WESTON Analytics Use Only

9107L222

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Westinghouse Hanford Co.

Est. Final Proj. Sampling Date:

Work Order #: 91-019 61680201

Project Contact/Phone #: WS Thompson (509) 376-2153

AD Project Manager: Peg Beaty

QC: CLP Rel CLP TAT: 35 days

Date Rec'd: 7/17/91 Date Due: As specified in Statement of Work

Account #: 105 Hanford

Refrigerator #: polycooler

#/Type Container: Liquid 2 (CLABS) 2; Solid

Volume: Liquid; Solid 125 g 950 (multiters)

Preservatives: 4°C

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	VOA	BNA	Pest/PCB	Herb	1	2	3	TOC	Metal	CN
						ORGANIC							INORG	
						062584	062584		062584	Anions	ISOB	TOC	Metals	ICNO2
001	B00X65 RAD		S	7/17/91		✓	✓		X	X	X	✓	✓	✓
2	B00X79		S	7/17/91		✓	✓		X	X	X	✓	✓	✓

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

ANALYSES REQUESTED

Anions = ICNO2 IC NO3

1. VOA (CLP)
2. Semi-VOA, Pesticides, PCB's, TOC, ICP/AA Metals, Bismuth, Cyanide (CLP); IC Anions NO2/NO3
3. Total alpha/beta, GEA, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240, Ru-106, Total Uranium

Special Instructions:

Please call to confirm receipt and condition of sample

DATE/REVISIONS:

7/24/91 1. Radiochem scribbled to Teledyne
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Properly Preserved Y or N
5) Received Within Holding Times Y or N

CCC Tape was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
CCC Record Present Upon Sample Rec'd Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Emelly Rhiou	See JHC COC	7/20/91	1:30 pm
	PG 7/20/91		

Relinquished by	Received by	Date	Time
	PG 7/20/91		

RFW 21-21-001/A-8/90 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 381-596a

START 96 3407.1996

0043033

9107L222-WES-121

147

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

RFW Batch Number: 9107L222 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 07/31/91 16:18 Page: 1a

	Cust ID:	B00X65	B00X79	B00X79	B00X79	VBLK
Sample Information	RFW#:	001	002	002 MS	002 MSD	91LVQ035-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	97 %	97 %	92 %	93 %	96 %
	Bromofluorobenzene	104 %	101 %	96 %	94 %	102 %
	1,2-Dichloroethane-d4	92 %	91 %	93 %	95 %	96 %
Chloromethane		11 U	10 U	10 U	10 U	10 U
Bromomethane		11 U	10 U	10 U	10 U	10 U
Vinyl Chloride		11 U	10 U	10 U	10 U	10 U
Chloroethane		11 U	10 U	10 U	10 U	10 U
Methylene Chloride		3 JB	2 JB	3 JB	2 JB	2 J
Acetone		27 B	39 B	69 B	66 B	6 J
Carbon Disulfide		6 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		6 U	5 U	141 %	144 %	5 U
1,1-Dichloroethane		6 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	5 U	5 U	5 U	5 U
Chloroform		6 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	5 U	5 U	5 U	5 U
2-Butanone		11 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		6 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	5 U	5 U	5 U	5 U
Vinyl Acetate		11 U	10 U	10 U	10 U	10 U
Bromodichloromethane		6 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	5 U	5 U	5 U	5 U
Trichloroethene		6 U	5 U	105 %	107 %	5 U
Dibromochloromethane		6 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	5 U	5 U	5 U	5 U
Benzene		6 U	5 U	122 %	127 %	5 U
Trans-1,3-Dichloropropene		6 U	5 U	5 U	5 U	5 U
Bromoform		6 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		11 U	10 U	10 U	10 U	10 U
2-Hexanone		11 U	10 U	10 U	10 U	10 U
Tetrachloroethene		6 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

9613402.0956

Cust ID:	B00X65	B00X79	B00X79	B00X79	VBLK
RFW#:	001	002	002 MS	002 MSD	91LVQ035-MB1
Toluene	6 U	1 J	115 %	114 %	5 U
Chlorobenzene	6 U	5 U	104 %	106 %	5 U
Ethylbenzene	6 U	5 U	5 U	5 U	5 U
Styrene	6 U	5 U	5 U	5 U	5 U
Xylene (total)	6 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

96 0402 0957

WESTON

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-20-91
RFW #: 9107L222, GC/MS VOLATILE
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of two (2) soil samples collected on 07-17-91.

The samples were analyzed according to criteria set forth in CLP SOW 02/88 (Rev. 05/89) for TCL Volatile target compounds on 07-25-91.

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

1. Non-target compounds were not detected in these samples.

2. All surrogate recoveries were within EPA QC limits.

3. All matrix spike recoveries were within EPA QC limits.

4. The laboratory blank contained the common contaminants methylene chloride and acetone at levels less than the CRQL.

5. Internal standard area and retention time criteria were met for samples and blanks.

8.14.91.

Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 16

BOOX65

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

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

Lab File ID: 0072508

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5

Date Analyzed: 07/25/91

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	3	JB
67-64-1	Acetone	27	B
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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO. 17

BOOX65

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

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

Lab File ID: 0072508

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5

Date Analyzed: 07/25/91

Column: (pack/cap) PACK

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.				

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 2

BOOX79

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

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

Lab File ID: 0072509

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 3

Date Analyzed: 07/25/91

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	2	JB
67-64-1	Acetone	39	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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO. 26

B00X79

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

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

Lab File ID: 0072509

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 3

Date Analyzed: 07/25/91

Column: (pack/cap) PACK

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.				

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9107L222 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 08/02/91 10:21 Page: 1a

	Cust ID:	B00X65	B00X79	B00X79	B00X79	SBLK	SBLK BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	91LE0934-MB1	91LE0934-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	74 %	71 %	72 %	77 %	91 %	87 %
	2-Fluorobiphenyl	81 %	73 %	77 %	79 %	93 %	88 %
	p-Terphenyl-d14	80 %	85 %	84 %	73 %	97 %	91 %
	Phenol-d5	75 %	69 %	61 %	74 %	85 %	83 %
	2-Fluorophenol	71 %	65 %	55 %	68 %	88 %	83 %
	2,4,6-Tribromophenol	96 %	76 %	72 %	66 %	96 %	95 %
		fl	fl	fl	fl	fl	fl
	Phenol	350 U	350 U	64 %	67 %	330 U	86 %
	bis(2-Chloroethyl)ether	350 U	350 U	340 U	330 U	330 U	330 U
	2-Chlorophenol	350 U	350 U	54 %	70 %	330 U	81 %
	1,3-Dichlorobenzene	350 U	350 U	340 U	330 U	330 U	330 U
	1,4-Dichlorobenzene	350 U	350 U	55 %	75 %	330 U	76 %
	Benzyl alcohol	350 U	350 U	340 U	330 U	330 U	330 U
	1,2-Dichlorobenzene	65 JB	39 JB	34 JB	64 JB	54 J	37 JB
	2-Methylphenol	350 U	350 U	340 U	330 U	330 U	330 U
	bis(2-Chloroisopropyl)ether	350 U	350 U	340 U	330 U	330 U	330 U
	4-Methylphenol	350 U	350 U	340 U	330 U	330 U	330 U
	N-Nitroso-Di-n-propylamine	350 U	350 U	57 %	74 %	330 U	74 %
	Hexachloroethane	350 U	350 U	340 U	330 U	330 U	330 U
	Nitrobenzene	350 U	350 U	340 U	330 U	330 U	330 U
	Isophorone	350 U	350 U	340 U	330 U	330 U	330 U
	2-Nitrophenol	350 U	350 U	340 U	330 U	330 U	330 U
	2,4-Dimethylphenol	350 U	350 U	340 U	330 U	330 U	330 U
	Benzoic acid	160 J	35 J	1700 U	280 J	1700 U	1700 U
	bis(2-Chloroethoxy)methane	350 U	350 U	340 U	330 U	330 U	330 U
	2,4-Dichlorophenol	350 U	350 U	340 U	330 U	330 U	330 U
	1,2,4-Trichlorobenzene	350 U	350 U	75 %	82 %	330 U	89 %
	Naphthalene	350 U	350 U	340 U	330 U	330 U	330 U
	4-Chloroaniline	350 U	350 U	340 U	330 U	330 U	330 U
	Hexachlorobutadiene	350 U	350 U	340 U	330 U	330 U	330 U
	4-Chloro-3-methylphenol	350 U	350 U	74 %	74 %	330 U	88 %
	2-Methylnaphthalene	350 U	350 U	340 U	330 U	330 U	330 U
	Hexachlorocyclopentadiene	350 U	350 U	340 U	330 U	330 U	330 U

*= Outside of EPA CLP QC limits.

9107L222.0966

Cust ID:	B00X65		B00X79		B00X79		B00X79		SBLK		SBLK BS	
RFW#:	001		002		002 MS		002 MSD		91LE0934-MB1		91LE0934-MB1	
2,4,6-Trichlorophenol	350	U	350	U	340	U	330	U	330	U	330	U
2,4,5-Trichlorophenol	1800	U	1700	U	1700	U	1700	U	1700	U	1700	U
2-Chloronaphthalene	350	U	350	U	340	U	330	U	330	U	330	U
2-Nitroaniline	1800	U	1700	U	1700	U	1700	U	1700	U	1700	U
Dimethylphthalate	350	U	350	U	340	U	330	U	330	U	330	U
Acenaphthylene	350	U	350	U	340	U	330	U	330	U	330	U
2,6-Dinitrotoluene	350	U	350	U	340	U	330	U	330	U	330	U
3-Nitroaniline	1800	U	1700	U	1700	U	1700	U	1700	U	1700	U
Acenaphthene	350	U	350	U	80	%	85	%	330	U	89	%
2,4-Dinitrophenol	1800	U	1700	U	1700	U	81	J	1700	U	1700	U
4-Nitrophenol	1800	U	1700	U	97	%	97	%	1700	U	103	%
Dibenzofuran	350	U	350	U	340	U	330	U	330	U	330	U
2,4-Dinitrotoluene	350	U	350	U	91 *	%	94 *	%	330	U	97 *	%
Diethylphthalate	350	U	350	U	340	U	330	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	350	U	340	U	330	U	330	U	330	U
Fluorene	350	U	350	U	340	U	330	U	330	U	330	U
4-Nitroaniline	1800	U	1700	U	1700	U	1700	U	1700	U	1700	U
4,6-Dinitro-2-methylphenol	1800	U	1700	U	1700	U	1700	U	1700	U	1700	U
N-Nitrosodiphenylamine (1)	350	U	350	U	340	U	330	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	350	U	340	U	330	U	330	U	330	U
Hexachlorobenzene	350	U	350	U	340	U	330	U	330	U	330	U
Pentachlorophenol	1800	U	1700	U	89	%	93	%	1700	U	86	%
Phenanthrene	350	U	350	U	340	U	330	U	330	U	330	U
Anthracene	350	U	350	U	340	U	330	U	330	U	330	U
Di-n-Butylphthalate	2200		3000		3300		3000		330	U	330	U
Fluoranthene	350	U	350	U	340	U	330	U	330	U	330	U
Pyrene	350	U	350	U	78	%	69	%	330	U	85	%
Butylbenzylphthalate	1300		1400		980		590		330	U	330	U
3,3'-Dichlorobenzidine	710	U	690	U	680	U	670	U	670	U	670	U
Benzo(a)anthracene	350	U	350	U	340	U	330	U	330	U	330	U
Chrysene	350	U	350	U	340	U	330	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	3500		3300		2200		880		330	U	330	U
Di-n-Octyl phthalate	350	U	350	U	340	U	330	U	330	U	330	U
Benzo(b)fluoranthene	350	U	350	U	340	U	330	U	330	U	330	U
Benzo(k)fluoranthene	350	U	350	U	340	U	330	U	330	U	330	U
Benzo(a)pyrene	350	U	350	U	340	U	330	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	340	U	330	U	330	U	330	U
Dibenzo(a,h)anthracene	350	U	350	U	340	U	330	U	330	U	330	U
Benzo(g,h,i)perylene	350	U	350	U	340	U	330	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

9613402.0964

9615402.0965 6A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-20-91
RFW #: 9107L222, SEMIVOLATILE
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of two (2) soil samples collected on 07-17-91.

The samples were extracted on 07-24-91 and analyzed according to criteria set forth in CLP SOW 02/88 (Rev. 05/89) for TCL Semivolatile target compounds on 07-30,31-91.

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

1. Non-target compounds were detected in these samples.

2. All surrogate recoveries were within EPA QC limits.

3. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.

4. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

5. The laboratory blank contained the target compound 1,2-dichlorobenzene at a level less than the CRQL.

6. Internal standard area and retention time criteria were met for all samples and blanks.

9.4.91.

Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

1B 0000018

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

BOOX65

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

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

Lab File ID: V073006

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 7 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.4

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	65	JB
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	160	J
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	1800	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

BOOX65

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

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

Lab File ID: V073006

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 7 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.4

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	350	U
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	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	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	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	1800	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
84-74-2	Di-n-Butylphthalate	2200	
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	1300	
91-94-1	3,3'-Dichlorobenzidine	710	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)phthalate	3500	
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

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOOX65

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-001

Sample wt/vol: 30.3 (g/mL) G Lab File ID: V073006

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 7 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.15	400	JAB
2.	ALDOL CONDENSATE	7.83	200	JA
3.	ALDOL CONDENSATE	8.78	200	JA
4.	UNKNOWN	23.52	200	J
5.	HYDROCARBON	27.50	2000	J
6.	ADIPATE	28.18	500	J
7.	PHOSPHATE	28.75	1000	J
8.	UNKNOWN	29.47	900	J
9.	UNKNOWN	32.00	400	J

1B 0000047

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B00X79

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V073007

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 5 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
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	39	JB
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	35	J
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

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B00X79

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: V073007

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.5

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	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	3000	
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	1400	
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	3300	
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

9613402.0921

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOOX79

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: V073007

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.5

Dilution Factor: 1.00

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.13	300	JAB
2.	ALDOL CONDENSATE	7.83	200	JA
3.	ALDOL CONDENSATE	8.77	200	JA
4.	ORGANIC ACID	23.50	300	J
5.	HYDROCARBON	27.43	2000	J
6.	PHOSPHATE	28.73	900	J
7.	ALKANE	29.02	200	J
8.	UNKNOWN	29.42	1000	J
9.	ALKANE	29.92	200	J
10.	UNKNOWN	31.98	300	J

RADIOACTIVE SAMPLE EVALUATION

9613402-0972 0000003

I. Sample Custodian: PNthouse **RFW Batch #** 9107L222 **DATE:** 9-22-91

Package received from:

Client: Westinghouse Location: Hanford WA

Mode of Transport: __ UPS __ Fed EX X Other Emery

DOT labels: __ Radioactive White I __ Radioactive Yellow II __ Radioactive Yellow III __ Other _____

Transport Index: 2474251777 2474251780 Security Seal: X Yes __ No

II. Package Survey:

Gamma instrument make, model, serial #: LUDLUM MODEL 19 444415
Calibration date: 8-28-90

Source response check: Th-228
Source type and ID #: 8644-2 Response 165 microR/hr

Package Survey: (microR/hr) max. reading: 4 Background: 3

III. Sample Container Measurements:

Alpha instrument make, model, serial #: LUDLUM MODEL 43-5 58660
Calibration Date: 2-21-91 Efficiency factor: 10.3 dpm/cpm

Source Response Check: Th-230
Source type and ID #: Sn-12059 Response: 2200 cpm

Gamma instrument make, model, serial #: LUDLUM MODEL 19 5 8099
Calibration Date: 6-25-91 Gamma Background = 4 microR/hr

Source Response Check: Ba-133
Source type and ID#: 6018500 Response: 900 microR/hr

Sample ID	Form (liq or sol)	RFW ID Batch	Gamma microR/hr	Alpha cpm	Alpha eff. fact	Alpha dpm	nCi/g	Mass (g)	nCi
BOOX65	sol	001	4	0			.0503	1209.8	60.85
79	1	2	4	0			.0468		

7-22-91 PA 7-22-91

RFW 21-21 013/A-05/91

* Radioactive PA 7-22-91 12.40

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

RFW Batch Number: 9107L222 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 08/27/91 13:06 Page: 1

Cust ID:	BOOX65		BOOX79		BOOX79		BOOX79		PBLK		PBLK BS	
Sample Information RFW#:	001		002		002 MS		002 MSD		91LE0935-MB1		91LE0935-MB1	
Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
D.F.:	1.00		1.00		4.00		4.00		1.00		4.00	
Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate: Di-n-butylchlorendate	129	%	100	%	120	%	144	%	124	%	117	%
==========	==========	fl	==========	fl	==========	fl	==========	fl	==========	fl	==========	fl
Alpha-BHC	8.3	U	8.3	U	32	U	34	U	8.0	U	32	U
Beta-BHC	4.2	JB	8.3	U	32	U	3.5	JB	2.7	J	32	U
Delta-BHC	8.3	U	8.3	U	32	U	34	U	8.0	U	32	U
gamma-BHC (Lindane)	8.3	U	8.3	U	68	%	72	%	8.0	U	80	%
Heptachlor	8.3	U	8.3	U	75	%	78	%	8.0	U	82	%
Aldrin	8.3	U	8.3	U	70	%	75	%	8.0	U	78	%
Heptachlor epoxide	8.3	U	8.3	U	32	U	34	U	8.0	U	32	U
Endosulfan I	8.3	U	8.3	U	32	U	34	U	8.0	U	32	U
Dieldrin	17	U	17	U	75	%	78	%	16	U	86	%
4,4'-DDE	17	U	17	U	65	U	67	U	16	U	64	U
Endrin	17	U	17	U	81	%	84	%	16	U	89	%
Endosulfan II	17	U	17	U	65	U	67	U	16	U	64	U
4,4'-DDD	17	U	17	U	65	U	67	U	16	U	64	U
Endosulfan sulfate	17	U	17	U	65	U	67	U	16	U	64	U
4,4'-DDT	9.7	JB	17	U	71	%	89	%	6.0	J	72	%
Methoxychlor	83	U	83	U	320	U	340	U	80	U	320	U
Endrin ketone	17	U	17	U	65	U	67	U	16	U	64	U
alpha-Chlordane	83	U	83	U	320	U	340	U	80	U	320	U
gamma-Chlordane	83	U	83	U	320	U	340	U	80	U	320	U
Toxaphene	170	U	170	U	650	U	670	U	160	U	640	U
Aroclor-1016	83	U	83	U	320	U	340	U	80	U	320	U
Aroclor-1221	83	U	83	U	320	U	340	U	80	U	320	U
Aroclor-1232	83	U	83	U	320	U	340	U	80	U	320	U
Aroclor-1242	83	U	83	U	320	U	340	U	80	U	320	U
Aroclor-1248	83	U	83	U	320	U	340	U	80	U	320	U
Aroclor-1254	170	U	170	U	650	U	670	U	160	U	640	U
Aroclor-1260	170	U	170	U	650	U	670	U	160	U	640	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000005

9613402.0974 6A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE-HANFORD **SAMPLES RECEIVED:** 07-20-91
RFW #: 9107L222, PEST/PCB
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of two (2) soil samples collected on 07-17-91.

The samples were extracted on 07-24-91 and analyzed according to criteria set forth in the Contract Laboratory Program for Pesticide and PCB target compounds on 08-15-91.

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

1. Linearity and breakdown criteria were met on the primary column.

2. For continuing calibration standards analyzed prior to the sample extracts, the 15%/20% criteria for calibration factors were exceeded for the following compounds:

Compound Name	Column	Date/Time Analysis
Endrin	SP2250/2401	08-15-91 at 09:04
Alpha-BHC	SP2100	08-15-91 at 09:06
Delta-BHC	SP2100	08-15-91 at 09:06

3. Retention time criteria were met for all compounds on both the primary and confirmation columns.

4. All surrogate recoveries were within EPA QC limits.

5. All matrix spike recoveries were within EPA QC limits.

6. All blank spike recoveries were within EPA QC limits.

7. The laboratory blank contained the target compounds beta-BHC and 4,4'-DDT at levels less than the CRQL.

WESTON

8. The blank spike and matrix spike samples required four-fold dilutions to maintain the pesticide concentrations within the linear range of the instrument.

9.3.91.

Jack R. Tuschall, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

Date

1D 0000014

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

BOOX65

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

Sample wt/vol: 31.0 (g/mL) G

Lab File ID: 08149103.48

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 7 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 08/15/91

GPC Cleanup: (Y/N) Y pH: 7.4

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	8.3	U
319-85-7	Beta-BHC	4.2	JB
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	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	9.7	JB
72-43-5	Methoxychlor	83	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	83	U
5103-74-2	gamma-Chlordane	83	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	83	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	83	U
53469-21-9	Aroclor-1242	83	U
12672-29-6	Aroclor-1248	83	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

8-27-91

9613402.0977

1D 0000019

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

BOOX79

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: 08149103.49

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 08/15/91

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	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	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	83	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	83	U
5103-74-2	gamma-Chlordane	83	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	83	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	83	U
53469-21-9	Aroclor-1242	83	U
12672-29-6	Aroclor-1248	83	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

8/27/91

9613402.0978

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-20-91
RFW #: 9107L222
W.O. #: 6168-02-01-0000

INORGANIC NARRATIVE

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

1. All preparation blank results were below the required detection limit.

2. All laboratory control standards (blank spikes) were within the control limits of 80-120% with the exception of nitrite. All %RPD were within the 20% guidance limit.

3. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.

4. Matrix spike recoveries are summarized on the Inorganics Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limit.

5. Replicate results are summarized on the Inorganic Precision Report contained within this document. Results were within the 20% RPD guidance limit with the exception of TOC.

6. The analytical methods applied by the laboratory, unless otherwise requested, for all inorganic analyses are derived from the USEPA Method for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020) and Standard Methods for the Examination of Water and Wastewater 16 ed. Methods for the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).

Jack R. Tuschall, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

10.11.91
Date

OCT 1991
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DATA RECEIPT

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4-19-95

9613402.0979

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/08/91

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

WESTON BATCH #: 9107L222

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOX65	% Solids	98.4		%	0.10
		Nitrate by IC	1190		MG/KG	12.7
		Cyanide, Total	1.0	u	MG/KG	1.0
		Phosphate by IC	1.3	u	MG/KG	1.3
		Sulfate by IC	3.9		MG/KG	1.3
		Nitrate Nitrite	283		MG/KG	25.4
		Total Organic Carbon	853		MG/KG	59.8
-002	BOOX79	% Solids	96.9		%	0.10
		Nitrate by IC	1470		mg/Kg	132
		Cyanide, Total	1.0	u	MG/KG	1.0
		Phosphate by IC	1.3	u	mg/Kg	1.3
		Sulfate by IC	6.6		mg/Kg	1.3
		Nitrate Nitrite	296		MG/KG	25.9
		Total Organic Carbon	796		MG/KG	98.0

Roy F. Weston, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD CO. **SAMPLES RECEIVED:** 07/20/91
RFW #: 9107L222
W.O. #: 91-019 6168-02-01

METALS NARRATIVE

The set of samples consisted of two (2) soil samples collected on 07/17/91.

The samples were analyzed according to criteria set forth in CLP SOW 3/90.

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

1. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.

2. All ICV and CCV values were within control limits.

3. All ICB and CCB values were within control limits.

4. All preparation blank values were within control limits.

5. All LCS results were within the 80-120% control limits.

6. All matrix spike recoveries were within the 75-125% control limits with the exception of Se, Tl, As, Pb and Mn. All corresponding samples were flagged with an "N" according to CLP protocol.

7. All duplicate analyses were within the 20% RPD control limit with the exception of Ba, Ca, Mn and Zn. All corresponding samples were flagged with an "*" according to CLP protocol.

8. Pb sample results were calculated by the method of standard addition (MSA). All corresponding samples were flagged with an "S" according to CLP protocol.

9. For MSA, results reported on Form 8 are calculated from absorbance values. Results reported on other forms are based concentration. As indicated in the SOW1LJM01.0, page B-32, differences due to rounding may be found between the MSA values on Form 8 and the results reported on the other forms.

WESTON

10. The code CV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). HG1 is complete with autosampler and software, but still requires manual digestion; HG2 is operated by the analyst, produces a strip chart and also requires manual digestion.

11. HG1 requires less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionally scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 ml. For soils, 0.1 gram of sample is taken to a final volume of 50 ml (including all reagents).

12. Quarterly Detection Limits for IC2 are included in this package.

13. 91L1458 - LC2, 91L1460 - LC1 and 91L1460 - LC2 for silver were below the usual 80% recovery. Weston has established a policy of redigesting and reanalyzing samples where laboratory control standards fall below 40% for silver.

Jack R. Tuschall, Ph.D.
Laboratory Manager
Lionville Analytical Laboratories

10.17.91
Date

pas\ clp-met.nar

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/15/91

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

WESTON BATCH #: 9107L222

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOX65	Silver, Total	2.0	u	MG/KG	2.0
		Aluminum, Total	3680		MG/KG	40.7
		Arsenic, Total	3.2		MG/KG	2.0
		Barium, Total	53.9		MG/KG	40.7
		Beryllium, Total	1.0	u	MG/KG	1.0
		Bismuth, Total	40.7	u	MG/KG	40.7
		Calcium, Total	9450		MG/KG	1020
		Cadmium, Total	1.0	u	MG/KG	1.0
		Cobalt, Total	10.2	u	MG/KG	10.2
		Chromium, Total	5.4		MG/KG	2.0
		Copper, Total	10.1		MG/KG	5.1
		Iron, Total	8730		MG/KG	20.3
		Mercury, Total	0.10	u	MG/KG	0.10
		Potassium, Total	1020	u	MG/KG	1020
		Magnesium, Total	3210		MG/KG	1020
		Manganese, Total	239		MG/KG	3.0
		Sodium, Total	1020	u	MG/KG	1020
		Nickel, Total	8.1	u	MG/KG	8.1
		Lead, Total	7.7		MG/KG	0.61
		Antimony, Total	12.2	u	MG/KG	12.2
		Selenium, Total	1.0	u	MG/KG	1.0
		Thallium, Total	2.0	u	MG/KG	2.0
		Vanadium, Total	10.6		MG/KG	10.2
		Zinc, Total	21.0		MG/KG	4.1

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/15/91

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

WESTON BATCH #: 9107L222

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	BOOX79	Silver, Total	1.8	u	MG/KG	1.8
		Aluminum, Total	2400		MG/KG	36.6
		Arsenic, Total	1.7	u	MG/KG	1.7
		Barium, Total	46.1		MG/KG	36.6
		Beryllium, Total	0.91	u	MG/KG	0.91
		Bismuth, Total	36.6	u	MG/KG	36.6
		Calcium, Total	6710		MG/KG	914
		Cadmium, Total	0.91	u	MG/KG	0.91
		Cobalt, Total	9.1	u	MG/KG	9.1
		Chromium, Total	1.8		MG/KG	1.8
		Copper, Total	7.6		MG/KG	4.6
		Iron, Total	6000		MG/KG	18.3
		Mercury, Total	0.10	u	MG/KG	0.10
		Potassium, Total	914	u	MG/KG	914
		Magnesium, Total	1930		MG/KG	914
		Manganese, Total	167		MG/KG	2.7
		Sodium, Total	914	u	MG/KG	914
		Nickel, Total	7.3	u	MG/KG	7.3
		Lead, Total	2.1		MG/KG	0.51
		Antimony, Total	11.0	u	MG/KG	11.0
		Selenium, Total	0.85	u	MG/KG	0.85
		Thallium, Total	1.7	u	MG/KG	1.7
		Vanadium, Total	11.2		MG/KG	9.1
		Zinc, Total	13.6		MG/KG	3.7

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOX65

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

Matrix (soil/water): SOIL Lab Sample ID: 910722201

Level (low/med): LOW Date Received: 7/20/91

% Solids: 98.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3680.00			P
7440-36-0	Antimony	11.20	U	N	P
7440-38-2	Arsenic	3.20		N	F
7440-39-3	Barium	53.90		*	P
7440-41-7	Beryllium	.45	B		P
7440-43-9	Cadmium	.81	U	N	P
7440-70-2	Calcium	9450.00		*	P
7440-47-3	Chromium	5.40			P
7440-48-4	Cobalt	4.50	B		P
7440-50-8	Copper	10.10			P
7439-89-6	Iron	8730.00			P
7439-92-1	Lead	7.70		NS	F
7439-95-4	Magnesium	3210.00			P
7439-96-5	Manganese	239.00		N*	P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	5.40	B		P
7440-09-7	Potassium	842.00	B		P
7782-49-2	Selenium	.41	U	NW	F
7440-22-4	Silver	1.42	U		P
7440-23-5	Sodium	85.10	B		P
7440-28-0	Thallium	.41	U	NW	F
7440-62-2	Vanadium	10.60			P
7440-66-6	Zinc	21.00		*	P
	Cyanide	1.02	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOX79

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

Matrix (soil/water): SOIL Lab Sample ID: 910722202

Level (low/med): LOW Date Received: 7/20/91

% Solids: 96.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2400.00			P
7440-36-0	Antimony	10.10	U	N	P
7440-38-2	Arsenic	.48	B	NW	F
7440-39-3	Barium	46.10		*	P
7440-41-7	Beryllium	.26	B		P
7440-43-9	Cadmium	.73	U	N	P
7440-70-2	Calcium	6710.00		*	P
7440-47-3	Chromium	1.80	B		P
7440-48-4	Cobalt	4.50	B		P
7440-50-8	Copper	7.60			P
7439-89-6	Iron	6000.00			P
7439-92-1	Lead	2.10		N	F
7439-95-4	Magnesium	1930.00			P
7439-96-5	Manganese	167.00		*N	P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	3.80	B		P
7440-09-7	Potassium	625.00	B		P
7782-49-2	Selenium	.54	B	NW	F
7440-22-4	Silver	1.28	U		P
7440-23-5	Sodium	104.00	B		P
7440-28-0	Thallium	.34	U	N	F
7440-62-2	Vanadium	11.20			P
7440-66-6	Zinc	13.60		*	P
	Cyanide	1.03	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

9613402.0986

VALIDATION SUMMARY

9613402.0987

9107L222-WES-121

Report To

Westinghouse Hanford Company
Richland, Washington

Data Validation Report
200-BP-1 RI/FS
Data Package: 9107L222-WES-121
Sample ID: B00X65, B00X79
Matrix: Soil
Analysis Type: Organics/Metals/Wet Chemistry

Prepared By

Golder Associates Inc.
Redmond, Washington

Validated by: _____
Susan Winter
Staff Chemist

Reviewed by: _____
Kent Angelos
Associate

May 7, 1992

913-1719

9613402.0988

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2. DATA QUALITY OBJECTIVES	1
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LIST OF ATTACHMENTS

1 Glossary of Data Qualifiers
2 Summary of Data Qualifications - Form B-7
3 As-Qualified Data Summary
4 Data Review Supporting Documentation

1. INTRODUCTION

This report presents the results of data validation on data package 9107L222-WES-121 consisting of two (2) soil samples for contract laboratory program target compound list (CLP/TCL) volatiles, semivolatiles, pesticides and PCBs, CLP target analyte list (TAL) metals and total cyanide, and wet chemistry parameters. 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 statement of work (WHC 1991) and validation procedures (WHC 1992).

