Y		
Chain-of-Custody	Y		
QC Summary			
Surrogate report	Y		
MS/MSD report	Y		
Blank summary report	Y		
GC/MS tuning report	Y		
Internal standard summary report	Y		
Sample Data			
Sample reports	Y		
TIC reports for each sample	Y		
RIC reports for all samples	Y		
Raw and corrected spectra for all detected results	Y		
Raw and corrected library search data for all reported TIC			Y
Quantitation and calculation data for all TIC			Y
Standards Data			
Initial calibration report	Y		
RIC and quantitation reports for initial calibration	Y		
Continuing calibration reports	Y		
RIC and quantitation reports for cont. calibrations	Y		
Internal standard summary report	Y		
Raw QC Data			
Tuning report, spectra and mass lists	Y		
Blank analysis reports	Y		
TIC reports for all blanks	Y		
RIC and quantitation reports for blanks	Y		
Raw and corrected spectra for all detected results in blanks	Y		
Raw and corrected library search data for all reported TIC			Y

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae			
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? **Yes** No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? **Yes** No N/A

Do all tunes on all instruments meet the tuning criteria? **Yes** No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No **N/A**

Has the laboratory made any calculation or transciption errors? Yes **No** N/A

Have the proper significant figures been reported? **Yes** No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? **Yes** No N/A

Are all RSD values ≤30% (2/88 SOW)? Yes **No** N/A

Are all RRF values ≥0.05 (2/88 SOW)? **Yes** No N/A

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes **(No)** N/A

Not after blank adjustment.

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? **(Yes)** **(No)** N/A

Are any surrogate recoveries < 10%? Yes **(No)** N/A

Are any method blank surrogate recoveries out of specification? Yes **(No)** N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? See comments **(Yes)** **(No)** N/A

Are MS/MSD recoveries within specification? **(Yes)** No N/A

Are there any calculation errors? Yes **(No)** N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

See comments

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? all results are NC w/ blank adjustment — Yes No N/A

Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra? Yes No N/A

Do the relative intensities between the standard and sample spectra agree within 20%? Yes No N/A

Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? Yes No N/A

Are molecular ions present in the reference specrum present in the sample spectrum? Yes No N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation? Yes No N/A

Are results and quantitation limits calculated properly? Yes No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? Yes No N/A

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

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

9713523.0848

WHC-SD-EN-SPP-002, Rev. 1

COMMENTS (attach additional sheets as necessary):

An MS/MSD was performed on the soil matrix, but not on the water matrix.

Sample B0J5R5 was identified as a soil split sample. All results were non-detects. Also, since the corresponding data is not currently available, ~~the RPDs~~ the results could not be compared

Sample B0J7R was identified as a blank. All results were non-detects.

9213523.0849

Holding Time Summary

pg 1 of 1

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

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SB5	001	S	92LVB043	03/10/92	N/A	03/17/92
B01SB9	002	S	92LVB043	03/10/92	N/A	03/17/92
B01SB9	002 MS	S	92LVB043	03/10/92	N/A	03/17/92
B01SB9	002 MSD	S	92LVB043	03/10/92	N/A	03/17/92
B01S76	003	W	92LVW046	03/10/92	N/A	03/13/92

LAB QC:

VBLK	MB1	S	92LVB043	N/A	N/A	03/17/92
VBLK	MB1	W	92LVW046	N/A	N/A	03/13/92

Holding times were met.

[illegible] 4/20/92

Calibration Summary 000083 Pg 1 of 3

6A

VOLATILE ORGANICS INTITIAL CALIBRATION DATA

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L642

Instrument ID: 5100B Calibration Date(s): 03/13/92 03/13/92

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

Assoc. w/ B015B5 & B015B9

LAB FILE ID: RRF20 = B031313 RRF50 = B031307
RRF100= B031312 RRF150= B031309 RRF200= B031310

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	1.645	1.843	1.977	1.164	1.073	1.540	26.2#
Bromomethane	0.534	0.364	0.616	0.323	0.337	0.435	30.4
Vinyl Chloride *	1.220	1.279	1.501	1.231	1.240	1.294	9.1*
Chloroethane	0.680	0.663	0.806	0.459	0.478	0.617	23.8
Methylene Chloride	2.165	2.095	1.858	1.607	1.474	1.840	16.3
Acetone	2.335	1.715	1.554	1.229	1.256	1.618	27.8
Carbon Disulfide	6.946	7.070	6.292	5.234	5.345	6.177	14.0
1,1-Dichloroethene *	1.731	1.756	1.619	1.356	1.258	1.544	14.6*
1,1-Dichloroethane #	3.550	3.740	3.234	3.243	3.343	3.422	6.4#
1,2-Dichloroethene (total)	2.048	1.978	1.689	1.563	1.492	1.754	14.1
Chloroform *	3.439	3.517	3.118	3.203	3.074	3.270	6.0*
1,2-Dichloroethane	0.435	0.390	0.438	0.401	0.399	0.413	5.4
2-Butanone	0.180	0.212	0.187	0.181	0.181	0.188	7.2
1,1,1-Trichloroethane	2.359	2.630	2.222	2.140	2.170	2.304	8.7
Carbon Tetrachloride	2.121	2.293	2.100	1.986	1.933	2.087	6.7
Vinyl Acetate	5.083	5.280	4.595	5.056	5.042	5.011	5.0
Bromodichloromethane	0.404	0.353	0.398	0.389	0.387	0.386	5.1
1,2-Dichloropropane *	0.295	0.292	0.331	0.328	0.342	0.318	7.1*
cis-1,3-Dichloropropene	0.534	0.489	0.535	0.520	0.513	0.518	3.6
Trichloroethene	0.276	0.299	0.321	0.319	0.320	0.307	6.4
Dibromochloromethane	0.404	0.368	0.411	0.388	0.377	0.390	4.6
1,1,2-Trichloroethane	0.280	0.234	0.259	0.247	0.250	0.254	6.7
Benzene	1.101	0.982	1.086	1.077	1.120	1.073	5.0
Trans-1,3-Dichloropropene	0.460	0.407	0.456	0.439	0.434	0.439	4.8
Bromoform #	0.375	0.337	0.384	0.361	0.352	0.362	5.1#
4-Methyl-2-pentanone	0.475	0.381	0.432	0.387	0.392	0.413	9.6
2-Hexanone	0.419	0.337	0.380	0.348	0.357	0.368	8.8
Tetrachloroethene	0.369	0.329	0.368	0.348	0.342	0.351	4.9
1,1,2,2-Tetrachloroethane #	0.359	0.336	0.385	0.385	0.390	0.371	6.2#
Toluene *	0.769	0.687	0.778	0.777	0.786	0.759	5.4*
Chlorobenzene #	0.899	0.814	0.918	0.936	0.904	0.894	5.3#
Ethylbenzene *	0.428	0.381	0.425	0.464	0.482	0.436	9.0*
Styrene	0.949	0.974	1.108	1.221	1.094	1.069	10.3
Xylene (total)	0.520	0.542	0.614	0.708	0.700	0.617	14.1
Toluene-d8	1.318	1.227	1.357	1.271	1.234	1.281	4.3
Bromofluorobenzene	0.428	0.455	0.561	0.538	0.578	0.512	13.0
1,2-Dichloroethane-d4	0.394	0.337	0.389	0.353	0.363	0.367	6.6

Calibration Summary 9213523.0851

0000104

2 of 3

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L642

Instrument ID: 5100B Calibration Date: 03/17/92 Time: 1126

Lab File ID: B031706 Init. Calib. Date(s): 03/13/92 03/13/92

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform Max %D for CCC(*) = 25.0%

Assoc. w/ B015B5 & B015B9.

COMPOUND		RRF	RRF50	%D	
Chloromethane	#	1.540	1.618	-5.1	#
Bromomethane		0.435	0.407	6.4	
Vinyl Chloride	*	1.294	1.220	5.7	*
Chloroethane		0.617	0.635	-2.9	
Methylene Chloride		1.840	1.703	7.4	
Acetone		1.618	1.167	27.9	
Carbon Disulfide		6.177	5.860	5.1	
1,1-Dichloroethene	*	1.544	1.413	8.5	*
1,1-Dichloroethane	#	3.422	2.974	13.1	#
1,2-Dichloroethene (total)		1.754	1.539	12.3	
Chloroform	*	3.270	2.870	12.2	*
1,2-Dichloroethane		0.413	0.382	7.5	
2-Butanone		0.188	0.175	6.9	
1,1,1-Trichloroethane		2.304	2.190	4.9	
Carbon Tetrachloride		2.087	1.973	5.5	
Vinyl Acetate		5.011	3.997	20.2	
Bromodichloromethane		0.386	0.376	2.6	
1,2-Dichloropropane	*	0.318	0.306	3.8	*
cis-1,3-Dichloropropene		0.518	0.487	6.0	
Trichloroethene		0.307	0.319	-3.9	
Dibromochloromethane		0.390	0.403	-3.3	
1,1,2-Trichloroethane		0.254	0.260	-2.4	
Benzene		1.073	0.992	7.5	
Trans-1,3-Dichloropropene		0.439	0.425	3.2	
Bromoform	#	0.362	0.370	-2.2	#
4-Methyl-2-pentanone		0.413	0.375	9.2	
2-Hexanone		0.368	0.317	13.9	
Tetrachloroethene		0.351	0.352	-0.3	
1,1,2,2-Tetrachloroethane	#	0.371	0.357	3.8	#
Toluene	*	0.759	0.726	4.3	*
Chlorobenzene	#	0.894	0.868	2.9	#
Ethylbenzene	*	0.436	0.400	8.3	*
Styrene		1.069	0.995	6.9	
Xylene (total)		0.617	0.563	8.8	
Toluene-d8		1.281	1.165	9.1	
Bromofluorobenzene		0.512	0.470	8.2	
1,2-Dichloroethane-d4		0.367	0.331	9.8	

FORM VII VOA 5/88 Rev.

Calibration Summary 9213523.0852 0000078 Pg 3 of 3

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L642

Instrument ID: 1050W Calibration Date: 03/13/92 Time: 1155

Lab File ID: W031303 Init. Calib. Date(s): 02/25/92 02/25/92

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) PACK

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform Max %D for CCC(*) = 25.0%

Assoc w/ B01576 only

COMPOUND		RRF	RRF50	%D	
Chloromethane	#	1.923	1.734	9.8	#
Bromomethane		1.493	1.304	12.7	
Vinyl Chloride	*	1.394	1.297	7.0	*
Chloroethane		0.744	0.838	-12.6	
Methylene Chloride		1.185	1.179	0.5	
Acetone		0.909	0.857	5.7	
Carbon Disulfide		2.458	2.309	6.1	
1,1-Dichloroethene	*	1.004	0.971	3.3	*
1,1-Dichloroethane	#	2.633	2.569	2.4	#
1,2-Dichloroethene (total)		1.151	1.163	-1.0	
Chloroform	*	2.743	2.555	6.9	*
1,2-Dichloroethane		2.322	2.036	12.3	
2-Butanone		0.139	0.121	12.9	
1,1,1-Trichloroethane		0.496	0.449	9.5	
Carbon Tetrachloride		0.461	0.418	9.3	
Vinyl Acetate		0.747	0.488	34.7	
Bromodichloromethane		0.505	0.460	8.9	
1,2-Dichloropropane	*	0.400	0.365	8.7	*
cis-1,3-Dichloropropene		0.449	0.411	8.5	
Trichloroethene		0.431	0.408	5.3	
Dibromochloromethane		0.496	0.405	18.3	
1,1,2-Trichloroethane		0.320	0.296	7.5	
Benzene		0.815	0.800	1.8	
Trans-1,3-Dichloropropene		0.459	0.374	18.5	
Bromoform	#	0.442	0.310	29.9	#
4-Methyl-2-pentanone		0.475	0.410	13.7	
2-Hexanone		0.441	0.291	34.0	
Tetrachloroethene		0.493	0.464	5.9	
1,1,2,2-Tetrachloroethane	#	0.502	0.405	19.3	#
Toluene	*	0.618	0.616	0.3	*
Chlorobenzene	#	0.849	0.844	0.6	#
Ethylbenzene	*	0.404	0.401	0.7	*
Styrene		0.672	0.651	3.1	
Xylene (total)		0.447	0.454	-1.6	
Toluene-d8		0.933	0.955	-2.4	
Bromofluorobenzene		0.720	0.711	1.2	
1,2-Dichloroethane-d4		2.370	2.036	14.1	

HRT 8/24/92

7/30/92

R\92\3523.0053 Pg 1 of 8

1A 0000129

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 92LVB043-MB1

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

Lab File ID: B031708

Level: (low/med) LOW

Date Received: 03/17/92

% Moisture: not dec. 0

Date Analyzed: 03/17/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

Assoc. w/ B015R5 & B015R9.

CAS NO.	COMPOUND		
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	8	
67-64-1	Acetone	15	
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

X = 80
X = 150
X = 10

FORM 1 V-1 12/88 Rev.

7/20/92

Soil Blank.

Quantitation Report File: B031708 0090132

Pg 2 of 8

Data: B031708.TI
03/17/92 13:14:00
Sample: 92LVB043-MB1/VBBK/5.0 GR
Conds. 5100B,VO,COLUMN:DB624
Formula: B031705 Instrument: 5100B Weight: 0.019
Submitted by: B031705 Analyst: JBD Acct. No.: 031792

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	IS1	BROMOCHLOROMETHANE	***INTERNAL STANDARD #1***
2	IS2	1,4-DIFLUOROBENZENE	***INTERNAL STANDARD #2***
3	IS3	CHLOROBENZENE D5	***INTERNAL STANDARD #3***
4	SS1	1,2-DICHLOROETHANE D4	***SURROGATE STANDARD #1***
5	SS2	TOLUENE D8	***SURROGATE STANDARD #2***
6	SS3	4-BROMOFLUOROBENZENE	***SURROGATE STANDARD #3***
7	45V	CHLOROMETHANE	
8	88V	VINYL CHLORIDE	
9	46V	BROMOMETHANE	
10	16V	CHLOROETHANE	
11	24H	TRICHLOROFLUOROMETHANE	
12	21H	ACROLEIN	
13	29V	1,1-DICHLOROETHYLENE	
14	15H	CARBON DISULFIDE	
15	13H	ACETONE	
16	44V	METHYLENE CHLORIDE	
17		1,2-DICHLOROETHENE (TOTAL)	
18	22H	ACRYLONITRILE	
19	13V	1,1-DICHLOROETHANE	
20		METHYL-T-BUTYLETHER	
21		VINYL ACETATE	
22	14H	2-BUTANONE	
23	23V	CHLOROFORM	
24	11V	1,1,1-TRICHLOROETHANE	
25	6V	CARBON TETRACHLORIDE	
26		CIS-1,2-DICHLOROETHENE	
27	4V	BENZENE	
28	10V	1,2-DICHLOROETHANE	
29		TRICHLOROETHYLENE	
30	32V	1,2-DICHLOROPROPANE	
31	48V	BROMODICHLOROMETHANE	
32		2-CHLOROETHYLVINYLETHER	
33		CIS-1,3-DICHLOROPROPENE	
34	86V	TOLUENE	
35	17H	4-METHYL-2-PENTANONE	
36		TRANS-1,3-DICHLOROPROPENE	
37	85V	TETRACHLOROETHYLENE	
38	14V	1,1,2-TRICHLOROETHANE	
39	51V	DIBROMOCHLOROMETHANE	
40		2-HEXANONE	
41	7V	CHLOROBENZENE	
42	38V	ETHYLBENZENE	
43	18H	STYRENE	
44		1,3-XYLENE/1,4-XYLENE	
45	47V	BROMOFORM	
46	15V	1,1,2,2-TETRACHLOROETHANE	
47		XYLENES (TOTAL)	

3/20/92

Soil Blank 9715923.0055 Blank Summary 0000133 Pg 3 of 8

No	Name
48	1,3-DICHLOROBENZENE
49	1,4-DICHLOROBENZENE
50	1,2-DICHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	814	13:34	1	1.000	A BB	26767.	50.000 UG/L	15.71
2	114	956	15:56	2	1.000	A BB	176469.	50.000 UG/L	15.71
3	117	1291	21:31	3	1.000	A BB	154440.	50.000 UG/L	15.71
4	65	894	14:54	2	0.935	A BB	50722.	43.374 UG/L	13.63
5	98	1144	19:04	3	0.886	A BB	187215.	52.014 UG/L	16.34
6	95	1395	23:15	3	1.081	A BB	66617.	45.928 UG/L	14.43
7	50	185	3:05	1	0.227	A BB	216.	0.249 UG/L	0.08
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	NOT FOUND								
12	NOT FOUND								
13	NOT FOUND								
14	76	505	8:25	1	0.620	A BB	3314.	1.056 UG/L	0.33
15	43	511	8:31	1	0.628	A BB	9637.	15.424 UG/L	4.85
16	84	583	9:43	1	0.716	A BB	7003.	7.682 UG/L	2.41
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	92	1152	19:12	3	0.892	A BV	1569.	0.700 UG/L	0.22
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	NOT FOUND								
40	43	1225	20:25	3	0.949	A BB	390.	0.398 UG/L	0.13
41	NOT FOUND								
42	NOT FOUND								
43	104	1353	22:33	3	1.048	A BB	277.	0.090 UG/L	0.03
44	NOT FOUND								
45	NOT FOUND								
46	NOT FOUND								
47	NOT FOUND								
48	146	1483	24:43	3	1.149	A BB	1095.	0.429 UG/L	0.13
49	146	1490	24:50	3	1.154	A BB	1125.	0.442 UG/L	0.14
50	146	1520	25:20	3	1.177	A BB	1144.	0.509 UG/L	0.16

Sample 8015B9 0000039

Quantitation Report File: B031719

Data: B031719.TI
03/17/92 20:52:00
Sample: 9203L642-002 WESTINGHOUSE HANFORD 5.0G
Conds.: 5100B,VO,COLUMN:DB624
Formula: B031705 Instrument: 5100B Weight: 0.020
Submitted by: B031705 Analyst: SSQ Acct. No.: 031792

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	IS1	BROMOCHLOROMETHANE	***INTERNAL STANDARD #1***
2	IS2	1,4-DIFLUOROBENZENE	***INTERNAL STANDARD #2***
3	IS3	CHLOROBENZENE D5	***INTERNAL STANDARD #3***
4	SS1	1,2-DICHLOROETHANE D4	***SURROGATE STANDARD #1***
5	SS2	TOLUENE D8	***SURROGATE STANDARD #2***
6	SS3	4-BROMOFLUOROBENZENE	***SURROGATE STANDARD #3***
7	45V	CHLOROMETHANE	
8	88V	VINYL CHLORIDE	
9	46V	BROMOMETHANE	
10	16V	CHLOROETHANE	
11	24H	TRICHLOROFLUOROMETHANE	
12	21H	ACROLEIN	
13	29V	1,1-DICHLOROETHYLENE	
14	15H	CARBON DISULFIDE	
15	13H	ACETONE	
16	44V	METHYLENE CHLORIDE	
17		1,2-DICHLOROETHENE (TOTAL)	
18	22H	ACRYLONITRILE	
19	13V	1,1-DICHLOROETHANE	
20		METHYL-T-BUTYLETHER	
21		VINYL ACETATE	
22	14H	2-BUTANONE	
23	23V	CHLOROFORM	
24	11V	1,1,1-TRICHLOROETHANE	
25	5V	CARBON TETRACHLORIDE	
26		CIS-1,2-DICHLOROETHENE	
27	4V	BENZENE	
28	10V	1,2-DICHLOROETHANE	
29		TRICHLOROETHYLENE	
30	32V	1,2-DICHLOROPROPANE	
31	48V	BROMODICHLOROMETHANE	
32		2-CHLOROETHYLVINYLETHER	
33		CIS-1,3-DICHLOROPROPENE	
34	86V	TOLUENE	
35	17H	4-METHYL-2-PENTANONE	
36		TRANS-1,3-DICHLOROPROPENE	
37	85V	TETRACHLOROETHYLENE	
38	14V	1,1,2-TRICHLOROETHANE	
39	51V	DIBROMOCHLOROMETHANE	
40		2-HEXANONE	
41	7V	CHLOROBENZENE	
42	38V	ETHYLBENZENE	
43	18H	STYRENE	
44		1,3-XYLENE/1,4-XYLENE	
45	47V	BROMOFORM	
46	15V	1,1,2,2-TETRACHLOROETHANE	
47		XYLENES (TOTAL)	

Sample 801589 Blank Summary 0000540 Pg 5 of 8

No	Name
48	1,3-DICHLOROBENZENE
49	1,4-DICHLOROBENZENE
50	1,2-DICHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	814	13:34	1	1.000	A BV	20924.	50.000 UG/L	15.50
2	114	955	15:55	2	1.000	A BB	114477.	50.000 UG/L	15.50
3	117	1290	21:30	3	1.000	A BB	98618.	50.000 UG/L	15.50
4	65	894	14:54	2	0.936	A BB	42534.	56.068 UG/L	17.38
5	98	1143	19:03	3	0.886	A BB	120533.	52.443 UG/L	16.26
6	95	1394	23:14	3	1.081	A BB	46461.	50.163 UG/L	15.55
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	NOT FOUND								
12	NOT FOUND								
13	NOT FOUND								
14	NOT FOUND								
15	43	514	8:34	1	0.631	A BB	3601.	7.373 UG/L	2.29
16	84	585	9:45	1	0.719	A BB	3330.	4.673 UG/L	1.45
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	92	1150	19:10	3	0.891	A BV	2490.	1.740 UG/L	0.54
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								
46	NOT FOUND								
47	NOT FOUND								
48	NOT FOUND								
49	146	1490	24:50	3	1.155	A BB	256.	0.157 UG/L	0.05
50	NOT FOUND								

present in blank

Sample 8011585 Blank Summary 9213522.0950 000030 pg 6 of 8

Quantitation Report File: B031718

Data: B031718.TI
03/17/92 20:15:00
Sample: 9203L642-001 WESTINGHOUSE HANFORD 5.0G
Conds.: 5100B,VO,COLUMN:DB624
Formula: B031705 Instrument: 5100B Weight: 0.020
Submitted by: B031705 Analyst: SSQ Acct. No.: 031792

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	IS1	BROMOCHLOROMETHANE	***INTERNAL STANDARD #1***
2	IS2	1,4-DIFLUOROBENZENE	***INTERNAL STANDARD #2***
3	IS3	CHLOROBENZENE D5	***INTERNAL STANDARD #3***
4	SS1	1,2-DICHLOROETHANE D4	***SURROGATE STANDARD #1***
5	SS2	TOLUENE D8	***SURROGATE STANDARD #2***
6	SS3	4-BROMOFLUOROBENZENE	***SURROGATE STANDARD #3***
7	45V	CHLOROMETHANE	
8	88V	VINYL CHLORIDE	
9	46V	BROMOMETHANE	
10	16V	CHLOROETHANE	
11	24H	TRICHLOROFLUOROMETHANE	
12	21H	ACROLEIN	
13	29V	1,1-DICHLOROETHYLENE	
14	15H	CARBON DISULFIDE	
15	13H	ACETONE	
16	44V	METHYLENE CHLORIDE	
17		1,2-DICHLOROETHENE (TOTAL)	
18	22H	ACRYLONITRILE	
19	13V	1,1-DICHLOROETHANE	
20		METHYL-T-BUTYLETHER	
21		VINYL ACETATE	
22	14H	2-BUTANONE	
23	23V	CHLOROFORM	
24	11V	1,1,1-TRICHLOROETHANE	
25	6V	CARBON TETRACHLORIDE	
26		CIS-1,2-DICHLOROETHENE	
27	4V	BENZENE	
28	10V	1,2-DICHLOROETHANE	
29		TRICHLOROETHYLENE	
30	32V	1,2-DICHLOROPROPANE	
31	48V	BROMODICHLOROMETHANE	
32		2-CHLOROETHYLVINYLETHER	
33		CIS-1,3-DICHLOROPROPENE	
34	86V	TOLUENE	
35	17H	4-METHYL-2-PENTANONE	
36		TRANS-1,3-DICHLOROPROPENE	
37	85V	TETRACHLOROETHYLENE	
38	14V	1,1,2-TRICHLOROETHANE	
39	51V	DIBROMOCHLOROMETHANE	
40		2-HEXANONE	
41	7V	CHLOROBENZENE	
42	38V	ETHYLBENZENE	
43	18H	STYRENE	
44		1,3-XYLENE/1,4-XYLENE	
45	47V	BROMOFORM	
46	15V	1,1,2,2-TETRACHLOROETHANE	
47		XYLENES (TOTAL)	

Sample 801585 9705260859 Summary 0000031 Pg 7 of 8

No	Name
48	1,3-DICHLOROBENZENE
49	1,4-DICHLOROBENZENE
50	1,2-DICHLOROBENZENE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	815	13:35	1	1.000	A BB	21835.	50.000 UG/L	15.24
2	114	956	15:56	2	1.000	A BB	125797.	50.000 UG/L	15.24
3	117	1291	21:31	3	1.000	A BB	109454.	50.000 UG/L	15.24
4	65	894	14:54	2	0.935	A BB	47691.	57.209 UG/L	17.43
5	98	1143	19:03	3	0.885	A BB	138717.	54.379 UG/L	16.57
6	95	1396	23:16	3	1.081	A BB	54565.	53.081 UG/L	16.17
7	NOT FOUND								
8	NOT FOUND								
9	NOT FOUND								
10	NOT FOUND								
11	NOT FOUND								
12	NOT FOUND								
13	NOT FOUND								
14	76	505	8:25	1	0.620	A BB	213.	0.083 UG/L	0.03
15	43	514	8:34	1	0.631	A BB	3445.	6.759 UG/L	2.06
16	84	584	9:44	1	0.717	A BB	3333.	4.482 UG/L	1.37
17	NOT FOUND								
18	NOT FOUND								
19	NOT FOUND								
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	78	896	14:56	2	0.937	A*BB	468.	0.187 UG/L	0.06
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	92	1151	19:11	3	0.892	A BV	2726.	1.716 UG/L	0.52
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	112	1294	21:34	3	1.002	A BB	697.	0.367 UG/L	0.11
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								
46	NOT FOUND								
47	NOT FOUND								
48	NOT FOUND								
49	NOT FOUND								
50	NOT FOUND								

present in blank

6/3/18/92

97F3523.0860 Summary

1A

VOLATILE ORGANICS ANALYSIS SHEET 0000120 CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 92LVW046-MB1

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: W031304

Level: (low/med) LOW Date Received: 03/13/92

% Moisture: not dec. _____ Date Analyzed: 03/13/92

Column: (pack/cap) PACK Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	1	J
67-64-1	Acetone	7	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

x10=10

x10=70

FORM 1 V-1 12/88 Rev.

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

RFW Lot No.: 9203L642

No qualification is required

	CLIENT SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	B01SB5	109	106	114		0
02	B01SB9	105	100	112		0
03	B01SB9MS	111	111	125 *		1
04	B01SB9MSD	95	83	106		0
05	VBLKLVB043-MB1	104	92	87		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

9713523.0862

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/22/92
LABORATORY: Lockton	CASE: 92031642	SDG: 642
SAMPLES/MATRIX: B01SB5, B01SB9/soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results			X
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
MS/MSD report forms	X		

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	Yes	No	N/A
Do all tunes on all instruments meet the tuning criteria?	Yes	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	N/A
Has the laboratory made any calculation or transciption errors?	Yes	No	N/A
Have the proper significant figures been reported?	Yes	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results < 5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

See comments

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly? CRC: 7/23/92	~~Yes~~	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0869

COMMENTS (attach additional sheets as necessary):

Sample B01SB5 was identified as a soil split sample. However, since the corresponding data is not currently available - the percent recoveries could not be calculated.

~~These samples were prepared using GPC cleanup. Therefore, the CRQL was multiplied by a factor of two.~~

7/29/92

9713523.0870

Holding Time Summary Pg 1 of 1

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

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SB5	001	S	92LE0390	03/10/92	03/16/92 6	03/20/92 4
B01SB5	001 MS	S	92LE0390	03/10/92	03/16/92	03/20/92
B01SB5	001 MSD	S	92LE0390	03/10/92	03/16/92	03/20/92
B01SB9	002	S	92LE0390	03/10/92	03/16/92	03/20/92
LAB QC:						
SBLK	MB1	S	92LE0390	N/A	03/16/92	03/20/92
SBLK	MB1 BS	S	92LE0390	N/A	03/16/92	03/20/92

Holding Times were met [illegible] 3/22/92

APR 1992
RECEIVED
OSM DMO

[illegible] 3/22/92

9213523.0871 0000094 pg 1 of 2

Calibration Summary

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L642

Instrument ID: 5100SP Calibration Date: 03/20/92 Time: 1017

Lab File ID: S032002 Init. Calib. Date(s): 03/13/92 03/13/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

	COMPOUND	RRF	RRF50	%D
17	Phenol *	1.835	1.875	-2.2 *
19	bis(2-Chloroethyl)ether	1.737	1.813	-4.4
	2-Chlorophenol	1.382	1.524	-10.3
	1,3-Dichlorobenzene	1.457	1.626	-11.6
	1,4-Dichlorobenzene *	1.540	1.742	-13.1 *
	Benzyl alcohol	0.848	0.940	-10.8
	1,2-Dichlorobenzene	1.464	1.654	-13.0
	2-Methylphenol	1.228	1.248	-1.6
	bis(2-Chloroisopropyl)ether	2.013	1.820	9.6
	4-Methylphenol	1.243	1.313	-5.6
	N-Nitroso-Di-n-propylamine #	1.127	1.032	8.4 #
	Hexachloroethane	0.637	0.690	-8.3
	Nitrobenzene	0.442	0.387	12.4
	Isophorone	0.907	0.816	10.0
	2-Nitrophenol *	0.207	0.230	-11.1 *
	2,4-Dimethylphenol	0.319	0.278	12.9
	Benzoic acid	0.170	0.159	6.5
	bis(2-Chloroethoxy)methane	0.522	0.498	4.6
	2,4-Dichlorophenol *	0.262	0.292	-11.5 *
	1,2,4-Trichlorobenzene	0.290	0.307	-5.9
	Naphthalene	1.102	1.097	0.5
	4-Chloroaniline	0.348	0.423	-21.6
	Hexachlorobutadiene *	0.137	0.140	-2.2 *
	4-Chloro-3-methylphenol *	0.298	0.301	-1.0 *
	2-Methylnaphthalene	0.610	0.687	-12.6
	Hexachlorocyclopentadiene #	0.128	0.104	18.8 #
	2,4,6-Trichlorophenol *	0.340	0.360	-5.9 *
	2,4,5-Trichlorophenol	0.378	0.366	3.2
	2-Chloronaphthalene	1.210	1.242	-2.6
	2-Nitroaniline	0.448	0.357	20.3
	Dimethylphthalate	1.232	1.223	0.7
	Acenaphthylene	1.868	1.941	-3.9
	2,6-Dinitrotoluene	0.327	0.323	1.2
	3-Nitroaniline	0.211	0.338	-60.2
	Acenaphthene *	1.065	1.130	-6.1 *
	2,4-Dinitrophenol #	0.127	0.118	7.1 #
	4-Nitrophenol #	0.096	0.087	9.4 #

7/22/92

9213523.0872 0000095 Pg 2 of 2

Calibration Summary

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L642

Instrument ID: 5100SP Calibration Date: 03/20/92 Time: 1017

Lab File ID: S032002 Init. Calib. Date(s): 03/13/92 03/13/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.496	1.598	-6.8
2,4-Dinitrotoluene	0.373	0.383	-2.7
Diethylphthalate	1.207	1.188	1.6
4-Chlorophenyl-phenylether	0.589	0.613	-4.1
Fluorene	1.206	1.246	-3.3
4-Nitroaniline	0.170	0.223	-31.2
4,6-Dinitro-2-methylphenol	0.129	0.125	3.1
N-Nitrosodiphenylamine (1) *	0.497	0.532	-7.0 *
4-Bromophenyl-phenylether	0.207	0.210	-1.4
Hexachlorobenzene	0.231	0.217	6.1
Pentachlorophenol *	0.127	0.123	3.1 *
Phenanthrene	1.123	1.133	-0.9
Anthracene	1.129	1.160	-2.7
Di-n-Butylphthalate	1.439	1.390	3.4
Fluoranthene *	0.883	0.955	-8.2 *
Pyrene	2.131	2.022	5.1
Butylbenzylphthalate	1.120	1.024	8.6
3,3'-Dichlorobenzidine	0.198	0.285	-43.9
Benzo(a)anthracene	1.287	1.328	-3.2
Chrysene	1.118	1.334	-19.3
bis(2-Ethylhexyl)phthalate	1.434	1.313	8.4
Di-n-Octyl phthalate *	3.067	2.503	18.4 *
Benzo(b)fluoranthene	1.414	1.474	-4.2
Benzo(k)fluoranthene	1.317	1.301	1.2
Benzo(a)pyrene *	1.140	1.195	-4.8 *
Indeno(1,2,3-cd)pyrene	0.982	1.096	-11.6
Dibenzo(a,h)anthracene	0.755	0.878	-16.3
Benzo(g,h,i)perylene	0.939	1.024	-9.1
Nitrobenzene-d5	0.439	0.409	6.8
2-Fluorobiphenyl	1.197	1.262	-5.4
p-Terphenyl-d14	1.502	1.191	20.7
Phenol-d5	1.788	1.933	-8.1
2-Fluorophenol	1.364	1.484	-8.8
2,4,6-Tribromophenol	0.125	0.125	0.0

(1) Cannot be separated from Diphenylamine

3-24-92

3/23/92

Blank Summary 9213586 0873 Pg 1 of 2

1C 0000112 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 92LE0390-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S032004

Level: (low/med) LOW Date Received: 03/16/92

% Moisture: not dec. 0 dec. Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	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	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	230	J
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	40	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	670	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	450	
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	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

KS = 1150

MC = 400

~~KS = 200~~ 7/22/92

MC = 4500 7/22/92

~~2250~~

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

All sample results are non-detects. No qualification req'd. 7/22/92

7/22/92

Blank Summary Pg 2 of 2

1F 9/1553.007 0000113 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 92LE0390-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: S032004

Level: (low/med) LOW Date Received: 03/16/92

% Moisture: not dec. 0 dec. Date Extracted: 03/16/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/20/92

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.00

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.97	500	JA
2.	ALDOL CONDENSATE	6.68	300	JA
3.	ALDOL CONDENSATE	7.02	100	JA
4.	PHTHALATE	18.70	200	J

RRRE

FORM 1 SV-TIC 12/88 Rev.

Accuracy Summary 0000014 Pg 1 of 1

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9203L642-001

MATRIX Spike - Sample No.: B01SB5 Level:(low/med) LOW

No qualification necessary

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	MS CONCENTRATION UG/KG	MS % REC #	QC LIMITS REC
Phenol	3420	0	2950	86	26 - 90
2-Chlorophenol	3420	0	2770	81	25 -102
1,4-Dichlorobenzene	1710	0	1340	78	28 -104
N-Nitroso-Di-n-propylamine	1710	0	1360	79	41 -126
1,2,4-Trichlorobenzene	1710	0	1770	104	38 -107
4-Chloro-3-methylphenol	3420	0	3360	98	26 -103
Acenaphthene	1710	0	1530	90	31 -137
4-Nitrophenol	3420	0	3290	96	11 -114
2,4-Dinitrotoluene	1710	0	1660	97 *	28 - 89
Pentachlorophenol	3420	0	3270	96	17 -109
Pyrene	1710	0	1960	115	35 -142

COMPOUND	SPIKE ADDED UG/KG	MSD CONCENTRATION UG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Phenol	3460	2210	64	29	35	26 - 90
2-Chlorophenol	3460	2070	60	30	50	25 -102
1,4-Dichlorobenzene	1730	1000	58	29 *	27	28 -104
N-Nitroso-Di-n-propylamine	1730	1110	64	21	38	41 -126
1,2,4-Trichlorobenzene	1730	1320	76	31 *	23	38 -107
4-Chloro-3-methylphenol	3460	2900	84	15	33	26 -103
Acenaphthene	1730	1380	80	11	19	31 -137
4-Nitrophenol	3460	3040	88	8	50	11 -114
2,4-Dinitrotoluene	1730	1500	87	10	47	28 - 89
Pentachlorophenol	3460	3270	94	2	47	17 -109
Pyrene	1730	1840	106	8	36	35 -142

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

RPD: 2 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS:

7/22/92

9713523.0876

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/23/92
LABORATORY: Weston	CASE: 9203L642	SDG: 642
SAMPLES/MATRIX: B01SB5, B01SB9 / Soils.		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
Sample Data			
Sample reports	X		
Chromatograms	X		
GC integration reports	X		
Worksheets		X	
UV traces from GPC		X	
GC/MS confirmation spectra			X
Standards Data			
Pesticides Evaluation Standards Summary	X		
Pesticides/PCB Standards Summary	X		
Pesticides/PCB identification	X		
Pesticides standard chromatograms	X		
Raw QC Data			
Blank analysis report forms and chromatograms	X		
MS/MSD report forms and chromatograms	X		

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets	—	X	—
Reduction formulae	—	X	—
Instrument time logs	X	—	—
Chemist notebook pages	—	X	—
Sample preparation sheets	X	—	—

2. HOLDING TIMES

Were all samples extracted within holding time? (Yes) No N/A

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? (Yes) No N/A

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? (Yes) No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes (No) N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification? Yes No N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%? Yes No N/A

Have all standards been analyzed within 72 h of any sample? Yes No N/A

Has a 3-point calibration been conducted for DDT or toxaphene? Yes No N/A

Have all standards been analyzed at the start of each 72-h sequence? Yes No N/A

Have evaluation standards A, B, and C been analyzed within 72 h of any sample? Yes No N/A

Has the confirmation standard mix been analyzed after every five samples? Yes No N/A

Has evaluation standard B analyzed every 10 samples? Yes No N/A

Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards? Yes No N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

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

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors <10.0% (<15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	(No)	N/A
Do any samples show nondetects for surrogates?	Yes	(No)	N/A
Are any method blank surrogates out of specification?	Yes	(No)	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	(Yes)	No	N/A
Are MS/MSD recoveries within specification?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	(N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? **Yes** No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No **N/A**

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

See comments

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No **N/A**

Were positive results analyzed on disimilar columns? **Yes** No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No **N/A**

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No **N/A**

Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm? Yes No **N/A**

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly? GPC — Yes **(No)** N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? **(Yes)** No N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? **(Yes)** No N/A

Were project specific data quality objectives met for this analysis? **(Yes)** No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0884

COMMENTS (attach additional sheets as necessary):

Sample B01SB9 was prepared by GPC. Therefore, the CRQL was multiplied by a factor of 2.

Sample B01SB5 was identified as a soil split. However, since the corresponding sample data is not currently available, the RPDs were not calculated.

7/23/99

9713523.0885

Holding Time Summary Pg 1 of 1

Roy F. Weston, Inc. - Lionville Laboratory
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SB5	001	S	92LE0399	03/10/92	03/16/92 6	04/01/92 16
B01SB5	001 MS	S	92LE0399	03/10/92	03/16/92	03/31/92
B01SB5	001 MSD	S	92LE0399	03/10/92	03/16/92	03/31/92
B01SB9	002	S	92LE0399	03/10/92	03/16/92	03/31/92

LAB QC:

PBLK	MB1	S	92LE0399	N/A	03/16/92	03/31/92
PBLK	MB1 BS	S	92LE0399	N/A	03/16/92	04/01/92

Holding times were met.

7/23/92

APR 1992 RECEIVED OSM DMO

7/23/92

Cal 9123-8006 Summary 0000932 Pg 1 of 1

9

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 03309209.26

RFW Lot No.: 9203L642

Instrument ID: 09 GC Column ID: 2250/2401

All results are ND, No qual. is req'd.

DATE(S) OF FROM: 03/30/92	DATE OF ANALYSIS 03/31/92
ANALYSIS TO: 03/31/92	TIME OF ANALYSIS 1307
TIME(S) OF FROM: 2311	EPA SAMPLE NO.
ANALYSIS TO: 0337	(STANDARD) INDA 23-67

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.84	1.82	1.86	6480597	1.84	6705301	Y	3.5
Beta-BHC	2.58	2.55	2.61	2290447				
Delta-BHC	3.00	2.97	3.03	3426915				
gamma-BHC (Lindane)	2.29	2.27	2.31	5663427	2.29	5859567	Y	3.5
Heptachlor	2.79	2.76	2.82	4412709	2.79	4619101	Y	4.7
Aldrin	3.36	3.33	3.39	3891377				
Heptachlor epoxide	4.93	4.88	4.98	2756689				
Endosulfan I	6.18	6.12	6.24	2153109	6.17	2195151	Y	2.0
Dieldrin	7.50	7.46	7.52	1731125	7.48	1776009	Y	2.6
4,4'-DDE	7.00	6.94	7.08	1665227				
Endrin	9.05	8.96	9.14	483646	9.04	595383	Y	23.1
Endosulfan II	10.92	10.81	11.03	1113319				
4,4'-DDD	10.58	10.55	10.61	770962	10.56	794767	Y	3.1
Endosulfan sulfate	16.96	16.93	16.99	273873				
4,4'-DDT	12.69	12.64	12.74	560169	12.67	564392	Y	0.8
Methoxychlor	23.78	23.72	23.84	187100	23.74	198243	Y	6.0
Endrin ketone	******	******	******	COELUTES *				
alpha-Chlordane	5.94	5.88	6.00	2232507				
gamma-Chlordane	5.46	5.40	5.52	2213193				
Toxaphene	7.43	7.40	7.46	81711				
Aroclor-1016	2.75	2.72	2.78	1157481				
Aroclor-1221	1.70	1.68	1.72	361181				
Aroclor-1232	2.75	2.72	2.78	550354				
Aroclor-1242	2.75	2.72	2.78	857423				
Aroclor-1248	2.75	2.72	2.78	1094737				
Aroclor-1254	8.74	8.71	8.77	839326				
Aroclor-1260	9.81	9.75	9.87	539091				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

9713523.0887

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: Dexo-RR-1	REVIEWER: [illegible]	DATE: 7/15/92
LABORATORY: Weston	CASE: 9203L642	SDG: 642
SAMPLES/MATRIX: B01SB5, B01SB9 / soils		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports	X		
Sample Data			
Inorganic Analysis Data Sheets	X		
Standards Data			
Initial and Continuing Calibration Verification	X		
CRDL Standard for AA and ICP	X		
QC Summary			
Blanks	X		
ICP Interference Check Summary	X		
Spike Sample Recovery	X		
Post-Digestion Spike Sample Recovery	X		
Duplicate	X		
Laboratory Control Sample	X		
Standard Addition Results	X		
ICP Serial Dilutions	X		
Instrument Detection Limits	X		
ICP Interelement Correction Factors	X		
ICP Linear Ranges	X		
Preparation Log	X		
Analysis Run Log	X		
Raw Data			
ICP Raw Data	X		
Furnace AA Raw Data	X		
Mercury Raw Data	X		
Cyanide Raw Data	X		
Additional Data			
Internal laboratory chain-of-custody	X		
Laboratory Sample Preparation Records	X		

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	X		
Reduction Formulae		X	
Instrument Run Logs	X		
Chemist Notebook Pages		X	

2. HOLDING TIMES

Have all samples been analyzed within holding times? (Yes) No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? (Yes) No N/A

Are the correlation coefficients ≥0.995? (Yes) No N/A

Was a midrange cyanide standard distilled? (Yes) No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results >IDL as estimated (J) and results <IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? (Yes) No N/A

Are the AB solution %R values within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? See comments Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

~~Sample B015R5 and B015R9 - 07/16/92.~~

Sample B015R5 was identified as a soil split sample. The RPDs were not calculated, however, since the corresponding data is not currently available.

APR 1992 RECEIVED OSM DMO

9713523.0893

Holding Time Summary

APR 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
B01SB5							
SILVER, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	24
SILVER, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
SILVER, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
ALUMINUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
ALUMINUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
ALUMINUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
ARSENIC, TOTAL	001	S	92L0822	03/10/92	03/23/92	03/25/92	15
ARSENIC, TOTAL	001 REP	S	92L0822	03/10/92	03/23/92	03/25/92	
ARSENIC, TOTAL	001 MS	S	92L0822	03/10/92	03/23/92	03/25/92	
BARIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	24
BARIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
BARIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
BERYLLIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
BERYLLIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
BERYLLIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
BISMUTH, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
BISMUTH, TOTAL REP	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
BISMUTH, TOTAL SPIKE	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
CALCIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
CALCIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
CALCIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
CADMIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/07/92	28
CADMIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/07/92	
CADMIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/07/92	
COBALT, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	24
COBALT, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
COBALT, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
CHROMIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
CHROMIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
CHROMIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
COPPER, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
COPPER, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
COPPER, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
IRON, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92	
IRON, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92	
IRON, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92	
MERCURY, TOTAL	001	S	92C0078	03/10/92	03/20/92	03/21/92	1

APR 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 REP	S	92C0078	03/10/92	03/20/92	03/21/92 11
MERCURY, TOTAL	001 MS	S	92C0078	03/10/92	03/20/92	03/21/92
POTASSIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92 24
POTASSIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92
POTASSIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
MAGNESIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92
MAGNESIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92
MAGNESIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
MANGANESE, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/07/92 28
MANGANESE, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/06/92 27
MANGANESE, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/06/92
SODIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92
SODIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92 24
SODIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
NICKEL, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92
NICKEL, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92
NICKEL, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
LEAD, TOTAL	001	S	92L0822	03/10/92	03/23/92	03/25/92 15
LEAD, TOTAL	001 REP	S	92L0822	03/10/92	03/23/92	03/25/92
LEAD, TOTAL	001 MS	S	92L0822	03/10/92	03/23/92	03/25/92
ANTIMONY, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92 24
ANTIMONY, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92
ANTIMONY, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
SELENIUM, TOTAL	001	S	92L0822	03/10/92	03/23/92	03/24/92 14
SELENIUM, TOTAL	001 REP	S	92L0822	03/10/92	03/23/92	03/24/92
SELENIUM, TOTAL	001 MS	S	92L0822	03/10/92	03/23/92	03/24/92
THALLIUM, TOTAL	001	S	92L0822	03/10/92	03/23/92	03/26/92 16
THALLIUM, TOTAL	001 REP	S	92L0822	03/10/92	03/23/92	03/26/92
THALLIUM, TOTAL	001 MS	S	92L0822	03/10/92	03/23/92	03/26/92
VANADIUM, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92 24
VANADIUM, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92
VANADIUM, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
ZINC, TOTAL	001	S	92L0823	03/10/92	03/23/92	04/03/92
ZINC, TOTAL	001 REP	S	92L0823	03/10/92	03/23/92	04/03/92
ZINC, TOTAL	001 MS	S	92L0823	03/10/92	03/23/92	04/03/92
B01SB9						
SILVER, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
ALUMINUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92

7/16/92

9213523.0895 Summary

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

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	002	S	92L0822	03/10/92	03/23/92	03/25/92 15
BARIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
BERYLLIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
BISMUTH, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
CALCIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
CADMIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/07/92 28
COBALT, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
CHROMIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
COPPER, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
IRON, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
MERCURY, TOTAL	002	S	92C0078	03/10/92	03/20/92	03/21/92 11
POTASSIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
MAGNESIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
MANGANESE, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/06/92 27
SODIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
NICKEL, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92
LEAD, TOTAL	002	S	92L0822	03/10/92	03/23/92	03/25/92 15
ANTIMONY, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
SELENIUM, TOTAL	002	S	92L0822	03/10/92	03/23/92	03/24/92 14
THALLIUM, TOTAL	002	S	92L0822	03/10/92	03/23/92	03/26/92 16
VANADIUM, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92 24
ZINC, TOTAL	002	S	92L0823	03/10/92	03/23/92	04/03/92

LAB QC:

SILVER LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
ALUMINUM LABORTORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
BARIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
BERYLLIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
BISMUTH, LCS	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
CALCIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
CADMIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/07/92
COBALT LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
CHROMIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
COPPER LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
IRON LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
POTASSIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
MAGNESIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92
MANGANESE LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/06/92
SODIUM LABORATORY	LC1 BS	S	92L0823	N/A	03/23/92	04/03/92

7/16/92

Blank 9713523.0896 0000027 Pg 1 of 1

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.: CLP642

Preparation Blank Matrix (soil/water): SOIL

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	88.0	U	88.0	U	88.0	U	88.0	U	17.600	U	P
Antimony	23.0	U	23.0	U	23.0	U	23.0	U	4.600	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Barium	38.0	U	38.0	U	38.0	U	38.0	U	7.600	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	.200	U	P
Cadmium	3.0	U	3.4	B	3.0	U	3.4	B	.600	U	P
Calcium	88.0	U	88.0	U	88.0	U	88.0	U	17.600	U	P
Chromium	6.8	B	8.8	B	6.0	U	6.0	U	1.200	U	P
Cobalt	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Copper	6.0	U	6.0	U	6.0	U	6.0	U	1.200	B	P
Iron	39.0	U	39.0	U	39.0	U	42.9	B	12.700	B	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Magnesium	78.0	U	78.0	U	78.0	U	78.0	U	15.600	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.050	U	CV
Nickel	18.0	U	18.0	U	18.0	U	18.0	U	3.600	U	P
Potassium	734.0	U	734.0	U	734.0	U	734.0	U	146.800	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	4.0	U	4.0	U	4.0	U	4.0	U	.800	U	P
Sodium	638.0	U	638.0	U	638.0	U	638.0	U	127.600	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Vanadium	5.1	B	5.0	U	5.0	U	5.0	U	1.000	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Cyanide	20.0	U	20.0	U	20.0	U			1.000	U	C

FORM III - IN 03/90

Attachment 9/15/25.0897 0000036 Pg 1 of 1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B01SB5S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP642

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 95.8

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	86.9000		4.8047	U	104.40	83.2		P
Arsenic	75-125	8.3000		1.7000	B	8.40	78.6		F
Barium	75-125	514.2000		60.6000		417.80	108.6		P
Beryllium	75-125	10.7000		.2300	B	10.40	100.7		P
Cadmium	75-125	11.1000		.6267	U	10.40	106.2		P
Calcium									NR
Chromium	75-125	48.7000		4.7000		41.80	105.3		P
Cobalt	75-125	114.8000		5.4000	B	104.40	104.8		P
Copper	75-125	66.3000		9.3000		52.20	109.0		P
Iron									NR
Lead	75-125	6.9000		3.2000		4.20	88.1		F
Magnesium									NR
Manganese	75-125	383.7000		195.5000		104.40	180.2	N	P
Mercury	75-125	.5290		.0522	U	.52	101.7		CV
Nickel	75-125	110.4000		3.7602	U	104.40	105.7		P
Potassium									NR
Selenium	75-125	1.3000		.4178	U	2.10	61.9	N	F
Silver	75-125	8.3000		.8356	U	10.40	79.2		P
Sodium									NR
Thallium	75-125	9.7000		.4178	U	10.40	92.8		F
Vanadium	75-125	129.1000		16.6000		104.40	107.7		P
Zinc	75-125	132.6000		21.1000		104.40	106.7		P
Cyanide	75-125	4.8730		1.0440	U	5.22	93.3		C

Comments:

3/16/02

Precision 9213523.0898 Mary 0000042 Pg 1 of 1

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B01SB5L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP642

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	16852.40		8877.50		47.3	E	P
Antimony	23.00	U	115.00	U			P
Arsenic							NR
Barium	290.00		190.00	U	100.0		P
Beryllium	1.10	B	5.00	U	100.0		P
Cadmium	3.00	U	15.00	U			P
Calcium	28138.90		15340.50	B	45.5	E	P
Chromium	22.30		30.00	U	100.0		P
Cobalt	25.80	B	25.00	U	100.0		P
Copper	44.70		50.00	B	11.9		P
Iron	48490.00		26298.50		45.8	E	P
Lead							NR
Magnesium	11476.50		6154.00	B	46.4	E	P
Manganese	935.80		828.00		11.5	E	P
Mercury							NR
Nickel	18.00	U	90.00	U			P
Potassium	3276.60	B	3670.00	U	100.0		P
Selenium							NR
Silver	4.00	U	20.00	U			P
Sodium	638.00	U	3190.00	U			P
Thallium							NR
Vanadium	79.30		45.50	B	42.6		P
Zinc	101.00		116.50		15.3		P

FORM IX - IN

03/90

7/16/92

ACCURACY DATA SUMMARY - FORM B-4

SDG: 92012642	REVIEWER: [illegible]	DATE: 7/16/92	PAGE 1 OF 1
COMMENTS: [illegible]			

SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
[illegible]	Selenium	76 %	see sample 10 column	UJ
[illegible]	"	[illegible]		UJ

9113523.0899

9713523.0900

WHC-SD-EN-SPP-002, Rev. 1

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/17/92
LABORATORY: Investigation	CASE: 92031642	SDG: 642
SAMPLES/MATRIX: B015B5, B015B9 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	Y		
Cover Page	Y		
Traffic Reports/Chain-of-Custody	Y		
Sample Analysis Data Report Forms	Y		
Standards Data	Y		
QC Summary			
Blanks Summary Report Forms	Y		
Spike Sample Recovery Report Forms	Y		
Duplicate Sample Analysis Report Forms	Y		
Laboratory Control Sample Report Forms	Y		
Raw Data			
Ion Chromatograph Chromatograms	Y		
TOC and TOX Instrument Printouts		TOC	TOX
Laboratory Bench Sheets Not Sure NO_3+NO_2-N	Y		
Additional Data			
Laboratory Sample Preparation Logs	Y		
Instrument Run Logs	Y		
Internal Laboratory Chain-of-Custory		Y	
Percent Solids Analysis Records	Y		
Reduction Formulae		Y	
Chemist Notebook Pages		Y	

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes **(No)** N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥0.995?	Yes	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?	Yes	No	N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?	Yes	No	N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

See Comments

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are instrument detection limits below the CRDL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0904

COMMENTS (attach additional sheets as necessary):

The data sheets for nitrate + nitrite-N were not included in the data package and therefore could not be validated.

Sample B01SR5 was identified as a soil split sample; however, the corresponding sample data is not currently available and the RPD could not be calculated

H1 9213523.0905 Summary pg 1 of 1

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

DATE RECEIVED: 03/12/92 RFW LOT # :9203L642

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SB5						
% SOLIDS	001	S	92L%S054	03/10/92	03/13/92	03/14/92 4
% SOLIDS	001 REP	S	92L%S054	03/10/92	03/13/92	03/14/92
NITRATE BY IC	001	S	92LICA48	03/10/92	03/18/92	03/18/92 8
NITRATE BY IC	001 REP	S	92LICA48	03/10/92	03/18/92	03/18/92
NITRATE BY IC	001 MS	S	92LICA48	03/10/92	03/18/92	03/18/92
NITRATE BY IC	001 MSD	S	92LICA48	03/10/92	03/18/92	03/18/92
TOTAL CYANIDE	001	S	92LC079	03/10/92	03/18/92	03/18/92
TOTAL CYANIDE	001 REP	S	92LC079	03/10/92	03/18/92	03/18/92
TOTAL CYANIDE	001 MS	S	92LC079	03/10/92	03/18/92	03/18/92
TOTAL CYANIDE	001 MSD	S	92LC079	03/10/92	03/18/92	03/18/92
PHOSPHATE BY IC	001	S	92LICA48	03/10/92	03/18/92	03/18/92
PHOSPHATE BY IC	001 REP	S	92LICA48	03/10/92	03/18/92	03/18/92
PHOSPHATE BY IC	001 MS	S	92LICA48	03/10/92	03/18/92	03/18/92
PHOSPHATE BY IC	001 MSD	S	92LICA48	03/10/92	03/18/92	03/18/92
SULFATE BY IC	001	S	92LICA48	03/10/92	03/18/92	03/18/92
SULFATE BY IC	001 REP	S	92LICA48	03/10/92	03/18/92	03/18/92
SULFATE BY IC	001 MS	S	92LICA48	03/10/92	03/18/92	03/18/92
SULFATE BY IC	001 MSD	S	92LICA48	03/10/92	03/18/92	03/18/92
NITRATE NITRITE	001	S	92LNT045	03/10/92	04/02/92	04/02/92 23
NITRATE NITRITE	001 REP	S	92LNT045	03/10/92	04/02/92	04/02/92
NITRATE NITRITE	001 MS	S	92LNT045	03/10/92	04/02/92	04/02/92
NITRATE NITRITE	001 MSD	S	92LNT045	03/10/92	04/02/92	04/02/92
TOTAL ORGANIC CARBON	001	S	92LOM015	03/10/92	03/30/92	04/01/92 22
TOTAL ORGANIC CARBON	001 REP	S	92LOM015	03/10/92	03/30/92	04/01/92
SUB-OUT TEST FOR SUB	001	S		03/10/92		
B01SB9						
% SOLIDS	002	S	92L%S054	03/10/92	03/13/92	03/14/92 4
NITRATE BY IC	002	S	92LICA48	03/10/92	03/18/92	03/18/92 8
TOTAL CYANIDE	002	S	92LC079	03/10/92	03/18/92	03/18/92
PHOSPHATE BY IC	002	S	92LICA48	03/10/92	03/18/92	03/18/92
SULFATE BY IC	002	S	92LICA48	03/10/92	03/18/92	03/18/92
NITRATE NITRITE	002	S	92LNT045	03/10/92	04/02/92	04/02/92 23
TOTAL ORGANIC CARBON	002	S	92LOM015	03/10/92	03/30/92	04/01/92 22
SUB-OUT TEST FOR SUB	002	S		03/10/92		

LAB QC:

7/7/92

9713523.0906

APPENDIX D

DATA REVIEW SUPPORTING DOCUMENTATION

SDG: 9203L761

Samples: B01SD1, B01SD3, B01SD5

CONTAINS:

ATTACHMENT 1 - GLOSSARY OF DATA REPORTING QUALIFIERS
ATTACHMENT 2 - SUMMARY OF DATA QUALIFICATIONS
ATTACHMENT 3 - AS QUALIFIED LABORATORY DATA
ATTACHMENT 4 - DATA VALIDATION SUPPORTING DOCUMENTATION

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

B - Indicates the compound or analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL).

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to identified quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are usable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9713523.0908

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9713523.0909

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9203L761	REVIEWER: [illegible]	DATE: 7/20/92	PAGE 1 OF 4
COMMENTS: UOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
MeCl2	u	All	Present in blank
Acetone	u	↓	↓

9713523.0910

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9203L761	REVIEWER: [illegible]	DATE: 7/23/92	PAGE 2 OF 4
COMMENTS: Semi-VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
3-Nitroaniline	UJ	All	CCV >0 725%
2,4-Dinitrophenol	UJ	↓	↓
4-Nitrophenol	UJ		
4-Nitroaniline	UJ		
Fluorene	UJ		
Pentachlorophenol	UJ		
Alkol Condensate	R	B01S01/B01SD5	~~CCV >0 725%~~ laboratory ~~contaminant~~ 7/30/92
Di-n-butyl phthalate	"	All	present in blank
Phthalate	R	B01S01/B01SD3	laboratory ~~contaminant~~
Phthalate	R	B01SD5	↓

9713523.0911

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92031_761	REVIEWER: [illegible]	DATE: 7/16/92	PAGE 3 OF 4
COMMENTS: Metals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Selenium	UJ	All	MS %R < 75
Selenium	UT	All	GFAA analytical spike out of control limits.

9713523.0912

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9203L761	REVIEWER: [illegible]	DATE: 7/20/92	PAGE 4 OF 4
COMMENTS: Ion Chromatography			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate	J	B0150D1, 03, 05	Analyzed out of holding time
Sulfate	UJ	↓	↓

ATTACHMENT 3

AS QUALIFIED LABORATORY DATA

9713523.0914 0000024

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
21L-R-44A 3.0-6.C

BO1SD1
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L761-001

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

Lab File ID: Y032610

Level: (low/med) LOW

Date Received: 03/21/92

% Moisture: not dec. 3

Date Analyzed: 03/26/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	13	B
67-64-1	Acetone	26	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

u
u

FORM 1 V-1 12/88 Rev.

9713523.0915 0000033

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A 3.0-6.0
BO1SD3
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: Y032611

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 3 Date Analyzed: 03/26/92

Column: (pack/cap) PACK Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	14	B
67-64-1	Acetone	46	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

9713523.0916 0000042

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A 9.0-12.0

B01SD5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L761-003

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

Lab File ID: Y032612

Level: (low/med) LOW

Date Received: 03/21/92

% Moisture: not dec. 5

Date Analyzed: 03/26/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
74-87-3	Chloromethane	11	U	
74-83-9	Bromomethane	11	U	
75-01-4	Vinyl Chloride	11	U	
75-00-3	Chloroethane	11	U	
75-09-2	Methylene Chloride	14	~~B~~	u
67-64-1	Acetone	31	~~B~~	u
75-15-0	Carbon Disulfide	6	U	
75-35-4	1,1-Dichloroethene	6	U	
75-34-3	1,1-Dichloroethane	6	U	
540-59-0	1,2-Dichloroethene (total)	6	U	
67-66-3	Chloroform	6	U	
107-06-2	1,2-Dichloroethane	6	U	
78-93-3	2-Butanone	11	U	
71-55-6	1,1,1-Trichloroethane	6	U	
56-23-5	Carbon Tetrachloride	6	U	
108-05-4	Vinyl Acetate	11	U	
75-27-4	Bromodichloromethane	6	U	
78-87-5	1,2-Dichloropropane	6	U	
10061-01-5	cis-1,3-Dichloropropene	6	U	
79-01-6	Trichloroethene	6	U	
124-48-1	Dibromochloromethane	6	U	
79-00-5	1,1,2-Trichloroethane	6	U	
71-43-2	Benzene	6	U	
10061-02-6	Trans-1,3-Dichloropropene	6	U	
75-25-2	Bromoform	6	U	
108-10-1	4-Methyl-2-pentanone	11	U	
591-78-6	2-Hexanone	11	U	
127-18-4	Tetrachloroethene	6	U	
79-34-5	1,1,2,2-Tetrachloroethane	6	U	
108-88-3	Toluene	6	U	
108-90-7	Chlorobenzene	6	U	
100-41-4	Ethylbenzene	6	U	
100-42-5	Styrene	6	U	
1330-20-7	Xylene (total)	6	U	

FORM 1 V-1 12/88 Rev.

9713523.0917 0000027

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD1
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: M040707

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 2 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1600	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	330	U
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	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	74 ~~330~~	~~U~~ J
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

FORM 1 SV-1 12/88 Rev.

7/8/92

9713523.0918 0000028

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD1
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-001

Sample wt/vol: 30.9 (g/mL) G Lab File ID: M040707

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 2 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1600	~~U~~ UJ
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	~~U~~ UJ
100-02-7	4-Nitrophenol	1600	~~U~~ UJ
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	1600	~~U~~ UJ
534-52-1	4,6-Dinitro-2-methylphenol	1600	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	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330 ~~62~~	~~J~~ J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	~~U~~ UJ
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	660	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~~ UJ
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenzo(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 12/88 Rev.

7/30/92

9713523.0919

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-44A
BO1SD1
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L761-001

Sample wt/vol: 30.9 (g/mL) G

Lab File ID: M040707

Level: (low/med) LOW

Date Received: 03/21/92

% Moisture: not dec. 2 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.8

Dilution Factor: 1.00

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	5.83	100	~~J~~	NJ
~~2.~~	~~ALDOL CONDENSATE~~	~~6.75~~	~~300~~	~~J~~	R
3.	UNKNOWN	9.02	100	~~J~~	NJ
~~4.~~	~~PHTHALATE~~	~~18.30~~	~~600~~	~~J~~	R
5.	ADIPATE	21.72	4000	~~J~~	NJ

FORM 1 SV-TIC 12/88 Rev.

7/30/93

9713523.0920 1B 0005044

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD3
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-002

Sample wt/vol: 30.6 (g/mL) G Lab File ID: M040708

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 3 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	1700	U
91-58-7	2-Chloronaphthalene	42 ~~340~~	~~U~~ J
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

FORM 1 SV-1 12/88 Rev.

7/30/92

9713523.0921 0000045

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD3
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-002

Sample wt/vol: 30.6 (g/mL) G Lab File ID: M040708

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 3 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1700	~~U~~	UJ
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1700	~~U~~	UJ
100-02-7	4-Nitrophenol	1700	~~U~~	UJ
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	1700	~~U~~	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	340 ~~40~~	~~U~~	J
206-44-0	Fluoranthene	340	U	
129-00-0	Pyrene	340	~~U~~	UJ
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	670	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~~	UJ
50-32-8	Benzo(a)pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)pyrene	340	U	
53-70-3	Dibenzo(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 12/88 Rev.

3/30/92

0000046

9713523.0922

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-44A
BO1SD3
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L761-002

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: M040708

Level: (low/med) LOW

Date Received: 03/21/92

% Moisture: not dec. 3 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.8

Dilution Factor: 1.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	6.73	200	~~J~~	NJ
~~2.~~	~~PHTHALATE~~	~~18.27~~	~~300~~	~~J~~	R

FORM 1 SV-TIC 12/88 Rev.

7/29/92

9713523.0923 1B 0000058

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD5
9.0-12.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-003

Sample wt/vol: 30.7 (g/mL) G Lab File ID: M040709

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 2 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	330	U
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	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	~~72~~ ~~330~~ 65	~~U~~ J 7/30/92
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

FORM 1 SV-1 12/88 Rev.

7/29/92

9713523.0924 0000059

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD5
9.0-12.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L761-003

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: M040709

Level: (low/med) LOW

Date Received: 03/21/92

% Moisture: not dec. 2 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.4

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	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	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330 ~~40~~	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	660	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	120	J
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	Dibenzo(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 12/88 Rev.

7/30/92

9713523.0925 0000060

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-44A
BO1SD5
9.0-12.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L761-003

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: M040709

Level: (low/med) LOW

Date Received: 03/21/92

% Moisture: not dec. 2 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.4

Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~ALDOL CONDENSATE~~	~~6.75~~	~~200~~	~~AJ~~	R
2.	UNKNOWN	8.95	200	~~J~~	NJ
~~3.~~	~~PHTHALATE~~	~~18.20~~	~~300~~	~~J~~	R

FORM 1 SV-TIC 12/88 Rev.