2. DATA QUALITY OBJECTIVES

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, semivolatiles, pesticides/PCBs and TAL metals and cyanide. EPA methods were used for the analysis of the wet chemistry parameters.

Sample quantitation limits met the CRQL requirement for the project with the exception of minor differences due to moisture content and dilution factors. However, sample results were reported to within five times the CRQL.

Samples B00X65 and B00X79 were identified as field duplicates. The relative percent difference (RPD) for the volatile and pesticide/PCB samples were not calculated since all results were below the detection limit. The RPD for the wet chemistry parameters ranged from 2 to 51%, metals ranged from 6 to 43%. The RPD for semivolatiles ranged from 7 to 31% for the TCL compounds, and 11 to 40% for the tentatively identified compounds (TICs).

With the exception of the deficiencies identified in Section 3, the precision and accuracy goals specified in the work plan and the analytical statement of work 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

Benzoic acid in sample B00X79 was rejected since the sample retention time was out of the required control limits.

Aldol condensation products detected in the semivolatile fraction have been rejected since they are a suspected laboratory contaminant.

Nitrate+nitrite was determined by the hydrazine reduction method and the results have been rejected since they do not compare favorably with the IC data. Results for nitrate+nitrite are typically five times lower than the same results determined by IC. This may be due to acid preservation of the nitrate+nitrite samples which causes oxidation of any nitrite present to nitrate. If the samples are not pH adjusted to between 5 and 9 prior to analysis, reduction of nitrate to nitrite during application of the hydrazine reagent may be inhibited, though sodium hydroxide reagent is applied during analysis.

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

- The initial calibration relative standard deviation (RSD) for bromomethane and bromoform were out of the control limits. The associated samples, B00X65 and B00X79, were qualified as estimated (UJ).

- The continuing calibration percent difference (%D) for chloromethane, acetone, 1,1-dichloroethane, 1,2-dichloroethane, 4-methyl-2-pentanone, and 2-hexanone were out of the control limits. The associated samples were qualified as estimated (J for detects, UJ for non-detects).

- Methylene chloride and acetone were detected in the laboratory method blank at concentrations of 2 and 6 µg/Kg, respectively. Sample concentrations for both compounds in the associated samples were less than ten times the respective blank concentration and were therefore qualified as undetected (U). The acetone results in both samples were qualified as UJ since they were already qualified as estimated (J) due to the continuing calibration %D.

3.2.2 Semivolatile Organics

- The initial calibration RSD for benzyl alcohol was out of the control limits. The associated samples, B00X65 and B00X79, were qualified as estimated (UJ).

- The continuing calibration %D for benzoic acid, 2,4-dinitrophenol, 4-nitroaniline, and pyrene were out of the control limits. The associated samples were qualified as estimated (J for detects, UJ for non-detects).

- The continuing calibration %D for hexachlorocyclopentadiene, 4-nitroaniline, pyrene, and p-terphenyl-d14 were out of the control limits. The samples B00X65 and B00X79 were not associated with these calibration checks and therefore were not qualified.

- 1,2-Dichlorobenzene was detected in the laboratory method blank at a concentration of 54 µg/Kg. The concentration in the associated samples were less

than five times the respective blank concentration and were therefore qualified as undetected (U).

- The percent recovery (%R) for the matrix spike and matrix spike duplicate (MS/MSD) for 2,4-dinitrotoluene was above the control limit at 91% and 94%, respectively. The associated samples did not require qualification.

- The relative percent difference (RPD) for the MS/MSD for 1,4-dichlorobenzene was out of the control limits. The samples were not qualified since all of the surrogate recoveries were within the specified limits.

3.2.3 Pesticide/PCB Organics

- The continuing calibration %D for endrin was out of the control limit on the quantitation column. The associated samples, B00X65 and B00X79, were not qualified since all the results were below the detection limit.

- The continuing calibration %D for alpha-BHC and delta-BHC were out of the control limit on the confirmation column. The associated samples did not require qualification.

- Beta-BHC and 4,4'-DDT were present in the preparation blank at 2.7 and 6 µg/Kg, respectively. The results for these compounds in sample B00X65 were less than five times the respective blank concentration and therefore were qualified as non-detected (U). The results in sample B00X79 were below the detection limit and did not require qualification.

3.2.4 Metals

- Several analytes were present in the initial, calibration, and preparation blanks (see Attachment 4). Results for copper and selenium were less than five times the respective blank concentration and have been qualified as not detected (U).

- The matrix spike %R for sample B00X65 for arsenic, cadmium, lead, manganese, selenium, and thallium were out of the control limits. The associated results were qualified as estimated (J for detects, UJ for non-detects).

- The matrix spike %R for sample B00X79 for antimony, cadmium, selenium, and lead were out of the control limits. The associated results were qualified as estimated (J for detects, UJ for non-detects).

- The percent recoveries in GFAA analytical spikes for arsenic and selenium were out of the control limits for both samples, as well as thallium and lead for sample B00X65 only. The associated sample results for arsenic were qualified as estimated (J). The associated samples were already qualified for selenium and thallium due to the matrix spike percent recovery and therefore did not require

further qualification. Sample B00X65 for lead was analyzed using the method of standard additions (MSA).

- The %D for zinc in the ICP serial dilution was 89.4%. The associated sample, B00X65, was qualified as estimated (J).

3.2.5 Wet Chemistry

- The samples for phosphate, nitrate, and nitrite+nitrite-N were analyzed out of the required holding times for both samples. Sulfate analysis for sample B00X65 and total organic carbon (TOC) for sample B00X79 were also analyzed out of the required holding times. The associated results have been qualified as estimated (J for detects, UJ for non-detects).

- The TOC results cannot be fully validated since no preparation sheet has been provided with the data package. The results and associated QC appear acceptable and recalculation of the available raw data has not resulted in identification of any serious anomalies, however the laboratory should provide a preparation sheet for future data packages.

- The duplicate RPD for TOC was out of the control limit for sample B00X65. The associated result has been qualified as estimated (J).

4. CONCLUSIONS

Sections 1 through 3 present a summary of the data quality for the subject data package. The data as qualified are acceptable for use with the exception of benzoic acid and the aldol condensation products detected in the semivolatile fraction and the nitrate+nitrite data. The attachments provide supporting documentation and a 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. 2, 1992. Westinghouse Hanford Company, Richland, Washington.

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.

9613402.0994

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

9107L222

SDG: CLP222	REVIEWER: [illegible]	DATE: 4/28/92	PAGE 1 OF 4
COMMENTS: VOA/Semi-VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Bromomethane	UJ	All	ICV %RSD out of control limits
Bromoform	UJ	All	↓
Chloromethane	UJ	All	CCV %D out of control limit
Acetone	J	↓	↓
1,1-Dichloroethane	UJ		
1,2-Dichloroethane	UJ		
4-Methyl-2-pentanone	UJ		
2-Hexanone	UJ	↓	↓
$MeCl_2$	U	All	present in blank
Acetone	U (UJ if accidently qualified as J)	All	present in blank
Benzyl Alcohol	UJ	All	ICV %RSD out of control limit
Benzoic Acid	J	All	CCV %D out of control limits
2,4-Dinitrophenol	UJ	↓	↓
4-Nitroaniline	UJ		
Pyrene	UJ	↓	↓
Pyrene	none	none	CCV 2 %D out of control limit
p-Terphenyl-d14	none	none	↓

DATA QUALIFICATION SUMMARY - FORM B-7

9107L222

SDG: CLP222	REVIEWER: [illegible]	DATE: 4/28/92	PAGE 2 OF 4
COMMENTS: Semi-VOA / Pest/PCB			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Hexachlorocyclopentadiene	none	none	CCV's %D out of control limit
4-Nitroaniline	↓	↓	↓
Pyrene			
p-Terphenyl-d14	↓	↓	↓
4/29/92 ~~Methylene chloride~~ ~~Acetone~~	~~u~~	~~All~~	~~Present in~~
1,2-Dichlorobenzene	u	All	Present in blank
Aldol Condensates	R	All	Laboratory contaminant
2,4-Dinitrotoluene	none	none	%Rec for MS & MSD 4/28/92 ~~out of control~~ above control limit at 91 & 94%
1,4-Dichlorobenzene	none	none	MS/MSD %RPD out of control limit.
Benzoic Acid	R	B00X79	Sample RT out of control limit
Endrin	none	All	%D CCV out of control limit on quant-column
Endrin	none	none	↓
Alpha BHC	none	All	%D CCV (cont column) out of control limit.
Delta BHC	none	↓	↓
Alpha BHC	none	none	↓
Beta-BHC	u	B00X65	Present in blank
4,4'-DDT	u	↓	↓

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 222	REVIEWER: [illegible]	DATE: 4/29/92	PAGE 3 OF 4
COMMENTS: Wet Chem & Metals [illegible] 5/1/92			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
TOC	J	B00X65	Lab Dup RPD out of control limit
5/6/92 ~~% Solids~~	~~J~~	~~B00X65~~	~~Analyzed out of hold time~~ 5/6/92
NO_3 by IC	J	All	out of hold time
PO_4 by IC	UJ	All	
SO_4 by IC	J	B00X65	
NO_2/NO_3	J	All	
TOC	J	B00X79	
Cu	U	B00X65/B00X79	Present in blank
Se	U	B00X79	
Zn	none	B00X65	
Iron	none	B00X79	present in blank
Magnesium	none	B00X79	
Vanadium	none	B00X79	
Thallium	none	none	
Sodium	none	B00X79	
Arsenic	J	B00X65	MS % R out of control limit
Cadmium	UJ		
Lead	J		
Manganese	J		
Selenium	UJ		
Thallium	UJ		

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 222	REVIEWER: [illegible]	DATE: 4/29/92	PAGE 4 OF 4
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	UJ	B00X79	MS %R out of control limits
Cadmium	UJ	↓	↓
Selenium	UJ	↓	↓
Lead	J	↓	↓
Zinc	J	B00X65	ICP Serial Dil'n out of control limit
Arsenic	J	B00X79/B00X65	GFAA Analytical Spike ~~out of above~~ control limit. 4/29/92
Selenium	already qualified UJ	B00X79/B00X65	"
Thallium	"	B00X65	"
Lead	none - Analyzed by MSA	B00X65	"

9613402.0999

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

Project		200-BP-1																	
Laboratory		WESTON																	
Case		SDG 9107L222																	
Sample Number		B00X65		B00X79															
Location		216-B-57A		216-B-57A															
		55.5-58.0		55.5-58.0															
Remarks		DUPLICATE		DUPLICATE															
Sample Date		07/17/91		07/17/91															
Analysis Date		07/25/91		07/25/91															
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	11	UJ	10	UJ														
Bromomethane	10	11	UJ	10	UJ														
Vinyl Chloride	10	11	U	10	U														
Chloroethane	10	11	U	10	U														
Methylene Chloride	5	5	U	5	U														
Acetone	10	27	UJ	39	UJ														
Carbon Disulfide	5	6	U	5	U														
1,1-Dichloroethene	5	6	U	5	U														
1,1-Dichloroethane	5	6	UJ	5	UJ														
1,2-Dichloroethene (total)	5	6	U	5	U														
Chloroform	5	6	U	5	U														
1,2-Dichloroethane	5	6	UJ	5	UJ														
2-Butanone	10	11	U	10	U														
1,1,1-Trichloroethane	5	6	U	5	U														
Carbon Tetrachloride	5	6	U	5	U														
Vinyl Acetate	10	11	U	10	U														
Bromodichloromethane	5	6	U	5	U														
1,2-Dichloropropane	5	6	U	5	U														
cis-1,3-Dichloropropene	5	6	U	5	U														
Trichloroethene	5	6	U	5	U														
Dibromochloromethane	5	6	U	5	U														
1,1,2-Trichloroethane	5	6	U	5	U														
Benzene	5	6	U	5	U														
trans-1,3-Dichloropropene	5	6	U	5	U														
Bromoform	5	6	UJ	5	UJ														
4-Methyl-2-pentanone	10	11	UJ	10	UJ														
2-Hexanone	10	11	UJ	10	UJ														
Tetrachloroethene	5	6	U	5	U														
1,1,2,2-Tetrachloroethane	5	6	U	5	U														
Toluene	5	6	U	1	J														
Chlorobenzene	5	6	U	5	U														
Ethylbenzene	5	6	U	5	U														
Styrene	5	6	U	5	U														
Xylene (total)	5	6	U	5	U														