7/30/92

9713523.0926 0000519

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
21L-B-44A
BO1SD1
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-001

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 04069203.24

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 3 dec. Date Extracted: 03/24/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	17	~~8.3~~	U
319-85-7	Beta-BHC		~~8.3~~	U
319-86-8	Delta-BHC		~~8.3~~	U
58-89-9	gamma-BHC (Lindane)		~~8.3~~	U
76-44-8	Heptachlor		~~8.3~~	U
309-00-2	Aldrin		~~8.3~~	U
1024-57-3	Heptachlor epoxide		~~8.3~~	U
959-98-8	Endosulfan I		~~8.3~~	U
60-57-1	Dieldrin	34	~~17~~	U
72-55-9	4,4'-DDE		17	U
72-20-8	Endrin		~~17~~	U
33213-65-9	Endosulfan II		~~17~~	U
72-54-8	4,4'-DDD		~~17~~	U
1031-07-8	Endosulfan sulfate		~~17~~	U
50-29-3	4,4'-DDT		~~17~~	U
72-43-5	Methoxychlor	170	~~83~~	U
53494-70-5	Endrin ketone	34	~~17~~	U
5103-71-9	alpha-Chlordane	170	83	U
5103-74-2	gamma-Chlordane	170	~~83~~	U
8001-35-2	Toxaphene	340	~~170~~	U
12674-11-2	Aroclor-1016	170	~~83~~	U
11104-28-2	Aroclor-1221	170	~~83~~	U
11141-16-5	Aroclor-1232	170	~~83~~	U
53469-21-9	Aroclor-1242	170	~~83~~	U
12672-29-6	Aroclor-1248	170	~~83~~	U
11097-69-1	Aroclor-1254	340	~~170~~	U
11096-82-5	Aroclor-1260	340	~~170~~	U

DS 4-14-92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.0927 1D 0000024

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD3
3.0-6.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-002

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 04069203.29

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 3 dec. Date Extracted: 03/24/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	16 ~~8.2~~	U
319-85-7	Beta-BHC	16 ~~8.2~~	U
319-86-8	Delta-BHC	16 ~~8.2~~	U
58-89-9	gamma-BHC (Lindane)	16 ~~8.2~~	U
76-44-8	Heptachlor	16 ~~8.2~~	U
309-00-2	Aldrin	16 ~~8.2~~	U
1024-57-3	Heptachlor epoxide	16 ~~8.2~~	U
959-98-8	Endosulfan I	16 ~~8.2~~	U
60-57-1	Dieldrin	32 ~~16~~	U
72-55-9	4,4'-DDE	32 ~~16~~	U
72-20-8	Endrin	32 ~~16~~	U
33213-65-9	Endosulfan II	32 ~~16~~	U
72-54-8	4,4'-DDD	32 ~~16~~	U
1031-07-8	Endosulfan sulfate	32 ~~16~~	U
50-29-3	4,4'-DDT	32 ~~16~~	U
72-43-5	Methoxychlor	160 ~~82~~	U
53494-70-5	Endrin ketone	32 ~~16~~	U
5103-71-9	alpha-Chlordane	160 ~~82~~	U
5103-74-2	gamma-Chlordane	160 ~~82~~	U
8001-35-2	Toxaphene	320 ~~160~~	U
12674-11-2	Aroclor-1016	160 ~~82~~	U
11104-28-2	Aroclor-1221	160 ~~82~~	U
11141-16-5	Aroclor-1232	160 ~~82~~	U
53469-21-9	Aroclor-1242	160 ~~82~~	U
12672-29-6	Aroclor-1248	160 ~~82~~	U
11097-69-1	Aroclor-1254	320 ~~160~~	U
11096-82-5	Aroclor-1260	320 ~~160~~	U

DS 4-14-92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.0928 0000029

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-44A
BO1SD5
9.0-12.0

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L761-003

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 04069203.30

Level: (low/med) LOW Date Received: 03/21/92

% Moisture: not dec. 5 dec. Date Extracted: 03/24/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	17	~~8.4~~	U
319-85-7	Beta-BHC		~~8.4~~	U
319-86-8	Delta-BHC		~~8.4~~	U
58-89-9	gamma-BHC (Lindane)		~~8.4~~	U
76-44-8	Heptachlor		~~8.4~~	U
309-00-2	Aldrin		~~8.4~~	U
1024-57-3	Heptachlor epoxide		~~8.4~~	U
959-98-8	Endosulfan I		~~8.4~~	U
60-57-1	Dieldrin	34	~~17~~	U
72-55-9	4,4'-DDE		~~17~~	U
72-20-8	Endrin		~~17~~	U
33213-65-9	Endosulfan II		~~17~~	U
72-54-8	4,4'-DDD		~~17~~	U
1031-07-8	Endosulfan sulfate		~~17~~	U
50-29-3	4,4'-DDT		~~17~~	U
72-43-5	Methoxychlor	170	~~84~~	U
53494-70-5	Endrin ketone	34	~~17~~	U
5103-71-9	alpha-Chlordane	170	~~84~~	U
5103-74-2	gamma-Chlordane	170	~~84~~	U
8001-35-2	Toxaphene	340	~~170~~	U
12674-11-2	Aroclor-1016	170	~~84~~	U
11104-28-2	Aroclor-1221	170	~~84~~	U
11141-16-5	Aroclor-1232	170	~~84~~	U
53469-21-9	Aroclor-1242	170	~~84~~	U
12672-29-6	Aroclor-1248	170	~~84~~	U
11097-69-1	Aroclor-1254	340	~~170~~	U
11096-82-5	Aroclor-1260	340	~~170~~	U

RS 4-14-92

FORM 1 PEST 12/88 Rev.

9/23/92

9713523.0929

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

216-B-44A

B01SD1

3.0-6.0

Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP761

Matrix (soil/water): SOIL Lab Sample ID: 920376101

Level (low/med): LOW Date Received: 3/21/92

% Solids: 96.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4350.00			P	
7440-36-0	Antimony	7.45	U		P	
7440-38-2	Arsenic	1.40	B		F	
7440-39-3	Barium	62.30			P	
7440-41-7	Beryllium	.43	B		P	
7440-43-9	Cadmium	.83	U		P	
7440-70-2	Calcium	8130.00		*	P	
7440-47-3	Chromium	5.50			P	
7440-48-4	Cobalt	7.70	B		P	
7440-50-8	Copper	13.50			P	
7439-89-6	Iron	14500.00			P	
7439-92-1	Lead	3.00			F	
7439-95-4	Magnesium	3320.00			P	
7439-96-5	Manganese	264.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	9.00			P	
7440-09-7	Potassium	963.00	B		P	
7782-49-2	Selenium	.41	U	NW	F	
7440-22-4	Silver	1.66	U		P	
7440-23-5	Sodium	148.00	B		P	
7440-28-0	Thallium	.41	U		F	
7440-62-2	Vanadium	28.00			P	
7440-66-6	Zinc	28.80			P	
	Cyanide	1.04	U		C	
7440-69-9	Bismuth	31.1	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

9713523.0930

0000023

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

216-R-44A

B01SD3

3.0-6.0

Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP761

Matrix (soil/water): SOIL Lab Sample ID: 920376102

Level (low/med): LOW Date Received: 3/21/92

% Solids: 97.3

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4070.00			P	
7440-36-0	Antimony	7.14	U		P	
7440-38-2	Arsenic	1.40	B		F	
7440-39-3	Barium	59.30			P	
7440-41-7	Beryllium	.30	B		P	
7440-43-9	Cadmium	.79	U		P	
7440-70-2	Calcium	7520.00		*	P	
7440-47-3	Chromium	5.60			P	
7440-48-4	Cobalt	7.30	B		P	
7440-50-8	Copper	9.10			P	
7439-89-6	Iron	12800.00			P	
7439-92-1	Lead	2.60			F	
7439-95-4	Magnesium	3080.00			P	
7439-96-5	Manganese	286.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	7.80	B		P	
7440-09-7	Potassium	1000.00			P	
7782-49-2	Selenium	.39	~~U~~	NW	F	
7440-22-4	Silver	1.59	U		P	
7440-23-5	Sodium	129.00	B		P	
7440-28-0	Thallium	.39	U		F	
7440-62-2	Vanadium	22.70			P	
7440-66-6	Zinc	25.60			P	
	Cyanide	1.03	U		C	
7440-69-9	Bismuth	29.8	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

7/16/93

9713523.0931

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-B-44A
B01SD5
9.0-12.0

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP761

Matrix (soil/water): SOIL Lab Sample ID: 920376103

Level (low/med): LOW Date Received: 3/21/92

% Solids: 94.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3760.00			P	
7440-36-0	Antimony	7.42	U		P	
7440-38-2	Arsenic	2.20			F	
7440-39-3	Barium	51.20			P	
7440-41-7	Beryllium	.35	B		P	
7440-43-9	Cadmium	.82	U		P	
7440-70-2	Calcium	6850.00		*	P	
7440-47-3	Chromium	5.30			P	
7440-48-4	Cobalt	6.70	B		P	
7440-50-8	Copper	9.30			P	
7439-89-6	Iron	12100.00			P	
7439-92-1	Lead	4.00			F	
7439-95-4	Magnesium	2890.00			P	
7439-96-5	Manganese	216.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	7.30	B		P	
7440-09-7	Potassium	733.00	B		P	
7782-49-2	Selenium	.41	U	NW	F	US
7440-22-4	Silver	1.65	U		P	
7440-23-5	Sodium	250.00	B		P	
7440-28-0	Thallium	.41	U		F	
7440-62-2	Vanadium	20.50			P	
7440-66-6	Zinc	24.40			P	
	Cyanide	1.05	U		C	
440-29-9	Rhodium	30.9	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

9713523.0932

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/13/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9203L761

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B01SD1	% Solids	96.6	%	0.10
	216-B-44A	Nitrate by IC	70.7	MG/KG	12.9 J
	3.0-6.0	Cyanide, Total	1.0 u	MG/KG	1.0
	Soil Duplicate	Phosphate by IC	1.3 u	MG/KG	1.3 UJ
		Sulfate by IC	22.6	MG/KG	1.3
		Nitrate Nitrite	16.3	MG-N/KG	5.2
		Total Organic Carbon	2150	MG/KG	152
-002	B01SD3	% Solids	97.3	%	0.10
	216-B-44A	Nitrate by IC	45.8	MG/KG	1.3 J
	3.0-6.0	Cyanide, Total	1.0 u	MG/KG	1.0
	Soil Duplicate	Phosphate by IC	1.3 u	MG/KG	1.3 UJ
		Sulfate by IC	47.2	MG/KG	1.3
		Nitrate Nitrite	15.5	MG-N/KG	5.1
		Total Organic Carbon	2120	MG/KG	198
-003	B01SD5	% Solids	94.8	%	0.10
	216-B-44A	Nitrate by IC	61.3	MG/KG	13.2 J
	[illegible]	Cyanide, Total	1.1 u	MG/KG	1.1
		Phosphate by IC	1.3 u	MG/KG	1.3 UJ
		Sulfate by IC	19.5	MG/KG	1.3
		Nitrate Nitrite	13.4	MG-N/KG	5.3
		Total Organic Carbon	2860	MG/KG	187

7/20/92

9713523.0933

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9713523.0934

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/20/92
LABORATORY: Weston	CASE: 92036761	SDG: 761
SAMPLES/MATRIX: B01S01, B01S03, B01S05 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC			X
Quantitation and calculation data for all TIC			X
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC			X

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? **Yes** No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? **Yes** No N/A

Do all tunes on all instruments meet the tuning criteria? **Yes** No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No **N/A**

Has the laboratory made any calculation or transciption errors? Yes **No** N/A

Have the proper significant figures been reported? **Yes** No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? **Yes** No N/A

Are all RSD values ≤30% (2/88 SOW)? **Yes** No N/A

Are all RRF values ≥0.05 (2/88 SOW)? **Yes** No N/A

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but > 10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? All results use w/o blank adjustment — Yes No N/A

Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra? Yes No N/A

Do the relative intensities between the standard and sample spectra agree within 20%? Yes No N/A

Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? Yes No N/A

Are molecular ions present in the reference specrum present in the sample spectrum? Yes No N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation? Yes No N/A

Are results and quantitation limits calculated properly? Yes No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? Yes No N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? Yes No N/A

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

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

9713523.0941

COMMENTS (attach additional sheets as necessary):

Samples B01SD1 and B01SD2 were identified as field duplicates. However, since all results were non-detects, the RPD were not ~~calculated~~ calculated

7/20/97

Holding Time Summary

pg 1 of 1

APR 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1SD1	001	S	92LVY143	03/18/92	N/A	03/26/92
BO1SD3	002	S	92LVY143	03/18/92	N/A	03/26/92
BO1SD5	003	S	92LVY143	03/18/92	N/A	03/26/92
BO1SD5	003 MS	S	92LVY144	03/18/92	N/A	03/27/92
BO1SD5	003 MSD	S	92LVY144	03/18/92	N/A	03/27/92

LAB QC:

VBLK	MB1	S	92LVY143	N/A	N/A	03/26/92
VBLK	MB1	S	92LVY144	N/A	N/A	03/27/92

Holding Times were met.

7/20/92

Blank Summary 0000086 Pg 1 of 1

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 92LVY143-MB1

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

Lab File ID: Y032608

Level: (low/med) LOW

Date Received: 03/26/92

% Moisture: not dec. 0

Date Analyzed: 03/26/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	8	
67-64-1	Acetone	15	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

x10 = 80

x10 = 150

FORM 1 V-1 12/88 Rev.

3/20/92

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/23/92
LABORATORY: Weston	CASE: 9303L761	SDG: 761
SAMPLES/MATRIX: B01SD1, B01SD3, B01SD5/Soil		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks		X	
Raw and corrected library search data for all reported TIC 7/23/92	X		X
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	Yes	No	N/A
Do all tunes on all instruments meet the tuning criteria?	Yes	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	N/A
Has the laboratory made any calculation or transciption errors?	Yes	No	N/A
Have the proper significant figures been reported?	Yes	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results <10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results <5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

~~All three samples in this SDG were prepared in CPC - hence, the CRQL was multiplied by a factor of two~~ MM 7/29/97

Samples B01SD1 and B01SD3 were identified as field duplicates. The RPD for 2-chloronaphthalene is 55%. All other results were non-detects.

7/23/97

Lot 9213523-0952 Line Summary Pg 1 of 1

APR 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1SD1	001	S	92LE0454	03/18/92	03/25/92 7	04/07/92 13
BO1SD1	001 MS	S	92LE0454	03/18/92	03/25/92	04/07/92
BO1SD1	001 MSD	S	92LE0454	03/18/92	03/25/92	04/07/92
BO1SD3	002	S	92LE0454	03/18/92	03/25/92	04/07/92
BO1SD5	003	S	92LE0454	03/18/92	03/25/92	04/07/92

LAB QC:

SBLK	MB1	S	92LE0454	N/A	03/25/92	04/07/92
SBLK	MB1 BS	S	92LE0454	N/A	03/25/92	04/08/92

Samples were extracted and analyzed within holding times.

7/23/9

9713523.0953 0000118

Cal. Batch Summary

PC 1 of 2

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L761

Instrument ID: 5100M Calibration Date: 04/07/92 Time: 0915

Lab File ID: M040702 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ B0150D1, B0150D3, & B0150D5.

COMPOUND		RRF	RRF50	%D	
Phenol	*	2.193	1.980	9.7	*
bis(2-Chloroethyl)ether		2.315	2.286	1.3	
2-Chlorophenol		1.659	1.578	4.9	
1,3-Dichlorobenzene		1.596	1.477	7.5	
1,4-Dichlorobenzene	*	1.811	1.922	-6.1	*
Benzyl alcohol		1.161	1.107	4.7	
1,2-Dichlorobenzene		1.684	1.695	-0.7	
2-Methylphenol		1.618	1.600	1.1	
bis(2-Chloroisopropyl)ether		2.396	2.603	-8.6	
4-Methylphenol		1.749	1.680	3.9	
N-Nitroso-Di-n-propylamine	#	1.316	1.268	3.6	#
Hexachloroethane		0.807	0.868	-7.6	
Nitrobenzene		0.424	0.462	-9.0	
Isophorone		0.897	0.943	-5.1	
2-Nitrophenol	*	0.216	0.210	2.8	*
2,4-Dimethylphenol		0.378	0.343	9.3	
Benzoic acid		0.186	0.157	15.6	
bis(2-Chloroethoxy)methane		0.589	0.587	0.3	
2,4-Dichlorophenol	*	0.294	0.278	5.4	*
1,2,4-Trichlorobenzene		0.297	0.302	-1.7	
Naphthalene		0.980	1.111	-13.4	
4-Chloroaniline		0.511	0.446	12.7	
Hexachlorobutadiene	*	0.123	0.132	-7.3	*
4-Chloro-3-methylphenol	*	0.329	0.322	2.1	*
2-Methylnaphthalene		0.644	0.698	-8.4	
Hexachlorocyclopentadiene	#	0.214	0.167	22.0	#
2,4,6-Trichlorophenol	*	0.346	0.329	4.9	*
2,4,5-Trichlorophenol		0.352	0.325	7.7	
2-Chloronaphthalene		1.134	1.120	1.2	
2-Nitroaniline		0.400	0.360	10.0	
Dimethylphthalate		1.148	1.127	1.8	
Acenaphthylene		1.658	1.774	-7.0	
2,6-Dinitrotoluene		0.287	0.289	-0.7	
3-Nitroaniline		0.371	0.272	26.7	
Acenaphthene	*	1.044	1.065	-2.0	*
2,4-Dinitrophenol	#	0.123	0.091	26.0	#
4-Nitrophenol	#	0.083	0.062	25.3	#

7/23/92

9713523.0954 0000119 pg 2 of 2

Calibration Summary

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L761

Instrument ID: 5100M Calibration Date: 04/07/92 Time: 0915

Lab File ID: M040702 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc w/ R0151, R0153, R0155

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.380	1.320	4.3
2,4-Dinitrotoluene	0.361	0.302	16.3
Diethylphthalate	1.118	1.069	4.4
4-Chlorophenyl-phenylether	0.546	0.524	4.0
Fluorene	1.127	1.122	0.4
4-Nitroaniline	0.312	0.187	40.1
4,6-Dinitro-2-methylphenol	0.137	0.127	7.3
N-Nitrosodiphenylamine (1) *	0.633	0.580	8.4 *
4-Bromophenyl-phenylether	0.206	0.209	-1.5
Hexachlorobenzene	0.236	0.263	-11.4
Pentachlorophenol *	0.135	0.116	14.1 *
Phenanthrene	1.053	1.108	-5.2
Anthracene	1.033	1.041	-0.8
Di-n-Butylphthalate	1.325	1.481	-11.8
Fluoranthene *	0.886	0.892	-0.7 *
Pyrene	2.306	2.959	-28.3
Butylbenzylphthalate	1.508	1.595	-5.8
3,3'-Dichlorobenzidine	0.390	0.332	14.9
Benzo(a)anthracene	1.500	1.497	0.2
Chrysene	1.356	1.443	-6.4
bis(2-Ethylhexyl)phthalate	1.838	2.200	-19.7
Di-n-Octyl phthalate *	3.781	4.656	-23.1 *
Benzo(b)fluoranthene	1.705	1.738	-1.9
Benzo(k)fluoranthene	1.376	1.771	-28.7
Benzo(a)pyrene *	1.205	1.183	1.8 *
Indeno(1,2,3-cd)pyrene	1.050	1.012	3.6
Dibenzo(a,h)anthracene	0.718	0.681	5.2
Benzo(g,h,i)perylene	1.017	1.009	0.8
Nitrobenzene-d5	0.438	0.450	-2.7
2-Fluorobiphenyl	1.110	1.184	-6.7
p-Terphenyl-d14	1.512	1.692	-11.9
Phenol-d5	2.074	1.937	6.6
2-Fluorophenol	1.587	1.408	11.3
2,4,6-Tribromophenol	0.105	0.112	-6.7

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

7/23/92

Blank Summary 0000151

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 1 of 3

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 92LE0454-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: M040706

Level: (low/med) LOW Date Received: 03/25/92

% Moisture: not dec. 0 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	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	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	16 ~~330~~	~~U~~ 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	670	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	Dibenzo(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

16x10=160

@ 7/23/92

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/23/92

Quantitation Report File: M040706 0000157

Pg 2 of 3

Blank Summary

Data: M040706.TI
04/07/92 13:52:00
Sample: 92LE0454-MB1
Conds.: 5100M 2ULINJ RTX5
Formula: M040701 Instrument: 5100M Weight: 0.017
Submitted by: 040792 Analyst: MWM Acct. No.: 5100M

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name	
51	C560	4-NITROPHENOL
52	C565	DIBENZOFURAN
53	C570	2,4-DINITROTOLUENE
54	C580	DIETHYLPHTHALATE
55	C585	4-CHLOROPHENYL-PHENYLETHER
56	C590	FLUORENE
57	C595	4-NITROANILINE
58	C610	4,6-DINITRO-2-METHYLPHENOL
59	C615	N-NITROSODIPHENYLAMINE
60		1,2-DIPHENYLHYDRAZINE (AZOBENZENE)
61	C625	4-BROMOPHENYL-PHENYLETHER
62	C630	HEXACHLOROBENZENE
63		PENTACHLOROPHENOL
64	C640	PHENANTHRENE
65	C645	ANTHRACENE
66	C650	DI-N-BUTYLPHTHALATE
67	C655	FLUORANTHENE
68		BENZIDINE
69	C715	PYRENE
70	C720	BUTYLBENZYLPHTHALATE
71	C725	3,3'-DICHLOROBENZIDINE
72	C730	BENZO(A)ANTHRACENE
73	C745	BIS(2-ETHYLHEXYL)PHTHALATE
74	C740	CHRYSENE
75	C760	DI-N-OCTYLPHTHALATE
76	C765	BENZO(B)FLUORANTHENE
77	C770	BENZO(K)FLUORANTHENE
78	C775	BENZO(A)PYRENE
79	C780	INDENO(1,2,3-CD)PYRENE
80	C785	DIBENZ(A,H)ANTHRACENE
81	C790	BENZO(G,H,I)PERYLENE
82		2-METHYL-1,3-DIOXOLANE
83		1,4-DIOXANE
84		TRIPHENYLPHOSPHATE
85		ANILINE

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
53	NOT FOUND								
54	NOT FOUND								
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								

7/23/92

Blank Summary 0000158 3 of 3

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	NOT FOUND								
63	266	1054	17:34	4	0.983	A BB	211.	1.443 NG X	0.21
64	NOT FOUND								
65	NOT FOUND								
66	149	1144	19:04	4	1.067	A BB	924.	0.493 NG 4	0.07
67	NOT FOUND								
68	NOT FOUND								
69	NOT FOUND								
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
73	NOT FOUND								
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								
81	NOT FOUND								
82	NOT FOUND								
83	NOT FOUND								
84	NOT FOUND								
85	NOT FOUND								

x5 = 2.465

NB 4/8/92

7/23/92

9213523.0958 0000016 Pg 1 of 1

Accuracy Summary

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9203L761-001

MATRIX Spike - Sample No.: B01SD1 Level:(low/med) LOW

No qualification is necessary.

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	MS CONCENTRATION UG/KG	MS % REC #	QC LIMITS REC
Phenol	3310	0	3700	112 *	26 - 90
2-Chlorophenol	3310	0	3220	97	25 -102
1,4-Dichlorobenzene	1660	0	1420	86	28 -104
N-Nitroso-Di-n-propylamine	1660	0	1400	85	41 -126
1,2,4-Trichlorobenzene	1660	0	1860	113 *	38 -107
4-Chloro-3-methylphenol	3310	0	3140	95	26 -103
Acenaphthene	1660	0	1650	100	31 -137
4-Nitrophenol	3310	0	2500	75	11 -114
2,4-Dinitrotoluene	1660	0	1490	90 *	28 - 89
Pentachlorophenol	3310	0	2750	83	17 -109
Pyrene	1660	0	1840	111	35 -142

COMPOUND	SPIKE ADDED UG/KG	MSD CONCENTRATION UG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Phenol	3310	3280	99 *	12	35	26 - 90
2-Chlorophenol	3310	2850	86	12	50	25 -102
1,4-Dichlorobenzene	1660	1310	79	8	27	28 -104
N-Nitroso-Di-n-propylamine	1660	1280	77	9	38	41 -126
1,2,4-Trichlorobenzene	1660	1670	101	11	23	38 -107
4-Chloro-3-methylphenol	3310	2780	84	12	33	26 -103
Acenaphthene	1660	1430	86	15	19	31 -137
4-Nitrophenol	3310	2480	75	0	50	11 -114
2,4-Dinitrotoluene	1660	1320	80	11	47	28 - 89
Pentachlorophenol	3310	2810	85	2	47	17 -109
Pyrene	1660	1980	120	7	36	35 -142

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: 4 out of 22 outside limits

COMMENTS:

FORM III SV-2 5/88 Rev.

7/23/92

PRECISION DATA SUMMARY - FORM B-5

92031-761

SDG:	REVIEWER [illegible]	DATE: 7/24/92	PAGE 1 OF 1
COMMENTS: Field Duplicate RPDs			

COMPOUND	SAMPLE ID: B015Q1	SAMPLE ID: B015Q3	RPD	SAMPLES AFFECTED	QUALIFIER
2-Chloronaphthalene	74 J	42 J	55		

CALCULATION SUMMARY - FORM B-6

9203L761

SDG:	REVIEWER: [illegible]	DATE: 7/23/97	PAGE 1 OF 1

COMMENTS:

$$ug/kg = \frac{(A_x)(I_s)(V_t)(D_c)}{(A_{is})(RRF)(V_o)(W_s)(D)}$$

Blank - Di-n-butyl phthalate

$$= \frac{(924)(40)(1000)(1)}{(5.0E+20)(1.481)(3.0)(1.0)} = 16.43 \approx 16\ ug/kg$$

2-Chloronaphthalene

R-15.01 $$ug/kg = \frac{(3053)(40)(1000)(1)}{(48457)(1.120)(30.9)(0.98)} = 74.29 \approx 74\ ug/kg$$

R-15.03 $$ug/kg = \frac{(1524)(40)(1000)(1)}{(45578)(1.120)(30.6)(0.97)} = 41.55 \approx 42\ ug/kg$$

R-15.05 $$ug/kg = \frac{(2305)(40)(1000)(1)}{(41805)(1.120)(30.7)(0.98)} = 65.45 \approx 65\ ug/kg$$

9713523.0961

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/23/92
LABORATORY: Weston	CASE: 9203L761	SDG: 761
SAMPLES/MATRIX: B0150D1, B0150D3, B0150D5 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
Sample Data			
Sample reports	X		
Chromatograms	X		
GC integration reports	X		
Worksheets		X	
UV traces from GPC		X	
GC/MS confirmation spectra			X
Standards Data			
Pesticides Evaluation Standards Summary	X		
Pesticides/PCB Standards Summary	X		
Pesticides/PCB identification	X		
Pesticides standard chromatograms	X		
Raw QC Data			
Blank analysis report forms and chromatograms	X		
MS/MSD report forms and chromatograms	X		

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets	—	X	—
Reduction formulae	—	X	—
Instrument time logs	X	—	—
Chemist notebook pages	—	X	—
Sample preparation sheets	X	—	—

2. HOLDING TIMES

Were all samples extracted within holding time? (Yes) No N/A

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? (Yes) No N/A

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? (Yes) No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? (Yes) No N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification? Yes No N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%? Yes No N/A

Have all standards been analyzed within 72 h of any sample? Yes No N/A

Has a 3-point calibration been conducted for DDT or toxaphene? Yes No N/A

Have all standards been analyzed at the start of each 72-h sequence? Yes No N/A

Have evaluation standards A, B, and C been analyzed within 72 h of any sample? Yes No N/A

Has the confirmation standard mix been analyzed after every five samples? Yes No N/A

Has evaluation standard B analyzed every 10 samples? Yes No N/A

Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards? Yes No N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

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

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors < 10.0% (< 15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	No	N/A
Do any samples show nondetects for surrogates?	Yes	No	N/A
Are any method blank surrogates out of specification?	Yes	No	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	Yes	No	N/A
Are MS/MSD recoveries within specification?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly? GPC — Yes **(No)** N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? **(Yes)** No N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? **(Yes)** No N/A

Were project specific data quality objectives met for this analysis? **(Yes)** No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0969

COMMENTS (attach additional sheets as necessary):

The standards isodrin and kepone do not contain the ~~IS~~ DRC. 2/23/92
Surrogate

These samples were prepared by GPC, therefore the CRQL was multiplied by a factor of 2.

Samples B01S01 & B01SD03 were identified as field duplicates. All results are non-detects. Therefore, the RPDs ~~has~~ were not calculated.

9213583.0970 Time Summary

Pg 1 of 1

APR 1992 RECEIVED OSM DMO

Roy F. Weston, Inc. - Lionville Laboratory
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1SD1	001	S	92LE0440	03/18/92	03/24/92 6	04/07/92 14
BO1SD1	001 MS	S	92LE0440	03/18/92	03/24/92	04/07/92
BO1SD1	001 MSD	S	92LE0440	03/18/92	03/24/92	04/07/92
BO1SD3	002	S	92LE0440	03/18/92	03/24/92	04/07/92
BO1SD5	003	S	92LE0440	03/18/92	03/24/92	04/07/92
LAB QC:						
PBLK	MB1	S	92LE0440	N/A	03/24/92	04/07/92
PBLK	MB1 BS	S	92LE0440	N/A	03/24/92	04/07/92

Holding times were met.

7/23/92

9713523.0871 on Summary 0000041 Pg 1 of 1

9

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 04069203.28

RFW Lot No.: 9203L761

Instrument ID: 03 GC Column ID: 2250/2401

all results ND - No qualification req'd

DATE(S) OF ANALYSIS FROM: 04/06/92 TO: 04/07/92	DATE OF ANALYSIS 04/07/92
TIME(S) OF ANALYSIS FROM: 2001 TO: 0027	TIME OF ANALYSIS 0913
	EPA SAMPLE NO. (STANDARD) INDA 23-67

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.93	1.91	1.95	9770761	1.93	8351351	Y	14.5
Beta-BHC	2.64	2.62	2.68	2389863				
Delta-BHC	3.07	3.04	3.10	5231861				
gamma-BHC (Lindane)	2.38	2.36	2.40	7783073	2.38	6653151	Y	14.5
Heptachlor	2.89	2.86	2.92	6102459	2.90	5280101	Y	13.5
Aldrin	3.46	3.43	3.49	4725981				
Heptachlor epoxide	4.97	4.93	5.01	3201589				
Endosulfan I	6.18	6.13	6.23	2708905	6.21	2371601	Y	12.5
Dieldrin	7.46	7.41	7.51	2144381	7.49	1883325	Y	12.2
4,4'-DDE	7.00	6.93	7.07	2274227				
Endrin	9.00	8.93	9.07	938848	9.04	846350	Y	9.9
Endosulfan II	10.74	10.70	10.78	1431949				
4,4'-DDD	10.42	10.36	10.48	1065307	10.46	928808	Y	12.8
Endosulfan sulfate	16.26	16.21	16.31	831257				
4,4'-DDT	12.51	12.43	12.59	843263	12.56	682950	Y	19.0
Methoxychlor	23.11	22.97	23.25	237027	23.21	213940	Y	9.7
Endrin ketone	******	******	******	COELUTES *				
alpha-Chlordane	5.98	5.92	6.04	2316777				
gamma-Chlordane	5.50	5.45	5.55	2343803				
Toxaphene	7.41	7.36	7.46	89660				
Aroclor-1016	2.83	2.80	2.86	859725				
Aroclor-1221	1.80	1.78	1.82	238528				
Aroclor-1232	2.83	2.80	2.86	396380				
Aroclor-1242	2.83	2.80	2.86	661721				
Aroclor-1248	2.84	2.81	2.87	918580				
Aroclor-1254	8.72	8.64	8.80	824206				
Aroclor-1260	9.72	9.64	9.80	729431				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

Report Summary 9/15523.0972 Pg 1 of 1

ID 0000132 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

PBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 92LE0440-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 04069203.31

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 0 dec. Date Extracted: 03/24/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	8.0	U
319-85-7	Beta-BHC	8.0	U
319-86-8	Delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	1.3	J
60-57-1	Dieldrin	16	U
72-55-9	4,4'-DDE	16	U
72-20-8	Endrin	16	U
33213-65-9	Endosulfan II	16	U
72-54-8	4,4'-DDD	16	U
1031-07-8	Endosulfan sulfate	16	U
50-29-3	4,4'-DDT	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

RS = 6.5 DG 4-14-92

FORM 1 PEST 12/88 Rev.

All results are ND. No qualification is required.

7/23/92

9/19/92 Summary 3F 0000015 Pg 1 of 1

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9203L761-001

MATRIX Spike - Sample No.: B01SD1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	MS CONCENTRATION UG/KG	MS % REC #	QC LIMITS REC
gamma-BHC (Lindane)	27.4	0	17.1	63	46 -127
Heptachlor	27.4	0	5.48	20*	35 -130
Aldrin	27.4	0	13.7	50	34 -132
Dieldrin	68.6	0	53.5	78	31 -134
Endrin	68.6	0	63.8	93	42 -139
4,4'-DDT	68.6	0	44.6	65	23 -134

COMPOUND	SPIKE ADDED UG/KG	MSD CONCENTRATION UG/KG	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
gamma-BHC (Lindane)	27.5	15.8	58	8	50	46 -127
Heptachlor	27.5	4.13	15*	29	31	35 -130
Aldrin	27.5	13.1	48	4	43	34 -132
Dieldrin	68.8	49.5	72	7	38	31 -134
Endrin	68.8	57.1	83	11	45	42 -139
4,4'-DDT	68.8	41.3	60	8	50	23 -134

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

RPD: 0 out of 6 outside limits
Spike Recovery: 2 out of 12 outside limits

COMMENTS:

All surrogates are within limits, no qualification required.

FORM III PEST-2 5/88 Rev.

2/23/92

9713523.0974

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/14/92
LABORATORY: Weston	CASE: 9203L761	SDG: 761
SAMPLES/MATRIX: B015D1, B015D3, B015D5 / Soils		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	Y		
Cover Page	Y		
Traffic Reports	Y		
Sample Data			
Inorganic Analysis Data Sheets	Y		
Standards Data			
Initial and Continuing Calibration Verification	Y		
CRDL Standard for AA and ICP	Y		
QC Summary			
Blanks	Y		
ICP Interference Check Summary	Y		
Spike Sample Recovery	Y		
Post-Digestion Spike Sample Recovery		Y	
Duplicate	Y		
Laboratory Control Sample	Y		
Standard Addition Results	Y		
ICP Serial Dilutions	Y		
Instrument Detection Limits	Y		
ICP Interelement Correction Factors	Y		
ICP Linear Ranges	Y		
Preparation Log	Y		
Analysis Run Log	Y		
Raw Data			
ICP Raw Data	Y		
Furnace AA Raw Data	Y		
Mercury Raw Data	Y		
Cyanide Raw Data	Y		
Additional Data			
Internal laboratory chain-of-custody		Y	
Laboratory Sample Preparation Records	Y		

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	X		
Reduction Formulae		X	
Instrument Run Logs	X		
Chemist Notebook Pages		X	

2. HOLDING TIMES

Have all samples been analyzed within holding times? **Yes** No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? **Yes** No N/A

Are the correlation coefficients ≥0.995? **Yes** No N/A

Was a midrange cyanide standard distilled? **Yes** No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results >IDL as estimated (J) and results <IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? **Yes** No N/A

Are the AB solution %R values within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Samples B01S01 and B01S03 were identified as field duplicates. The RPDs range from 0% to 39%.