96134021.001

Project		200-BP-1																	
Laboratory		WESTON																	
Case		SDG CLP222																	
Sample Number		B00X65		B00X79															
Location		216-B-57A		216-B-57A															
		55.5-58.0		55.5-58.0															
Remarks		DUPLICATE		DUPLICATE															
Sample Date		07/17/91		07/17/91															
Extraction Date		07/24/91		07/24/91															
Analysis Date		07/30/91		07/30/91															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	330	350	U	350	U														
bis(2-Chloroethyl)ether	330	350	U	350	U														
2-Chlorophenol	330	350	U	350	U														
1,3-Dichlorobenzene	330	350	U	350	U														
1,4-Dichlorobenzene	330	350	U	350	U														
Benzyl alcohol	330	350	UJ	350	UJ														
1,2-Dichlorobenzene	330	350	U	350	U														
2-Methylphenol	330	350	U	350	U														
bis(2-Chloroisopropyl)ether	330	350	U	350	U														
4-Methylphenol	330	350	U	350	U														
N-Nitroso-di-n-propylamine	330	350	U	350	U														
Hexachloroethane	330	350	U	350	U														
Nitrobenzene	330	350	U	350	U														
Isophorone	330	350	U	350	U														
2-Nitrophenol	330	350	U	350	U														
2,4-Dimethylphenol	330	350	U	350	U														
Benzoic acid	1700	160	J	35	R														
bis(2-Chloroethoxy)methane	330	350	U	350	U														
2,4-Dichlorophenol	330	350	U	350	U														
1,2,4-Trichlorobenzene	330	350	U	350	U														
Naphthalene	330	350	U	350	U														
4-Chloroaniline	330	350	U	350	U														
Hexachlorobutadiene	330	350	U	350	U														
4-Chloro-3-methylphenol	330	350	U	350	U														
2-Methylnaphthalene	330	350	U	350	U														
Hexachlorocyclopentadiene	330	350	U	350	U														
2,4,6-Trichlorophenol	330	350	U	350	U														
2,4,5-Trichlorophenol	1700	1800	U	1700	U														
2-Chloronaphthalene	330	350	U	350	U														
2-Nitroaniline	1700	1800	U	1700	U														
Dimethylphthalate	330	350	U	350	U														
Acenaphthylene	330	350	U	350	U														
2,6-Dinitrotoluene	330	350	U	350	U														

9613402.1001

Project	200-BP-1																		
Laboratory	WESTON																		
Case	SDG	CLP222																	
Sample Number		B00X65		B00X79															
Location		216-B-57A		216-B-57A															
		55.5-58.0		55.5-58.0															
Remarks		DUPLICATE		DUPLICATE															
Sample Date		07/17/91		07/17/91															
Extraction Date		07/24/91		07/24/91															
Analysis Date		07/30/91		07/30/91															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline	1700	1800	U	1700	U														
Acenaphthene	330	350	U	350	U														
2,4-Dinitrophenol	1700	1800	UJ	1700	UJ														
4-Nitrophenol	1700	1800	U	1700	U														
Dibenzofuran	330	350	U	350	U														
2,4-Dinitrotoluene	330	350	U	350	U														
Diethylphthalate	330	350	U	350	U														
4-Chlorophenyl-phenyl ether	330	350	U	350	U														
Fluorene	330	350	U	350	U														
4-Nitroaniline	1700	1800	UJ	1700	UJ														
4,6-Dinitro-2-methylphenol	1700	1800	U	1700	U														
N-Nitrosodiphenylamine	330	350	U	350	U														
4-Bromophenyl-phenylether	330	350	U	350	U														
Hexachlorobenzene	330	350	U	350	U														
Pentachlorophenol	1700	1800	U	1700	U														
Phenanthrene	330	350	U	350	U														
Anthracene	330	350	U	350	U														
Di-n-butylphthalate	330	2200		3000															
Fluoranthene	330	350	U	350	U														
Pyrene	330	350	UJ	350	UJ														
Butylbenzylphthalate	330	1300		1400															
3,3'-Dichlorobenzidine	660	710	U	690	U														
Benz(a)anthracene	330	350	U	350	U														
Chrysene	330	350	U	350	U														
bis(2-Ethylhexyl)phthalate	330	2700		2400															
Di-n-octylphthalate	330	350	U	350	U														
Benzo(b)fluoranthene	330	350	U	350	U														
Benzo(k)fluoranthene	330	350	U	350	U														
Benzo(a)pyrene	330	350	U	350	U														
Indeno(1,2,3-cd)pyrene	330	350	U	350	U														
Dibenz(a,g)anthracene	330	350	U	350	U														
Benzo(g,h,i)perylene	330	350	U	350	U														
Aldol Condensate @ 7.15		400	R																

2001 2045196

Project		200-BP-1																	
Laboratory		WESTON																	
Case		SDG CLP222																	
Sample Number		B00X65		B00X79															
Location		216-B-57A		216-B-57A															
		55.5-58.0		55.5-58.0															
Remarks		DUPLICATE		DUPLICATE															
Sample Date		07/17/91		07/17/91															
Extraction Date		07/24/91		07/24/91															
Analysis Date		07/30/91		07/30/91															
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aldol Condensate @ 7.83		200	R																
Aldol Condensate @ 8.78		200	R																
Unknown @ 23.52		200	NJ																
Hydrocarbon @ 27.5		2000	NJ																
Adipate @ 28.18		500	NJ																
Phosphate @ 28.75		1000	NJ																
Unknown @ 29.47		900	NJ																
Unknown @ 32.00		400	NJ																
Aldol Condensate @ 7.13				300	R														
Aldol Condensate @ 7.83				200	R														
Aldol Condensate @ 8.77				200	R														
Organic acid @ 23.50				300	NJ														
Hydrocarbon @ 27.43				2000	NJ														
Phosphate @ 28.73				900	NJ														
Alkane @ 29.02				200	NJ														
Unknown @ 29.42				1000	NJ														
Alkane @ 29.92				200	NJ														
Unknown @ 31.98				300	NJ														

9613402.1003

Project		200-BP-1																				
Laboratory		WESTON																				
Case		SDG CLP222																				
Sample Number		B00X65		B00X79																		
Location		216-B-57A		216-B-57A																		
		55.5-58.0		55.5-58.0																		
Remarks		DUPLICATE		DUPLICATE																		
Sample Date		07/17/91		07/17/91																		
Extraction Date		07/24/91		07/24/91																		
Analysis Date		08/15/91		08/15/91																		
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	8.0	8.3	U	8.3	U																
beta-BHC	8.0	8.3	U	8.3	U																
delta-BHC	8.0	8.3	U	8.3	U																
gamma-BHC (Lindane)	8.0	8.3	U	8.3	U																
Heptchlor	8.0	8.3	U	8.3	U																
Aldrin	8.0	8.3	U	8.3	U																
Heptachlor epoxide	8.0	8.3	U	8.3	U																
Endosulfan I	8.0	8.3	U	8.3	U																
Dieldrin	16.0	17	U	17	U																
4,4'-DDE	16.0	17	U	17	U																
Endrin	16.0	17	U	17	U																
Endosulfan II	16.0	17	U	17	U																
4,4'-DDD	16.0	17	U	17	U																
Endosulfan sulfate	16.0	17	U	17	U																
4,4'-DDT	16.0	17	U	17	U																
Methoxychlor	80.0	83	U	83	U																
Endrin Ketone	16.0	17	U	17	U																
alpha-Chlordane	80.0	83	U	83	U																
gamma-Chlordane	80.0	83	U	83	U																
Toxaphene	160.0	170	U	170	U																
Arochlor-1016	80.0	83	U	83	U																
Arochlor-1221	80.0	83	U	83	U																
Arochlor-1232	80.0	83	U	83	U																
Arochlor-1242	80.0	83	U	83	U																
Arochlor-1248	80.0	83	U	83	U																
Arochlor-1254	160.0	170	U	170	U																
Arochlor-1260	160.0	170	U	170	U																

9613402.1004

Project	200-BP-1																				
Laboratory	WESTON																				
Case	SDG	CLP222																			
Sample Number		B00X65		B00X79																	
Location		216-B-57A		216-B-57A																	
		55.5-58.0		55.5-58.0																	
Remarks		DUPLICATE		DUPLICATE																	
Sample Date		07/17/91		07/17/91																	
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	40	3680		2400																	
Antimony	12	11.2	U	10.1	UJ																
Arsenic	2	3.2	J	0.48	J																
Barium	40	53.9		46.1																	
Beryllium	1	0.45	B	0.26	B																
Cadmium	1	0.81	UJ	0.73	UJ																
Calcium	1000	9450		6710																	
Chromium	2	5.4		1.8	B																
Cobalt	10	4.5	B	4.5	B																
Copper	5	10.1	U	7.6	U																
Iron	20	8730		6000																	
Lead	1	7.7	J	2.1	J																
Magnesium	1000	3210		1930																	
Manganese	3	239	J	167																	
Mercury	0.04	0.05	U	0.05	U																
Nickel	8	5.4	B	3.8	B																
Potassium	1000	842	B	625	B																
Selenium	1	0.41	UJ	0.54	UJ																
Silver	2	1.42	U	1.28	U																
Sodium	1000	85.1	B	104	B																
Thallium	2	0.41	UJ	0.34	U																
Vanadium	10	10.6		11.2																	
Zinc	4	21	J	13.6																	
Cyanide	500	1.02	U	1.03	U																
Bismuth	40	40.7	U	36.6	U																

9613402.1005

Project	200-BP-1																
Laboratory	WESTON																
Case	SDG	CLP222															
Sample Number		B00X65		B00X79													
Location		216-B-57A		216-B-57A													
		55.5-58.0		55.5-58.0													
Remarks		DUPLICATE		DUPLICATE													
Sample Date		07/17/91		07/17/91													
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Percent Solids	0.1	98.4		96.9													
Nitrate	4	1190	J	1470	J												
Cyanide	1	1	U	1	U												
Phosphate	4	1.3	UJ	1.3	UJ												
Sulfate	4	3.9	J	6.6													
Nitrate+Nitrite	4	283	R	296	R												
Total Organic Carbon	50	853	J	796	J												

9001.2043196

9613402.1007
1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 16
216-B-57A, 55.5-58.0
BOOX65
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

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

Lab File ID: 0072508

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5

Date Analyzed: 07/25/91

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	~~35~~	~~JB~~
67-64-1	Acetone	27	~~B~~
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.

9613402.1008

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-57A,55.5-58.0 17
BOOX65
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

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

Lab File ID: 0072508

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5

Date Analyzed: 07/25/91

Column: (pack/cap) PACK

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 VOA-TIC 12/88 Rev.

9615402.1009

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A, 55.5-58.0 2!

BOOX79
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

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

Lab File ID: 0072509

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 3

Date Analyzed: 07/25/91

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	~~2~~ 5	JB
67-64-1	Acetone	39	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.

9613402.1010

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-B-57A, 55.5-58.0 26
BOOX79
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

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

Lab File ID: 0072509

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 3

Date Analyzed: 07/25/91

Column: (pack/cap) PACK

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 VOA-TIC 12/88 Rev.

9613402.1011 0000018

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A, 55.5-58.0
BOOX65
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-001

Sample wt/vol: 30.3 (g/mL) G Lab File ID: V073006

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 7 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.4 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~~ UJ
95-50-1	1,2-Dichlorobenzene	~~65~~ 350	~~JB~~ 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	160	~~J~~ J
111-91-1	bis(2-Chloroethoxy)methane	350	U
120-83-2	2,4-Dichlorophenol	350	~~U~~ u ~~UJ~~ OK [illegible]
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	1800	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U

5/1/92

FORM 1 SV-1 12/88 Rev.

4/8/92

9613402.1012 0000019

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A, 55.5-58.0
BOOX65
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-001

Sample wt/vol: 30.3 (g/mL) G Lab File ID: V073006

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 7 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	1800	U	
83-32-9	Acenaphthene	350	U	
51-28-5	2,4-Dinitrophenol	1800	~~U~~	UJ
100-02-7	4-Nitrophenol	1800	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	1800	~~U~~	UJ
534-52-1	4,6-Dinitro-2-methylphenol	1800	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	1800	U	
85-01-8	Phenanthrene	350	U	
120-12-7	Anthracene	350	U	
84-74-2	Di-n-Butylphthalate	2200		
206-44-0	Fluoranthene	350	U	
129-00-0	Pyrene	350	~~U~~	UJ
85-68-7	Butylbenzylphthalate	1300		
91-94-1	3,3'-Dichlorobenzidine	710	U	
56-55-3	Benzo(a)anthracene	350	U	
218-01-9	Chrysene	350	U	
117-81-7	bis(2-Ethylhexyl)phthalate	~~3500~~ 2700		4/28/92
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

4/28/92

9413402.1013 0000020

CLIENT SAMPLE NO.
216-B-57A, 55.5-58.0
BOOX65
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: 9107L222-001

Sample wt/vol: 30.3 (g/mL) G Lab File ID: V073006

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 7 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.00

Number TICs found: 9 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	~~ALDOL CONDENSATE~~	~~7.15~~	~~400~~	~~JAB~~	R
2.	~~ALDOL CONDENSATE~~	~~7.83~~	~~200~~	~~JA~~	R
3.	~~ALDOL CONDENSATE~~	~~8.78~~	~~200~~	~~JA~~	R
4.	UNKNOWN	23.52	200	~~J~~	NJ
5.	HYDROCARBON	27.50	2000	~~J~~	NJ
6.	ADIPATE	28.18	500	~~J~~	NJ
7.	PHOSPHATE	28.75	1000	~~J~~	NJ
8.	UNKNOWN	29.47	900	~~J~~	NJ
9.	UNKNOWN	32.00	400	~~J~~	NJ

4/28/92

9613402.1014 0000047

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A,55.5-58.0
BOOX79
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-002

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: V073007

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 5 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.5

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~~ UJ
95-50-1	1,2-Dichlorobenzene	~~39~~ 350	~~JB~~ 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~~	35	~~U~~ J R 4/28/92
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

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FORM 1 SV-1 12/88 Rev.

4/28/92

9613402.1015 0000048

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A 55.5-58.0
BOOX79
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V073007

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 5 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N 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	350	U	
51-28-5	2,4-Dinitrophenol	1700	~~U~~	UJ
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	3000		
206-44-0	Fluoranthene	350	U	
129-00-0	Pyrene	350	~~U~~	UJ
85-68-7	Butylbenzylphthalate	1400		
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	~~3300~~ 2400		4/28/92
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.

4/28/92

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.
216-R-57A, 55.5-58.0
BOOX79
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V073007

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 5 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 1.00

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	~~ALDOL CONDENSATE~~	~~7.13~~	~~300~~	~~JAB~~	R
2.	~~ALDOL CONDENSATE~~	~~7.83~~	~~200~~	~~JA~~	R
3.	~~ALDOL CONDENSATE~~	~~8.77~~	~~200~~	~~JA~~	R
4.	ORGANIC ACID	23.50	300	~~J~~	UN
5.	HYDROCARBON	27.43	2000	~~J~~	UN
6.	PHOSPHATE	28.73	900	~~J~~	UN
7.	ALKANE	29.02	200	~~J~~	UN
8.	UNKNOWN	29.42	1000	~~J~~	UN
9.	ALKANE	29.92	200	~~J~~	UN
10.	UNKNOWN	31.98	300	~~J~~	UN

9613402.1017 0000014

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 216-B-57A, 55.5-58.0

BOOX65 Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9107L222-001

Sample wt/vol: 31.0 (g/mL) G

Lab File ID: 08149103.48

Level: (low/med) LOW

Date Received: 07/20/91

% Moisture: not dec. 7 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 08/15/91

GPC Cleanup: (Y/N) Y pH: 7.4

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	8.3	U
319-85-7	Beta-BHC	~~4.2~~ 8.3	~~U~~ 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	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	~~9.7~~ 17	~~U~~ u
72-43-5	Methoxychlor	83	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	83	U
5103-74-2	gamma-Chlordane	83	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	83	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	83	U
53469-21-9	Aroclor-1242	83	U
12672-29-6	Aroclor-1248	83	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

5/1/92

8-27-91

5/1/92

FORM 1 PEST 12/88 Rev.

4/29/92

9613402.1018 0000019

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A,55.5-58.0

BOOX79
Soil Duplicate

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9107L222-002

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 08149103.49

Level: (low/med) LOW Date Received: 07/20/91

% Moisture: not dec. 5 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/91

GPC Cleanup: (Y/N) Y pH: 7.5 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
319-84-6	Alpha-BHC	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	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	83	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	83	U
5103-74-2	gamma-Chlordane	83	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	83	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	83	U
53469-21-9	Aroclor-1242	83	U
12672-29-6	Aroclor-1248	83	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

8/27/91

FORM 1 PEST 12/88 Rev.

4/29/92

9613402.1019

0000022

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-B-57A, 55.5-58.0
BOOX65
Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

Matrix (soil/water): SOIL Lab Sample ID: 910722201

Level (low/med): LOW Date Received: 7/20/91

% Solids: 98.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3680.00			P	
7440-36-0	Antimony	11.20	U	N	P	
7440-38-2	Arsenic	3.20		N	F	
7440-39-3	Barium	53.90		*	P	
7440-41-7	Beryllium	.45	B		P	
7440-43-9	Cadmium	.81	U	N	P	
7440-70-2	Calcium	9450.00		*	P	
7440-47-3	Chromium	5.40			P	
7440-48-4	Cobalt	4.50	B		P	
7440-50-8	Copper	10.10			P	
7439-89-6	Iron	8730.00			P	
7439-92-1	Lead	7.70		NS	F	
7439-95-4	Magnesium	3210.00			P	
7439-96-5	Manganese	239.00		N*	P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	5.40	B		P	
7440-09-7	Potassium	842.00	B		P	
7782-49-2	Selenium	.41	U	NW	F	
7440-22-4	Silver	1.42	U		P	
7440-23-5	Sodium	85.10	B		P	
7440-28-0	Thallium	.41	U	NW	F	
7440-62-2	Vanadium	10.60			P	
7440-66-6	Zinc	21.00		*	P	
	Cyanide	1.02	U		C	
7440-69-9	Bismuth	40.70	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

4/21/92

0000023

9613402.1820 U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
216-B-57A, 55.5-58.0
BOOX79
Soil Duplicate

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

Matrix (soil/water): SOIL Lab Sample ID: 910722202

Level (low/med): LOW Date Received: 7/20/91

% Solids: 96.9

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2400.00			P	
7440-36-0	Antimony	10.10	~~U~~	N	P	UJ
7440-38-2	Arsenic	.48	~~B~~	NW	F	J
7440-39-3	Barium	46.10		*	P	
7440-41-7	Beryllium	.26	B		P	
7440-43-9	Cadmium	.73	~~U~~	N	P	UJ
7440-70-2	Calcium	6710.00		*	P	
7440-47-3	Chromium	1.80	B		P	
7440-48-4	Cobalt	4.50	B		P	
7440-50-8	Copper	7.60			P	J
7439-89-6	Iron	6000.00			P	
7439-92-1	Lead	2.10		N	F	J
7439-95-4	Magnesium	1930.00			P	
7439-96-5	Manganese	167.00		*N	P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	3.80	B		P	
7440-09-7	Potassium	625.00	B		P	
7782-49-2	Selenium	.54	~~B~~	NW	F	UJ
7440-22-4	Silver	1.28	U		P	
7440-23-5	Sodium	104.00	B		P	
7440-28-0	Thallium	.34	U	N	F	
7440-62-2	Vanadium	11.20			P	
7440-66-6	Zinc	13.60		*	P	
	Cyanide	1.03	U		C	
7440-69-9	Bismuth	36.60	U		P	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

4/29/92

9613402.1021

3

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/08/91

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

WESTON BATCH #: 9107L222 5/1/92

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	
-001	BOOX65	% Solids	98.4		%	0.10	
		Nitrate by IC	1190		MG/KG	12.7	J
	216-B-57A	Cyanide, Total	1.0	u	MG/KG	1.0	
	55.5 - 58.0	Phosphate by IC	1.3	u	MG/KG	1.3	UJ
	Soil Duplicate	Sulfate by IC	3.9		MG/KG	1.3	J
		~~Nitrate Nitrite~~	~~283~~		~~MG/KG~~	~~25.4~~	~~J~~ R
		Total Organic Carbon	853		MG/KG	59.8	J
-002	BOOX79	% Solids	96.9		%	0.10	
		Nitrate by IC	1470		mg/Kg	132	J
	216-B-57A	Cyanide, Total	1.0	u	MG/KG	1.0	
	55.5-58.0	Phosphate by IC	1.3	u	mg/Kg	1.3	UJ
	Soil Duplicate	Sulfate by IC	6.6		mg/Kg	1.3	
		~~Nitrate Nitrite~~	~~296~~		~~MG/KG~~	~~25.9~~	~~J~~ R
		Total Organic Carbon	796		MG/KG	98.0	J

4/29/92

9613402.1022

ATTACHMENT 4

DATA REVIEW SUPPORTING DOCUMENTATION

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/28/92
LABORATORY: Weston	CASE: 9107L222	SDG: 222
SAMPLES/MATRIX: B00X65, B00X79 / 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

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.

COMMENTS (attach additional sheets as necessary):

Samples B00X65 and B00X79 are field duplicates. All RPD values are not not calculated since all results are below the detection limits.

9613402.1027 Holding Time Summary

Pg 1 of 1

OCT 1991 RECEIVED DATA RECEIPT

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
BOOX65	001	S	91LVQ035	07/17/91	N/A	07/25/91	8 Days
BOOX79	002	S	91LVQ035	07/17/91	N/A	07/25/91	8 Days
BOOX79	002 MS	S	91LVQ035	07/17/91	N/A	07/25/91	
BOOX79	002 MSD	S	91LVQ035	07/17/91	N/A	07/25/91	
LAB QC:						No Qualification necessary	
VBLK	MB1	S	91LVQ035	N/A	N/A	07/25/91	

4/27/92

Calibration Data Summary Pg 1 of 2

6A
VOLATILE ORGANICS INTITIAL CALIBRATION DATA

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

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9107L222

Instrument ID: 10500 Calibration Date(s): 07/09/91 07/09/91

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 = 0070909 RRF50 = 0070910
RRF100= 0070911 RRF150= 0070912 RRF200= 0070913

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane	#	1.763	1.878	2.015	1.885	1.829	1.874	4.9#
Bromomethane		1.069	1.140	1.634	2.142	1.977	1.592	30.3
Vinyl Chloride	*	1.134	1.071	1.389	1.565	1.670	1.366	19.1*
Chloroethane		0.784	0.691	0.794	0.997	1.081	0.869	18.7
Methylene Chloride		1.718	1.594	1.680	1.863	1.886	1.748	7.1
Acetone		1.118	1.033	1.335	1.688	1.567	1.348	20.8
Carbon Disulfide		1.290	1.221	1.283	1.435	1.522	1.350	9.2
1,1-Dichloroethene	*	0.941	0.923	0.929	0.943	0.973	0.942	2.1*
1,1-Dichloroethane	#	2.274	2.080	2.037	2.140	2.291	2.164	5.3#
1,2-Dichloroethene (total)		0.718	0.673	0.646	0.671	0.665	0.675	3.9
Chloroform	*	2.341	2.231	2.162	2.236	2.285	2.251	3.0*
1,2-Dichloroethane		1.919	1.759	1.822	1.958	2.020	1.896	5.5
2-Butanone		0.065	0.080	0.100	0.115	0.109	0.094	22.2
1,1,1-Trichloroethane		0.620	0.648	0.646	0.726	0.767	0.681	9.1
Carbon Tetrachloride		0.469	0.508	0.531	0.606	0.647	0.552	13.2
Vinyl Acetate		0.535	0.576	0.657	0.766	0.788	0.664	16.9
Bromodichloromethane		0.575	0.637	0.672	0.756	0.806	0.689	13.4
1,2-Dichloropropane	*	0.403	0.406	0.400	0.457	0.492	0.432	9.5*
cis-1,3-Dichloropropene		0.449	0.498	0.540	0.640	0.701	0.566	18.3
Trichloroethene		0.402	0.416	0.415	0.479	0.496	0.442	9.7
Dibromochloromethane		0.403	0.519	0.630	0.752	0.809	0.623	26.7
1,1,2-Trichloroethane		0.304	0.339	0.393	0.466	0.501	0.401	20.7
Benzene		0.829	0.845	0.870	0.971	1.050	0.913	10.3
Trans-1,3-Dichloropropene		0.305	0.383	0.449	0.558	0.623	0.464	27.7
Bromoform	#	0.248	0.369	0.498	0.588	0.607	0.462	32.9#
4-Methyl-2-pentanone		0.335	0.404	0.471	0.541	0.506	0.451	18.3
2-Hexanone		0.272	0.302	0.378	0.426	0.383	0.352	18.0
Tetrachloroethene		0.325	0.346	0.360	0.389	0.411	0.366	9.3
1,1,2,2-Tetrachloroethane	#	0.428	0.526	0.624	0.724	0.726	0.606	21.3#
Toluene	*	0.510	0.528	0.530	0.565	0.599	0.546	6.5*
Chlorobenzene	#	0.715	0.740	0.726	0.735	0.753	0.734	2.0#
Ethylbenzene	*	0.368	0.368	0.371	0.371	0.380	0.372	1.3*
Styrene		0.727	0.742	0.760	0.788	0.795	0.762	3.8
Xylene (total)		0.388	0.396	0.399	0.413	0.415	0.402	2.9
Toluene-d8		0.896	0.882	0.912	0.960	1.019	0.934	6.0
Bromofluorobenzene		0.600	0.571	0.602	0.600	0.612	0.597	2.6
1,2-Dichloroethane-d4		1.789	1.661	1.662	1.729	1.768	1.722	3.4

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7A

VOLATILE CONTINUING CALIBRATION CHECK

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

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9107L222

Instrument ID: 10500 Calibration Date: 07/25/91 Time: 1218

Lab File ID: 0072505 Init. Calib. Date(s): 07/09/91 07/09/91

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	#	1.874	2.917	-55.7	#
Bromomethane		1.592	1.674	-5.2	
Vinyl Chloride	*	1.366	1.205	11.8	*
Chloroethane		0.869	0.755	13.1	
Methylene Chloride		1.748	1.487	14.9	
Acetone		1.348	0.996	26.1	
Carbon Disulfide		1.350	1.030	23.7	
1,1-Dichloroethene	*	0.942	0.833	11.6	*
1,1-Dichloroethane	#	2.164	1.483	31.5	#
1,2-Dichloroethene (total)		0.675	0.598	11.4	
Chloroform	*	2.251	2.012	10.6	*
1,2-Dichloroethane		1.896	1.346	29.0	
2-Butanone		0.094	0.092	2.1	
1,1,1-Trichloroethane		0.681	0.572	16.0	
Carbon Tetrachloride		0.552	0.431	21.9	
Vinyl Acetate		0.664	0.741	-11.6	
Bromodichloromethane		0.689	0.580	15.8	
1,2-Dichloropropane	*	0.432	0.325	24.8	*
cis-1,3-Dichloropropene		0.566	0.464	18.0	
Trichloroethene		0.442	0.420	5.0	
Dibromochloromethane		0.623	0.513	17.7	
1,1,2-Trichloroethane		0.401	0.321	20.0	
Benzene		0.913	0.729	20.2	
Trans-1,3-Dichloropropene		0.464	0.360	22.4	
Bromoform	#	0.462	0.369	20.1	#
4-Methyl-2-pentanone		0.451	0.622	-37.9	
2-Hexanone		0.352	0.474	-34.7	
Tetrachloroethene		0.366	0.390	-6.6	
1,1,2,2-Tetrachloroethane	#	0.606	0.648	-6.9	#
Toluene	*	0.546	0.555	-1.6	*
Chlorobenzene	#	0.734	0.809	-10.2	#
Ethylbenzene	*	0.372	0.413	-11.0	*
Styrene		0.762	0.796	-4.5	
Xylene (total)		0.402	0.422	-5.0	
Toluene-d8		0.934	0.842	9.9	
Bromofluorobenzene		0.597	0.565	5.4	
1,2-Dichloroethane-d4		1.722	1.339	22.2	

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FORM VII VOA

5/88 Rev.

8/2/91

4/28/98

Blank & Sample Data Summary

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9615402.1030

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO. 6

VBLK

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 91LV0035-MB1

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

Lab File ID: 0072507

Level: (low/med) LOW

Date Received: 07/25/91

% Moisture: not dec. 0

Date Analyzed: 07/25/91

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	2	J
67-64-1	Acetone	6	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 = 20
x10 = 60

5/1/92

FORM 1 V-1

12/88 Rev.

4/28/92

Blank & Sample Data Summary pg 2 of 2

1E 91J402.1051

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO. 70

VBLK

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 91LV0035-MB1

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

Lab File ID: 0072507

Level: (low/med) LOW

Date Received: 07/25/91

% Moisture: not dec. 0

Date Analyzed: 07/25/91

Column: (pack/cap) PACK

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 VOA-TIC 12/88 Rev.

9/28/92

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

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/28/92
LABORATORY: Weston	CASE: 91071222	SDG: 222
SAMPLES/MATRIX: B00X65, B00X79/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

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):

IS #5 was used to calculate bis(2-ethylhexyl) phthalate, however IS #6 is required for this calculation.