4071352.0980 Summary pg 1 of 4

APR 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SD1						
SILVER, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92 .27
SILVER, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
SILVER, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
ALUMINUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
ALUMINUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
ALUMINUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
ARSENIC, TOTAL	001	S	92L0905	03/18/92	04/03/92	04/06/92 19
ARSENIC, TOTAL	001 REP	S	92L0905	03/18/92	04/03/92	04/06/92
ARSENIC, TOTAL	001 MS	S	92L0905	03/18/92	04/03/92	04/06/92
BARIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92 .27
BARIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
BARIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
BERYLLIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
BERYLLIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
BERYLLIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
BISMUTH, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/20/92 33
BISMUTH, TOTAL REP	001 REP	S	92L0906	03/18/92	04/03/92	04/20/92
BISMUTH, TOTAL SPIKE	001 MS	S	92L0906	03/18/92	04/03/92	04/20/92
CALCIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92 27
CALCIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
CALCIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
CADMIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
CADMIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
CADMIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
COBALT, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
COBALT, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
COBALT, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
CHROMIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
CHROMIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
CHROMIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
COPPER, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
COPPER, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
COPPER, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
IRON, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92
IRON, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92
IRON, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92
MERCURY, TOTAL	001	S	92C0089	03/18/92	03/31/92	04/01/92 14

7/16/92

9413523.0981 inc Summary pg 2 of 4

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
MERCURY, TOTAL	001 REP	S	92C0089	03/18/92	03/31/92	04/01/92	14
MERCURY, TOTAL	001 MS	S	92C0089	03/18/92	03/31/92	04/01/92	
POTASSIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	27
POTASSIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
POTASSIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
MAGNESIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	
MAGNESIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
MAGNESIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
MANGANESE, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	
MANGANESE, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
MANGANESE, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
SODIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	
SODIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
SODIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
NICKEL, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	
NICKEL, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
NICKEL, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
LEAD, TOTAL	001	S	92L0905	03/18/92	04/03/92	04/06/92	19
LEAD, TOTAL	001 REP	S	92L0905	03/18/92	04/03/92	04/06/92	
LEAD, TOTAL	001 MS	S	92L0905	03/18/92	04/03/92	04/06/92	
ANTIMONY, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	27
ANTIMONY, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
ANTIMONY, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
SELENIUM, TOTAL	001	S	92L0905	03/18/92	04/03/92	04/06/92	19
SELENIUM, TOTAL	001 REP	S	92L0905	03/18/92	04/03/92	04/06/92	
SELENIUM, TOTAL	001 MS	S	92L0905	03/18/92	04/03/92	04/06/92	
THALLIUM, TOTAL	001	S	92L0905	03/18/92	04/03/92	04/06/92	
THALLIUM, TOTAL	001 REP	S	92L0905	03/18/92	04/03/92	04/06/92	
THALLIUM, TOTAL	001 MS	S	92L0905	03/18/92	04/03/92	04/06/92	
VANADIUM, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	27
VANADIUM, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
VANADIUM, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
ZINC, TOTAL	001	S	92L0906	03/18/92	04/03/92	04/14/92	
ZINC, TOTAL	001 REP	S	92L0906	03/18/92	04/03/92	04/14/92	
ZINC, TOTAL	001 MS	S	92L0906	03/18/92	04/03/92	04/14/92	
B01SD3							
SILVER, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92	27
ALUMINUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92	

7/19/9x

97135253.0982 Time Summary Pg 3 of 4

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	002	S	92L0905	03/18/92	04/03/92	04/06/92 19
BARIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 27
BERYLLIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 ↓
BISMUTH, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/20/92 33
CALCIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 27
CADMIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
COBALT, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
CHROMIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
COPPER, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
IRON, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
MERCURY, TOTAL	002	S	92C0089	03/18/92	03/31/92	04/01/92 14
POTASSIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 27
MAGNESIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
MANGANESE, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
SODIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
NICKEL, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92
LEAD, TOTAL	002	S	92L0905	03/18/92	04/03/92	04/06/92 19
ANTIMONY, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 27
SELENIUM, TOTAL	002	S	92L0905	03/18/92	04/03/92	04/06/92 19
THALLIUM, TOTAL	002	S	92L0905	03/18/92	04/03/92	04/06/92 ↓
VANADIUM, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 27
ZINC, TOTAL	002	S	92L0906	03/18/92	04/03/92	04/14/92 ↓
B01SD5						
SILVER, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
ALUMINUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 ↓
ARSENIC, TOTAL	003	S	92L0905	03/18/92	04/03/92	04/06/92 19
BARIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
BERYLLIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 ↓
BISMUTH, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/20/92 33
CALCIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
CADMIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
COBALT, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
CHROMIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
COPPER, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
IRON, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
MERCURY, TOTAL	003	S	92C0089	03/18/92	03/31/92	04/01/92 14
POTASSIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
MAGNESIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 ↓

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
SODIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
NICKEL, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92
LEAD, TOTAL	003	S	92L0905	03/18/92	04/03/92	04/06/92 19
ANTIMONY, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
SELENIUM, TOTAL	003	S	92L0905	03/18/92	04/03/92	04/06/92 19
THALLIUM, TOTAL	003	S	92L0905	03/18/92	04/03/92	04/06/92
VANADIUM, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92 27
ZINC, TOTAL	003	S	92L0906	03/18/92	04/03/92	04/14/92

LAB QC:

SILVER LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
ALUMINUM LABORTORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
BARIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
BERYLLIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
BISMUTH, LCS	LC1 BS	S	92L0906	N/A	04/03/92	04/20/92
CALCIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
CADMIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
COBALT LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
CHROMIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
COPPER LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
IRON LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
POTASSIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
MAGNESIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
MANGANESE LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
SODIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
NICKEL LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
ANTIMONY LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
VANADIUM LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
ZINC LABORATORY	LC1 BS	S	92L0906	N/A	04/03/92	04/14/92
SILVER LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
ALUMINUM LABORTORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
BARIUM LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
BERYLLIUM LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
BISMUTH, LCS	LC2 BS	S	92L0906	N/A	04/03/92	04/20/92
CALCIUM LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
CADMIUM LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
COBALT LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92
CHROMIUM LABORATORY	LC2 BS	S	92L0906	N/A	04/03/92	04/14/92

Filed: 9213523.0984

Pg 1 of 1

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.: CLP761

Preparation Blank Matrix (soil/water): SOIL

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
			5x		5x		5x				
Aluminum	46.0	U	46.0	U	46.0	U	46.0	U	9.200	U	P
Antimony	36.0	U	36.0	U	36.0	U	36.0	U	7.200	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Barium	7.0	U	7.0	U	7.0	U	7.0	U	1.400	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	62.0	U	62.0	U	62.0	U	62.0	U	12.400	U	P
Chromium	7.0	U	7.0	U	7.0	U	7.0	U	1.400	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	30.0	U	30.0	U	30.0	U	30.0	U	6.000	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Magnesium	69.0	U	417.5 83.5	B	69.0	U	608 125.6	B	13.800	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.050	U	CV
Nickel	18.0	U	18.0	U	18.0	U	18.0	U	3.600	U	P
Potassium	896.0	U	896.0	U	896.0	U	896.0	U	179.200	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	8.0	U	8.0	U	8.0	U	8.0	U	1.600	U	P
Sodium	117.0	U	117.0	U	117.0	U	612 122.4	B	23.400	U	P
Thallium	2.0	U	2.0	U	2.0	U	60.5 2.0	U	.400	U	F
Vanadium	5.0	U	52 10.4	B	41.5 8.3	B	13.1	B	1.000	U	P
Zinc	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Cyanide	20.0	U	20.0	U	20.0	U			1.000	U	C

FORM III - IN 03/90

CCB1
Assoc. w/
B01D1

CCB2
Assoc. w/
B01D3
B01C5

A sample concentration was higher than 5x the respective blank concentration. Therefore, no qualification is required. 7/16/92

7/16/92

Accuracy 9713523.0985 0000033 Pg 1 of 1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B01SD1S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP761

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 96.6

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	78.5000		7.4520	U	103.50	75.9		P
Arsenic	75-125	8.2000		1.4000	B	8.30	81.9		F
Barium	75-125	428.3999		62.3000		414.00	88.4		P
Beryllium	75-125	9.3000		.4300	B	10.40	85.3		P
Cadmium	75-125	9.2000		.8280	U	10.40	89.2		P
Calcium									NR
Chromium	75-125	40.4000		5.5000		41.40	84.3		P
Cobalt	75-125	96.9000		7.7000	B	103.50	86.1		P
Copper	75-125	53.5000		13.5000		51.80	77.4		P
Iron									NR
Lead	75-125	7.6000		3.0000		4.10	112.2		F
Magnesium									NR
Manganese	75-125	383.7000		263.6001		103.50	116.1		P
Mercury	75-125	.5270		.0518	U	.52	103.4		CV
Nickel	75-125	94.1000		9.0000		103.50	82.2		P
Potassium									NR
Selenium	75-125	1.2000		.4140	U	2.10	60.0	N	F
Silver	75-125	9.2000		1.6560	U	10.40	89.0		P
Sodium									NR
Thallium	75-125	7.8000		.4140	U	10.40	75.4		F
Vanadium	75-125	111.9000		28.0000		103.50	81.1		P
Zinc	75-125	113.3000		28.8000		103.50	81.6		P
Cyanide	75-125	4.2210		1.0360	U	5.18	81.5		C

Comments:

FORM V (Part 1) - IN 03/90

7/16/92

ACCURACY DATA SUMMARY - FORM B-4

SDG: [illegible]	REVIEWER: [illegible]	DATE: [illegible]	PAGE 1 OF 1	
COMMENTS: MCEAA Analysis [illegible]				
SAMPLE ID	**COMPOUND**	**% RECOVERY**	**SAMPLE(S) AFFECTED**	**QUALIFIER REQUIRED**
B015D1	Selenium	76.8		UJ
B015D3	↓	70.1		
B015D5	↓	73.7		

9713523.0986

PRECISION DATA SUMMARY - FORM B-5

SDG: 9203L761	REVIEWER [illegible]	DATE: 7/10/92	PAGE 1 OF 2

COMMENTS: Field Duplicate Pairs

COMPOUND	SAMPLE ID: B0F501	SAMPLE ID: B0F503	RPD	SAMPLES AFFECTED	QUALIFIER
Aluminum	4350	4070	7		
Antimony	7.45 U	7.14 U	NC		
Arsenic	1.40 B	1.40 B	0		
Barium	62.3	59.3	5		
Beryllium	0.43 B	0.30 B	36		
Cadmium	0.83 U	0.79 U	NC		
Calcium	8150	15,200	8		
Chromium	5.5	5.6	2		
Cobalt	7.7 B	7.3 B	5		
Copper	13.5	9.1	39		
Iron	14500	12800	12		
Lead	30	26	14		
Magnesium	3320	3080	7		
Manganese	264	286	8		
Mercury	0.05 U	0.05 U	NC		
Nickel	9.0	7.8 B	14		
Potassium	963 B	1000	4		

NC = Not Calculated

PRECISION DATA SUMMARY - FORM B-5

SDG: [illegible]	REVIEWER [illegible]	DATE: [illegible]	PAGE 2 OF 2
COMMENTS: [illegible]			

COMPOUND	SAMPLE ID: [illegible]	SAMPLE ID: [illegible]	RPD	SAMPLES AFFECTED	QUALIFIER
Selenium	0.41 UJ	0.39 UJ	NC		
Silver	1.66 U	1.59 U	NC		
Sodium	148 B	139 B	14		
Thallium	0.41 U	0.39 U	NC		
Vanadium	28	22.7	21		
Zinc	28.8	25.6	12		
Cyanide	1.04 U	1.03 U	NC		
Bismuth	31.1 U	29.8 U	NC		

NC = Not Calculated

9713523.0989

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/20/92
LABORATORY: Weston	CASE: 9203L761	SDG: 761
SAMPLES/MATRIX: B01SD1, B01SD3, B01SD5 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports/Chain-of-Custody	X		
Sample Analysis Data Report Forms	X		
Standards Data	X		
QC Summary			
Blanks Summary Report Forms	X		
Spike Sample Recovery Report Forms	X		
Duplicate Sample Analysis Report Forms	X		
Laboratory Control Sample Report Forms	X		
Raw Data			
Ion Chromatograph Chromatograms	X		
TOC and TOX Instrument Printouts		TOC	TOX
Laboratory Bench Sheets	X		
Additional Data			
Laboratory Sample Preparation Logs	X		
Instrument Run Logs	X		
Internal Laboratory Chain-of-Custory		X	
Percent Solids Analysis Records	X		
Reduction Formulae		X	
Chemist Notebook Pages		X	

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes (No) N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥0.995?	Yes	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?	Yes	No	N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?	Yes	No	N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? See comments Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are instrument detection limits below the CRDL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.0993

COMMENTS (attach additional sheets as necessary):

Samples B01SD1 and B01SD3 were identified as field duplicates. The RPD's range from 1% to 70%.

Holding Line Summary

pg 1 of 2

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SD1						
% SOLIDS	001	S	92L%S073	03/18/92	03/24/92	03/25/92 7
NITRATE BY IC	001	S	92LICA54	03/18/92	03/30/92	03/30/92 12
NITRATE BY IC	001 REP	S	92LICA54	03/18/92	03/30/92	03/30/92
NITRATE BY IC	001 MS	S	92LICA54	03/18/92	03/30/92	03/30/92
NITRATE BY IC	001 MSD	S	92LICA54	03/18/92	03/30/92	03/30/92
TOTAL CYANIDE	001	S	92LC086	03/18/92	03/26/92	03/26/92 8
TOTAL CYANIDE	001 REP	S	92LC086	03/18/92	03/26/92	03/26/92
TOTAL CYANIDE	001 MS	S	92LC086	03/18/92	03/26/92	03/26/92
TOTAL CYANIDE	001 MSD	S	92LC086	03/18/92	03/26/92	03/26/92
PHOSPHATE BY IC	001	S	92LICA54	03/18/92	03/30/92	03/30/92 12
PHOSPHATE BY IC	001 REP	S	92LICA54	03/18/92	03/30/92	03/30/92
PHOSPHATE BY IC	001 MS	S	92LICA54	03/18/92	03/30/92	03/30/92
PHOSPHATE BY IC	001 MSD	S	92LICA54	03/18/92	03/30/92	03/30/92
SULFATE BY IC	001	S	92LICA54	03/18/92	03/30/92	03/30/92
SULFATE BY IC	001 REP	S	92LICA54	03/18/92	03/30/92	03/30/92
SULFATE BY IC	001 MS	S	92LICA54	03/18/92	03/30/92	03/30/92
SULFATE BY IC	001 MSD	S	92LICA54	03/18/92	03/30/92	03/30/92
NITRATE NITRITE	001	S	92LN3049	03/18/92	04/10/92	04/10/92 23
TOTAL ORGANIC CARBON	001	S	92LTZ025	03/18/92	03/31/92	04/01/92 14
SUB-OUT TEST FOR SUB	001	S		03/18/92		
B01SD3						
% SOLIDS	002	S	92L%S073	03/18/92	03/24/92	03/25/92 7
NITRATE BY IC	002	S	92LICA54	03/18/92	03/30/92	03/30/92 12
TOTAL CYANIDE	002	S	92LC086	03/18/92	03/26/92	03/26/92 8
PHOSPHATE BY IC	002	S	92LICA54	03/18/92	03/30/92	03/30/92 12
SULFATE BY IC	002	S	92LICA54	03/18/92	03/30/92	03/30/92
NITRATE NITRITE	002	S	92LN3049	03/18/92	04/10/92	04/10/92 23
TOTAL ORGANIC CARBON	002	S	92LTZ025	03/18/92	03/31/92	04/01/92 14
SUB-OUT TEST FOR SUB	002	S		03/18/92		
B01SD5						
% SOLIDS	003	S	92L%S073	03/18/92	03/24/92	03/25/92 7
% SOLIDS	003 REP	S	92L%S073	03/18/92	03/24/92	03/25/92
NITRATE BY IC	003	S	92LICA54	03/18/92	03/30/92	03/30/92 12

1H2523 0995 me Summary pg 2 of 2

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

DATE RECEIVED: 03/21/92 RFW LOT # :9203L761

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
TOTAL CYANIDE	003	S	92LC086	03/18/92	03/26/92	03/26/92	8
PHOSPHATE BY IC	003	S	92LICA54	03/18/92	03/30/92	03/30/92	12
SULFATE BY IC	003	S	92LICA54	03/18/92	03/30/92	03/30/92	
NITRATE NITRITE	003	S	92LN3049	03/18/92	04/10/92	04/10/92	23
NITRATE NITRITE	003 REP	S	92LN3049	03/18/92	04/10/92	04/10/92	
NITRATE NITRITE	003 MS	S	92LN3049	03/18/92	04/10/92	04/10/92	
NITRATE NITRITE	003 MSD	S	92LN3049	03/18/92	04/10/92	04/10/92	
TOTAL ORGANIC CARBON	003	S	92LTZ025	03/18/92	03/31/92	04/01/92	14
TOTAL ORGANIC CARBON	003 REP	S	92LTZ025	03/18/92	03/31/92	04/01/92	
TOTAL ORGANIC CARBON	003 MS	S	92LTZ025	03/18/92	03/31/92	04/01/92	
SUB-OUT TEST FOR SUB	003	S		03/18/92			

LAB QC:

FLUORIDE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
FLUORIDE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
FLUORIDE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
NITRATE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
NITRATE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
NITRATE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
PHOSPHATE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
PHOSPHATE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
PHOSPHATE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
SULFATE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
SULFATE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
SULFATE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
TOTAL CYANIDE	LC1 L	S	92LC086	N/A	03/26/92	03/26/92
TOTAL CYANIDE	LC2 L	S	92LC086	N/A	03/26/92	03/26/92
TOTAL CYANIDE	MB1	S	92LC086	N/A	03/26/92	03/26/92
NITRATE NITRITE	MB1	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB1 BS	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB1 BSD	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB2	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB2 BS	S	92LN3049	N/A	04/10/92	04/10/92
TOTAL ORGANIC CARBON	MB1	W	92LTZ025	N/A	03/31/92	04/01/92
TOTAL ORGANIC CARBON	MB1 BS	W	92LTZ025	N/A	03/31/92	04/01/92
TOTAL ORGANIC CARBON	MB1 BSD	W	92LTZ025	N/A	03/31/92	04/01/92
TOTAL ORGANIC CARBON	MB2	W	92LTZ025	N/A	03/31/92	04/01/92
TOTAL ORGANIC CARBON	MB2 BS	W	92LTZ025	N/A	03/31/92	04/01/92
TOTAL ORGANIC CARBON	MB3	W	92LTZ025	N/A	03/31/92	04/01/92

3/20/92

PRECISION DATA SUMMARY - FORM B-5

9203L761

SDG:	REVIEWER [illegible]	DATE: [illegible]	PAGE 1 OF 1
COMMENTS: Field duplicate pair			

COMPOUND	SAMPLE ID: B015D1	SAMPLE ID: B015D3	RPD	SAMPLES AFFECTED	QUALIFIER
Percent Solids	96.6	97.3	1		
Nitrate	70.7 J	45.8 J	43		
Cyanide	1.0 U	1.0 U	NC		
Phosphate	1.3 UJ	1.3 UJ	NC		
Sulfate	22.6	47.2	70		
Nitrate+Nitrite	16.3	15.5	5		
TOC	2150	2120	1		

NC = Not Calculated

9713523.0997

APPENDIX E

DATA REVIEW SUPPORTING DOCUMENTATION

SDG: 9203L780

Sample: B01SF1, B01SF3, B01SF5

CONTAINS:

ATTACHMENT 1 - GLOSSARY OF DATA REPORTING QUALIFIERS
ATTACHMENT 2 - SUMMARY OF DATA QUALIFICATIONS
ATTACHMENT 3 - AS QUALIFIED LABORATORY DATA
ATTACHMENT 4 - DATA VALIDATION SUPPORTING DOCUMENTATION

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

B - Indicates the compound or analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL).

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to identified quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are usable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9713523.0999

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9716523.1000

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92031780	REVIEWER: [illegible]	DATE: 7/21/92	PAGE 2 OF 5
COMMENTS: Semi-Voll			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
3-Nitroaniline	UJ	B01SF1	CCV 20 725%
2,4-Dinitrotoluene	UJ		
4-Nitrophenol	UJ		
4-Nitroaniline	UJ		
Pyrene	UJ		
Benzo(k)fluoranthene	UJ		
2,4-Dinitrotoluene	UJ	B01SF5	CCV 20 725%
4-Nitrophenol	UJ		
4-Nitroaniline	UJ		
Pyrene	UJ		
2,2'-Oxybis(1-chloropropane)	UJ		
3-Nitroaniline	UJ	B01SF3	CCV 20 725%
4-Nitrophenol	UJ		
4-Nitroaniline	UJ		
Pyrene	UJ		
Dimethylphthalate	U	B01SF1 & B01SF5	Present in blank
Alkal	R	B01SF1	laboratory contaminant
Phthalate	R	B01SF1, B01SF3	Laboratory contaminant

9713523.1002

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9203L780	REVIEWER: [illegible]	DATE: 7/23/92	PAGE 3 OF 5
COMMENTS: Pesticide/PCB			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4,4'-DDT	J	B01SF5	3 point calibration was not performed.

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92-3L78.0	REVIEWER: [illegible]	DATE: 7/16/92	PAGE 4 OF 5
COMMENTS: Metals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	UJ	All	MS & RC < 75%
Selenium	UJ	↓	↓
Thallium	UJ	All	MS & RC < 75%
Vanadium	J	RC01F1/RC01F2	GFAA Analytical spike recovery is out of control limits.

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9203L780	REVIEWER: [illegible]	DATE: 7/20/92	PAGE 5 OF 5
COMMENTS: Inst Chemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Nitrate	J	B0/SF1/F3/F5	Analyzed out of holding time
Fluoride	J/UJ	↓	↓

9713523.1005

ATTACHMENT 3

AS QUALIFIED LABORATORY DATA

1A 9213523.1006 0000027

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B 2.5-5.0

B01SF1
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-001

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

Lab File ID: B032705

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 4

Date Analyzed: 03/27/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	9	B
67-64-1	Acetone	12	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

9213523.1007 0000038

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
2-C-B-48R 2.5-5.0

BO1SF3
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-002

Sample wt/vol: 5.10 (g/mL) G

Lab File ID: B032706

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 4

Date Analyzed: 03/27/92

Column: (pack/cap) CAP

Dilution Factor: 0.980

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

CAS NO.	COMPOUND		
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	7	~~B~~
67-64-1	Acetone	18	~~B~~
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1

12/88 Rev.

7/20/92

1A 9713523.1008 0000049

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-4ER 10.0-12.5

B01SF5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-003

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

Lab File ID: B032707

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 3

Date Analyzed: 03/27/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	7	~~B~~ U
67-64-1	Acetone	23	~~B~~ U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1

12/88 Rev.

7/20/92

9213523.1009 0000960

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-R-48F 10.0-12.5

B01SF5RE

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-003

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

Lab File ID: B032712

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 3

Date Analyzed: 03/27/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	5	~~B~~ U
67-64-1	Acetone	12	~~B~~ U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

9213523.1010 0000030

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B
BO1SF1
2.5-5.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M040710

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 2 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	1700	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

FORM 1 SV-1 12/88 Rev.

7/30/92

0000031

9213523.1011

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B

BO1SF1
2.5-5.0

Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-001

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: M040710

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 2 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.5

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1700	~~U~~	UJ
83-32-9	Acenaphthene	340	U	
51-28-5	2,4-Dinitrophenol	1700	~~U~~	UJ
100-02-7	4-Nitrophenol	1700	~~U~~	UJ
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	1700	~~U~~	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
84-74-2	Di-n-Butylphthalate	340 ~~43~~	~~U~~	J
206-44-0	Fluoranthene	340	U	
129-00-0	Pyrene	340	~~U~~	UJ
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	680	U	
56-55-3	Benzo(a)anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)phthalate	100	J	
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~~	UJ
50-32-8	Benzo(a)pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)pyrene	340	U	
53-70-3	Dibenzo(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

12/88 Rev.

7/30/92

9713523.1012 0000032

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-48B 2.5-5.0

B01SF1
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-001

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: M040710

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 2 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.5

Dilution Factor: 1.00

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
~~1.~~	~~ALDOL~~	~~6.73~~	~~300~~	~~JA~~ R
2.	~~UNKNOWN~~ Alcohol	7.30	200	J NJ
3.	UNKNOWN	8.95	200	J NJ
4.	UNKNOWN	15.32	100	J NJ
5.	UNKNOWN	17.20	200	J NJ
6.	PHTHALATE	18.28	500	J ~~NJ~~ R

FORM 1 SV-TIC 12/88 Rev.

0000050

9213523.1013

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B
B01SF3
2.5-5.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-002

Sample wt/vol: 30.7 (g/mL) G Lab File ID: M040914

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 3 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/09/92

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	1700	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U

7/30/92

1C 9213523.1014

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B
BO1SF3
2.5-5.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-002

Sample wt/vol: 30.7 (g/mL) G Lab File ID: M040914

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 3 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/09/92

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	340	U
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	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	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	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	670	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	Dibenzo(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 12/88 Rev.

7/30/92

0000052

9713523.1015

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-48B 2.5-5.0
BO1SF3
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-002

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: M040914

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 3 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/09/92

GPC Cleanup: (Y/N) Y pH: 7.5

Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	PHTHALATE	18.15	100	~~J~~ ~~J~~ R

FORM 1 SV-TIC 12/88 Rev.

3/31/92

0000061

9213523.1016

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B

B01SF5
10.0-12.5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-003

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

Lab File ID: M040804

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 1 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/08/92

GPC Cleanup: (Y/N) Y pH: 7.6

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
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
100-51-6	Benzyl alcohol	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	1700	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	330	U
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	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U

7/30/92

9213523.1017 0000062

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B
BO1SF5
10.0-12.5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-003

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M040804

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 1 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/08/92

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1700	U	
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1700	~~U~~	UJ
100-02-7	4-Nitrophenol	1700	~~U~~	UJ
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	1700	~~U~~	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1700	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	1700 ~~88~~	~~J~~	J
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	330 ~~40~~	~~J~~	J
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	~~U~~	UJ
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	670	~~U~~	UJ
56-55-3	Benzo(a)anthracene	330	U	
218-01-9	Chrysene	330	U	
117-81-7	bis(2-Ethylhexyl)phthalate	280	J	
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	Dibenzo(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 12/88 Rev.

7/30/92

1F 9213523 1019

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
26-B-48B 10.0-12.5
BO1SF5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-003

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M040804

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 1 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/08/92

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 SV-TIC 12/88 Rev.

7/21/92

0 0 0 0 0 1 9

ID 9213523.1019

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B

BO1SF1
2.5-5.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-001

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 04149209.21

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 4 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/15/92

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	16 ~~8.2~~	U
319-85-7	Beta-BHC	~~8.2~~	U
319-86-8	Delta-BHC	~~8.2~~	U
58-89-9	gamma-BHC (Lindane)	~~8.2~~	U
76-44-8	Heptachlor	~~8.2~~	U
309-00-2	Aldrin	~~8.2~~	U
1024-57-3	Heptachlor epoxide	~~8.2~~	U
959-98-8	Endosulfan I	~~8.2~~	U
60-57-1	Dieldrin	32 ~~16~~	U
72-55-9	4,4'-DDE	~~16~~	U
72-20-8	Endrin	~~16~~	U
33213-65-9	Endosulfan II	~~16~~	U
72-54-8	4,4'-DDD	~~16~~	U
1031-07-8	Endosulfan sulfate	~~16~~	U
50-29-3	4,4'-DDT	~~16~~	U
72-43-5	Methoxychlor	160 ~~82~~	U
53494-70-5	Endrin ketone	32 ~~16~~	U
5103-71-9	alpha-Chlordane	160 ~~82~~	U
5103-74-2	gamma-Chlordane	160 ~~82~~	U
8001-35-2	Toxaphene	320 ~~160~~	U
12674-11-2	Aroclor-1016	160 ~~82~~	U
11104-28-2	Aroclor-1221	160 ~~82~~	U
11141-16-5	Aroclor-1232	160 ~~82~~	U
53469-21-9	Aroclor-1242	160 ~~82~~	U
12672-29-6	Aroclor-1248	160 ~~82~~	U
11097-69-1	Aroclor-1254	320 ~~160~~	U
11096-82-5	Aroclor-1260	320 ~~160~~	U

DER 4/28/92

FORM 1 PEST 12/88 Rev.

7/23/92

0000024

9213523.1020

ID

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-R-48B

BO1SF3
2.5-5.0
Soil Duplicate

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9203L780-002

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 04149209.24

Level: (low/med) LOW Date Received: 03/24/92

% Moisture: not dec. 4 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/15/92

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	17	~~8.3~~	U
319-85-7	Beta-BHC		~~8.3~~	U
319-86-8	Delta-BHC		~~8.3~~	U
58-89-9	gamma-BHC (Lindane)		~~8.3~~	U
76-44-8	Heptachlor		~~8.3~~	U
309-00-2	Aldrin		~~8.3~~	U
1024-57-3	Heptachlor epoxide		~~8.3~~	U
959-98-8	Endosulfan I		~~8.3~~	U
60-57-1	Dieldrin	34	~~17~~	U
72-55-9	4,4'-DDE		~~17~~	U
72-20-8	Endrin		~~17~~	U
33213-65-9	Endosulfan II		~~17~~	U
72-54-8	4,4'-DDD		~~17~~	U
1031-07-8	Endosulfan sulfate		~~17~~	U
50-29-3	4,4'-DDT		~~17~~	U
72-43-5	Methoxychlor	170	~~83~~	U
53494-70-5	Endrin ketone	34	~~17~~	U
5103-71-9	alpha-Chlordane	170	~~83~~	U
5103-74-2	gamma-Chlordane	170	~~83~~	U
8001-35-2	Toxaphene	340	~~170~~	U
12674-11-2	Aroclor-1016	170	~~83~~	U
11104-28-2	Aroclor-1221	170	~~83~~	U
11141-16-5	Aroclor-1232	170	~~83~~	U
53469-21-9	Aroclor-1242	170	~~83~~	U
12672-29-6	Aroclor-1248	170	~~83~~	U
11097-69-1	Aroclor-1254	340	~~170~~	U
11096-82-5	Aroclor-1260	340	~~170~~	U

DDR 4/28/92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.1021 0000029

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48B

B01SF5
10.0-12.5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9203L780-003

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

Lab File ID: 04149209.27

Level: (low/med) LOW

Date Received: 03/24/92

% Moisture: not dec. 3 dec.

Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/15/92

GPC Cleanup: (Y/N) Y pH: 7.6

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	16	~~8.2~~	U
319-85-7	Beta-BHC		~~8.2~~	U
319-86-8	Delta-BHC		~~8.2~~	U
58-89-9	gamma-BHC (Lindane)		~~8.2~~	U
76-44-8	Heptachlor		~~8.2~~	U
309-00-2	Aldrin		~~8.2~~	U
1024-57-3	Heptachlor epoxide		~~8.2~~	U
959-98-8	Endosulfan I		~~8.2~~	U
60-57-1	Dieldrin		~~16~~	U
72-55-9	4,4'-DDE	32	~~16~~	U
72-20-8	Endrin	32	~~16~~	U
33213-65-9	Endosulfan II	32	~~16~~	U
72-54-8	4,4'-DDD	32	~~16~~	U
1031-07-8	Endosulfan sulfate	32	~~16~~	U
50-29-3	4,4'-DDT		6.2	J
72-43-5	Methoxychlor	160	~~82~~	U
53494-70-5	Endrin ketone	32	16	U
5103-71-9	alpha-Chlordane	160	~~82~~	U
5103-74-2	gamma-Chlordane	160	~~82~~	U
8001-35-2	Toxaphene	320	~~160~~	U
12674-11-2	Aroclor-1016	160	~~82~~	U
11104-28-2	Aroclor-1221	160	~~82~~	U
11141-16-5	Aroclor-1232	160	~~82~~	U
53469-21-9	Aroclor-1242	160	~~82~~	U
12672-29-6	Aroclor-1248	160	~~82~~	U
11097-69-1	Aroclor-1254	320	~~160~~	U
11096-82-5	Aroclor-1260	320	~~160~~	U

DBR 4/28/92

FORM 1 PEST 12/88 Rev.

7/23/92

9713523.1022 0000023

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-B-48B
B01SF1
2.5-5.0
Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP780

Matrix (soil/water): SOIL Lab Sample ID: 920378001

Level (low/med): LOW Date Received: 3/24/92

% Solids: 96.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3990.00			P	
7440-36-0	Antimony	7.47	U	N	P	
7440-38-2	Arsenic	1.01	B		F	
7440-39-3	Barium	63.00			P	
7440-41-7	Beryllium	.23	B		P	
7440-43-9	Cadmium	.83	U		P	
7440-70-2	Calcium	4730.00			P	
7440-47-3	Chromium	5.10			P	
7440-48-4	Cobalt	6.60	B		P	
7440-50-8	Copper	8.90			P	
7439-89-6	Iron	11600.00			P	
7439-92-1	Lead	2.90			F	
7439-95-4	Magnesium	2850.00			P	
7439-96-5	Manganese	229.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	6.20	B		P	
7440-09-7	Potassium	1010.00	B		P	
7782-49-2	Selenium	.42	U	NW	F	
7440-22-4	Silver	1.66	U		P	
7440-23-5	Sodium	99.60	B		P	
7440-28-0	Thallium	.42	U	N	F	
7440-62-2	Vanadium	19.50			P	
7440-66-6	Zinc	26.30			P	
	Cyanide	1.04	U		C	
[illegible]	[illegible]	[illegible]	[illegible]		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

0000024

9713529.1023

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
21L-8-48B
B01SF3
2.5-5.0
Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP780

Matrix (soil/water): SOIL Lab Sample ID: 920378002

Level (low/med): LOW Date Received: 3/24/92

% Solids: 96.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4170.00			P	
7440-36-0	Antimony	7.42	~~U~~	N	P	US
7440-38-2	Arsenic	1.10	B		F	
7440-39-3	Barium	65.80			P	
7440-41-7	Beryllium	.23	B		P	
7440-43-9	Cadmium	.82	U		P	
7440-70-2	Calcium	6130.00			P	
7440-47-3	Chromium	5.70			P	
7440-48-4	Cobalt	7.50	B		P	
7440-50-8	Copper	9.50			P	
7439-89-6	Iron	12300.00			P	
7439-92-1	Lead	3.00			F	
7439-95-4	Magnesium	2940.00			P	
7439-96-5	Manganese	245.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	6.90	B		P	
7440-09-7	Potassium	1080.00			P	
7782-49-2	Selenium	.41	~~U~~	NW	F	US
7440-22-4	Silver	1.65	U		P	
7440-23-5	Sodium	106.00	B		P	
7440-28-0	Thallium	.41	~~U~~	N	F	US
7440-62-2	Vanadium	21.50			P	
7440-66-6	Zinc	27.20			P	
	Cyanide	1.04 ~~5.40~~	U		C	
7440-69-9	Bismuth	30.9	U		P	

Color Before: BROWN Clarity Before: 7/16/92 Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

7/16/92

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-R-49B
B01SF5
10.0-12.5

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP780

Matrix (soil/water): SOIL Lab Sample ID: 920378003

Level (low/med): LOW Date Received: 3/24/92

% Solids: 96.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3910.00			P	
7440-36-0	Antimony	7.36	U	N	P	US
7440-38-2	Arsenic	2.10			F	
7440-39-3	Barium	55.80			P	
7440-41-7	Beryllium	.20	U		P	
7440-43-9	Cadmium	.82	U		P	
7440-70-2	Calcium	7380.00			P	
7440-47-3	Chromium	5.80			P	
7440-48-4	Cobalt	7.00	B		P	
7440-50-8	Copper	9.80			P	
7439-89-6	Iron	12200.00			P	
7439-92-1	Lead	4.50			F	
7439-95-4	Magnesium	3240.00			P	
7439-96-5	Manganese	226.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	7.80	B		P	
7440-09-7	Potassium	886.00	B		P	
7782-49-2	Selenium	.41	U	N	F	US
7440-22-4	Silver	1.64	U		P	
7440-23-5	Sodium	226.00	B		P	
7440-28-0	Thallium	.41	U	N	F	US
7440-62-2	Vanadium	20.00			P	
7440-66-6	Zinc	27.10			P	
	Cyanide	1.03	U		C	
7440-69-9	Bismuth	30.7			P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

3/16/92

9713523.1025

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/13/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9203L780

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B01SF1	% Solids	96.4	%	0.10
	216-B-48B	Nitrate by IC	50.8	MG/KG	13.0
	2.5-5.0	Cyanide, Total	1.0 u	MG/KG	1.0
	Soil	Phosphate by IC	1.5	MG/KG	1.3
	Duplicate	Sulfate by IC	11.2	MG/KG	1.3
		Nitrate Nitrite	12.3	MG-N/KG	5.2
		Total Organic Carbon	0.68	%	0.010
-002	B01SF3	% Solids	96.4	%	0.10
	216-B-48B	Nitrate by IC	53.0	MG/KG	13.0
	2.5-5.0	Cyanide, Total	1.0 u	MG/KG	1.0
	Soil	Phosphate by IC	2.2	MG/KG	1.3
	Duplicate	Sulfate by IC	11.0	MG/KG	1.3
		Nitrate Nitrite	13.2	MG-N/KG	5.2
		Total Organic Carbon	0.68	%	0.010
-003	B01SF5	% Solids	96.8	%	0.10
	216-B-48B	Nitrate by IC	46.2	MG/KG	1.3
	15.0-15.5	Cyanide, Total	1.0 u	MG/KG	1.0
		Phosphate by IC	1.3 u	MG/KG	1.3
		Sulfate by IC	479	MG/KG	12.9
		Nitrate Nitrite	11.5	MG-N/KG	2.6
		Total Organic Carbon	0.65	%	0.010

9713523.1026

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9713523.1027

WHC-SD-EN-SPP-002, Rev. 1

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/20/92
LABORATORY: [illegible]	CASE: 9203L780	SDG: 780
SAMPLES/MATRIX: B01SF1, B01SF3, B01SF5 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC			X
Quantitation and calculation data for all TIC			X
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC			X

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? (Yes) No N/A

Do all tunes on all instruments meet the tuning criteria? (Yes) No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No (N/A)

Has the laboratory made any calculation or transciption errors? Yes (No) N/A

Have the proper significant figures been reported? (Yes) No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? (Yes) No N/A

Are all RSD values ≤30% (2/88 SOW)? (Yes) No N/A

Are all RRF values ≥0.05 (2/88 SOW)? (Yes) No N/A

values ≤20.5% (3/90 SOW)?	Yes	No	N/A
values ≤40% (3/90 SOW)?	Yes	No	N/A
values within SOW limits (3/90 SOW)?	Yes	No	N/A
nce compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ception of compounds that exhibit erratic performance and making allowances pounds, if any RRF value is out of specification qualify all detected results for l as estimated (J) and all nondetects as unusable (R). Making allowances for nds, if any RSD value is out of specification qualify all associated data as or UJ for nondetects).

ALIBRATION

on report present for all 12-h periods ples were analyzed?	Yes	No	N/A
.05 (2/88 SOW)?	Yes	No	N/A
% (2/88 or 3/90 SOW)?	Yes	No	N/A
% (3/90 SOW)?	Yes	No	N/A
n SOW limits (3/90 SOW)?	Yes	No	N/A
e compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

on of compounds that exhibit erratic performance and making allowances ds, if any RRF value is out of specification qualify all associated detected ondetects as unusable (R). Making allowances for up to two TCL of specification, qualify all associated results as estimated (J for detects

thod blank analysis per matrix nples were analyzed?	Yes	No	N/A
laboratory blanks?	Yes	No	N/A

≤10 time the highest blank concentration for the common s (U) or at the SQL if the result is <CRQL. Qualify all e blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries <10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but >10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions present in the reference specrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

9713523.1034

COMMENTS (attach additional sheets as necessary):

Samples B01SF1 and B01SF3 were identified as field duplicates. Toluene was detected at 1 ppm in both samples. RPD toluene = 4%. All other compounds were non-detects.

9213523.1035

Add reg. time summary

MAY 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SF1	001	S	92LVB047	03/20/92	N/A	03/27/92
B01SF3	002	S	92LVB047	03/20/92	N/A	03/27/92
B01SF3	002 MS	S	92LVB049	03/20/92	N/A	03/30/92
B01SF3	002 MSD	S	92LVB049	03/20/92	N/A	03/30/92
B01SF5	003	S	92LVB047	03/20/92	N/A	03/27/92
B01SF5	003 R1	S	92LVB047	03/20/92	N/A	03/27/92

LAB QC:

VBLK	MB1	S	92LVB047	N/A	N/A	03/27/92
VBLK	MB1	S	92LVB049	N/A	N/A	03/30/92

[illegible] were met.

Blank Sum 9213523.1030 0000114 Pg 1 of 1

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 92LVB047-MB1

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

Lab File ID: B032703

Level: (low/med) LOW

Date Received: 03/27/92

% Moisture: not dec. 0

Date Analyzed: 03/27/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	6	x10= 60
67-64-1	Acetone	6	J x10= 60
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1

12/88 Rev.

7/20/92

9713523.1037 0000016 Pg 1 of 1

Accuracy Summary

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD Level:(low/med) LOW

RFW Lot No.: 9203L780

No qualification is required.

	CLIENT SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	BO1SF1	102	94	116		0
02	BO1SF3	99	95	118		0
03	BO1SF3MS	93	90	109		0
04	BO1SF3MSD	99	95	117		0
05	BO1SF5	100	95	127 *		1
06	BO1SF5RE	101	101	131 *		1
07	VBLKLVB047-MB1	97	92	103		0
08	VBLKLVB049-MB1	99	96	106		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

PRECISION DATA SUMMARY - FORM B-5

9203L780

SDG: 780	REVIEWER [illegible]	DATE: 11/10/92	PAGE 1 OF 1
COMMENTS: Field Duplicate RPDs			

COMPOUND	SAMPLE ID: B0150F1	SAMPLE ID: B0150F2	RPD	SAMPLES AFFECTED	QUALIFIER
Toluene	1.0 J	1.0 J	Ø		

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/21/92
LABORATORY: Weston	CASE: 9203L780	SDG: 780
SAMPLES/MATRIX: B01SF1, B01SF3, B01SF5/Soil		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X	X	
Raw and corrected library search data for all reported TIC	X		X
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		

7/21/92

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets		X	
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	Yes	No	N/A
Do all tunes on all instruments meet the tuning criteria?	Yes	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	N/A
Has the laboratory made any calculation or transciption errors?	Yes	No	N/A
Have the proper significant figures been reported?	Yes	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results < 5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? 7/21/97 Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.1046

COMMENTS (attach additional sheets as necessary):

Samples BOISF1 and BOISF3 were identified as field duplicates. Bis(2-ethylhexyl)phthalate was detected in sample BOISF1 at 100 ug/kg and not-detected in BOISF3. All other results were non-detects. The RPD for bis(2-ethylhexyl)phthalate is 200%.

~~These samples required GPC cleanup, therefore the CRQLs were multiplied by a factor of 100.~~

7/29/92

7/31/92

Holding time Summary pg 1 of 1

MAY 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SF1	001	S	92LE0454	03/20/92	03/25/92 5	04/07/92 13
B01SF1	001 MS	S	92LE0454	03/20/92	03/25/92	04/07/92
B01SF1	001 MSD	S	92LE0454	03/20/92	03/25/92	04/07/92
B01SF3	002	S	92LE0454	03/20/92	03/25/92	04/09/92 15
B01SF5	003	S	92LE0454	03/20/92	03/25/92	04/08/92 14

LAB QC:

SBLK	MB1	S	92LE0454	N/A	03/25/92	04/07/92
SBLK	MB1 BS	S	92LE0454	N/A	03/25/92	04/08/92

7/21/92

9213523.1048 0000119

Calibration Summary

Pg 1 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L780

Instrument ID: 5100M Calibration Date: 04/07/92 Time: 0915

Lab File ID: M040702 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ RO15F1 only

COMPOUND		RRF	RRF50	%D	
Phenol	*	2.193	1.980	9.7	*
bis(2-Chloroethyl)ether		2.315	2.286	1.3	
2-Chlorophenol		1.659	1.578	4.9	
1,3-Dichlorobenzene		1.596	1.477	7.5	
1,4-Dichlorobenzene	*	1.811	1.922	-6.1	*
Benzyl alcohol		1.161	1.107	4.7	
1,2-Dichlorobenzene		1.684	1.695	-0.7	
2-Methylphenol		1.618	1.600	1.1	
bis(2-Chloroisopropyl)ether		2.396	2.603	-8.6	
4-Methylphenol		1.749	1.680	3.9	
N-Nitroso-Di-n-propylamine	#	1.316	1.268	3.6	#
Hexachloroethane		0.807	0.868	-7.6	
Nitrobenzene		0.424	0.462	-9.0	
Isophorone		0.897	0.943	-5.1	
2-Nitrophenol	*	0.216	0.210	2.8	*
2,4-Dimethylphenol		0.378	0.343	9.3	
Benzoic acid		0.186	0.157	15.6	
bis(2-Chloroethoxy)methane		0.589	0.587	0.3	
2,4-Dichlorophenol	*	0.294	0.278	5.4	*
1,2,4-Trichlorobenzene		0.297	0.302	-1.7	
Naphthalene		0.980	1.111	-13.4	
4-Chloroaniline		0.511	0.446	12.7	
Hexachlorobutadiene	*	0.123	0.132	-7.3	*
4-Chloro-3-methylphenol	*	0.329	0.322	2.1	*
2-Methylnaphthalene		0.644	0.698	-8.4	
Hexachlorocyclopentadiene	#	0.214	0.167	22.0	#
2,4,6-Trichlorophenol	*	0.346	0.329	4.9	*
2,4,5-Trichlorophenol		0.352	0.325	7.7	
2-Chloronaphthalene		1.134	1.120	1.2	
2-Nitroaniline		0.400	0.360	10.0	
Dimethylphthalate	-	1.148	1.127	1.8	
Acenaphthylene		1.658	1.774	-7.0	
2,6-Dinitrotoluene		0.287	0.289	-0.7	
3-Nitroaniline		0.371	0.272	26.7	
Acenaphthene	*	1.044	1.065	-2.0	*
2,4-Dinitrophenol	#	0.123	0.091	26.0	#
4-Nitrophenol	#	0.083	0.062	25.3	#

7/21/92

9713523.1049 0000120

Calibration Summary

Pg 2 of 6

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L780

Instrument ID: 5100M Calibration Date: 04/07/92 Time: 0915

Lab File ID: M040702 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ BO/SFI only

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.380	1.320	4.3
2,4-Dinitrotoluene	0.361	0.302	16.3
Diethylphthalate	1.118	1.069	4.4
4-Chlorophenyl-phenylether	0.546	0.524	4.0
Fluorene	1.127	1.122	0.4
4-Nitroaniline	0.312	0.187	40.1
4,6-Dinitro-2-methylphenol	0.137	0.127	7.3
N-Nitrosodiphenylamine (1) *	0.633	0.580	8.4 *
4-Bromophenyl-phenylether	0.206	0.209	-1.5
Hexachlorobenzene	0.236	0.263	-11.4
Pentachlorophenol *	0.135	0.116	14.1 *
Phenanthrene	1.053	1.108	-5.2
Anthracene	1.033	1.041	-0.8
Di-n-Butylphthalate	1.325	1.481	-11.8
Fluoranthene *	0.886	0.892	-0.7 *
Pyrene	2.306	2.959	-28.3
Butylbenzylphthalate	1.508	1.595	-5.8
3,3'-Dichlorobenzidine	0.390	0.332	14.9
Benzo(a)anthracene	1.500	1.497	0.2
Chrysene	1.356	1.443	-6.4
bis(2-Ethylhexyl)phthalate	1.838	2.200	-19.7
Di-n-Octyl phthalate *	3.781	4.656	-23.1 *
Benzo(b)fluoranthene	1.705	1.738	-1.9
Benzo(k)fluoranthene	1.376	1.771	-28.7
Benzo(a)pyrene *	1.205	1.183	1.8 *
Indeno(1,2,3-cd)pyrene	1.050	1.012	3.6
Dibenzo(a,h)anthracene	0.718	0.681	5.2
Benzo(g,h,i)perylene	1.017	1.009	0.8
Nitrobenzene-d5	0.438	0.450	-2.7
2-Fluorobiphenyl	1.110	1.184	-6.7
p-Terphenyl-d14	1.512	1.692	-11.9
Phenol-d5	2.074	1.937	6.6
2-Fluorophenol	1.587	1.408	11.3
2,4,6-Tribromophenol	0.105	0.112	-6.7

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

7/21/92

9213523.1050 0000139

Calibration Summary

Pg 3 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L780

Instrument ID: 5100M Calibration Date: 04/09/92 Time: 1603

Lab File ID: M040907 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ Edit F3 only

COMPOUND		RRF	RRF50	%D	
Phenol	*	2.193	2.022	7.8	*
bis(2-Chloroethyl)ether		2.315	2.375	-2.6	
2-Chlorophenol		1.659	1.608	3.1	
1,3-Dichlorobenzene		1.596	1.462	8.4	
1,4-Dichlorobenzene	*	1.811	1.931	-6.6	*
Benzyl alcohol		1.161	1.055	9.1	
1,2-Dichlorobenzene		1.684	1.682	0.1	
2-Methylphenol		1.618	1.615	0.2	
bis(2-Chloroisopropyl)ether		2.396	2.488	-3.8	
4-Methylphenol		1.749	1.701	2.7	
N-Nitroso-Di-n-propylamine	#	1.316	1.194	9.3	#
Hexachloroethane		0.807	0.815	-1.0	
Nitrobenzene		0.424	0.426	-0.5	
Isophorone		0.897	0.942	-5.0	
2-Nitrophenol	*	0.216	0.216	0.0	*
2,4-Dimethylphenol		0.378	0.363	4.0	
Benzoic acid		0.186	0.201	-8.1	
bis(2-Chloroethoxy)methane		0.589	0.587	0.3	
2,4-Dichlorophenol	*	0.294	0.296	-0.7	*
1,2,4-Trichlorobenzene		0.297	0.302	-1.7	
Naphthalene		0.980	1.124	-14.7	
4-Chloroaniline		0.511	0.477	6.7	
Hexachlorobutadiene	*	0.123	0.126	-2.4	*
4-Chloro-3-methylphenol	*	0.329	0.322	2.1	*
2-Methylnaphthalene		0.644	0.673	-4.5	
Hexachlorocyclopentadiene	#	0.214	0.181	15.4	#
2,4,6-Trichlorophenol	*	0.346	0.337	2.6	*
2,4,5-Trichlorophenol		0.352	0.338	4.0	
2-Chloronaphthalene		1.134	1.105	2.6	
2-Nitroaniline		0.400	0.351	12.2	
Dimethylphthalate	-	1.148	1.161	-1.1	
Acenaphthylene		1.658	1.768	-6.6	
2,6-Dinitrotoluene		0.287	0.296	-3.1	
3-Nitroaniline		0.371	0.278	25.1	
Acenaphthene	*	1.044	1.056	-1.1	*
2,4-Dinitrophenol	#	0.123	0.098	20.3	#
4-Nitrophenol	#	0.083	0.054	34.9	#

FORM VII SV-1 5/88 Rev.

7/21/92

9213523.1051 0000140

Calibration Summary

Pg 4 of 6

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L780

Instrument ID: 5100M Calibration Date: 04/09/92 Time: 1603

Lab File ID: M040907 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ BOIS F3 only

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.380	1.325	4.0
2,4-Dinitrotoluene	0.361	0.299	17.2
Diethylphthalate	1.118	1.055	5.6
4-Chlorophenyl-phenylether	0.546	0.524	4.0
Fluorene	1.127	1.109	1.6
4-Nitroaniline	0.312	0.175	43.9
4,6-Dinitro-2-methylphenol	0.137	0.133	2.9
N-Nitrosodiphenylamine (1) *	0.633	0.657	-3.8 *
4-Bromophenyl-phenylether	0.206	0.218	-5.8
Hexachlorobenzene	0.236	0.268	-13.6
Pentachlorophenol *	0.135	0.115	14.8 *
Phenanthrene	1.053	1.112	-5.6
Anthracene	1.033	1.045	-1.2
Di-n-Butylphthalate	1.325	1.543	-16.5
Fluoranthene *	0.886	0.785	11.4 *
Pyrene	2.306	3.054	-32.4
Butylbenzylphthalate	1.508	1.668	-10.6
3,3'-Dichlorobenzidine	0.390	0.297	23.8
Benzo(a)anthracene	1.500	1.507	-0.5
Chrysene	1.356	1.301	4.1
bis(2-Ethylhexyl)phthalate	1.838	2.218	-20.7
Di-n-Octyl phthalate *	3.781	4.676	-23.7 *
Benzo(b)fluoranthene	1.705	1.733	-1.6
Benzo(k)fluoranthene	1.376	1.227	10.8
Benzo(a)pyrene *	1.205	1.148	4.7 *
Indeno(1,2,3-cd)pyrene	1.050	0.943	10.2
Dibenzo(a,h)anthracene	0.718	0.661	7.9
Benzo(g,h,i)perylene	1.017	0.867	14.7
Nitrobenzene-d5	0.438	0.436	0.5
2-Fluorobiphenyl	1.110	1.180	-6.3
p-Terphenyl-d14	1.512	1.730	-14.4
Phenol-d5	2.074	2.075	-0.1
2-Fluorophenol	1.587	1.431	9.8
2,4,6-Tribromophenol	0.105	0.096	8.6

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

7/26/91

Calibration Summary 9213523.1052 0000129 Pg 5 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L780

Instrument ID: 5100M Calibration Date: 04/08/92 Time: 1035

Lab File ID: M040802 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/B01SF5 only

COMPOUND		RRF	RRF50	%D	
Phenol	*	2.193	2.133	2.7	*
bis(2-Chloroethyl)ether		2.315	2.277	1.6	
2-Chlorophenol		1.659	1.580	4.8	
1,3-Dichlorobenzene		1.596	1.592	0.3	
1,4-Dichlorobenzene	*	1.811	1.770	2.3	*
Benzyl alcohol		1.161	1.069	7.9	
1,2-Dichlorobenzene		1.684	1.676	0.5	
2-Methylphenol		1.618	1.579	2.4	
bis(2-Chloroisopropyl)ether		2.396	2.553	-6.6	
4-Methylphenol		1.749	1.713	2.1	
N-Nitroso-Di-n-propylamine	#	1.316	1.295	1.6	#
Hexachloroethane		0.807	0.844	-4.6	
Nitrobenzene		0.424	0.447	-5.4	
Isophorone		0.897	0.918	-2.3	
2-Nitrophenol	*	0.216	0.209	3.2	*
2,4-Dimethylphenol		0.378	0.352	6.9	
Benzoic acid		0.186	0.159	14.5	
bis(2-Chloroethoxy)methane		0.589	0.609	-3.4	
2,4-Dichlorophenol	*	0.294	0.288	2.0	*
1,2,4-Trichlorobenzene		0.297	0.304	-2.4	
Naphthalene		0.980	1.108	-13.1	
4-Chloroaniline		0.511	0.463	9.4	
Hexachlorobutadiene	*	0.123	0.127	-3.3	*
4-Chloro-3-methylphenol	*	0.329	0.317	3.6	*
2-Methylnaphthalene		0.644	0.682	-5.9	
Hexachlorocyclopentadiene	#	0.214	0.176	17.8	#
2,4,6-Trichlorophenol	*	0.346	0.347	-0.3	*
2,4,5-Trichlorophenol		0.352	0.346	1.7	
2-Chloronaphthalene		1.134	1.171	-3.3	
2-Nitroaniline		0.400	0.370	7.5	
Dimethylphthalate		1.148	1.157	-0.8	
Acenaphthylene		1.658	1.806	-8.9	
2,6-Dinitrotoluene		0.287	0.296	-3.1	
3-Nitroaniline		0.371	0.285	23.2	
Acenaphthene	*	1.044	1.054	-1.0	*
2,4-Dinitrophenol	#	0.123	0.081	34.1	#
4-Nitrophenol	#	0.083	0.052	37.3	#

FORM VII SV-1 5/88 Rev.

7/21/92

9213523.1053 0000130

Calibration Summary

pg 6 of 6

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9203L780

Instrument ID: 5100M Calibration Date: 04/08/92 Time: 1035

Lab File ID: M040802 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ BOIS F5 only

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.380	1.354	1.9
2,4-Dinitrotoluene	0.361	0.308	14.7
Diethylphthalate	1.118	1.058	5.4
4-Chlorophenyl-phenylether	0.546	0.532	2.6
Fluorene	1.127	1.103	2.1
4-Nitroaniline	0.312	0.185	40.7
4,6-Dinitro-2-methylphenol	0.137	0.115	16.1
N-Nitrosodiphenylamine (1) *	0.633	0.591	6.6 *
4-Bromophenyl-phenylether	0.206	0.207	-0.5
Hexachlorobenzene	0.236	0.250	-5.9
Pentachlorophenol *	0.135	0.105	22.2 *
Phenanthrene	1.053	1.081	-2.7
Anthracene	1.033	1.047	-1.4
Di-n-Butylphthalate	1.325	1.478	-11.5
Fluoranthene *	0.886	0.851	4.0 *
Pyrene	2.306	2.888	-25.2
Butylbenzylphthalate	1.508	1.609	-6.7
3,3'-Dichlorobenzidine	0.390	0.274	29.7
Benzo(a)anthracene	1.500	1.385	7.7
Chrysene	1.356	1.284	5.3
bis(2-Ethylhexyl)phthalate	1.838	1.873	-1.9
Di-n-Octyl phthalate *	3.781	4.527	-19.7 *
Benzo(b)fluoranthene	1.705	1.687	1.1
Benzo(k)fluoranthene	1.376	1.681	-22.2
Benzo(a)pyrene *	1.205	1.101	8.6 *
Indeno(1,2,3-cd)pyrene	1.050	0.944	10.1
Dibenzo(a,h)anthracene	0.718	0.616	14.2
Benzo(g,h,i)perylene	1.017	0.959	5.7
Nitrobenzene-d5	0.438	0.441	-0.7
2-Fluorobiphenyl	1.110	1.207	-8.7
p-Terphenyl-d14	1.512	1.658	-9.7
Phenol-d5	2.074	1.926	7.1
2-Fluorophenol	1.587	1.407	11.3
2,4,6-Tribromophenol	0.105	0.098	6.7

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

Blank Summary 0000166 Pg 1 of 3

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 92LE0454-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: M040706

Level: (low/med) LOW Date Received: 03/25/92

% Moisture: not dec. 0 dec. Date Extracted: 03/25/92

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/07/92

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1700	U	
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1700	U	
100-02-7	4-Nitrophenol	1700	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	1700	U	
534-52-1	4,6-Dinitro-2-methylphenol	1700	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	U	
101-55-3	4-Bromophenyl-phenylether	330	U	48x5=240
118-74-1	Hexachlorobenzene	~~330~~	U	
87-86-5	Pentachlorophenol	48 ~~1700~~	~~U~~ J	7/21/92
85-01-8	Phenanthrene	330	U	16x10=160
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	16 ~~330~~	~~U~~ J	7/21/92
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	
85-68-7	Butylbenzylphthalate	330	U	
91-94-1	3,3'-Dichlorobenzidine	670	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	Dibenzo(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 12/88 Rev.

7/21/92

Quantitation Report File: M040706 0000172

Method Blank Blank Summary

Pg 2 of 3

Data: M040706.TI
04/07/92 13:52:00
Sample: 92LE0454-MB1
Conds.: 5100M 2ULINJ RTX5
Formula: M040701 Instrument: 5100M Weight: 0.017
Submitted by: 040792 Analyst: MWM Acct. No.: 5100M

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
51	C560	4-NITROPHENOL	
52	C565	DIBENZOFURAN	
53	C570	2,4-DINITROTOLUENE	
54	C580	DIETHYLPHTHALATE	
55	C585	4-CHLOROPHENYL-PHENYLETHER	
56	C590	FLUORENE	
57	C595	4-NITROANILINE	
58	C610	4,6-DINITRO-2-METHYLPHENOL	
59	C615	N-NITROSODIPHENYLAMINE	
60		1,2-DIPHENYLHYDRAZINE	(AZOBENZENE)
61	C625	4-BROMOPHENYL-PHENYLETHER	
62	C630	HEXACHLOROBENZENE	
63		PENTACHLOROPHENOL	
64	C640	PHENANTHRENE	
65	C645	ANTHRACENE	
66	C650	DI-N-BUTYLPHTHALATE	
67	C655	FLUORANTHENE	
68		BENZIDINE	
69	C715	PYRENE	
70	C720	BUTYLBENZYLPHTHALATE	
71	C725	3,3'-DICHLOROBENZIDINE	
72	C730	BENZO(A)ANTHRACENE	
73	C745	BIS(2-ETHYLHEXYL)PHTHALATE	
74	C740	CHRYSENE	
75	C760	DI-N-OCTYLPHTHALATE	
76	C765	BENZO(B)FLUORANTHENE	
77	C770	BENZO(K)FLUORANTHENE	
78	C775	BENZO(A)PYRENE	
79	C780	INDENO(1,2,3-CD)PYRENE	
80	C785	DIBENZ(A,H)ANTHRACENE	
81	C790	BENZO(G,H,I)PERYLENE	
82		2-METHYL-1,3-DIOXOLANE	
83		1,4-DIOXANE	
84		TRIPHENYLPHOSPHATE	
85		ANILINE	

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
51	NOT FOUND								
52	NOT FOUND								
53	NOT FOUND								
54	NOT FOUND								
55	NOT FOUND								
56	NOT FOUND								
57	NOT FOUND								
58	NOT FOUND								

7/21/92

Blank S9213523.1056 0000173 Pg 3 of 3

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	NOT FOUND								
63	266	1054	17:34	4	0.983	A BB	211.	1.443 NG X	0.21
64	NOT FOUND								
65	NOT FOUND								
66	149	1144	19:04	4	1.067	A BB	924.	0.493 NG <	0.07
67	NOT FOUND								
68	NOT FOUND								
69	NOT FOUND								
70	NOT FOUND								
71	NOT FOUND								
72	NOT FOUND								
73	NOT FOUND								
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	NOT FOUND								
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								
81	NOT FOUND								
82	NOT FOUND								
83	NOT FOUND								
84	NOT FOUND								
85	NOT FOUND								

MB 4/8/92

7/21/92

9203L780 **CALCULATION SUMMARY - FORM B-6**

SDG: ~~9126~~ 7360	REVIEWER: [illegible]	DATE: 7/21/92	PAGE 1 OF 1

COMMENTS:

$$ug/kg = \frac{(A_x)(I_s)(V_t)(D_f)}{(A_{is})(RRF)(V_i)(W_s)(D)}$$

Di-n-butylphthalate in blank

GPC = 16.4 ug/kg

$$ug/kg = \frac{(924)(40)(1000)(1)(2.5)}{(50620)(1.481)(2)(30)(1)} = 8.22 \text{ ug/kg}$$

7/21/92

Dichlorobenzene in blank

GPC

$$ug/kg = \frac{(211)(40)(1000)(1)(2)}{(50620)(0.11)(2)(30)(1)} = 48 \text{ ug/kg}$$

PRECISION DATA SUMMARY - FORM B-5

9203L780

SDG: 780	REVIEWER [illegible]	DATE: 7/[illegible]	PAGE 1 OF 1
COMMENTS: Field Duplicate RPDs.			

COMPOUND	SAMPLE ID: B0F5F1	SAMPLE ID: B0F5F3	RPD	SAMPLES AFFECTED	QUALIFIER
bis(2-ethylhexyl)phthalate	100 J	340 u (4)	200		

9713523.1058

9713523.1059

WHC-SD-EN-SPP-002, Rev. 1

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/23/97
LABORATORY: Weston	CASE: 9203L780	SDG: 780
SAMPLES/MATRIX: B01SF1, B01SF3, B01SF5/Soils.		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
Sample Data			
Sample reports	X		
Chromatograms	X		
GC integration reports	X		
Worksheets		X	
UV traces from GPC		X	
GC/MS confirmation spectra			X
Standards Data			
Pesticides Evaluation Standards Summary	X		
Pesticides/PCB Standards Summary	X		
Pesticides/PCB identification	X		
Pesticides standard chromatograms	X		
Raw QC Data			
Blank analysis report forms and chromatograms	X		
MS/MSD report forms and chromatograms	X		

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets	—	X	—
Reduction formulae	—	X	—
Instrument time logs	X	—	—
Chemist notebook pages	—	X	—
Sample preparation sheets	X	—	—

2. HOLDING TIMES

Were all samples extracted within holding time? (Yes) No N/A

Were all samples analyzed within holding time? (Yes) No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? (Yes) No N/A

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? (Yes) No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes (No) N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? (Yes) No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification? Yes No N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%? Yes No N/A

Have all standards been analyzed within 72 h of any sample? Yes No N/A

Has a 3-point calibration been conducted for DDT or toxaphene? ↓ EVAL A, B, & C 7/23/91 ~~Yes~~ No N/A

Have all standards been analyzed at the start of each 72-h sequence? Yes No N/A

Have evaluation standards A, B, and C been analyzed within 72 h of any sample? Yes No N/A

Has the confirmation standard mix been analyzed after every five samples? Yes No N/A

Has evaluation standard B analyzed every 10 samples? Yes No N/A

Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards? Yes No N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

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

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors <10.0% (<15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	(No)	N/A
Do any samples show nondetects for surrogates?	Yes	(No)	N/A
Are any method blank surrogates out of specification?	Yes	(No)	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	(Yes)	No	N/A
Are MS/MSD recoveries within specification?	(Yes)	No	N/A
Are there any calculation or transcription errors?	Yes	(No)	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	(N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations >10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly? GRC — Yes **(No)** N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? **(Yes)** No N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? **(Yes)** No N/A

Were project specific data quality objectives met for this analysis? **(Yes)** No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

These samples were prepared by GPC, therefore the CRQL has been multiplied by a factor of 2.

Samples B0ISF1 and B0ISF3 were identified as field duplicates. All results are non-detect. Therefore, the RPD have not been calculated.

7/23/98

Holding Time Summary Pg 1 of 1

MAY 1992
RECEIVED
OSM DMO

Roy F. Weston, Inc. - Lionville Laboratory
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SF1	001	S	92LE0453	03/20/92	03/25/92 5	04/15/92 21
B01SF1	001 MS	S	92LE0453	03/20/92	03/25/92	04/15/92
B01SF1	001 MSD	S	92LE0453	03/20/92	03/25/92	04/15/92
B01SF3	002	S	92LE0453	03/20/92	03/25/92	04/15/92
B01SF5	003	S	92LE0453	03/20/92	03/25/92	04/15/92
LAB QC:						
PBLK	MB1	S	92LE0453	N/A	03/25/92	04/15/92
PBLK	MB1 BS	S	92LE0453	N/A	03/25/92	04/15/92

Holding Times were met.