9613402.1040

Holding Time Summary

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOOX65	001	S	91LE0934	07/17/91	07/24/91 7 Days	07/30/91 6 Days
BOOX79	002	S	91LE0934	07/17/91	07/24/91	07/30/91
BOOX79	002 MS	S	91LE0934	07/17/91	07/24/91	07/31/91 7 Days
BOOX79	002 MSD	S	91LE0934	07/17/91	07/24/91	07/31/91

No qualification necessary

LAB QC:

SBLK	MB1	S	91LE0934	N/A	07/24/91	07/30/91
SBLK	MB1 BS	S	91LE0934	N/A	07/24/91	07/30/91

OCT 1991
RECEIVED
DATA RECEIPT

4/28/92

9613402.1041 0000078

Calibration Data Summary

pg 1 of 6

6B

SEMIVOLATILE ORGANICS INTITIAL CALIBRATION DATA

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

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9107L222

Instrument ID: 4500V Calibration Date(s): 07/16/91 07/16/91

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = V071606 RRF50 = V071602
RRF80 = V071603 RRF120= V071604 RRF160= V071605

BKC 8/2/91

	COMPOUND		RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
15	Phenol	*	2.611	2.706	3.519	3.172	2.913	2.984	12.3*
16	bis(2-Chloroethyl)ether		2.244	2.200	2.808	2.120	2.396	2.354	11.6
	2-Chlorophenol		1.460	1.564	1.971	1.806	1.629	1.686	12.0
	1,3-Dichlorobenzene		1.393	1.488	1.864	1.341	1.534	1.524	13.4
	1,4-Dichlorobenzene	*	1.539	1.614	1.990	1.458	1.679	1.656	12.3*
	Benzyl alcohol		0.376	0.824	1.045	0.786	0.972	0.801	32.5
	1,2-Dichlorobenzene		1.379	1.498	1.827	1.342	1.545	1.518	12.6
	2-Methylphenol		1.519	1.654	2.102	1.930	1.811	1.803	12.7
	bis(2-Chloroisopropyl)ether		5.094	5.494	6.839	5.043	5.163	5.527	13.6
	4-Methylphenol		1.534	1.623	2.157	1.970	1.861	1.829	13.9
	N-Nitroso-Di-n-propylamine	#	1.816	2.042	2.584	1.909	2.175	2.105	14.3#
	Hexachloroethane		0.642	0.733	0.899	0.667	0.757	0.740	13.6
	Nitrobenzene		0.553	0.574	0.716	0.522	0.556	0.584	13.0
	Isophorone		1.062	1.084	1.320	0.972	0.942	1.076	13.8
	2-Nitrophenol	*	0.156	0.179	0.227	0.203	0.183	0.190	14.1*
	2,4-Dimethylphenol		0.377	0.396	0.513	0.457	0.414	0.431	12.6
	Benzoic acid			0.121	0.240	0.217	0.186	0.191	27.0
	bis(2-Chloroethoxy)methane		0.565	0.621	0.791	0.569	0.627	0.635	14.5
	2,4-Dichlorophenol	*	0.221	0.245	0.326	0.285	0.267	0.269	14.9*
	1,2,4-Trichlorobenzene		0.230	0.255	0.311	0.223	0.260	0.256	13.6
	Naphthalene		1.053	1.042	1.256	0.922	0.867	1.028	14.6
	4-Chloroaniline		0.362	0.311	0.458	0.325	0.419	0.375	16.6
	Hexachlorobutadiene	*	0.105	0.117	0.140	0.102	0.114	0.116	13.0*
	4-Chloro-3-methylphenol	*	0.334	0.326	0.458	0.407	0.375	0.380	14.3*
	2-Methylnaphthalene		0.624	0.648	0.808	0.599	0.662	0.668	12.2
	Hexachlorocyclopentadiene	#	0.158	0.205	0.265	0.187	0.215	0.206	19.2#
	2,4,6-Trichlorophenol	*	0.245	0.263	0.340	0.307	0.282	0.287	13.0*
	2,4,5-Trichlorophenol			0.294	0.410	0.361	0.335	0.350	13.9
	2-Chloronaphthalene		0.971	1.073	1.298	0.982	1.078	1.080	12.2
	2-Nitroaniline			0.573	0.809	0.610	0.722	0.678	15.9
	Dimethylphthalate		1.083	1.109	1.450	1.064	1.184	1.178	13.5
	Acenaphthylene		1.714	1.785	2.070	1.542	1.626	1.747	11.6
	2,6-Dinitrotoluene		0.235	0.255	0.340	0.254	0.301	0.277	15.4
	3-Nitroaniline			0.217	0.344	0.248	0.323	0.283	21.3
	Acenaphthene	*	0.999	1.025	1.270	0.940	1.069	1.061	11.9*
	2,4-Dinitrophenol	#		0.071	0.143	0.124	0.133	0.118	27.3#
	4-Nitrophenol	#		0.102	0.195	0.170	0.174	0.160	25.2#

NCC 8/2/91

FORM VI SV-1 01/89 Rev.

4/28/92

Calibration Data Summary 9613402.1042 0000115 pg 2 of 6

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

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

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9107L222

Instrument ID: 4500V Calibration Date: 07/30/91 Time: 0809

Lab File ID: V073002 Init. Calib. Date(s): 07/16/91 07/16/91

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

	COMPOUND		$\overline{RRF}$	RRF50	%D	
15	Phenol	*	2.984	2.395	19.7	*
16	bis(2-Chloroethyl)ether		2.354	2.105	10.6	
	2-Chlorophenol		1.686	1.621	3.9	
	1,3-Dichlorobenzene		1.524	1.633	-7.2	
	1,4-Dichlorobenzene	*	1.656	1.738	-5.0	*
	Benzyl alcohol		0.801	0.855	-6.7	
	1,2-Dichlorobenzene		1.518	1.574	-3.7	
	2-Methylphenol		1.803	1.643	8.9	
	bis(2-Chloroisopropyl)ether		5.527	4.865	12.0	
	4-Methylphenol		1.829	1.686	7.8	
	N-Nitroso-Di-n-propylamine	#	2.105	2.026	3.8	#
	Hexachloroethane		0.740	0.786	-6.2	
	Nitrobenzene		0.584	0.585	-0.2	
	Isophorone		1.076	1.109	-3.1	
	2-Nitrophenol	*	0.190	0.193	-1.6	*
	2,4-Dimethylphenol		0.431	0.403	6.5	
	Benzoic acid		0.191	0.114	40.3	
	bis(2-Chloroethoxy)methane		0.635	0.585	7.9	
	2,4-Dichlorophenol	*	0.269	0.255	5.2	*
	1,2,4-Trichlorobenzene		0.256	0.270	-5.5	
	Naphthalene		1.028	1.056	-2.7	
	4-Chloroaniline		0.375	0.370	1.3	
	Hexachlorobutadiene	*	0.116	0.133	-14.7	*
	4-Chloro-3-methylphenol	*	0.380	0.324	14.7	*
	2-Methylnaphthalene		0.668	0.631	5.5	
	Hexachlorocyclopentadiene	#	0.206	0.235	-14.1	#
	2,4,6-Trichlorophenol	*	0.287	0.297	-3.5	*
	2,4,5-Trichlorophenol		0.350	0.299	14.6	
	2-Chloronaphthalene		1.080	1.059	1.9	
	2-Nitroaniline		0.678	0.566	16.5	
	Dimethylphthalate		1.178	1.175	0.3	
	Acenaphthylene		1.747	1.748	-0.1	
	2,6-Dinitrotoluene		0.277	0.260	6.1	
	3-Nitroaniline		0.283	0.242	14.5	
	Acenaphthene	*	1.061	0.972	8.4	*
	2,4-Dinitrophenol	#	0.118	0.071	39.8	#
	4-Nitrophenol	#	0.160	0.124	22.5	#

BKR 8/2/91

hcc 8/2/91

FORM VII SV-1 5/88 Rev.

4/28/92

9613402.1043 0000116

Calibration Data Summary 7C

3

Pg 4 of 6

4/28/92

SEMIVOLATILE CONTINUING CALIBRATION CHECK

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

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9107L222

Instrument ID: 4500V Calibration Date: 07/30/91 Time: 0809

Lab File ID: V073002 Init. Calib. Date(s): 07/16/91 07/16/91

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

COMPOUND	$\overline{RRF}$	RRF50	%D
Dibenzofuran	1.414	1.308	7.5
2,4-Dinitrotoluene	0.330	0.293	11.2
Diethylphthalate	1.243	1.229	1.1
4-Chlorophenyl-phenylether	0.532	0.498	6.4
Fluorene	1.200	1.076	10.3
4-Nitroaniline	0.170	0.104	38.8
4,6-Dinitro-2-methylphenol	0.130	0.107	17.7
N-Nitrosodiphenylamine (1) *	0.573	0.553	3.5 *
4-Bromophenyl-phenylether	0.204	0.226	-10.8
Hexachlorobenzene	0.199	0.240	-20.6
Pentachlorophenol *	0.112	0.113	-0.9 *
Phenanthrene	1.132	1.113	1.7
Anthracene	1.212	1.074	11.4
Di-n-Butylphthalate	1.559	1.609	-3.2
Fluoranthene *	1.045	0.853	18.4 *
Pyrene	1.712	2.278	-33.1
Butylbenzylphthalate	0.986	1.141	-15.7
3,3'-Dichlorobenzidine	0.325	0.259	20.3
Benzo(a)anthracene	1.247	1.222	2.0
Chrysene	1.169	1.105	5.5
bis(2-Ethylhexyl)phthalate	1.423	1.465	-3.0
Di-n-Octyl phthalate *	2.836	2.492	12.1 *
Benzo(b)fluoranthene	1.334	1.323	0.8
Benzo(k)fluoranthene	1.261	1.159	8.1
Benzo(a)pyrene *	1.139	1.089	4.4 *
Indeno(1,2,3-cd)pyrene	0.939	0.961	-2.3
Dibenzo(a,h)anthracene	0.908	0.781	14.0
Benzo(g,h,i)perylene	0.871	0.860	1.3
Nitrobenzene-d5	0.612	0.596	2.6
2-Fluorobiphenyl	1.113	1.129	-1.4
p-Terphenyl-d14	1.040	1.298	-24.8
Phenol-d5	2.449	2.283	6.8
2-Fluorophenol	1.554	1.592	-2.4
2,4,6-Tribromophenol	0.102	0.095	6.9

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

4/28/92

9613402.1044

Calibration Data Summary

0000125

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: 9107L222

Instrument ID: 4500V Calibration Date: 07/30/91 Time: 1605

Lab File ID: V073009 Init. Calib. Date(s): 07/16/91 07/16/91

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

COMPOUND	$\overline{RRF}$	RRF50	%D
Dibenzofuran	1.414	1.332	5.8
2,4-Dinitrotoluene	0.330	0.280	15.2
Diethylphthalate	1.243	1.186	4.6
4-Chlorophenyl-phenylether	0.532	0.514	3.4
Fluorene	1.200	1.087	9.4
4-Nitroaniline	0.170	0.144	15.3
4,6-Dinitro-2-methylphenol	0.130	0.122	6.2
N-Nitrosodiphenylamine (1) *	0.573	0.553	3.5 *
4-Bromophenyl-phenylether	0.204	0.235	-15.2
Hexachlorobenzene	0.199	0.243	-22.1
Pentachlorophenol *	0.112	0.130	-16.1 *
Phenanthrene	1.132	1.097	3.1
Anthracene	1.212	1.051	13.3
Di-n-Butylphthalate	1.559	1.579	-1.3
Fluoranthene *	1.045	0.887	15.1 *
Pyrene	1.712	2.401	-40.2
Butylbenzylphthalate	0.986	1.224	-24.1
3,3'-Dichlorobenzidine	0.325	0.302	7.1
Benzo(a)anthracene	1.247	1.225	1.8
Chrysene	1.169	1.161	0.7
bis(2-Ethylhexyl)phthalate	1.423	1.678	-17.9
Di-n-Octyl phthalate *	2.836	3.383	-19.3 *
Benzo(b)fluoranthene	1.334	1.263	5.3
Benzo(k)fluoranthene	1.261	1.253	0.6
Benzo(a)pyrene *	1.139	1.063	6.7 *
Indeno(1,2,3-cd)pyrene	0.939	0.958	-2.0
Dibenzo(a,h)anthracene	0.908	0.754	17.0
Benzo(g,h,i)perylene	0.871	0.858	1.5
Nitrobenzene-d5	0.612	0.551	10.0
2-Fluorobiphenyl	1.113	1.151	-3.4
p-Terphenyl-d14	1.040	1.396	-34.2
Phenol-d5	2.449	2.347	4.2
2-Fluorophenol	1.554	1.646	-5.9
2,4,6-Tribromophenol	0.102	0.105	-2.9

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

4/8/92

9613402.1045

Calibration Data Summary 0000133 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: 9107L222

Instrument ID: 4500V Calibration Date: 07/31/91 Time: 0749

Lab File ID: V073102 Init. Calib. Date(s): 07/16/91 07/16/91

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

COMPOUND		$\overline{RRF}$	RRF50	%D	
Phenol	*	2.984	2.355	21.1	*
bis(2-Chloroethyl)ether		2.354	1.849	21.5	
2-Chlorophenol		1.686	1.454	13.8	
1,3-Dichlorobenzene		1.524	1.536	-0.8	
1,4-Dichlorobenzene	*	1.656	1.544	6.8	*
Benzyl alcohol		0.801	0.814	-1.6	
1,2-Dichlorobenzene		1.518	1.424	6.2	
2-Methylphenol		1.803	1.480	17.9	
bis(2-Chloroisopropyl)ether		5.527	4.201	24.0	
4-Methylphenol		1.829	1.475	19.4	
N-Nitroso-Di-n-propylamine	#	2.105	1.697	19.4	#
Hexachloroethane		0.740	0.694	6.2	
Nitrobenzene		0.584	0.560	4.1	
Isophorone		1.076	1.042	3.2	
2-Nitrophenol	*	0.190	0.203	-6.8	*
2,4-Dimethylphenol		0.431	0.399	7.4	
Benzoic acid		0.191	0.178	6.8	
bis(2-Chloroethoxy)methane		0.635	0.559	12.0	
2,4-Dichlorophenol	*	0.269	0.265	1.5	*
1,2,4-Trichlorobenzene		0.256	0.276	-7.8	
Naphthalene		1.028	1.032	-0.4	
4-Chloroaniline		0.375	0.391	-4.3	
Hexachlorobutadiene	*	0.116	0.144	-24.1	*
4-Chloro-3-methylphenol	*	0.380	0.317	16.6	*
2-Methylnaphthalene		0.668	0.633	5.2	
Hexachlorocyclopentadiene	#	0.206	0.295	-43.2	#
2,4,6-Trichlorophenol	*	0.287	0.299	-4.2	*
2,4,5-Trichlorophenol		0.350	0.310	11.4	
2-Chloronaphthalene		1.080	1.085	-0.5	
2-Nitroaniline		0.678	0.509	24.9	
Dimethylphthalate		1.178	1.118	5.1	
Acenaphthylene		1.747	1.705	2.4	
2,6-Dinitrotoluene		0.277	0.238	14.1	
3-Nitroaniline		0.283	0.214	24.4	
Acenaphthene	*	1.061	0.953	10.2	*
2,4-Dinitrophenol	#	0.118	0.095	19.5	#
4-Nitrophenol	#	0.160	0.130	18.8	#

BLC 8/2/91

mcc 8/2/91

FORM VII SV-1 5/88 Rev.