[illegible] 5/23/92

9713523.1069 0000044

Calibration Summary

pg 1 of 1

9

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 04149210.26

RFW Lot No.: 9203L780

Instrument ID: 10 GC Column ID: SP2100

DATE(S) OF ANALYSIS	FROM: 04/14/92 TO: 04/15/92	TIME(S) OF ANALYSIS	FROM: 2224 TO: 0249	DATE OF ANALYSIS	04/15/92	TIME OF ANALYSIS	1026	EPA SAMPLE NO. (STANDARD)	INDA 23-67

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.06	2.04	2.08	7641299	2.07	6766551	Y	11.4
Beta-BHC	2.19	2.17	2.21	2945109				
Delta-BHC	2.45	2.42	2.48	5696215				
gamma-BHC (Lindane)	2.39	2.36	2.42	6872979	2.40	6337533	Y	7.8
Heptachlor	3.72	3.69	3.75	5756733	3.75	5550251	Y	3.6
Aldrin	4.56	4.50	4.60	4217813				
Heptachlor epoxide	5.48	5.42	5.54	3883571				
Endosulfan I	6.75	6.67	6.83	3145753	6.80	2913417	Y	7.4
Dieldrin	7.82	7.74	7.90	2886729	7.88	2716959	Y	5.9
4,4'-DDE	7.68	7.62	7.74	3194593				
Endrin	8.70	8.62	8.78	1990003	8.77	1920783	Y	3.5
Endosulfan II	8.86	8.77	8.95	2299485				
4,4'-DDD	9.58	9.46	9.70	1718249	9.66	1560833	Y	9.2
Endosulfan sulfate	11.24	11.12	11.36	1418489				
4,4'-DDT	12.38	12.27	12.49	1295843	12.49	1113993	Y	14.0
Methoxychlor	17.89	17.75	18.03	705981	18.06	659957	Y	6.5
Endrin ketone	14.33	14.19	14.47	1600703				
alpha-Chlordane	6.86	6.80	6.92	3204327	No qual switch req'd.			
gamma-Chlordane	6.23	6.17	6.29	3274137				
Toxaphene	8.10	8.03	8.17	162264				
Aroclor-1016	3.27	3.24	3.30	1265833				
Aroclor-1221	2.08	2.03	2.13	381762				
Aroclor-1232	2.08	2.05	2.11	668609				
Aroclor-1242	3.28	3.25	3.31	1082847				
Aroclor-1248	5.59	5.56	5.62	1522341				
Aroclor-1254	9.49	9.42	9.56	1782787				
Aroclor-1260	11.04	10.92	11.16	1342025				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

9713523.1070

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/16/92
LABORATORY: Weston	CASE: 9203L780	SDG: 780
SAMPLES/MATRIX: B01SF1, B01SF3, B01SF5 / soils		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports	X		
Sample Data			
Inorganic Analysis Data Sheets	X		
Standards Data			
Initial and Continuing Calibration Verification	X		
CRDL Standard for AA and ICP	X		
QC Summary			
Blanks	X		
ICP Interference Check Summary	X		
Spike Sample Recovery	X		
Post-Digestion Spike Sample Recovery	X		
Duplicate	X		
Laboratory Control Sample	X		
Standard Addition Results	X		
ICP Serial Dilutions	X		
Instrument Detection Limits	X		
ICP Interelement Correction Factors	X		
ICP Linear Ranges	X		
Preparation Log	X		
Analysis Run Log	X		
Raw Data			
ICP Raw Data	X		
Furnace AA Raw Data	X		
Mercury Raw Data	X		
Cyanide Raw Data	X		
Additional Data			
Internal laboratory chain-of-custody	X		
Laboratory Sample Preparation Records	X		

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records	X		
Reduction Formulae		X	
Instrument Run Logs	X		
Chemist Notebook Pages		X	

2. HOLDING TIMES

Have all samples been analyzed within holding times? **Yes** No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? **Yes** No N/A

Are the correlation coefficients ≥0.995? **Yes** No N/A

Was a midrange cyanide standard distilled? **Yes** No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results >IDL as estimated (J) and results <IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? **Yes** No N/A

Are the AB solution %R values within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.1075

COMMENTS (attach additional sheets as necessary):

Samples B01SF1 and B01SF3 were identified as field duplicates. The RPDs range from 42 to 246%.

Holding 9213523.1876 Summary

Pg 1 of 4

MAY 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01SF1						
SILVER, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92 33
SILVER, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
SILVER, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
ALUMINUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
ALUMINUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
ALUMINUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
ARSENIC, TOTAL	001	S	92L0917	03/20/92	04/04/92	04/08/92 19
ARSENIC, TOTAL	001 REP	S	92L0917	03/20/92	04/04/92	04/08/92
ARSENIC, TOTAL	001 MS	S	92L0917	03/20/92	04/04/92	04/08/92
BARIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92 33
BARIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
BARIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
BERYLLIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
BERYLLIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
BERYLLIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
BISMUTH, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/24/92 35
BISMUTH, TOTAL REP	001 REP	S	92L0918	03/20/92	04/04/92	04/24/92
BISMUTH, TOTAL SPIKE	001 MS	S	92L0918	03/20/92	04/04/92	04/24/92
CALCIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92 33
CALCIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
CALCIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
CADMIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
CADMIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
CADMIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
COBALT, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
COBALT, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
COBALT, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
CHROMIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
CHROMIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
CHROMIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
COPPER, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
COPPER, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
COPPER, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
IRON, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92
IRON, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92
IRON, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92
MERCURY, TOTAL	001	S	92C0092	03/20/92	04/06/92	04/07/92 18

7/16/92

Holding Time - Summary 9213523.1077 Pg 2 of 4

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
MERCURY, TOTAL	001 REP	S	92C0092	03/20/92	04/06/92	04/07/92	18
MERCURY, TOTAL	001 MS	S	92C0092	03/20/92	04/06/92	04/07/92	
POTASSIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	33
POTASSIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
POTASSIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
MAGNESIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	
MAGNESIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
MAGNESIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
MANGANESE, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	
MANGANESE, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
MANGANESE, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
SODIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	
SODIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
SODIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
NICKEL, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	
NICKEL, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
NICKEL, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
LEAD, TOTAL	001	S	92L0917	03/20/92	04/04/92	04/07/92	18
LEAD, TOTAL	001 REP	S	92L0917	03/20/92	04/04/92	04/07/92	
LEAD, TOTAL	001 MS	S	92L0917	03/20/92	04/04/92	04/07/92	
ANTIMONY, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	33
ANTIMONY, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
ANTIMONY, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
SELENIUM, TOTAL	001	S	92L0917	03/20/92	04/04/92	04/07/92	18
SELENIUM, TOTAL	001 REP	S	92L0917	03/20/92	04/04/92	04/07/92	
SELENIUM, TOTAL	001 MS	S	92L0917	03/20/92	04/04/92	04/07/92	
THALLIUM, TOTAL	001	S	92L0917	03/20/92	04/04/92	04/06/92	17
THALLIUM, TOTAL	001 REP	S	92L0917	03/20/92	04/04/92	04/06/92	
THALLIUM, TOTAL	001 MS	S	92L0917	03/20/92	04/04/92	04/06/92	
VANADIUM, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/27/92	38
VANADIUM, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/27/92	
VANADIUM, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/27/92	
ZINC, TOTAL	001	S	92L0918	03/20/92	04/04/92	04/22/92	33
ZINC, TOTAL	001 REP	S	92L0918	03/20/92	04/04/92	04/22/92	
ZINC, TOTAL	001 MS	S	92L0918	03/20/92	04/04/92	04/22/92	
B01SF3							
SILVER, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92	33
ALUMINUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92	

7/16/92

Hold: 9215527.1078 Summary Pg 3 of 4

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	002	S	92L0917	03/20/92	04/04/92	04/08/92 19
BARIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92 33
BERYLLIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
BISMUTH, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/24/92 35
CALCIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92 33
CADMIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
COBALT, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
CHROMIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
COPPER, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
IRON, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
MERCURY, TOTAL	002	S	92C0092	03/20/92	04/06/92	04/07/92 18
POTASSIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92 33
MAGNESIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
MANGANESE, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
SODIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
NICKEL, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92
LEAD, TOTAL	002	S	92L0917	03/20/92	04/04/92	04/07/92 18
ANTIMONY, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92 33 7/16
SELENIUM, TOTAL	002	S	92L0917	03/20/92	04/04/92	04/07/92 18
THALLIUM, TOTAL	002	S	92L0917	03/20/92	04/04/92	04/06/92 ~~33~~ 17
VANADIUM, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/28/92 39
ZINC, TOTAL	002	S	92L0918	03/20/92	04/04/92	04/22/92 33
B01SF5						
SILVER, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33
ALUMINUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
ARSENIC, TOTAL	003	S	92L0917	03/20/92	04/04/92	04/08/92 19
BARIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33
BERYLLIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
BISMUTH, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/24/92 35
CALCIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33
CADMIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
COBALT, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
CHROMIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
COPPER, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
IRON, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
MERCURY, TOTAL	003	S	92C0092	03/20/92	04/06/92	04/07/92 18
POTASSIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33
MAGNESIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92

7/16/9

Hdl: 9213523-1079 Summary

Pg. 4 of 4

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33
SODIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
NICKEL, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92
LEAD, TOTAL	003	S	92L0917	03/20/92	04/04/92	04/07/92 18
ANTIMONY, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33
SELENIUM, TOTAL	003	S	92L0917	03/20/92	04/04/92	04/07/92 18
THALLIUM, TOTAL	003	S	92L0917	03/20/92	04/04/92	04/06/92 17
VANADIUM, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/28/92 39
ZINC, TOTAL	003	S	92L0918	03/20/92	04/04/92	04/22/92 33

LAB QC:

SILVER LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
ALUMINUM LABORTORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
BARIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
BERYLLIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
CALCIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
CADMIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
COBALT LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
CHROMIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
COPPER LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
IRON LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
POTASSIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
MAGNESIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
MANGANESE LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
SODIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
NICKEL LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
ANTIMONY LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
VANADIUM LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/27/92
ZINC LABORATORY	LC1 BS	S	92L0918	N/A	04/04/92	04/22/92
SILVER LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
ALUMINUM LABORTORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
BARIUM LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
BERYLLIUM LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
BISMUTH, LCS	LC2 BS	S	92L0918	N/A	04/04/92	04/24/92
CALCIUM LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
CADMIUM LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
COBALT LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
CHROMIUM LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92
COPPER LABORATORY	LC2 BS	S	92L0918	N/A	04/04/92	04/22/92

7/14/92

9713523.1080 0000034

Blank Summary

Pg 1 of 1

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.: CLP780

Preparation Blank Matrix (soil/water): SOIL

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
	5x		5x		5x		5x				
Aluminum	46.0	U	46.0	U	46.0	U	46.0	U	9.200	U	P
Antimony	36.0	U	36.0	U	36.0	U	36.0	U	7.200	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Barium	7.0	U	7.0	U	7.0	U	7.0	U	1.400	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	62.0	U	62.0	U	62.0	U	62.0	U	12.400	U	P
Chromium	7.0	U	7.0	U	7.0	U	7.0	U	1.400	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	30.0	U	30.0	U	30.0	U	30.0	U	6.000	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Magnesium	69.0	U	69.0	U	69.4	B	411.6	B	13.800	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.050	U	CV
Nickel	18.0	U	18.0	U	18.0	U	18.0	U	3.600	U	P
Potassium	896.0	U	896.0	U	896.0	U	896.0	U	179.200	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	8.0	U	8.0	U	8.0	U	8.0	U	1.600	U	P
Sodium	117.0	U	117.0	U	117.0	U	685.9	B	23.400	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Vanadium	5.0		6.0	B	9.4	B	62.2		1.000	U	P
Zinc	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Cyanide	20.0	U	20.0	U	20.0	U			1.000	U	C

FORM III - IN 03/90

CCB1 Assoc w / B01SF1

CCB2 Assoc w / B01SF3 B01SF5

All sample concentrations are greater than 5x the respective blank conc. Therefore, no qualification was required

7/16/92

Accuracy Summary 9713523.1081 0000040 Pg 1 of 1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B01SF1S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP780

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 96.4

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	64.6000		7.4736	U	103.80	62.3	N	P
Arsenic	75-125	8.2200		1.0100	B	8.30	86.9		F
Barium	75-125	390.5000		63.0000		415.20	78.9		P
Beryllium	75-125	8.3000		.2300	B	10.40	77.6		P
Cadmium	75-125	8.7000		.8304	U	10.40	83.8		P
Calcium									NR
Chromium	75-125	38.3000		5.1000		41.50	80.0		P
Cobalt	75-125	89.4000		6.6000	B	103.80	79.8		P
Copper	75-125	49.7000		8.9000		51.90	78.6		P
Iron									NR
Lead	75-125	6.9000		2.9000		4.20	95.5		F
Magnesium									NR
Manganese	75-125	313.3999		229.3000		103.80	81.0		P
Mercury	75-125	.5290		.0519	U	.52	101.7		CV
Nickel	75-125	87.1000		6.2000	B	103.80	77.2		P
Potassium									NR
Selenium	75-125	1.1000		.4152	U	2.10	53.0	N	F
Silver	75-125	8.6000		1.6600	U	10.40	83.0		P
Sodium									NR
Thallium	75-125	7.1000		.4152	U	10.40	68.4	N	F
Vanadium	75-125	102.3000		19.5000		103.80	79.8		P
Zinc	75-125	107.2000		26.3000		103.80	77.9		P
Cyanide									NR

Comments:

FORM V (Part 1) - IN 03/90

7/16/92

ACCURACY DATA SUMMARY - FORM B-4

SDG: [illegible]	REVIEWER: [illegible]	DATE: 2/16/92	PAGE 1 OF 1
COMMENTS: CLP [illegible]			

SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B015F1	Selenium	79.5	B015F1	UJ
B015F3	↓	80.9	B015F3	UJ

9713523.1082

PRECISION DATA SUMMARY - FORM B-5

SDG: [illegible]	REVIEWER [illegible]	DATE: 1/16/92	PAGE 1 OF 2
COMMENTS: Field Duplicate RPDs			

COMPOUND	SAMPLE ID: [illegible]	SAMPLE ID: [illegible]	RPD	SAMPLES AFFECTED	QUALIFIER
Aluminum	3990	4170	4		
Antimony	7.41 UJ	7.42 UJ	1		
Arsenic	1.18	1.10 B	8		
Barium	63	65.8	4		
Beryllium	0.23 B	0.23 B	0		
Cadmium	0.83 U	0.83 U	NC		
Calcium	4730	6130	26		
Chromium	5.1	5.70	11		
Cobalt	6.6 B	7.50 B	13		
Copper	8.9	9.50	6		
Iron	11600	12300	6		
Lead	2.9	3.0	3		
Magnesium	2850	2940	3		
Manganese	229	245	7		
Mercury	0.05 UJ	0.05 UJ	NC		
Nickel	6.2 B	6.9 B	11		
Potassium	1010 B	1080	7		

NC = Not Calculated

PRECISION DATA SUMMARY - FORM B-5

SDG: [illegible]	REVIEWER [illegible]	DATE: 7/16/97	PAGE 2 OF 2

COMMENTS: Field Duplicate RPDs

COMPOUND	SAMPLE ID: B0K5F1	SAMPLE ID: B0K5F3	RPD	SAMPLES AFFECTED	QUALIFIER
Selenium	0.42 UJ	0.41 UJ	NC		
Silver	1.66 U	1.65 U	NC		
Sodium	99.6 B	106 B	6		
Thallium	0.42 UJ	0.41 UJ	NC		
Vanadium	19.5	21.5	10		
Zinc	26.3	27.2	3		
Cyanide	1.04 U	1.01 ~~5.4 U~~	NC		
Fluoride	31.1 U	30.9 U	NC		

NC = Not Calculated

9713523.1084
WHC-SD-EN-SPP-002, Rev. 1

9713523.1085

WHC-SD-EN-SPP-002, Rev. 1

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/20/92
LABORATORY: Hanford	CASE: 9203L780	SDG: 780
SAMPLES/MATRIX: B01SF1, B01SF3, B01SF5 / Soils		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports/Chain-of-Custody	X		
Sample Analysis Data Report Forms	X		
Standards Data	X		
QC Summary			
Blanks Summary Report Forms	X		
Spike Sample Recovery Report Forms	X		
Duplicate Sample Analysis Report Forms	X		
Laboratory Control Sample Report Forms	X		
Raw Data			
Ion Chromatograph Chromatograms	X		
TOC and TOX Instrument Printouts		TOX	TOX
Laboratory Bench Sheets	X		
Additional Data			
Laboratory Sample Preparation Logs	X		
Instrument Run Logs	X		
Internal Laboratory Chain-of-Custory		X	
Percent Solids Analysis Records	X		
Reduction Formulae		X	
Chemist Notebook Pages		X	

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes (No) N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥0.995?	Yes	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks?	Yes	No	N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?	Yes	No	N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? see comments. Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are instrument detection limits below the CRDL? Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.1089

COMMENTS (attach additional sheets as necessary):

Sample B0L5F1 & B0L5F3 were identified as field duplicates, the RPD's range from 0 to 38%.

9213523.1020

Holding time summary

Pg 1 of 2

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BO1SF1						
% SOLIDS	001	S	92L%S074	03/20/92	03/25/92	03/26/92 6
% SOLIDS	001 REP	S	92L%S074	03/20/92	03/25/92	03/26/92 ↓
NITRATE BY IC	001	S	92LICA54	03/20/92	03/30/92	03/30/92 10
NITRATE BY IC	001 REP	S	92LICA54	03/20/92	03/30/92	03/30/92
NITRATE BY IC	001 MS	S	92LICA54	03/20/92	03/30/92	03/30/92
NITRATE BY IC	001 MSD	S	92LICA54	03/20/92	03/30/92	03/30/92 ↓
TOTAL CYANIDE	001	S	92LC086	03/20/92	03/26/92	03/26/92 6
PHOSPHATE BY IC	001	S	92LICA54	03/20/92	03/30/92	03/30/92 10
PHOSPHATE BY IC	001 REP	S	92LICA54	03/20/92	03/30/92	03/30/92
PHOSPHATE BY IC	001 MS	S	92LICA54	03/20/92	03/30/92	03/30/92
PHOSPHATE BY IC	001 MSD	S	92LICA54	03/20/92	03/30/92	03/30/92
SULFATE BY IC	001	S	92LICA54	03/20/92	03/30/92	03/30/92
SULFATE BY IC	001 REP	S	92LICA54	03/20/92	03/30/92	03/30/92
SULFATE BY IC	001 MS	S	92LICA54	03/20/92	03/30/92	03/30/92
SULFATE BY IC	001 MSD	S	92LICA54	03/20/92	03/30/92	03/30/92 ↓
NITRATE NITRITE	001	S	92LN3049	03/20/92	04/10/92	04/10/92 ~~12~~ 21
TOTAL ORGANIC CARBON	001	S	92LOM015	03/20/92	03/30/92	04/01/92 12 7/20/92
SUB-OUT TEST FOR SUB	001	S		03/20/92		
BO1SF3						
% SOLIDS	002	S	92L%S074	03/20/92	03/25/92	03/26/92 6
NITRATE BY IC	002	S	92LICA54	03/20/92	03/30/92	03/30/92 10
TOTAL CYANIDE	002	S	92LC086	03/20/92	03/26/92	03/26/92 ~~16~~ 6 @ 7/30/92
TOTAL CYANIDE	002 REP	S	92LC086	03/20/92	03/26/92	03/26/92
TOTAL CYANIDE	002 MS	S	92LC086	03/20/92	03/26/92	03/26/92
TOTAL CYANIDE	002 MSD	S	92LC086	03/20/92	03/26/92	03/26/92 ↓
PHOSPHATE BY IC	002	S	92LICA54	03/20/92	03/30/92	03/30/92 10
SULFATE BY IC	002	S	92LICA54	03/20/92	03/30/92	03/30/92 ↓
NITRATE NITRITE	002	S	92LN3049	03/20/92	04/10/92	04/10/92 21
TOTAL ORGANIC CARBON	002	S	92LOM015	03/20/92	03/30/92	04/01/92 12
SUB-OUT TEST FOR SUB	002	S		03/20/92		
BO1SF5						
% SOLIDS	003	S	92L%S074	03/20/92	03/25/92	03/26/92 6
NITRATE BY IC	003	S	92LICA54	03/20/92	03/30/92	03/30/92 10

9713523.1091 Holding Time Summary pg 2 of 2

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

DATE RECEIVED: 03/24/92 RFW LOT # :9203L780

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
TOTAL CYANIDE	003	S	92LC086	03/20/92	03/26/92	03/26/92	6
PHOSPHATE BY IC	003	S	92LICA54	03/20/92	03/30/92	03/30/92	10
SULFATE BY IC	003	S	92LICA54	03/20/92	03/30/92	03/30/92	
NITRATE NITRITE	003	S	92LN3049	03/20/92	04/10/92	04/10/92	21
NITRATE NITRITE	003 REP	S	92LN3049	03/20/92	04/10/92	04/10/92	
NITRATE NITRITE	003 MS	S	92LN3049	03/20/92	04/10/92	04/10/92	
NITRATE NITRITE	003 MSD	S	92LN3049	03/20/92	04/10/92	04/10/92	
TOTAL ORGANIC CARBON	003	S	92LOM015	03/20/92	03/30/92	04/01/92	12
TOTAL ORGANIC CARBON	003 REP	S	92LOM015	03/20/92	03/30/92	04/01/92	
SUB-OUT TEST FOR SUB	003	S		03/20/92			

AB QC:

FLUORIDE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
FLUORIDE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
FLUORIDE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
NITRATE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
NITRATE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
NITRATE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
PHOSPHATE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
PHOSPHATE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
PHOSPHATE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
SULFATE BY IC	MB1	S	92LICA54	N/A	03/30/92	03/30/92
SULFATE BY IC	MB1 BS	S	92LICA54	N/A	03/30/92	03/30/92
SULFATE BY IC	MB1 BSD	S	92LICA54	N/A	03/30/92	03/30/92
TOTAL CYANIDE	LC1 L	S	92LC086	N/A	03/26/92	03/26/92
TOTAL CYANIDE	LC2 L	S	92LC086	N/A	03/26/92	03/26/92
TOTAL CYANIDE	MB1	S	92LC086	N/A	03/26/92	03/26/92
NITRATE NITRITE	MB1	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB1 BS	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB1 BSD	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB2	S	92LN3049	N/A	04/10/92	04/10/92
NITRATE NITRITE	MB2 BS	S	92LN3049	N/A	04/10/92	04/10/92

[signature] 7/20/92

PRECISION DATA SUMMARY - FORM B-5

9[illegible]78C

SDG: [illegible]	REVIEWER [illegible]	DATE: [illegible]	PAGE 1 OF 1

COMMENTS: Field Duplicate [illegible]

COMPOUND	SAMPLE ID: [illegible]	SAMPLE ID: [illegible]	RPD	SAMPLES AFFECTED	QUALIFIER
Percent Solids	96.4	96.4	Ø		
Nitrate	5[illegible]	53.0	4		
Cyanide	1.0 U	1.0 U	NC		
Phosphate	1.5	2.2	38		
Sulfate	11.0	11.0	2		
Nitrate + Nitrite	12.3	13.2	7		
TOC	0.68	0.68	Ø		

9713523.1093

APPENDIX F

DATA REVIEW SUPPORTING DOCUMENTATION

SDG: 9204L871

Samples: B01S73, B01S78

CONTAINS:

ATTACHMENT 1 - GLOSSARY OF DATA REPORTING QUALIFIERS
ATTACHMENT 2 - SUMMARY OF DATA QUALIFICATIONS
ATTACHMENT 3 - AS QUALIFIED LABORATORY DATA
ATTACHMENT 4 - DATA VALIDATION SUPPORTING DOCUMENTATION

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

B - Indicates the compound or analyte was analyzed for and detected. The value reported is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL).

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to identified quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are usable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9713523.1095

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9713523.1096

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9304L871	REVIEWER: [illegible]	DATE: 7/20/92	PAGE 1 OF 3
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
2-Butanone	R	B01S73/B01S78	ICV RRF <0.05
Methylene Chloride	U	B01S73/B01S78	Present in blank

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 92041871	REVIEWER: [illegible]	DATE: 7/21/92	PAGE 2 OF 3
COMMENTS: Semi-VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Di-n-butyl phthalate	u	B01573, B01578	present in blank
bis(2-ethylhexyl) phthalate	u	↓ ↓	↓
Di-n-butyl phthalate	u (ut)	B01573RE / B01578RE	present in blank
bis(2-ethylhexyl) phthalate	u (ut)	↓	↓
All TCL Semi-VOA compounds	UJ	B01573RE/B01578RE	Extracted out of holding time
Benzoic Acid	UJ	B01573	CCV 80725%
2,4-Dinitrophenol	UJ	|	|
4-Nitrophenol	UJ	|	|
4-Nitroaniline	UJ	|	|
Phenanthrene	UJ	|	|
Anthracene	UJ	|	|
Di-n-butylphthalate	UJ	|	|
Pyrene	UJ	|	|
3,3'-Dichlorobenzidine	UJ	↓	↓
2,4-Dinitrophenol	UJ	B01578	CCV 80725%
4-Nitrophenol	UJ	↓	↓
Benzo(b)fluoranthene	UJ	↓	↓
Benzoic Acid	UJ	B01573RE / B01578RE	CCV 80725%.
2,4-Dinitrophenol	UJ	| ↓	| ↓
4-Nitrophenol	UJ	| ↓	| ↓
4-Nitroaniline	UJ	| ↓	| ↓
4,6-Dinitro-2-methylphenol	UJ	↓ ↓	↓ ↓

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: [illegible]	REVIEWER: [illegible]	DATE: 7/16/97	PAGE 3 OF 3
COMMENTS: Metals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

9713523.1099

ATTACHMENT 3

AS QUALIFIED LABORATORY DATA

9713523.1100 0000025

1A

VOLATILE ORGANICS ANALYSIS SHEET

216-B-48C Field Filter

CLIENT SAMPLE NO.

B01S73

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-001

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

Lab File ID: AX4805

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____

Date Analyzed: 04/08/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	8	~~B~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
~~78-93-3~~	~~2-Butanone~~	~~10~~	U R
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

7/20/92

9213523.1101 0000030

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

216-B-42C

B01S78

Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-002

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

Lab File ID: AX4808

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____

Date Analyzed: 04/08/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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	6	~~B~~ U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
~~78-93-3~~	~~2-Butanone~~	10	U R
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1

12/88 Rev.

9/30/92

9213523.1102 0000044

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

BO1S73
Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-001

Sample wt/vol: 930 (g/mL) ML

Lab File ID: M041706

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 04/17/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
100-51-6	Benzyl alcohol	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	bis(2-Chloroisopropyl)ether	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
65-85-0	Benzoic acid	55	~~U~~ UJ
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	55	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	55	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U

9713523.1103 0000045

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C
B01S73
Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9204L871-001

Sample wt/vol: 930 (g/mL) ML Lab File ID: M041706

Level: (low/med) LOW Date Received: 04/02/92

% Moisture: not dec. _____ dec. Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 04/17/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	55	U	
83-32-9	Acenaphthene	11	U	
51-28-5	2,4-Dinitrophenol	55	~~U~~	UJ
100-02-7	4-Nitrophenol	55	~~U~~	UJ
132-64-9	Dibenzofuran	11	U	
121-14-2	2,4-Dinitrotoluene	11	U	
84-66-2	Diethylphthalate	11	U	
7005-72-3	4-Chlorophenyl-phenylether	11	U	
86-73-7	Fluorene	11	U	
100-01-6	4-Nitroaniline	55	~~U~~	UJ
534-52-1	4,6-Dinitro-2-methylphenol	55	U	
86-30-6	N-Nitrosodiphenylamine (1)	11	U	
101-55-3	4-Bromophenyl-phenylether	11	U	
118-74-1	Hexachlorobenzene	11	U	
87-86-5	Pentachlorophenol	55	U	
85-01-8	Phenanthrene	11	~~U~~	UJ
120-12-7	Anthracene	11	~~U~~	UJ
84-74-2	Di-n-Butylphthalate	11 ~~6~~	~~JB~~	UJ 7/22/92
206-44-0	Fluoranthene	11	U	
129-00-0	Pyrene	11	~~U~~	UJ
85-68-7	Butylbenzylphthalate	11	U	
91-94-1	3,3'-Dichlorobenzidine	22	~~U~~	UJ
56-55-3	Benzo(a)anthracene	11	U	
218-01-9	Chrysene	11	U	
117-81-7	bis(2-Ethylhexyl)phthalate	11 ~~6~~	~~JB~~	U
117-84-0	Di-n-Octyl phthalate	11	U	
205-99-2	Benzo(b)fluoranthene	11	U	
207-08-9	Benzo(k)fluoranthene	11	U	
50-32-8	Benzo(a)pyrene	11	U	
193-39-5	Indeno(1,2,3-cd)pyrene	11	U	
53-70-3	Dibenzo(a,h)anthracene	11	U	
191-24-2	Benzo(g,h,i)perylene	11	U	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/22/92

9213523.1104 0000046

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
210-R-48C

B01S73 Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9204L871-001

Sample wt/vol: 930 (g/mL) ML Lab File ID: M041706

Level: (low/med) LOW Date Received: 04/02/92

% Moisture: not dec. _____ dec. Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 04/17/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT REPORTED SEE RE-EXTRACT			

FORM 1 SV-TIC 12/88 Rev.

7/22/92

9713523.1105 0000057

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

B01S73RE
Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-001

Sample wt/vol: 470 (g/mL) ML

Lab File ID: A043010

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/30/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
108-95-2	Phenol	21	U
111-44-4	bis(2-Chloroethyl)ether	21	U
95-57-8	2-Chlorophenol	21	U
541-73-1	1,3-Dichlorobenzene	21	U
106-46-7	1,4-Dichlorobenzene	21	U
100-51-6	Benzyl alcohol	21	U
95-50-1	1,2-Dichlorobenzene	21	U
95-48-7	2-Methylphenol	21	U
108-60-1	bis(2-Chloroisopropyl)ether	21	U
106-44-5	4-Methylphenol	21	U
621-64-7	N-Nitroso-Di-n-propylamine	21	U
67-72-1	Hexachloroethane	21	U
98-95-3	Nitrobenzene	21	U
78-59-1	Isophorone	21	U
88-75-5	2-Nitrophenol	21	U
105-67-9	2,4-Dimethylphenol	21	U
65-85-0	Benzoic acid	100	U
111-91-1	bis(2-Chloroethoxy)methane	21	U
120-83-2	2,4-Dichlorophenol	21	U
120-82-1	1,2,4-Trichlorobenzene	21	U
91-20-3	Naphthalene	21	U
106-47-8	4-Chloroaniline	21	U
87-68-3	Hexachlorobutadiene	21	U
59-50-7	4-Chloro-3-methylphenol	21	U
91-57-6	2-Methylnaphthalene	21	U
77-47-4	Hexachlorocyclopentadiene	21	U
88-06-2	2,4,6-Trichlorophenol	21	U
95-95-4	2,4,5-Trichlorophenol	100	U
91-58-7	2-Chloronaphthalene	21	U
88-74-4	2-Nitroaniline	100	U
131-11-3	Dimethylphthalate	21	U
208-96-8	Acenaphthylene	21	U
606-20-2	2,6-Dinitrotoluene	21	U

FORM 1 SV-1 12/88 Rev.

9213523.1106 0000058

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

B01S73RE
Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-001

Sample wt/vol: 470 (g/mL) ML

Lab File ID: A043010

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/30/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	100	U	UJ
83-32-9	Acenaphthene	21	U	
51-28-5	2,4-Dinitrophenol	100	U	
100-02-7	4-Nitrophenol	100	U	
132-64-9	Dibenzofuran	21	U	
121-14-2	2,4-Dinitrotoluene	21	U	
84-66-2	Diethylphthalate	21	U	
7005-72-3	4-Chlorophenyl-phenylether	21	U	
86-73-7	Fluorene	21	U	
100-01-6	4-Nitroaniline	100	U	
534-52-1	4,6-Dinitro-2-methylphenol	100	U	
86-30-6	N-Nitrosodiphenylamine (1)	21	U	
101-55-3	4-Bromophenyl-phenylether	21	U	
118-74-1	Hexachlorobenzene	21	U	
87-86-5	Pentachlorophenol	100	U	
85-01-8	Phenanthrene	21	U	
120-12-7	Anthracene	21	U	
84-74-2	Di-n-Butylphthalate	21 ~~U~~	~~U~~ JB	UJ
206-44-0	Fluoranthene	21	U	
129-00-0	Pyrene	21	U	
85-68-7	Butylbenzylphthalate	21	U	
91-94-1	3,3'-Dichlorobenzidine	42	U	
56-55-3	Benzo(a)anthracene	21	U	
218-01-9	Chrysene	21	U	
117-81-7	bis(2-Ethylhexyl)phthalate	21 ~~U~~	~~U~~ JB	UJ
117-84-0	Di-n-Octyl phthalate	21	U	
205-99-2	Benzo(b)fluoranthene	21	U	
207-08-9	Benzo(k)fluoranthene	21	U	
50-32-8	Benzo(a)pyrene	21	U	
193-39-5	Indeno(1,2,3-cd)pyrene	21	U	
53-70-3	Dibenzo(a,h)anthracene	21	U	
191-24-2	Benzo(g,h,i)perylene	21	U	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/21/93

9213523.1107 0000059

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-48C
B01S73RE
Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9204L871-001

Sample wt/vol: 470 (g/mL) ML Lab File ID: A043010

Level: (low/med) LOW Date Received: 04/02/92

% Moisture: not dec. _____ dec. Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/30/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	ALKYL PHENOL	17.28	10	~~J~~	NJ
2.	UNKNOWN	27.68	70	~~BJ~~	NJ

FORM 1 SV-TIC 12/88 Rev.

7/22/92

9713523.1108 0000067

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

B01S78
Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: -- WATER

Lab Sample ID: 9204L871-002

Sample wt/vol: 920 (g/mL) ML

Lab File ID: M042212

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 04/22/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
108-95-2	Phenol	11	U
111-44-4	bis(2-Chloroethyl)ether	11	U
95-57-8	2-Chlorophenol	11	U
541-73-1	1,3-Dichlorobenzene	11	U
106-46-7	1,4-Dichlorobenzene	11	U
100-51-6	Benzyl alcohol	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	bis(2-Chloroisopropyl)ether	11	U
106-44-5	4-Methylphenol	11	U
621-64-7	N-Nitroso-Di-n-propylamine	11	U
67-72-1	Hexachloroethane	11	U
98-95-3	Nitrobenzene	11	U
78-59-1	Isophorone	11	U
88-75-5	2-Nitrophenol	11	U
105-67-9	2,4-Dimethylphenol	11	U
65-85-0	Benzoic acid	55	U
111-91-1	bis(2-Chloroethoxy)methane	11	U
120-83-2	2,4-Dichlorophenol	11	U
120-82-1	1,2,4-Trichlorobenzene	11	U
91-20-3	Naphthalene	11	U
106-47-8	4-Chloroaniline	11	U
87-68-3	Hexachlorobutadiene	11	U
59-50-7	4-Chloro-3-methylphenol	11	U
91-57-6	2-Methylnaphthalene	11	U
77-47-4	Hexachlorocyclopentadiene	11	U
88-06-2	2,4,6-Trichlorophenol	11	U
95-95-4	2,4,5-Trichlorophenol	55	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	55	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U

FORM 1 SV-1 12/88 Rev.