4/8/92

9613402.1046

Calibration Data Summary

0000134

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: 9107L222

Instrument ID: 4500V Calibration Date: 07/31/91 Time: 0749

Lab File ID: V073102 Init. Calib. Date(s): 07/16/91 07/16/91

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

COMPOUND	$\overline{RRF}$	RRF50	%D
Dibenzofuran	1.414	1.310	7.4
2,4-Dinitrotoluene	0.330	0.269	18.5
Diethylphthalate	1.243	1.115	10.3
4-Chlorophenyl-phenylether	0.532	0.498	6.4
Fluorene	1.200	1.039	13.4
4-Nitroaniline	0.170	0.067	60.6
4,6-Dinitro-2-methylphenol	0.130	0.122	6.2
N-Nitrosodiphenylamine (1) *	0.573	0.527	8.0 *
4-Bromophenyl-phenylether	0.204	0.230	-12.7
Hexachlorobenzene	0.199	0.241	-21.1
Pentachlorophenol *	0.112	0.127	-13.4 *
Phenanthrene	1.132	1.061	6.3
Anthracene	1.212	1.054	13.0
Di-n-Butylphthalate	1.559	1.515	2.8
Fluoranthene *	1.045	0.816	21.9 *
Pyrene	1.712	2.543	48.5
Butylbenzylphthalate	0.986	1.161	-17.7
3,3'-Dichlorobenzidine	0.325	0.259	20.3
Benzo(a)anthracene	1.247	1.143	8.3
Chrysene	1.169	1.109	5.1
bis(2-Ethylhexyl)phthalate	1.423	1.640	-15.2
Di-n-Octyl phthalate *	2.836	3.011	-6.2 *
Benzo(b)fluoranthene	1.334	1.253	6.1
Benzo(k)fluoranthene	1.261	1.180	6.4
Benzo(a)pyrene *	1.139	1.036	9.0 *
Indeno(1,2,3-cd)pyrene	0.939	0.948	-1.0
Dibenzo(a,h)anthracene	0.908	0.726	20.0
Benzo(g,h,i)perylene	0.871	0.837	3.9
Nitrobenzene-d5	0.612	0.574	6.2
2-Fluorobiphenyl	1.113	1.176	-5.7
p-Terphenyl-d14	1.040	1.497	-43.9
Phenol-d5	2.449	1.998	18.4
2-Fluorophenol	1.554	1.413	9.1
2,4,6-Tribromophenol	0.102	0.104	-2.0

(1) Cannot be separated from Diphenylamine

FORM VII SV-2 5/88 Rev.

4/28/92

Blank & Sample Data Summary

0000161

1B

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: 91LE0934-MB1

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

Lab File ID: V073004

Level: (low/med) LOW

Date Received: 07/24/91

% Moisture: not dec. 0 dec.

Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 07/30/91

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

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	54	J
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

(5 x ~~[illegible]~~ 54 = 270 ug/L) 4/28/92

FORM 1 SV-1

12/88 Rev.

4/28/92

Blank & Sample Data Summary

961302.1048 0000162

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: 91LE0934-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V073004

Level: (low/med) LOW Date Received: 07/24/91

% Moisture: not dec. 0 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

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	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

(1) - Cannot be separated from Diphenylamine

4/28/93

Blank & Sample Data Summary

961402.1049 0000163

pg 3 of 3

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: 91LE0934-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V073004

Level: (low/med) LOW Date Received: 07/24/91

% Moisture: not dec. 0 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/30/91

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	7.17	100	JA

Reject data in samples laboratory contaminant

FORM 1 SV-TIC 12/88 Rev.

4/8/92

9613402.1050 0000011 Pg 1 of 1

Accuracy and Precision Data 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.: 9107L222-002

MATRIX Spike - Sample No.: B00X79 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC
Phenol	3380	0	2150	64	26- 90
2-Chlorophenol	3380	0	1810	54	25-102
1,4-Dichlorobenzene	1690	0	935	55	28-104
N-Nitroso-Di-n-propylamine	1690	0	963	57	41-126
1,2,4-Trichlorobenzene	1690	0	1260	75	38-107
4-Chloro-3-methylphenol	3380	0	2490	74	26-103
Acenaphthene	1690	0	1350	80	31-137
4-Nitrophenol	3380	0	3270	97	11-114
2,4-Dinitrotoluene	1690	0	1530	91 *	28- 89
Pentachlorophenol	3380	0	3020	89	17-109
Pyrene	1690	0	1320	78	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
Phenol	3330	2230	67	4	35	26- 90
2-Chlorophenol	3330	2320	70	25	50	25-102
1,4-Dichlorobenzene	1660	1250	75	30 *	27	28-104
N-Nitroso-Di-n-propylamine	1660	1230	74	26	38	41-126
1,2,4-Trichlorobenzene	1660	1370	82	8	23	38-107
4-Chloro-3-methylphenol	3330	2470	74	0	33	26-103
Acenaphthene	1660	1410	85	6	19	31-137
4-Nitrophenol	3330	3230	97	0	50	11-114
2,4-Dinitrotoluene	1660	1570	94 *	3	47	28- 89
Pentachlorophenol	3330	3100	93	4	47	17-109
Pyrene	1660	1140	69	12	36	35-142

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: 2 out of 22 outside limits

COMMENTS:

4/28/92

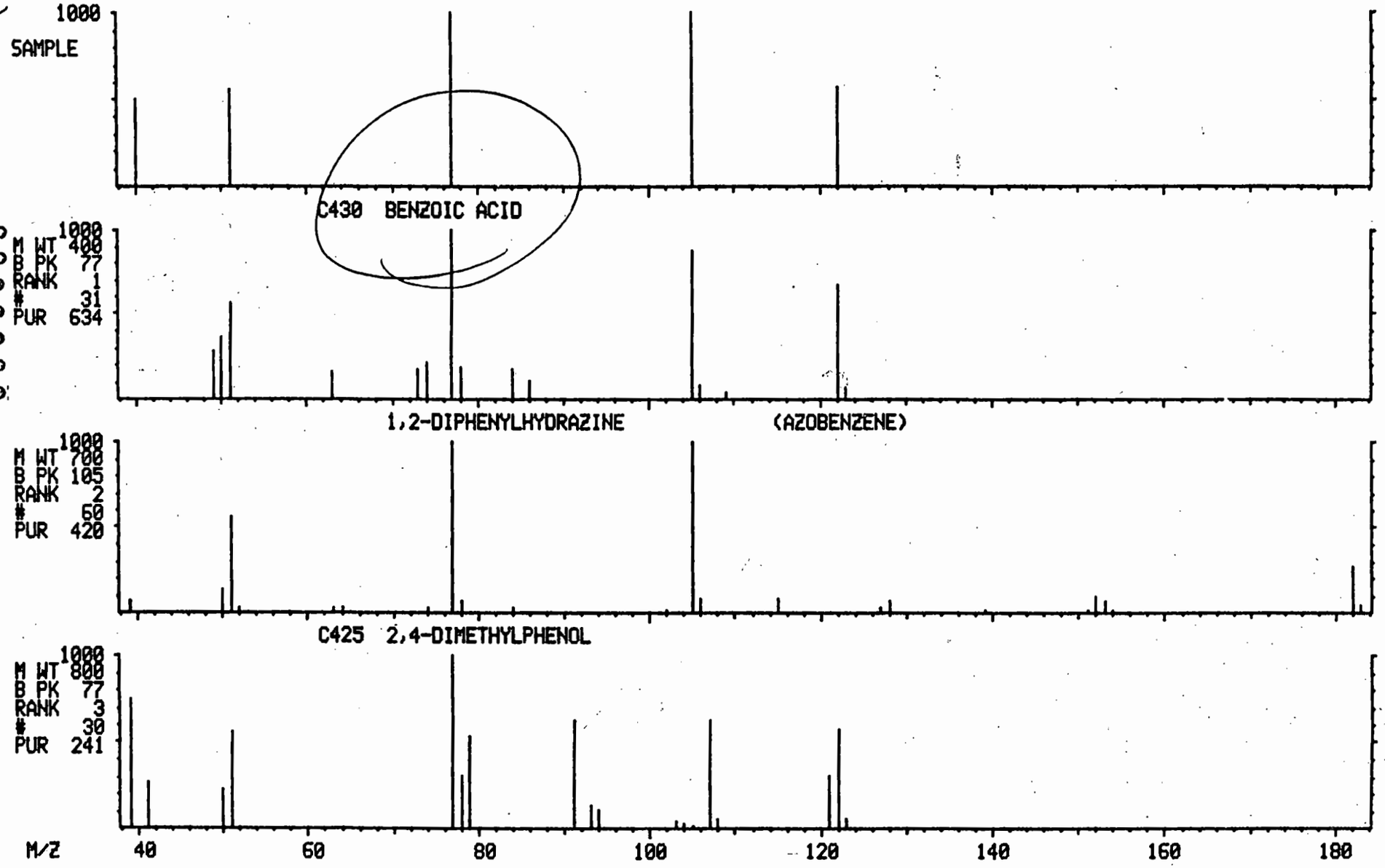
RT of CCV is 12.00

LIBRARY SEARCH
07/30/91 14:01:00 ~~+~~ 12:00
SAMPLE: 9107L222-002 WESTINGHOUSE
CONDS.: BNA/4500V 2 UL INJ. 30M RTX-5
ENHANCED (S 15B 2N 0T)

Reject Data.

DATA: V073007 # 720
CALI: V073007 # 3

BASE M/Z: 105
RIC: 797.



Retention time [illegible]

pg 1 of 1

9013402.1061

PRECISION DATA SUMMARY - FORM B-5

SDG: 222 | REVIEWER [illegible] | DATE: 4/28/92 | PAGE 1 OF 1

COMMENTS: Field Duplicate RPD

COMPOUND	SAMPLE ID: B00X65	SAMPLE ID: B00X79	RPD	SAMPLES AFFECTED	QUALIFIER
Benzoic Acid	160 J	35 R	~~200~~ 0 4/29/92	none	none
Di-n-Butylphthalate	2200	3000	31		
Butylbenzylphthalate	1300	1400	7		
bis(2-Ethylhexyl)phthalate	2700	3300	20		
TICs Unknown RT		RT / Result			
Unknown 23.52	200 NJ	23.50 / 300 NJ	40		
Hydrocarbon 27.50	2000 NJ	27.43 / 2000 NJ	0	200 [illegible] 5/1/92	
ADIPATE 28.18	500 NJ	none	~~200~~ 0 4/29/92		
Phosphate 28.75	1000 NJ	28.73 / 900 NJ	11		
Unknown 29.47	900 NJ	29.42 / 1000 NJ	11		
~~Unknown 32.00~~	~~400 NJ~~	~~29.42 / 200 NJ~~ none 4/28/92		200 [illegible] 5/1/92	
Alkane	none	29.02 / 200 NJ	~~200~~ 0 4/29/92	200	
Alkane	none	29.92 / 200 NJ	~~200~~ 0 4/29/92		
Unknown 32.00	400 NJ	31.98 / 300 NJ	29		
All other semivolatile TCL compounds	ND	ND	NC		

4/28/92

ND = Not Detected
NC = Not Calculated

9613402.1052

CALCULATION SUMMARY - FORM B-6

SDG: 222	REVIEWER: [illegible]	DATE: 4/28/92	PAGE 1 OF 1

COMMENTS:

bis(2-Ethylhexyl)phthalate

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

B00X65

$$\frac{(63567)(40)(2000)(1)}{(22975)(1.465)(2)(30.3)(.932)} = 2675 = 2700 \text{ ug/kg}$$

B00X79

$$\frac{(57443)(40)(2000)(1)}{(22951)(1.465)(2)(30.4)(.948)} = 2371 \Rightarrow 2400 \text{ ug/kg}$$

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/28/92
LABORATORY: Lucton	CASE: 91071222	SDG: 222
SAMPLES/MATRIX: B00X65, B00X79 / 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 4/27/92

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

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):

Calculations are performed using peak heights, instead of peak area.

9613402.1063

Page 1 of 1

Holding Time Summary

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOOX65	001	S	91LE0935	07/17/91	07/24/91 7 Days	08/15/91 22 Days
BOOX79	002	S	91LE0935	07/17/91	07/24/91	08/15/91
BOOX79	002 MS	S	91LE0935	07/17/91	07/24/91	08/15/91
BOOX79	002 MSD	S	91LE0935	07/17/91	07/24/91	08/15/91
LAB QC:					No Qualification necessary	
PBLK	MB1	S	91LE0935	N/A	07/24/91	08/15/91
PBLK	MB1 BS	S	91LE0935	N/A	07/24/91	08/15/91

OCT 1991
RECEIVED
DATA RECEIPT

8/29/91

Pg 1 of 4

PESTICIDE/PCB STANDARD SUMMARY

Calibration Data Summary

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

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 08149103.45

RFW Lot No.: 9107L222

All results are non-detect, therefore no qualification is necessary

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 08/14/91 TO: 08/14/91
TIME(S) OF ANALYSIS FROM: 1030 TO: 1456

DATE OF ANALYSIS 08/15/91
TIME OF ANALYSIS 0904
EPA SAMPLE NO. (STANDARD) INDB 26-56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.95	1.93	1.97	9528899	1.95	9556945	Y	0.3
Beta-BHC	2.69	2.66	2.72	4283033	2.69	4082415	Y	4.7
Delta-BHC	3.12	3.09	3.15	4442691	3.12	4471527	Y	0.6
gamma-BHC (Lindane)	2.41	2.38	2.44	8242297				
Heptachlor	2.93	2.90	2.96	9305815				
Aldrin	3.50	3.47	3.53	7001685	3.50	6981777	Y	0.3
Heptachlor epoxide	5.07	5.03	5.11	5043995				
Endosulfan I	6.32	6.26	6.38	3878571				
Dieldrin	7.62	7.56	7.70	3115761				
4,4'-DDE	7.10	7.04	7.16	3640235	7.10	3497831	Y	3.9
Endrin	9.19	9.11	9.27	1795319	9.19	2152791	Y	19.9
Endosulfan II	10.98	10.87	11.09	2058299				
4,4'-DDD	10.60	10.50	10.70	1415615	10.60	1402723	Y	0.9
Endosulfan sulfate	16.91	16.77	17.05	1241641	16.90	1213383	Y	2.3
4,4'-DDT	12.69	12.55	12.83	1359779				
Methoxychlor	23.34	23.08	23.60	483964				
Endrin ketone	22.84	22.82	22.86	525332	22.84	518599	Y	1.3
alpha-Chlordane	6.08	6.03	6.13	3420113	6.08	3299137	Y	3.5
gamma-Chlordane	5.60	5.55	5.65	3805819	5.60	3671509	Y	3.5
Toxaphene	11.19	11.10	11.28	251098				
Aroclor-1016	2.86	2.84	2.90	1382635				
Aroclor-1221	1.81	1.79	1.83	412443				
Aroclor-1232	2.87	2.85	2.89	683779				
Aroclor-1242	2.87	2.84	2.90	1171645				
Aroclor-1248	2.86	2.84	2.90	1498073				
Aroclor-1254	8.83	8.74	8.92	1444495				
Aroclor-1260	9.86	9.78	9.92	1277733				

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.