7/22/92

9213523.1109 0000068

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

B01S78
Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-002

Sample wt/vol: 920 (g/mL) ML

Lab File ID: M042212

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 04/22/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	55	U	
83-32-9	Acenaphthene	11	U	
51-28-5	2,4-Dinitrophenol	55	~~U~~	UJ
100-02-7	4-Nitrophenol	55	~~U~~	UJ
132-64-9	Dibenzofuran	11	U	
121-14-2	2,4-Dinitrotoluene	11	U	
84-66-2	Diethylphthalate	11	U	
7005-72-3	4-Chlorophenyl-phenylether	11	U	
86-73-7	Fluorene	11	U	
100-01-6	4-Nitroaniline	55	U	
534-52-1	4,6-Dinitro-2-methylphenol	55	U	
86-30-6	N-Nitrosodiphenylamine (1)	11	U	
101-55-3	4-Bromophenyl-phenylether	11	U	
118-74-1	Hexachlorobenzene	11	U	
87-86-5	Pentachlorophenol	55	U	
85-01-8	Phenanthrene	11	U	
120-12-7	Anthracene	11	U	
84-74-2	Di-n-Butylphthalate	11 ~~7~~	~~JB~~	u
206-44-0	Fluoranthene	11	U	
129-00-0	Pyrene	11	U	
85-68-7	Butylbenzylphthalate	11	U	
91-94-1	3,3'-Dichlorobenzidine	22	U	
56-55-3	Benzo(a)anthracene	11	U	
218-01-9	Chrysene	11	U	
117-81-7	bis(2-Ethylhexyl)phthalate	11 ~~6~~	~~JB~~	u
117-84-0	Di-n-Octyl phthalate	11	U	
205-99-2	Benzo(b)fluoranthene	11	~~U~~	UJ
207-08-9	Benzo(k)fluoranthene	11	U	
50-32-8	Benzo(a)pyrene	11	U	
193-39-5	Indeno(1,2,3-cd)pyrene	11	U	
53-70-3	Dibenzo(a,h)anthracene	11	U	
191-24-2	Benzo(g,h,i)perylene	11	U	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

12/88 Rev.

7/22/92

9213523.1110 0000069

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-48C

B01S78
Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9204L871-002

Sample wt/vol: 920 (g/mL) ML Lab File ID: M042212

Level: (low/med) LOW Date Received: 04/02/92

% Moisture: not dec. _____ dec. Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 04/22/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT REPORTED SEE RE-EXTRACT			

FORM 1 SV-TIC 12/88 Rev.

7/22/92

9213523.1111 0000080

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

B01S78RE
Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: -- WATER

Lab Sample ID: 9204L871-002

Sample wt/vol: 480 (g/mL) ML

Lab File ID: A043011

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/30/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
108-95-2	Phenol	21	U	US
111-44-4	bis(2-Chloroethyl)ether	21	U	
95-57-8	2-Chlorophenol	21	U	
541-73-1	1,3-Dichlorobenzene	21	U	
106-46-7	1,4-Dichlorobenzene	21	U	
100-51-6	Benzyl alcohol	21	U	
95-50-1	1,2-Dichlorobenzene	21	U	
95-48-7	2-Methylphenol	21	U	
108-60-1	bis(2-Chloroisopropyl)ether	21	U	
106-44-5	4-Methylphenol	21	U	
621-64-7	N-Nitroso-Di-n-propylamine	21	U	
67-72-1	Hexachloroethane	21	U	
98-95-3	Nitrobenzene	21	U	
78-59-1	Isophorone	21	U	
88-75-5	2-Nitrophenol	21	U	
105-67-9	2,4-Dimethylphenol	21	U	
65-85-0	Benzoic acid	100	U	
111-91-1	bis(2-Chloroethoxy)methane	21	U	
120-83-2	2,4-Dichlorophenol	21	U	
120-82-1	1,2,4-Trichlorobenzene	21	U	
91-20-3	Naphthalene	21	U	
106-47-8	4-Chloroaniline	21	U	
87-68-3	Hexachlorobutadiene	21	U	
59-50-7	4-Chloro-3-methylphenol	21	U	
91-57-6	2-Methylnaphthalene	21	U	
77-47-4	Hexachlorocyclopentadiene	21	U	
88-06-2	2,4,6-Trichlorophenol	21	U	
95-95-4	2,4,5-Trichlorophenol	100	U	
91-58-7	2-Chloronaphthalene	21	U	
88-74-4	2-Nitroaniline	100	U	
131-11-3	Dimethylphthalate	21	U	
208-96-8	Acenaphthylene	21	U	
606-20-2	2,6-Dinitrotoluene	21	U	

9713523.1112 0000081

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-4SC

BO1S78RE
Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9204L871-002

Sample wt/vol: 480 (g/mL) ML Lab File ID: A043011

Level: (low/med) LOW Date Received: 04/02/92

% Moisture: not dec. _____ dec. Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/30/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	100	U	45
83-32-9	Acenaphthene	21	U	
51-28-5	2,4-Dinitrophenol	100	U	
100-02-7	4-Nitrophenol	100	U	
132-64-9	Dibenzofuran	21	U	
121-14-2	2,4-Dinitrotoluene	21	U	
84-66-2	Diethylphthalate	21	U	
7005-72-3	4-Chlorophenyl-phenylether	21	U	
86-73-7	Fluorene	21	U	
100-01-6	4-Nitroaniline	100	U	
534-52-1	4,6-Dinitro-2-methylphenol	100	U	
86-30-6	N-Nitrosodiphenylamine (1)	21	U	
101-55-3	4-Bromophenyl-phenylether	21	U	
118-74-1	Hexachlorobenzene	21	U	
87-86-5	Pentachlorophenol	100	U	
85-01-8	Phenanthrene	21	U	
120-12-7	Anthracene	21	U	45
84-74-2	Di-n-Butylphthalate	21 ~~4~~	~~JB~~	~~K~~ 45
206-44-0	Fluoranthene	21	U	45
129-00-0	Pyrene	21	U	
85-68-7	Butylbenzylphthalate	21	U	
91-94-1	3,3'-Dichlorobenzidine	42	U	
56-55-3	Benzo(a)anthracene	21	U	
218-01-9	Chrysene	21	U	
117-81-7	bis(2-Ethylhexyl)phthalate	21 ~~2~~	~~JB~~	~~K~~ 45
117-84-0	Di-n-Octyl phthalate	21	U	45
205-99-2	Benzo(b)fluoranthene	21	U	
207-08-9	Benzo(k)fluoranthene	21	U	
50-32-8	Benzo(a)pyrene	21	U	
193-39-5	Indeno(1,2,3-cd)pyrene	21	U	
53-70-3	Dibenzo(a,h)anthracene	21	U	
191-24-2	Benzo(g,h,i)perylene	21	U	

7/22/92

7/22/92

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/22/92

9213523.1113 0000982

CLIENT SAMPLE NO.
216-B-48C

BO1S78RE
Equipment Blank

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9204L871-002

Sample wt/vol: 480 (g/mL) ML Lab File ID: A043011

Level: (low/med) LOW Date Received: 04/02/92

% Moisture: not dec. _____ dec. Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/30/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	ALKYL PHENOL	17.29	8	~~J~~	NJ
2.	UNKNOWN	27.69	60	~~BJ~~	NJ

FORM 1 SV-TIC 12/88 Rev.

9213523.1114 0000018

1D

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-48C

BO1S73
Field Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-001

Sample wt/vol: 950 (g/mL) ML

Lab File ID: 04239203.14

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/03/92

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/23/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

DER 5/01/92

FORM 1 PEST 12/88 Rev.

7/23/92

9213523.1115 0000021

1D

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
214-B-48C

B01S78
Equipment Blank

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9204L871-002

Sample wt/vol: 950 (g/mL) ML

Lab File ID: 04239203.17

Level: (low/med) LOW

Date Received: 04/02/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/03/92

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/23/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

DDE 5/1/92

FORM 1 PEST 12/88 Rev.

7/8/98

9713523.1116 0000024

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-B-48C
B01S73
Field Blank

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP871

Matrix (soil/water): WATER Lab Sample ID: 920487101

Level (low/med): LOW Date Received: 4/02/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	46.00	U		P	
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U		F	
7440-39-3	Barium	7.00	U		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	96.80	B		P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	9.10	B		P	
7439-89-6	Iron	30.00	U		P	
7439-92-1	Lead	2.00	U		F	
7439-95-4	Magnesium	69.00	U		P	
7439-96-5	Manganese	2.00	U		P	
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U		P	
7440-09-7	Potassium	896.00	U		P	
7782-49-2	Selenium	2.00	U	W	F	
7440-22-4	Silver	8.00	U		P	
7440-23-5	Sodium	165.00	B		P	
7440-28-0	Thallium	2.00	U		F	
7440-62-2	Vanadium	5.50	B		P	"
7440-66-6	Zinc	15.40	B		P	"
	Cyanide	20.00	U		C	
71-43-2	Benzene	150	U		P	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 03/90

7/16/92

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
21L-R-48C
B01S78
Equipment Blank

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP871

Matrix (soil/water): WATER Lab Sample ID: 920487102

Level (low/med): LOW Date Received: 4/02/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	46.00	U		P
7440-36-0	Antimony	36.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	7.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	62.00	U		P
7440-47-3	Chromium	7.00	U		P
7440-48-4	Cobalt	7.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	47.20	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	69.00	U		P
7439-96-5	Manganese	2.00	U		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	18.00	U		P
7440-09-7	Potassium	896.00	U		P
7782-49-2	Selenium	2.00	U	W	F
7440-22-4	Silver	8.00	U		P
7440-23-5	Sodium	131.00	B		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	5.00	U		P
7440-66-6	Zinc	6.00	U		P
	Cyanide	10.00	U		C
14797-55-8	Nitrate-N	150	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

[illegible] 7/16/92

9713523.1118

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/29/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9204L871

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B01S73	Nitrate by IC	0.10 u	MG/L	0.10
		Cyanide, Total	20.0 u	UG/L	20.0
	216-B-48C	Phosphate by IC	0.10 u	MG/L	0.10
	Field Blank	Sulfate by IC	0.10 u	MG/L	0.10
		Nitrate Nitrite	0.23	MG-N/L	0.10
-002	B01S78	Nitrate by IC	0.10 u	MG/L	0.10
		Cyanide, Total	10.0 u	UG/L	10.0
	216-B-48C	Phosphate by IC	0.10 u	MG/L	0.10
	Equipment	Sulfate by IC	0.10 u	MG/L	0.10
	Rinse	Nitrate Nitrite	0.23	MG-N/L	0.10

7/7/92

9713523.1119

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9713523.1120

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/20/92
LABORATORY: Weston	CASE: 9204L871	SDG: 871
SAMPLES/MATRIX: B01573, B01578 / Waters		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC			X
Quantitation and calculation data for all TIC			X
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC			X

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC			X
MS/MSD report forms	X		
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets			X
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? **Yes** No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a bromofluorobenzene tune report present for each applicable 12-h period? **Yes** No N/A

Do all tunes on all instruments meet the tuning criteria? **Yes** No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No **N/A**

Has the laboratory made any calculation or transciption errors? Yes **No** N/A

Have the proper significant figures been reported? **Yes** No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for nondetects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? **Yes** No N/A

Are all RSD values ≤30% (2/88 SOW)? Yes **No** N/A

Are all RRF values ≥0.05 (2/88 SOW)? Yes **No** N/A

Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12-h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results ≤10 time the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results ≤5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes (No) N/A

Not after blank adjustment.

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes (No) N/A

Are any surrogate recoveries <10%? Yes (No) N/A

Are any method blank surrogate recoveries out of specification? Yes (No) N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for nondetects) for surrogates out of specification but >10%. Qualify all associated positive sample results as estimated (J) and all nondetect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? (Yes) No N/A

Are MS/MSD recoveries within specification? (Yes) No N/A

Are there any calculation errors? Yes (No) N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? However, all were blank adjusted. **Yes** No N/A

Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra? **Yes** No N/A

Do the relative intensities between the standard and sample spectra agree within 20%? **Yes** No N/A

Have all ions > 10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination? **Yes** No N/A

Are molecular ions present in the reference specrum present in the sample spectrum? **Yes** No N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation? **Yes** No N/A

Are results and quantitation limits calculated properly? **Yes** No N/A

Has the laboratory reported the sample quantitation limits within 5xCRQL values? **Yes** No N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW? Yes No **N/A**

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

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

9713523.1127

COMMENTS (attach additional sheets as necessary):

Sample B01S72 was identified as a Field Blank and B01S78 as an equipment blank. All results are non-detects.

7/30/92

9713523.1128

Holding Time Summary

Pg 1 of 1

MAY 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01S73	001	W	92LVX068	03/31/92	N/A	04/08/92 8
B01S73	001 MS	W	92LVK066	03/31/92	N/A	04/10/92 10
B01S73	001 MSD	W	92LVK066	03/31/92	N/A	04/10/92 10
B01S78	002	W	92LVX068	03/31/92	N/A	04/08/92 8

LAB QC:

VBLK	MB1	W	92LVX068	N/A	N/A	04/08/92
VBLK	MB1	W	92LVK066	N/A	N/A	04/10/92

Holding times were met.

7/20/92

Cal: 874527.N29 Summary 0000037 Pg 1 of 3

6A

VOLATILE ORGANICS INTITIAL CALIBRATION DATA

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: HP-MSD X Calibration Date(s): 04/07/92 04/07/92

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

Assoc. w/ B0L573 & B0L578

LAB FILE ID: RRF20 = AX4713 RRF50 = AX4712
RRF100= AX4711 RRF150= AX4710 RRF200= AX4708

BKL 4/28/92

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	0.921	0.820	0.772	0.781	0.801	0.819	7.3#
Bromomethane	1.174	1.036	1.013	1.040	1.069	1.067	5.9
Vinyl Chloride *	1.122	0.968	0.931	0.983	1.015	1.004	7.2*
Chloroethane	0.660	0.626	0.606	0.640	0.653	0.637	3.4
Methylene Chloride	1.362	1.113	1.130	1.069	1.124	1.160	10.0
Acetone	0.338	0.228	0.206	0.213	0.266	0.250	21.6
Carbon Disulfide	3.588	3.139	3.017	3.069	3.325	3.228	7.2
1,1-Dichloroethene *	1.246	1.114	1.058	1.068	1.116	1.120	6.7*
1,1-Dichloroethane #	0.881	0.778	0.801	0.766	0.801	0.805	5.6#
1,2-Dichloroethene (total)	1.360	1.132	1.121	1.184	1.249	1.209	8.1
Chloroform *	3.652	3.430	3.245	3.228	3.203	3.352	5.7*
1,2-Dichloroethane	0.544	0.461	0.477	0.483	0.466	0.486	6.9
2-Butanone	0.033	0.052	0.062	0.063	0.066	0.055	24.4
1,1,1-Trichloroethane	3.546	2.912	2.900	2.910	2.948	3.043	9.3
Carbon Tetrachloride	3.632	2.949	2.989	3.150	3.223	3.189	8.5
Vinyl Acetate	2.413	2.258	1.945	2.200	2.450	2.253	8.9
Bromodichloromethane	0.775	0.690	0.692	0.688	0.658	0.701	6.3
1,2-Dichloropropane *	0.407	0.318	0.311	0.332	0.295	0.333	13.1*
cis-1,3-Dichloropropene	0.596	0.563	0.544	0.576	0.580	0.572	3.5
Trichloroethene	0.429	0.374	0.371	0.389	0.356	0.384	7.2
Dibromochloromethane	0.763	0.645	0.667	0.664	0.686	0.685	6.7
1,1,2-Trichloroethane	0.397	0.302	0.331	0.345	0.312	0.337	11.0
Benzene	0.810	0.766	0.725	0.744	0.716	0.752	5.0
Trans-1,3-Dichloropropene	0.520	0.478	0.486	0.533	0.551	0.513	6.1
Bromoform #	0.634	0.581	0.536	0.601	0.557	0.582	6.5#
4-Methyl-2-pentanone	0.324	0.272	0.259	0.251	0.238	0.269	12.3
2-Hexanone	0.196	0.169	0.166	0.145	0.190	0.173	11.7
Tetrachloroethene	0.502	0.472	0.451	0.455	0.476	0.471	4.2
1,1,2,2-Tetrachloroethane #	0.575	0.500	0.487	0.498	0.484	0.509	7.4#
Toluene *	0.631	0.585	0.556	0.562	0.618	0.590	5.6*
Chlorobenzene #	0.862	0.792	0.823	0.840	0.896	0.843	4.7#
Ethylbenzene *	0.409	0.379	0.352	0.374	0.363	0.375	5.8*
Styrene	0.773	0.737	0.734	0.742	0.745	0.746	2.1
Xylene (total)	0.494	0.442	0.431	0.470	0.420	0.451	6.6
Toluene-d8	1.099	1.116	1.041	1.107	1.124	1.097	3.0
Bromofluorobenzene	0.695	0.672	0.655	0.692	0.727	0.688	3.9
1,2-Dichloroethane-d4	0.539	0.488	0.458	0.475	0.436	0.479	8.1

9213523.1130

Calibration Summary

Pg 2 of 3

6A

VOLATILE ORGANICS INTITIAL CALIBRATION DATA

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: HP-MSD K Calibration Date(s): 02/04/92 02/04/92

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

Assoc w/ MB & MS/MSD only

LAB FILE ID: RRF20 = AK2408 RRF50 = AK2402
RRF100= AK2407 RRF150= AK2406 RRF200= AK2409

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	RRF	% RSD
Chloromethane #	0.555	0.587	0.454	0.476	0.444	0.503	12.7#
Bromomethane	1.506	1.396	1.249	1.291	1.254	1.339	8.2
Vinyl Chloride *	0.822	0.856	0.666	0.695	0.664	0.740	12.3*
Chloroethane	0.569	0.592	0.498	0.530	0.498	0.538	7.9
Methylene Chloride	1.174	1.076	0.926	0.945	0.912	1.006	11.3
Acetone	0.310	0.212	0.164	0.166	0.144	0.199	33.5
Carbon Disulfide	2.884	2.788	2.470	2.627	2.578	2.670	6.2
1,1-Dichloroethene *	1.186	1.090	0.977	1.021	0.991	1.053	8.2*
1,1-Dichloroethane #	2.439	2.285	2.035	2.167	2.049	2.195	7.7#
1,2-Dichloroethene (total)	1.227	1.153	1.018	1.058	1.033	1.098	8.1
Chloroform *	3.838	3.485	3.092	3.176	3.073	3.333	9.8*
1,2-Dichloroethane	0.744	0.623	0.591	0.609	0.572	0.628	10.8
2-Butanone	0.028	0.033	0.038	0.034	0.033	0.033	10.6
1,1,1-Trichloroethane	3.782	3.272	3.051	3.191	3.101	3.279	9.0
Carbon Tetrachloride	4.019	3.434	3.190	3.341	3.264	3.450	9.6
Vinyl Acetate	1.766	1.536	1.442	1.575	1.451	1.554	8.4
Bromodichloromethane	0.999	0.868	0.855	0.874	0.853	0.890	6.9
1,2-Dichloropropane *	0.332	0.303	0.279	0.284	0.277	0.295	7.8*
cis-1,3-Dichloropropene	0.673	0.591	0.550	0.584	0.571	0.594	7.9
Trichloroethene	0.510	0.475	0.452	0.430	0.428	0.459	7.4
Dibromochloromethane	1.086	0.946	0.935	0.979	0.920	0.973	6.8
1,1,2-Trichloroethane	0.411	0.344	0.339	0.352	0.325	0.354	9.4
Benzene	0.737	0.671	0.598	0.613	0.608	0.645	9.1
Trans-1,3-Dichloropropene	0.616	0.543	0.530	0.550	0.539	0.556	6.2
Bromoform #	0.842	0.728	0.743	0.776	0.713	0.761	6.7#
4-Methyl-2-pentanone	0.256	0.208	0.210	0.222	0.190	0.217	11.3
2-Hexanone	0.197	0.143	0.149	0.150	0.132	0.154	16.3
Tetrachloroethene	0.643	0.552	0.503	0.520	0.510	0.546	10.5
1,1,2,2-Tetrachloroethane #	0.572	0.479	0.399	0.496	0.452	0.480	13.3#
Toluene *	0.608	0.542	0.481	0.513	0.505	0.530	9.3*
Chlorobenzene #	0.948	0.839	0.760	0.799	0.770	0.823	9.2#
Ethylbenzene *	0.406	0.349	0.318	0.328	0.328	0.346	10.2*
Styrene	0.826	0.749	0.692	0.731	0.712	0.742	6.9
Xylene (total)	0.479	0.433	0.387	0.410	0.404	0.423	8.4
Toluene-d8	1.069	0.917	0.807	0.788	0.838	0.884	13.0
Bromofluorobenzene	1.088	0.924	0.847	0.814	0.857	0.906	12.1
1,2-Dichloroethane-d4	0.648	0.554	0.529	0.494	0.505	0.546	11.2

1/24/92

0000082

9213523.1131 Calibration Summary Pg 3 of 3

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: HP-MSD K Calibration Date: 04/10/92 Time: 1046

Lab File ID: AK4A03 Init. Calib. Date(s): 02/04/92 02/04/92

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

Assoc. w/ MB & MS/MSD only

COMPOUND		RRF	RRF50P	%D	
Chloromethane	#	0.503	0.644	-28.0	#
Bromomethane		1.339	1.555	-16.2	
Vinyl Chloride	*	0.740	0.861	-16.4	*
Chloroethane		0.538	0.595	-10.7	
Methylene Chloride		1.006	1.076	-6.9	
Acetone		0.199	0.182	8.7	
Carbon Disulfide		2.670	2.918	-9.3	
1,1-Dichloroethene	*	1.053	1.143	-8.5	*
1,1-Dichloroethane	#	2.195	2.329	-6.1	#
1,2-Dichloroethene (total)		1.098	1.187	-8.1	
Chloroform	*	3.333	3.449	-3.5	*
1,2-Dichloroethane		0.628	0.570	9.2	
2-Butanone		0.033	0.035	-7.0	
1,1,1-Trichloroethane		3.279	3.454	-5.3	
Carbon Tetrachloride		3.450	3.665	-6.2	
Vinyl Acetate		1.554	1.293	16.8	
Bromodichloromethane		0.890	0.836	6.1	
1,2-Dichloropropane	*	0.295	0.270	8.5	*
cis-1,3-Dichloropropene		0.594	0.549	7.6	
Trichloroethene		0.459	0.443	3.4	
Dibromochloromethane		0.973	0.890	8.6	
1,1,2-Trichloroethane		0.354	0.312	12.0	
Benzene		0.645	0.632	2.0	
Trans-1,3-Dichloropropene		0.556	0.488	12.2	
Bromoform	#	0.761	0.667	12.4	#
4-Methyl-2-pentanone		0.217	0.175	19.4	
2-Hexanone		0.154	0.140	9.3	
Tetrachloroethene		0.546	0.558	-2.2	
1,1,2,2-Tetrachloroethane	#	0.480	0.420	12.4	#
Toluene	*	0.530	0.538	-1.6	*
Chlorobenzene	#	0.823	0.836	-1.5	#
Ethylbenzene	*	0.346	0.343	0.8	*
Styrene		0.742	0.708	4.6	
Xylene (total)		0.423	0.420	0.8	
Toluene-d8		0.884	0.999	-13.0	
Bromofluorobenzene		0.906	1.014	-11.9	
1,2-Dichloroethane-d4		0.546	0.555	-1.6	

BKT 4/28/92

FORM VII VOA 5/88 Rev.

4/24/92 7/30/92

Blank 5/13/92 0000100 Pg 1 of 1

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 92LVX068-MB1

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

Lab File ID: AX4804

Level: (low/med) LOW

Date Received: 04/08/92

% Moisture: not dec. _____

Date Analyzed: 04/08/92

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

Assoc w/ B01573 & B01578

CAS NO.	COMPOUND		
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	5	x10=50
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1

12/88 Rev.

9213523.1133

Accuracy Summary

2A

WATER VOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

RFW Lot No.: 9204L871

No qualification is necessary

	CLIENT SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	B01S73	107	102	109		0
02	B01S73MS	99	101	109		0
03	B01S73MSD	97	100	116 *		1
04	B01S78	103	89	103		0
05	VBLKLVX068-MB1	108	104	111		0
06	VBLKLVK066-MB1	99	97	97		0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

FORM II VOA-1

01/89 Rev.

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/22/92
LABORATORY: Weston	CASE: 92-04L871	SDG: 871
SAMPLES/MATRIX: B01573, B01578/waters		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
GC/MS tuning report	X		
Internal standard summary report	X		
Sample Data			
Sample reports	X		
TIC reports for each sample	X		
RIC reports for all samples	X		
Raw and corrected spectra for all detected results	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
Standards Data			
Initial calibration report	X		
RIC and quantitation reports for initial calibration	X		
Continuing calibration reports	X		
RIC and quantitation reports for cont. calibrations	X		
Internal standard summary report	X		
Raw QC Data			
Tuning report, spectra and mass lists	X		
Blank analysis reports	X		
TIC reports for all blanks	X		
RIC and quantitation reports for blanks	X		
Raw and corrected spectra for all detected results in blanks	X		
Raw and corrected library search data for all reported TIC	X		
Quantitation and calculation data for all TIC	X		
MS/MSD report forms	X		

Data Package Item	Present?: Yes	No	N/A
RIC and quantitation reports for MS/MSD	X		
Additional Data			
Moisture/% solids data sheets			X
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	(No)	N/A
Were all samples analyzed within holding time?	(Yes)	No	N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

Is a DFTPP tune report present for each applicable 12h period?	(Yes)	No	N/A
Do all tunes on all instruments meet the tuning criteria?	(Yes)	No	N/A
Do all tunes on all instruments meet the expanded criteria?	Yes	No	(N/A)
Has the laboratory made any calculation or transciption errors?	Yes	(No)	N/A
Have the proper significant figures been reported?	(Yes)	No	N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects and UJ for nondetects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	(Yes)	No	N/A
Are all RSD values ≤30% (2/88 SOW)? Effects the Method Blank only, no qualification required.	Yes	(No)	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	(Yes)	No	N/A
Are all applicable RSD values ≤20.5% (3/90 SOW)?	Yes	No	(N/A)
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	(N/A)

Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to four TCL compounds or surrogates, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every extraction batch?	Yes	No	N/A
Are compounds reported in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results < 10 times the highest blank concentration for the common laboratory contaminants, as nondetects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results <5 times the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are compounds reported in the field blanks? TICs only Yes No N/A

ACTION: Qualify all detected sample results ≤5 times the amount in any valid field blank as nondetects (U) and note the results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries < 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated data as estimated (J for detects and UJ for nondetects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated nondetect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the results for the performance audit samples within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects and UJ for nondetects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If the quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as nondetects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as nondetects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.1141

COMMENTS (attach additional sheets as necessary):

Samples B0157Z and B0157E were re-extracted out of holding time since the percent recovery for two spiked compounds were out of the control limits.

Sample B0157Z was identified as a field blank, and B0157E was identified as a trip blank. All TCL results were non-detect, both samples contained 2 TIC compounds: Alkyl benzene 210ppb in B0157Z, and Epoxin B0157E had an unknown at 70ppb in B0157Z and 40 ppb in B0157E.

7/22/97

Holding time Summary pg 1 of 1

9213523.1142

MAY 1992 RECEIVED OSM DMO

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

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01S73	001	W	92LE0522	03/31/92	04/06/92 6	04/17/92 11
B01S73	001 R1	W	92LE0615	03/31/92	04/27/92 27	04/30/92 3
B01S73	001 MS	W	92LE0522	03/31/92	04/06/92 6	04/21/92 15
B01S73	001 MSD	W	92LE0522	03/31/92	04/06/92	04/21/92
B01S78	002	W	92LE0522	03/31/92	04/06/92	04/22/92 16
B01S78	002 R1	W	92LE0615	03/31/92	04/27/92 27	04/30/92 3
B01S78	002 MS	W	92LE0615	03/31/92	04/27/92	04/30/92
B01S78	002 MSD	W	92LE0615	03/31/92	04/27/92	04/30/92

LAB QC:

SBLK	MB1	W	92LE0522	N/A	04/06/92	04/21/92
SBLK	MB1 BS	W	92LE0522	N/A	04/06/92	04/21/92
SBLK	MB1	W	92LE0615	N/A	04/27/92	04/30/92
SBLK	MB1 BS	W	92LE0615	N/A	04/27/92	05/04/92

Samples B01S73 Recun and B01S78 Recun were extracted out of hold time. The sample results were qualified as estimated, (UJ for non-detects / J for detects)

7/21/92

7/21/92

0000133

Calibration Summary 92A3523-1 F43

Pg 1 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: 5100M Calibration Date: 04/17/92 Time: 0809

Lab File ID: M041702 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ BD1573 only

COMPOUND		RRF	RRF50	%D	
Phenol	*	2.193	2.324	-6.0	*
bis(2-Chloroethyl)ether		2.315	2.654	-14.6	
2-Chlorophenol		1.659	1.595	3.9	
1,3-Dichlorobenzene		1.596	1.729	-8.3	
1,4-Dichlorobenzene	*	1.811	2.079	-14.8	*
Benzyl alcohol		1.161	1.153	0.7	
1,2-Dichlorobenzene		1.684	1.859	-10.4	
2-Methylphenol		1.618	1.654	-2.2	
bis(2-Chloroisopropyl)ether		2.396	2.944	-22.9	
4-Methylphenol		1.749	1.710	2.2	
N-Nitroso-Di-n-propylamine	#	1.316	1.312	0.3	#
Hexachloroethane		0.807	0.872	-8.1	
Nitrobenzene		0.424	0.465	-9.7	
Isophorone		0.897	1.033	-15.2	
2-Nitrophenol	*	0.216	0.209	3.2	*
2,4-Dimethylphenol		0.378	0.352	6.9	
Benzoic acid		0.186	0.128	31.2	
bis(2-Chloroethoxy)methane		0.589	0.641	-8.8	
2,4-Dichlorophenol	*	0.294	0.267	9.2	*
1,2,4-Trichlorobenzene		0.297	0.319	-7.4	
Naphthalene		0.980	1.224	-24.9	
4-Chloroaniline		0.511	0.514	-0.6	
Hexachlorobutadiene	*	0.123	0.125	-1.6	*
4-Chloro-3-methylphenol	*	0.329	0.292	11.2	*
2-Methylnaphthalene		0.644	0.753	-16.9	
Hexachlorocyclopentadiene	#	0.214	0.213	0.5	#
2,4,6-Trichlorophenol	*	0.346	0.315	9.0	*
2,4,5-Trichlorophenol		0.352	0.300	14.8	
2-Chloronaphthalene		1.134	1.317	-16.1	
2-Nitroaniline		0.400	0.421	-5.3	
Dimethylphthalate		1.148	1.256	-9.4	
Acenaphthylene		1.658	2.019	-21.8	
2,6-Dinitrotoluene		0.287	0.316	-10.1	
3-Nitroaniline		0.371	0.338	8.9	
Acenaphthene	*	1.044	1.204	-15.3	*
2,4-Dinitrophenol	#	0.123	0.085	30.9	#
4-Nitrophenol	#	0.083	0.056	32.5	#

7/21/92

0000134

Cal 92/3523-1-144 Summary pg 2 of 6

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: 5100M Calibration Date: 04/17/92 Time: 0809

Lab File ID: M041702 Init. Calib. Date(s): 04/02/92 04/02/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ B01573 only

COMPOUND		RRF	RRF50	%D	
Dibenzofuran		1.380	1.548	-12.2	
2,4-Dinitrotoluene		0.361	0.340	5.8	
Diethylphthalate		1.118	1.127	-0.8	
4-Chlorophenyl-phenylether		0.546	0.584	-7.0	
Fluorene		1.127	1.279	-13.5	
4-Nitroaniline		0.312	0.224	28.2	
4,6-Dinitro-2-methylphenol		0.137	0.117	14.6	
N-Nitrosodiphenylamine (1)	*	0.633	0.736	-16.3	*
4-Bromophenyl-phenylether		0.206	0.234	-13.6	
Hexachlorobenzene		0.236	0.276	-16.9	
Pentachlorophenol	*	0.135	0.117	13.3	*
Phenanthrene		1.053	1.350	-28.2	
Anthracene		1.033	1.306	-26.4	
Di-n-Butylphthalate		1.325	1.728	-30.4	
Fluoranthene	*	0.886	1.091	-23.1	*
Pyrene		2.306	3.046	-32.1	
Butylbenzylphthalate		1.508	1.346	10.7	
3,3'-Dichlorobenzidine		0.390	0.274	29.7	
Benzo(a)anthracene		1.500	1.250	16.7	
Chrysene		1.356	1.617	-19.2	
bis(2-Ethylhexyl)phthalate		1.838	1.812	1.4	
Di-n-Octyl phthalate	*	3.781	3.946	-4.4	*
Benzo(b)fluoranthene		1.705	1.759	-3.2	
Benzo(k)fluoranthene		1.376	1.368	0.6	
Benzo(a)pyrene	*	1.205	1.121	7.0	*
Indeno(1,2,3-cd)pyrene		1.050	0.985	6.2	
Dibenzo(a,h)anthracene		0.718	0.697	2.9	
Benzo(g,h,i)perylene		1.017	1.005	1.2	
Nitrobenzene-d5		0.438	0.481	-9.8	
2-Fluorobiphenyl		1.110	1.358	-22.3	
p-Terphenyl-d14		1.512	1.616	-6.9	
Phenol-d5		2.074	2.177	-5.0	
2-Fluorophenol		1.587	1.559	1.8	
2,4,6-Tribromophenol		0.105	0.087	17.1	

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

3/21/92

9213523.1145 0000185 Calibration Summary Pg 3 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: 5100M Calibration Date: 04/22/92 Time: 1731

Lab File ID: M042209 Init. Calib. Date(s): 04/21/92 04/21/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ B01578 only

COMPOUND		RRF	RRF50	%D	
Phenol	*	2.051	1.967	4.1	*
bis(2-Chloroethyl)ether		2.174	2.360	-8.6	
2-Chlorophenol		1.575	1.499	4.8	
1,3-Dichlorobenzene		1.548	1.575	-1.7	
1,4-Dichlorobenzene	*	1.796	1.886	-5.0	*
Benzyl alcohol		1.035	1.097	-6.0	
1,2-Dichlorobenzene		1.644	1.727	-5.0	
2-Methylphenol		1.532	1.458	4.8	
bis(2-Chloroisopropyl)ether		1.969	2.281	-15.8	
4-Methylphenol		1.630	1.556	4.5	
N-Nitroso-Di-n-propylamine	#	1.208	1.242	-2.8	#
Hexachloroethane		0.824	0.819	0.6	
Nitrobenzene		0.428	0.445	-4.0	
Isophorone		0.895	0.962	-7.5	
2-Nitrophenol	*	0.219	0.203	7.3	*
2,4-Dimethylphenol		0.380	0.327	13.9	
Benzoic acid		0.195	0.168	13.8	
bis(2-Chloroethoxy)methane		0.572	0.616	-7.7	
2,4-Dichlorophenol	*	0.294	0.279	5.1	*
1,2,4-Trichlorobenzene		0.301	0.308	-2.3	
Naphthalene		1.040	1.138	-9.4	
4-Chloroaniline		0.488	0.492	-0.8	
Hexachlorobutadiene	*	0.140	0.142	-1.4	*
4-Chloro-3-methylphenol	*	0.313	0.289	7.7	*
2-Methylnaphthalene		0.663	0.705	-6.3	
Hexachlorocyclopentadiene	#	0.240	0.204	15.0	#
2,4,6-Trichlorophenol	*	0.340	0.309	9.1	*
2,4,5-Trichlorophenol		0.337	0.303	10.1	
2-Chloronaphthalene		1.148	1.196	-4.2	
2-Nitroaniline		0.417	0.393	5.8	
Dimethylphthalate		1.167	1.230	-5.4	
Acenaphthylene		1.735	1.896	-9.3	
2,6-Dinitrotoluene		0.289	0.301	-4.2	
3-Nitroaniline		0.369	0.317	14.1	
Acenaphthene	*	1.074	1.124	-4.7	*
2,4-Dinitrophenol	#	0.148	0.105	29.1	#
4-Nitrophenol	#	0.084	0.055	34.5	#

7/22/92

9713523.1146 0000188 Pg 4 of 6

Calibration Summary

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: 5100M Calibration Date: 04/22/92 Time: 1731

Lab File ID: M042209 Init. Calib. Date(s): 04/21/92 04/21/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/B01578 only

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.409	1.511	-7.2
2,4-Dinitrotoluene	0.364	0.359	1.4
Diethylphthalate	1.111	1.149	-3.4
4-Chlorophenyl-phenylether	0.548	0.560	-2.2
Fluorene	1.146	1.220	-6.5
4-Nitroaniline	0.280	0.216	22.9
4,6-Dinitro-2-methylphenol	0.162	0.133	17.9
N-Nitrosodiphenylamine (1) *	0.638	0.699	-9.6 *
4-Bromophenyl-phenylether	0.238	0.240	-0.8
Hexachlorobenzene	0.264	0.263	0.4
Pentachlorophenol *	0.146	0.125	14.4 *
Phenanthrene	1.138	1.219	-7.1
Anthracene	1.125	1.153	-2.5
Di-n-Butylphthalate	1.399	1.591	-13.7
Fluoranthene *	0.979	1.002	-2.3 *
Pyrene	1.835	2.106	-14.8
Butylbenzylphthalate	1.038	1.169	-12.6
3,3'-Dichlorobenzidine	0.280	0.254	9.3
Benzo(a)anthracene	1.288	1.327	-3.0
Chrysene	1.208	1.277	-5.7
bis(2-Ethylhexyl)phthalate	1.337	1.568	-17.3
Di-n-Octyl phthalate *	2.811	3.423	-21.8 *
Benzo(b)fluoranthene	1.387	1.766	-27.3
Benzo(k)fluoranthene	1.320	1.065	19.3
Benzo(a)pyrene *	1.037	1.002	3.4 *
Indeno(1,2,3-cd)pyrene	0.894	0.810	9.4
Dibenzo(a,h)anthracene	0.649	0.587	9.6
Benzo(g,h,i)perylene	0.877	0.840	4.2
Nitrobenzene-d5	0.449	0.459	-2.2
2-Fluorobiphenyl	1.135	1.212	-6.8
p-Terphenyl-d14	1.113	1.224	-10.0
Phenol-d5	1.895	1.903	-0.4
2-Fluorophenol	1.433	1.457	-1.7
2,4,6-Tribromophenol	0.126	0.105	16.7

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

7/23/92

0000217

9213523.1147 Calibration Summary

Pg 5 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: HP5971A Calibration Date: 04/30/92 Time: 1103

Lab File ID: A043002 Init. Calib. Date(s): 04/24/92 04/24/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ BC1573 RE & BC1578 RE

COMPOUND		RRF	RRF50	%D	
Phenol	*	1.840	1.779	3.3	*
bis(2-Chloroethyl)ether		1.624	1.558	4.1	
2-Chlorophenol		1.547	1.598	-3.3	
1,3-Dichlorobenzene		1.596	1.641	-2.8	
1,4-Dichlorobenzene	*	1.591	1.631	-2.5	*
Benzyl alcohol		0.693	0.561	19.0	
1,2-Dichlorobenzene		1.406	1.470	-4.6	
2-Methylphenol		1.267	1.266	0.1	
bis(2-Chloroisopropyl)ether		2.190	1.870	14.6	
4-Methylphenol		1.293	1.358	-5.0	
N-Nitroso-Di-n-propylamine	#	0.525	0.521	0.8	#
Hexachloroethane		0.665	0.687	-3.3	
Nitrobenzene		0.432	0.414	4.2	
Isophorone		0.836	0.818	2.2	
2-Nitrophenol	*	0.220	0.269	-22.3	*
2,4-Dimethylphenol		0.329	0.374	-13.7	
Benzoic acid		0.132	0.222	-68.2	
bis(2-Chloroethoxy)methane		0.505	0.481	4.8	
2,4-Dichlorophenol	*	0.310	0.339	-9.4	*
1,2,4-Trichlorobenzene		0.299	0.321	-7.4	
Naphthalene		0.985	1.040	-5.6	
4-Chloroaniline		0.434	0.407	6.2	
Hexachlorobutadiene	*	0.166	0.176	-6.0	*
4-Chloro-3-methylphenol	*	0.292	0.315	-7.9	*
2-Methylnaphthalene		0.612	0.634	-3.6	
Hexachlorocyclopentadiene	#	0.295	0.345	-16.9	#
2,4,6-Trichlorophenol	*	0.415	0.455	-9.6	*
2,4,5-Trichlorophenol		0.478	0.512	-7.1	
2-Chloronaphthalene		1.236	1.361	-10.1	
2-Nitroaniline		0.487	0.442	9.2	
Dimethylphthalate		1.426	1.497	-5.0	
Acenaphthylene		1.947	2.100	-7.9	
2,6-Dinitrotoluene		0.389	0.417	-7.2	
3-Nitroaniline		0.430	0.353	17.9	
Acenaphthene	*	1.113	1.175	-5.6	*
2,4-Dinitrophenol	#	0.126	0.160	-27.0	#
4-Nitrophenol	#	0.173	0.104	39.9	#

FORM VII SV-1 5/88 Rev.

7/22/92

C 9213523.1148 Summary

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Instrument ID: HP5971A Calibration Date: 04/30/92 Time: 1103

Lab File ID: A043002 Init. Calib. Date(s): 04/24/92 04/24/92

Min RRF50 for SPCC(#) = 0.050 Max %D for CCC(*) = 25.0%

Assoc. w/ B0I573RE & B0I578RE

COMPOUND	RRF	RRF50	%D
Dibenzofuran	1.502	1.591	-5.9
2,4-Dinitrotoluene	0.427	0.462	-8.2
Diethylphthalate	1.546	1.568	-1.4
4-Chlorophenyl-phenylether	0.514	0.559	-8.8
Fluorene	1.150	1.228	-6.8
4-Nitroaniline	0.245	0.165	32.7
4,6-Dinitro-2-methylphenol	0.145	0.198	-36.6
N-Nitrosodiphenylamine (1) *	0.541	0.522	3.5 *
4-Bromophenyl-phenylether	0.220	0.256	-16.4
Hexachlorobenzene	0.265	0.309	-16.6
Pentachlorophenol *	0.168	0.177	-5.4 *
Phenanthrene	1.066	1.096	-2.8
Anthracene	1.070	1.147	-7.2
Di-n-Butylphthalate	1.744	1.865	-6.9
Fluoranthene *	0.949	1.044	-10.0 *
Pyrene	1.737	1.624	6.5
Butylbenzylphthalate	1.269	1.190	6.2
3,3'-Dichlorobenzidine	0.348	0.311	10.6
Benzo(a)anthracene	1.279	1.222	4.5
Chrysene	1.094	1.060	3.1
bis(2-Ethylhexyl)phthalate	1.657	1.621	2.2
Di-n-Octyl phthalate *	3.565	2.985	16.3 *
Benzo(b)fluoranthene	1.379	1.363	1.2
Benzo(k)fluoranthene	1.162	1.073	7.7
Benzo(a)pyrene *	1.186	1.113	6.2 *
Indeno(1,2,3-cd)pyrene	0.848	0.806	5.0
Dibenzo(a,h)anthracene	0.652	0.589	9.7
Benzo(g,h,i)perylene	0.764	0.795	-4.1
Nitrobenzene-d5	0.445	0.416	6.5
2-Fluorobiphenyl	1.258	1.386	-10.2
p-Terphenyl-d14	1.063	1.133	-6.6
Phenol-d5	1.727	1.808	-4.7
2-Fluorophenol	1.535	1.613	-5.1
2,4,6-Tribromophenol	0.121	0.092	24.0

(1) Cannot be separated from Diphenylamine

7/22/92

Blank Summary 921352.1149 0000281 Pg 1 of 3

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: -- WATER

Lab Sample ID: 92LE0522-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: M042108

Level: (low/med) LOW

Date Received: 04/06/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/06/92

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 04/21/92

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	5	J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	6	J
117-84-0	Di-n-Octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

x10=50 u

x10=60 u

(1) - Cannot be separated from Diphenylamine

Blank Summary 0000302 Pg 2 of 3

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: -- WATER Lab Sample ID: 92LE0615-MB1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A043004

Level: (low/med) LOW Date Received: 04/27/92

% Moisture: not dec. _____ dec. Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/30/92

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	3	J RL=30
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	J RL=20
117-84-0	Di-n-Octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

7/21/92

Blank 92L3523-1151 0000303 B 3 of 3

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLK

Lab Name: Roy F. Weston, Inc. Work Order: NONE

Client: LAB

Matrix: WATER

Lab Sample ID: 92LE0615-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: A043004

Level: (low/med) LOW

Date Received: 04/27/92

% Moisture: not dec. _____ dec.

Date Extracted: 04/27/92

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/30/92

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

Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	27.7	8	J

RS=40,

All sample results for the tentative are greater than 5 times the blank concentration. Therefore, no qualification was required.

FORM 1 SV-TIC 12/88 Rev.

7/21/92

0000019

9213523.1152

Accuracy Summary

Pg 1 of 3

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9204L871-001

MATRIX Spike - Sample No.: B01S73 Level:(low/med) LOW

No qualification is necessary

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	MS CONCENTRATION UG/L	MS % REC #	QC LIMITS REC
Phenol	110	0	85.5	78	12 - 89
2-Chlorophenol	110	0	72.6	66	27 -123
1,4-Dichlorobenzene	55.0	0	24.7	45	36 - 97
N-Nitroso-Di-n-propylamine	55.0	0	29.2	53	41 -116
1,2,4-Trichlorobenzene	55.0	0	28.6	52	39 - 98
4-Chloro-3-methylphenol	110	0	89.4	81	23 - 97
Acenaphthene	55.0	0	36.3	66	46 -118
4-Nitrophenol	110	0	4.69	4 *	10 - 80
2,4-Dinitrotoluene	55.0	0	47.1	86	24 - 96
Pentachlorophenol	110	0	1.52	1 *	9 -103
Pyrene	55.0	0	60.8	111	26 -127

COMPOUND	SPIKE ADDED UG/L	MSD CONCENTRATION UG/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Phenol	160	127	79	1	42	12 - 89
2-Chlorophenol	160	103	65	1	40	27 -123
1,4-Dichlorobenzene	80.0	41.5	52	14	28	36 - 97
N-Nitroso-Di-n-propylamine	80.0	52.2	65	20	38	41 -116
1,2,4-Trichlorobenzene	80.0	48.6	61	16	28	39 - 98
4-Chloro-3-methylphenol	160	123	77	5	42	23 - 97
Acenaphthene	80.0	60.3	75	12	31	46 -118
4-Nitrophenol	160	156	98 *	184 *	50	10 - 80
2,4-Dinitrotoluene	80.0	76.1	95	10	38	24 - 96
Pentachlorophenol	160	159	100	197 *	50	9 -103
Pyrene	80.0	104	129 *	14	31	26 -127

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

RPD: 2 out of 11 outside limits
Spike Recovery: 4 out of 22 outside limits

COMMENTS:

9713523.1153 0000020 Pg 2 of 3

Accuracy Summary

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9204L871-002

MATRIX Spike - Sample No.: B01S78 Level:(low/med) LOW

No qualification is necessary.

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	MS CONCENTRATION UG/L	MS % REC #	QC LIMITS REC
Phenol	190	0	103	54	12 - 89
2-Chlorophenol	190	0	149	78	27 -123
1,4-Dichlorobenzene	95.0	0	53.2	56	36 - 97
N-Nitroso-Di-n-propylamine	95.0	0	67.7	71	41 -116
1,2,4-Trichlorobenzene	95.0	0	55.0	58	39 - 98
4-Chloro-3-methylphenol	190	0	137	72	23 - 97
Acenaphthene	95.0	0	66.7	70	46 -118
4-Nitrophenol	190	0	60.1	32	10 - 80
2,4-Dinitrotoluene	95.0	0	72.1	76	24 - 96
Pentachlorophenol	190	0	78.7	41	9 -103
Pyrene	95.0	0	79.1	83	26 -127

COMPOUND	SPIKE ADDED UG/L	MSD CONCENTRATION UG/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Phenol	190	109	57	5	42	12 - 89
2-Chlorophenol	190	163	86	9	40	27 -123
1,4-Dichlorobenzene	95.0	66.3	70	22	28	36 - 97
N-Nitroso-Di-n-propylamine	95.0	78.5	83	15	38	41 -116
1,2,4-Trichlorobenzene	95.0	67.6	71	20	28	39 - 98
4-Chloro-3-methylphenol	190	147	77	6	42	23 - 97
Acenaphthene	95.0	73.0	77	9	31	46 -118
4-Nitrophenol	190	99.0	52	47	50	10 - 80
2,4-Dinitrotoluene	95.0	78.3	82	7	38	24 - 96
Pentachlorophenol	190	159	83	67 *	50	9 -103
Pyrene	95.0	83.5	88	5	31	26 -127

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

RPD: 1 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS:

FORM III SV-1 5/88 Rev.

7/21/91

9713523.1154 0000254

Accuracy Summary

pg 3 of 3

8C

SEMIVOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9204L871

Lab File ID (Standard): M042102 Date Analyzed: 04/21/92

Instrument ID: 5100M Time Analyzed: 1108

		IS4(PHN) AREA #	RT	IS5(CRY) AREA #	RT	IS6(PRY) AREA #	RT
	12 HOUR STD	39832	17.82	25496	22.85	15983	26.57
	UPPER LIMIT	79664	18.32	50992	23.35	31966	27.07
	LOWER LIMIT	19916	17.32	12748	22.35	7992	26.07
	CLIENT SAMPLE NO.						
01	BO1S73MS	76872	17.82	46719	22.80	40134*	26.48
02	BO1S73MSD	61538	17.83	32515	22.80	27809	26.48
03	SBLKLE0522-MB1	53509	17.83	26932	22.83	21089	26.50
04	SBLKLE0522-MB1 BS	61433	17.82	43049	22.83	38427*	26.52

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

No qualification is necessary since these IS summaries(*) do not directly effect the sample BO1S73 & -8.

FORM VIII SV-2

5/88 Rev.

7/21/92

9713523.1155

WHC-SD-EN-SPP-002, Rev. 1

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 7/23/97
LABORATORY: Weston	CASE: 9204L271	SDG: 871
SAMPLES/MATRIX: B01573, B01578/waters.		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Data Summary	X		
Chain-of-Custody	X		
QC Summary			
Surrogate report	X		
MS/MSD report	X		
Blank summary report	X		
Sample Data			
Sample reports	X		
Chromatograms	X		
GC integration reports	X		
Worksheets		X	
UV traces from GPC			X
GC/MS confirmation spectra			X
Standards Data			
Pesticides Evaluation Standards Summary	X		
Pesticides/PCB Standards Summary	X		
Pesticides/PCB identification	X		
Pesticides standard chromatograms	X		
Raw QC Data			
Blank analysis report forms and chromatograms	X		
MS/MSD report forms and chromatograms	X		

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets			X
Reduction formulae		X	
Instrument time logs	X		
Chemist notebook pages		X	
Sample preparation sheets	X		

2. HOLDING TIMES

Were all samples extracted within holding time? **Yes** No N/A

Were all samples analyzed within holding time? **Yes** No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? **Yes** No N/A

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? **Yes** No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? **Yes** No N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? **Yes** No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? **Yes** No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification?	Yes	No	N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	No	N/A
Have all standards been analyzed within 72 h of any sample?	Yes	No	N/A
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	N/A
Have all standards been analyzed at the start of each 72-h sequence?	Yes	No	N/A
Have evaluation standards A, B, and C been analyzed within 72 h of any sample?	Yes	No	N/A
Has the confirmation standard mix been analyzed after every five samples?	Yes	No	N/A
Has evaluation standard B analyzed every 10 samples?	Yes	No	N/A
Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards?	Yes	No	N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

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

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors < 10.0% (< 15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	No	N/A
Do any samples show nondetects for surrogates?	Yes	No	N/A
Are any method blank surrogates out of specification?	Yes	No	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	Yes	No	N/A
Are MS/MSD recoveries within specification?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Sample R01573 was identified as a field blank R01578 as an equipment blank. All sample results are non-detects.

9213523.1164 Holding Time Summary pg 1 of 1

MAY 1992
RECEIVED
OSM DMO

Roy F. Weston, Inc. - Lionville Laboratory
PEST/PCB ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01S73	001	W	92LE0516	03/31/92	04/03/92 3	04/23/92 20
B01S73	001 MS	W	92LE0516	03/31/92	04/03/92	04/23/92
B01S73	001 MSD	W	92LE0516	03/31/92	04/03/92	04/23/92
B01S78	002	W	92LE0516	03/31/92	04/03/92	04/23/92
LAB QC:						
PBLK	MB1	W	92LE0516	N/A	04/03/92	04/24/92
PBLK	MB1 BS	W	92LE0516	N/A	04/03/92	04/24/92

Holding times were met.
7/23/92

7/23/92

9713523.1165

WHC-SD-EN-SPP-002, Rev. 1

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 100-BP-1	REVIEWER:	DATE: 7/16/92
LABORATORY: Weston	CASE: 9204L871	SDG: 871
SAMPLES/MATRIX: B01573, B01578 / ~~soil~~ waters		
	7/16/92	

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	X		
Cover Page	X		
Traffic Reports	X		
Sample Data			
Inorganic Analysis Data Sheets	X		
Standards Data			
Initial and Continuing Calibration Verification	X		
CRDL Standard for AA and ICP	X		
QC Summary			
Blanks	X		
ICP Interference Check Summary	X		
Spike Sample Recovery	X		
Post-Digestion Spike Sample Recovery		X	
Duplicate	X		
Laboratory Control Sample	X		
Standard Addition Results	X		
ICP Serial Dilutions	X		
Instrument Detection Limits	X		
ICP Interelement Correction Factors	X		
ICP Linear Ranges	X		
Preparation Log	X		
Analysis Run Log	X		
Raw Data			
ICP Raw Data	X		
Furnace AA Raw Data	X		
Mercury Raw Data	X		
Cyanide Raw Data	X		
Additional Data			
Internal laboratory chain-of-custody	X		
Laboratory Sample Preparation Records	X		

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records			X
Reduction Formulae		X	
Instrument Run Logs	X		
Chemist Notebook Pages		X	

2. HOLDING TIMES

Have all samples been analyzed within holding times? **Yes** No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? **Yes** No N/A

Are the correlation coefficients ≥0.995? **Yes** No N/A

Was a midrange cyanide standard distilled? **Yes** No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results >IDL as estimated (J) and results <IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? **Yes** No N/A

Are the AB solution %R values within control? **Yes** No N/A

Are there calculation errors? Yes **No** N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the laboratory blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? Yes No N/A

Are applicable duplicate injection RSD values within control? Yes No N/A

If no, were samples rerun once as required? Yes No N/A

Does the RSD for the rerun fall within the control limits? Yes No N/A

Were analytical spike recoveries within the control limits? Yes No N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients $\geq$0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is $\geq$10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	Yes	No	N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

18. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.1170

COMMENTS (attach additional sheets as necessary):

Sample B01573 was identified as a Field Blank. All sample results are ND with the exception of Calcium, Copper and Sodium.

Sample B01578 was identified as an Equipment Blank. All sample results are ND with the exception of iron and Sodium.

The CLP Analytical Spike for B01573 Selenium, had a recovery of 84.8% This was outside the 85% recovery and considered within the control limits. No qualifiers in the processing.

7/16/97

9213523.1171 Holding Title Summary

pg 1 of 3

MAY 1992
RECEIVED
OSM DMO

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

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B01S73						
SILVER, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92 28
SILVER, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
SILVER, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
ALUMINUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
ALUMINUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
ALUMINUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
ARSENIC, TOTAL	001	W	92L0956	03/31/92	04/09/92	04/10/92 10
ARSENIC, TOTAL	001 REP	W	92L0956	03/31/92	04/09/92	04/10/92
ARSENIC, TOTAL	001 MS	W	92L0956	03/31/92	04/09/92	04/10/92
BARIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92 28
BARIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
BARIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
BERYLLIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
BERYLLIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
BERYLLIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
BISMUTH, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/24/92 24
BISMUTH, TOTAL REP	001 REP	W	92L0957	03/31/92	04/09/92	04/24/92
BISMUTH, TOTAL SPIKE	001 MS	W	92L0957	03/31/92	04/09/92	04/24/92
CALCIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92 28
CALCIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
CALCIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
CADMIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
CADMIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
CADMIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
COBALT, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
COBALT, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
COBALT, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
CHROMIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
CHROMIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
CHROMIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
COPPER, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
COPPER, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
COPPER, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
IRON, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
IRON, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
IRON, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
MERCURY, TOTAL	001	W	92C0094	03/31/92	04/08/92	04/09/92 9

7/16/92

9/13528.1172 Time Summary Pg 2 of 3

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

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MERCURY, TOTAL	001 REP	W	92C0094	03/31/92	04/08/92	04/09/92 9
MERCURY, TOTAL	001 MS	W	92C0094	03/31/92	04/08/92	04/09/92
POTASSIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92 28
POTASSIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
POTASSIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
MAGNESIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
MAGNESIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
MAGNESIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
MANGANESE, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
MANGANESE, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
MANGANESE, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
SODIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
SODIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
SODIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
NICKEL, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
NICKEL, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
NICKEL, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
LEAD, TOTAL	001	W	92L0956	03/31/92	04/09/92	04/10/92 10
LEAD, TOTAL	001 REP	W	92L0956	03/31/92	04/09/92	04/10/92
LEAD, TOTAL	001 MS	W	92L0956	03/31/92	04/09/92	04/10/92
ANTIMONY, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92 28
ANTIMONY, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
ANTIMONY, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
SELENIUM, TOTAL	001	W	92L0956	03/31/92	04/09/92	04/10/92 10
SELENIUM, TOTAL	001 REP	W	92L0956	03/31/92	04/09/92	04/10/92
SELENIUM, TOTAL	001 MS	W	92L0956	03/31/92	04/09/92	04/10/92
THALLIUM, TOTAL	001	W	92L0956	03/31/92	04/09/92	04/10/92
THALLIUM, TOTAL	001 REP	W	92L0956	03/31/92	04/09/92	04/10/92
THALLIUM, TOTAL	001 MS	W	92L0956	03/31/92	04/09/92	04/10/92
VANADIUM, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92 28
VANADIUM, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
VANADIUM, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
ZINC, TOTAL	001	W	92L0957	03/31/92	04/09/92	04/28/92
ZINC, TOTAL	001 REP	W	92L0957	03/31/92	04/09/92	04/28/92
ZINC, TOTAL	001 MS	W	92L0957	03/31/92	04/09/92	04/28/92
B01S78						
SILVER, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92 28
ALUMINUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92

7/16/93

9213523.1173 Holding Time Summary pg. 3 of 3

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

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	002	W	92L0956	03/31/92	04/09/92	04/10/92 10
BARIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92 28
BERYLLIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
BISMUTH, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/24/92 24
CALCIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92 28
CADMIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
COBALT, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
CHROMIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
COPPER, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
IRON, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
MERCURY, TOTAL	002	W	92C0094	03/31/92	04/08/92	04/09/92 9
POTASSIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92 28
MAGNESIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
MANGANESE, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
SODIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
NICKEL, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92
LEAD, TOTAL	002	W	92L0956	03/31/92	04/09/92	04/10/92 10
ANTIMONY, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92 28
SELENIUM, TOTAL	002	W	92L0956	03/31/92	04/09/92	04/10/92 10
THALLIUM, TOTAL	002	W	92L0956	03/31/92	04/09/92	04/10/92
VANADIUM, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92 28
ZINC, TOTAL	002	W	92L0957	03/31/92	04/09/92	04/28/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
ALUMINUM LABORTORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
BARIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
BERYLLIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
BISMUTH, LCS	LC1 BS	W	92L0957	N/A	04/09/92	04/24/92
CALCIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
CADMIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
COBALT LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
CHROMIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
COPPER LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
IRON LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
POTASSIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
MAGNESIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
MANGANESE LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92
SODIUM LABORATORY	LC1 BS	W	92L0957	N/A	04/09/92	04/28/92

Blank 9213523.1174 0000031 Pg 1 of 1

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.: CLP871

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M	
Aluminum	46.0	U	46.0	U	46.0	U	46.0	U	46.000	U	P	
Antimony	36.0	U	36.0	U	36.0	U	36.0	U	36.000	U	P	
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F	
Barium	7.0	U	7.0	U	7.0	U	7.0	U	7.000	U	P	
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.000	U	P	
Cadmium	4.0	U	4.0	U	4.0	U	4.0	U	4.000	U	P	
Calcium	62.0	U	62.0	U	62.0	U	62.0	U	62.000	U	P	
Chromium	7.0	U	7.0	U	7.0	U	7.0	U	7.000	U	P	
Cobalt	7.0	U	7.0	U	7.0	U	7.0	U	7.000	U	P	
Copper	7.0	U	7.0	U	7.0	U	7.0	U	7.000	U	P	
Iron	30.0	U	30.0	U	30.0	U	30.0	U	30.000	U	P	
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F	
Magnesium	69.0	U	69.0	U	69.0	U	433.5 86.7	B	69.000	U	P	
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P	
Mercury	.1	U	.1	U	.1	U	.1	U	.100	U	CV	
Nickel	18.0	U	18.0	U	18.0	U	18.0	U	18.000	U	P	
Potassium	896.0	U	896.0	U	896.0	U	896.0	U	896.000	U	P	
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F	
Silver	8.0	U	8.0	U	8.0	U	8.0	U	8.000	U	P	
Sodium	117.0	U	117.0	U	117.0	U	117.0	U	117.000	U	P	
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F	
Vanadium	5.0	U	5.0	U	31.5 6.3	B	37.5 7.5	B	26.5 5.300	B	P	u
Zinc	6.0	U	6.0	U	6.0	U	6.0	U	38.5 7.700	B	P	u
Cyanide	10.0	U	10.0	U	10.0	U			10.000	U	C	

FORM III - IN 03/90

CCB1
Assocw
B01573
B01578

7/6/92

9713523.1175

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-RP-1	REVIEWER: [illegible]	DATE: 7/17/92
LABORATORY: Hanford	CASE: 92104L871	SDG: 871
SAMPLES/MATRIX: B01572, B01578 / Soils — waters		
	7/17/92	

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		X		
Cover Page		X		
Traffic Reports/Chain-of-Custody		X		
Sample Analysis Data Report Forms		X		
Standards Data		X		
QC Summary				
Blanks Summary Report Forms		X		
Spike Sample Recovery Report Forms		X		
Duplicate Sample Analysis Report Forms		X		
Laboratory Control Sample Report Forms		X		
Raw Data				
Ion Chromatograph Chromatograms		X		
TOC and TOX Instrument Printouts			TOC	TOX
Laboratory Bench Sheets		X		
Additional Data				
Laboratory Sample Preparation Logs		X		
Instrument Run Logs		X		
Internal Laboratory Chain-of-Custory			X	
Percent Solids Analysis Records				X
Reduction Formulae			X	
Chemist Notebook Pages			X	

2. HOLDING TIMES

Were all samples analyzed within holding times? **Yes** No N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥0.995?	Yes	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks? Nitrate + Nitrite-N	Yes	No	N/A

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits?	Yes	No	N/A

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results >IDL, for which the LCS %R falls within the range 50-79% or >120%. Qualify as estimated (UJ), all sample results <IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results >IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results <IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are instrument detection limits below the CRDL? Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

9713523.1179

COMMENTS (attach additional sheets as necessary):

Sample B0S72 was identified as a field blank and B0S78 as a trip blank. All sample results were ND with the exception of Nitrate + Nitrite-N at 23 mg-N/L in both samples.

7/17/92

Holding Time Summary Pg 1 of 1

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

DATE RECEIVED: 04/02/92 RFW LOT # :9204L871

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
B01S73							
NITRATE BY IC	001	W	92LIC056	03/31/92	04/02/92	04/02/92	2
NITRATE BY IC	001 REP	W	92LIC056	03/31/92	04/02/92	04/02/92	
NITRATE BY IC	001 MS	W	92LIC056	03/31/92	04/02/92	04/02/92	
NITRATE BY IC	001 MSD	W	92LIC056	03/31/92	04/02/92	04/02/92	
TOTAL CYANIDE	001	W	92LC093	03/31/92	04/03/92	04/03/92	3
TOTAL CYANIDE	001 REP	W	92LC093	03/31/92	04/03/92	04/03/92	
TOTAL CYANIDE	001 MS	W	92LC093	03/31/92	04/03/92	04/03/92	
TOTAL CYANIDE	001 MSD	W	92LC093	03/31/92	04/03/92	04/03/92	
PHOSPHATE BY IC	001	W	92LIC056	03/31/92	04/02/92	04/02/92	2
PHOSPHATE BY IC	001 REP	W	92LIC056	03/31/92	04/02/92	04/02/92	
PHOSPHATE BY IC	001 MS	W	92LIC056	03/31/92	04/02/92	04/02/92	
PHOSPHATE BY IC	001 MSD	W	92LIC056	03/31/92	04/02/92	04/02/92	
SULFATE BY IC	001	W	92LIC056	03/31/92	04/02/92	04/02/92	
SULFATE BY IC	001 REP	W	92LIC056	03/31/92	04/02/92	04/02/92	
SULFATE BY IC	001 MS	W	92LIC056	03/31/92	04/02/92	04/02/92	
SULFATE BY IC	001 MSD	W	92LIC056	03/31/92	04/02/92	04/02/92	
NITRATE NITRITE	001	W	92LN3057	03/31/92	04/28/92	04/28/92	28
NITRATE NITRITE	C01 REP	W	92LN3057	03/31/92	04/28/92	04/28/92	
NITRATE NITRITE	001 MS	W	92LN3057	03/31/92	04/28/92	04/28/92	
NITRATE NITRITE	001 MSD	W	92LN3057	03/31/92	04/28/92	04/28/92	
SUB-OUT TEST FOR SUB	001	W		03/31/92			
B01S78							
NITRATE BY IC	002	W	92LIC056	03/31/92	04/02/92	04/02/92	2
TOTAL CYANIDE	002	W	92LC093	03/31/92	04/03/92	04/03/92	3
PHOSPHATE BY IC	002	W	92LIC056	03/31/92	04/02/92	04/02/92	2
SULFATE BY IC	002	W	92LIC056	03/31/92	04/02/92	04/02/92	
NITRATE NITRITE	002	W	92LN3057	03/31/92	04/28/92	04/28/92	28
SUB-OUT TEST FOR SUB	002	W		03/31/92			

LAB QC: All holding times were met. 7/17/92

BROMIDE BY IC	MB1	W	92LIC056	N/A	04/02/92	04/02/92
BROMIDE BY IC	MB1 BS	W	92LIC056	N/A	04/02/92	04/02/92
BROMIDE BY IC	MB1 BSD	W	92LIC056	N/A	04/02/92	04/02/92
CHLORIDE BY IC	MB1	W	92LIC056	N/A	04/02/92	04/02/92