4-29-92

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PESTICIDE/PCB STANDARD SUMMARY

Calibration Data Summary

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

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 08149103.57

RFW Lot No.: 9107L222

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 08/14/91 TO: 08/14/91
TIME(S) OF ANALYSIS FROM: 1030 TO: 1456

DATE OF ANALYSIS 08/15/91
TIME OF ANALYSIS 1539
EPA SAMPLE NO. (STANDARD) INDB 26-56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.95	1.93	1.97	9528899	1.95	9623691	Y	1
Beta-BHC	2.69	2.66	2.72	4283033	2.69	4141797	Y	3.3
Delta-BHC	3.12	3.09	3.15	4442691	3.12	4145477	Y	6.7
gamma-BHC (Lindane)	2.41	2.38	2.44	8242297				
Heptachlor	2.93	2.90	2.96	9305815				
Aldrin	3.50	3.47	3.53	7001685	3.50	7106367	Y	1.5
Heptachlor epoxide	5.07	5.03	5.11	5043995				
Endosulfan I	6.32	6.26	6.38	3878571				
Dieldrin	7.62	7.56	7.70	3115761				
4,4'-DDE	7.10	7.04	7.16	3640235	7.10	3577471	Y	1.7
Endrin	9.19	9.11	9.27	1795319	9.19	2175603	Y	21.2
Endosulfan II	10.98	10.87	11.09	2058299				
4,4'-DDD	10.60	10.50	10.70	1415615	10.60	1410621	Y	0.4
Endosulfan sulfate	16.91	16.77	17.05	1241641	16.89	1188493	Y	4.3
4,4'-DDT	12.69	12.55	12.83	1359779				
Methoxychlor	23.34	23.08	23.60	483964				
Endrin ketone	22.84	22.82	22.86	525332	22.84	526907	Y	0.3
alpha-Chlordane	6.08	6.03	6.13	3420113	6.08	3368935	Y	1.5
gamma-Chlordane	5.60	5.55	5.65	3805819	5.60	3746389	Y	1.6
Toxaphene	11.19	11.10	11.28	251098				
Aroclor-1016	2.86	2.84	2.90	1382635				
Aroclor-1221	1.81	1.79	1.83	412443				
Aroclor-1232	2.87	2.85	2.89	683779				
Aroclor-1242	2.87	2.84	2.90	1171645				
Aroclor-1248	2.86	2.84	2.90	1498073				
Aroclor-1254	8.83	8.74	8.92	1444495				
Aroclor-1260	9.86	9.78	9.92	1277733				

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.

4/29/92

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PESTICIDE/PCB STANDARD SUMMARY

Calibration Data Summary

Lab Name: Roy F. Weston, Inc. Contract: 68-02-01-0000

Case No.: Washington Hanford GC Sample ID: 08149104.45

RFW Lot No.: 91071222

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS FROM: 08/14/91	DATE OF ANALYSIS 08/15/91
TO: 08/14/91	TIME OF ANALYSIS 0906
TIME(S) OF ANALYSIS FROM: 1032	EPA SAMPLE NO.
TO: 1459	(STANDARD) INDB 26-56

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	1502937	2.18	2244763	N	49.4
Beta-BHC	2.33	2.31	2.35	2638885	2.32	2449283	N	7.2
Delta-BHC	2.59	2.57	2.61	1576455	2.59	1970953	N	25.0
gamma-BHC (Lindane)	2.51	2.49	2.53	3089567				
Heptachlor	3.86	3.84	3.88	4038769				
Aldrin	4.70	4.68	4.72	2774981	4.70	2903753	N	4.6
Heptachlor epoxide	5.62	5.59	5.65	2723155				
Endosulfan I	6.90	6.87	6.93	1849397				
Dieldrin	7.96	7.91	8.01	1470107				
4,4'-DDE	7.78	7.73	7.83	1355361	7.77	1366285	N	0.8
Endrin	8.86	8.80	8.92	889686	8.85	1024337	N	15.1
Endosulfan II	9.05	9.00	9.10	1345307				
4,4'-DDD	9.70	9.62	9.76	560006	9.68	601522	N	7.4
Endosulfan sulfate	11.42	11.35	11.49	521109	11.40	552445	N	6.0
4,4'-DDT	12.44	12.34	12.54	432018				
Methoxychlor	17.78	17.67	17.89	428349				
Endrin ketone	14.50	14.40	14.60	782699	14.50	825656	N	5.5
alpha-Chlordane	7.00	6.94	7.04	1989421	6.99	2012933	N	1.2
gamma-Chlordane	6.37	6.32	6.42	2200961	6.37	2234841	N	1.5
Toxaphene	9.64	9.34	9.94	203346				
Aroclor-1016	3.39	3.36	3.42	850662				
Aroclor-1221	2.19	2.17	2.21	325969				
Aroclor-1232	2.19	2.17	2.21	460445				
Aroclor-1242	3.39	3.37	3.41	751737				
Aroclor-1248	3.39	3.36	3.42	873192				
Aroclor-1254	6.66	6.60	6.70	930222				
Aroclor-1260	11.05	10.96	11.14	594613				

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.

9613402.1067 0000038

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Calibration Data Summary

9

PESTICIDE/PCB STANDARDS SUMMARY

Lab Name: ROY FLUSTON Contract: ~~1964-04-03 6000~~ 6168-02-01-0000 DER 8/27/91

Lab Code: Westinghouse HANFORD Case No.: 91071222 SAS No.: _____ SDG No.: _____

Instrument ID: 04 GC Column ID: SD2100

GC SAMPLE ID 08149104.57

DATE(S) OF ANALYSIS	FROM: 08/14/91	DATE OF ANALYSIS	08/15/91
	TO: 08/14/91	TIME OF ANALYSIS	1542
TIME(S) OF ANALYSIS	FROM: 1032	EPA SAMPLE NO. (STANDARD)	57 IND1326-56
	TO: 1459		

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	1502937	2.17	2428849	N	61.6
beta-BHC	2.33	2.31	2.35	2638885	2.32	2550839	N	3.3
delta-BHC	2.59	2.57	2.61	1516455	2.59	1626825	N	1.9
gamma-BHC	2.51	2.49	2.53	3089567				
Heptachlor	3.86	3.84	3.88	4038769				
Aldrin	4.70	4.68	4.72	2774981	4.69	3009063	N	8.4
Hept. epoxide	5.62	5.59	5.65	2723155				
Endosulfan I	6.90	6.87	6.93	1849397				
Dieldrin	7.96	7.91	8.01	1470107				
4,4'-DDE	7.78	7.73	7.83	1355361	7.76	1388495	N	2.4
Endrin	8.86	8.80	8.92	889686	8.84	1055623	N	18.7
Endosulfan II	9.05	9.00	9.10	1345307				
4,4'-DDD	9.70	9.62	9.76	560006	9.67	604555	N	8.0
Endo. sulfate	11.42	11.35	11.49	521109	11.39	484950	N	6.9
4,4'-DDT	12.44	12.34	12.54	432018				
Methoxychlor	17.78	17.67	17.89	428349				
Endrin ketone	14.50	14.40	14.60	782699	14.49	854715	N	9.2
a. Chlordane	7.00	6.94	7.04	1989421	6.99	2074499	N	4.3
g. Chlordane	6.37	6.32	6.42	2200961	6.37	2328533	N	5.8
Toxaphene	9.64	9.34	9.94	203346				
Aroclor-1016	3.39	3.36	3.42	850667				
Aroclor-1221	2.19	2.17	2.21	325969				
Aroclor-1232	2.19	2.17	2.21	460445				
Aroclor-1242	3.39	3.37	3.41	757737				
Aroclor-1248	3.39	3.36	3.42	873192				
Aroclor-1254	6.66	6.60	6.70	930222				
Aroclor-1260	11.05	10.96	11.14	594613				

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.

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Blank and Sample Data Summary 0000131 Page 1 of 1

1D

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: 91LE0935-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 08149103.46

Level: (low/med) LOW Date Received: 07/24/91

% Moisture: not dec. 0 dec. Date Extracted: 07/24/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/91

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	2.7	J
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	8.0	U
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	6.0	J
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

limit
15 = 13.5 ug/kg

DS 8-27-91

6.0 x 5 = 30.0 ug/kg limit

FORM 1 PEST 12/88 Rev.

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 9/19/92
LABORATORY:	CASE: 91071222	SDG: 222
SAMPLES/MATRIX: B00X65, B00X79/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	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.

COMMENTS (attach additional sheets as necessary):

The ICS was run at the beginning of the bismuth run but not at the end.

9613402.1075
Holding Times

OCT 1991
RECEIVED
DATA RECEIPT

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

No H.T. qualification necessary

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Lines
BOOX65							
SILVER, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	37
SILVER, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
SILVER, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
ALUMINUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
ALUMINUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
ALUMINUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
ARSENIC, TOTAL	001	S	91L1457	07/17/91	08/01/91	09/10/91	55
ARSENIC, TOTAL	001 REP	S	91L1457	07/17/91	08/01/91	09/10/91	
ARSENIC, TOTAL	001 MS	S	91L1457	07/17/91	08/01/91	09/10/91	
BARIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	34
BARIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
BARIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
BERYLLIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
BERYLLIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
BERYLLIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
BISMUTH, TOTAL	001	S	91L1458	07/17/91	08/01/91	09/18/91	63
BISMUTH, TOTAL REP	001 REP	S	91L1458	07/17/91	08/01/91	09/18/91	
BISMUTH, TOTAL DUP S	001 MSD	S	91L1458	07/17/91	08/01/91	09/18/91	
CALCIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	34
CALCIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
CALCIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
CADMIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
CADMIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
CADMIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
COBALT, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
COBALT, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
COBALT, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
CHROMIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
CHROMIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
CHROMIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
COPPER, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
COPPER, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
COPPER, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
IRON, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
IRON, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
IRON, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
MERCURY, TOTAL	001	S	91C233B	07/17/91	08/08/91	08/12/91	26

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Days
MERCURY, TOTAL	001 REP	S	91C233B	07/17/91	08/08/91	08/12/91	26
MERCURY, TOTAL	001 MS	S	91C233B	07/17/91	08/08/91	08/12/91	↓
POTASSIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	34
POTASSIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
POTASSIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
MAGNESIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
MAGNESIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
MAGNESIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
MANGANESE, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
MANGANESE, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
MANGANESE, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
SODIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
SODIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
SODIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
NICKEL, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
NICKEL, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
NICKEL, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	↓
LEAD, TOTAL	001	S	91L1457	07/17/91	08/01/91	09/09/91	54
LEAD, TOTAL	001 REP	S	91L1457	07/17/91	08/01/91	09/09/91	↓
LEAD, TOTAL	001 MS	S	91L1457	07/17/91	08/01/91	09/06/91	51
ANTIMONY, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	34
ANTIMONY, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
ANTIMONY, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	↓
SELENIUM, TOTAL	001	S	91L1457	07/17/91	08/01/91	09/11/91	56
SELENIUM, TOTAL	001 REP	S	91L1457	07/17/91	08/01/91	09/11/91	
SELENIUM, TOTAL	001 MS	S	91L1457	07/17/91	08/01/91	09/11/91	↓
THALLIUM, TOTAL	001	S	91L1457	07/17/91	08/01/91	09/23/91	68
THALLIUM, TOTAL	001 REP	S	91L1457	07/17/91	08/01/91	09/23/91	
THALLIUM, TOTAL	001 MS	S	91L1457	07/17/91	08/01/91	09/23/91	↓
VANADIUM, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	34
VANADIUM, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
VANADIUM, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	
ZINC, TOTAL	001	S	91L1458	07/17/91	08/01/91	08/20/91	
ZINC, TOTAL	001 REP	S	91L1458	07/17/91	08/01/91	08/20/91	
ZINC, TOTAL	001 MS	S	91L1458	07/17/91	08/01/91	08/20/91	↓
BOOX79							
SILVER, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
SILVER, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	↓

4/29/92

9613402.1077

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Days
SILVER, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	35
ALUMINUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
ALUMINUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
ALUMINUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
ARSENIC, TOTAL	002	S	91L1459	07/17/91	08/01/91	08/07/91	21
ARSENIC, TOTAL	002 REP	S	91L1459	07/17/91	08/01/91	08/07/91	
ARSENIC, TOTAL	002 MS	S	91L1459	07/17/91	08/01/91	08/07/91	
BARIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
BARIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
BARIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
BERYLLIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
BERYLLIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
BERYLLIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
BISMUTH, TOTAL	002	S	91L1460	07/17/91	08/01/91	09/18/91	63
BISMUTH, TOTAL REP	002 REP	S	91L1460	07/17/91	08/01/91	09/18/91	
BISMUTH, TOTAL DUP S	002 MSD	S	91L1460	07/17/91	08/01/91	09/18/91	
CALCIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
CALCIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
CALCIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
CADMIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
CADMIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
CADMIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
COBALT, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
COBALT, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
COBALT, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
CHROMIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
CHROMIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
CHROMIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
COPPER, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
COPPER, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
COPPER, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
IRON, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
IRON, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
IRON, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
MERCURY, TOTAL	002	S	91C230B	07/17/91	08/07/91	08/08/91	22
MERCURY, TOTAL	002 REP	S	91C230B	07/17/91	08/07/91	08/08/91	
MERCURY, TOTAL	002 MS	S	91C230B	07/17/91	08/08/91	08/12/91	26
POTASSIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
POTASSIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
POTASSIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	

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9613402.1078

Holding Times

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Days
MAGNESIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
MAGNESIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
MAGNESIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
MANGANESE, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
MANGANESE, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
MANGANESE, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
SODIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
SODIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
SODIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
NICKEL, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
NICKEL, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
NICKEL, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
LEAD, TOTAL	002	S	91L1459	07/17/91	08/01/91	08/08/91	22
LEAD, TOTAL	002 REP	S	91L1459	07/17/91	08/01/91	08/08/91	
LEAD, TOTAL	002 MS	S	91L1459	07/17/91	08/01/91	08/08/91	
ANTIMONY, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
ANTIMONY, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
ANTIMONY, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
SELENIUM, TOTAL	002	S	91L1459	07/17/91	08/01/91	08/09/91	23
SELENIUM, TOTAL	002 REP	S	91L1459	07/17/91	08/01/91	08/09/91	
SELENIUM, TOTAL	002 MS	S	91L1459	07/17/91	08/01/91	08/09/91	
THALLIUM, TOTAL	002	S	91L1459	07/17/91	08/01/91	08/07/91	21
THALLIUM, TOTAL	002 REP	S	91L1459	07/17/91	08/01/91	08/07/91	
THALLIUM, TOTAL	002 MS	S	91L1459	07/17/91	08/01/91	08/07/91	
VANADIUM, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	35
VANADIUM, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
VANADIUM, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	
ZINC, TOTAL	002	S	91L1460	07/17/91	08/01/91	08/21/91	
ZINC, TOTAL	002 REP	S	91L1460	07/17/91	08/01/91	08/21/91	
ZINC, TOTAL	002 MS	S	91L1460	07/17/91	08/01/91	08/21/91	

LAB QC:

SILVER LABORATORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91
ALUMINUM LABORTORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91
BARIUM LABORATORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91
BERYLLIUM LABORATORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91
CALCIUM LABORATORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91
CADMIUM LABORATORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91
COBALT LABORATORY	LC1 BS	S	91L1458	N/A	08/01/91	08/20/91

4/9/98

9613402.1079

0000039

Blank and Sample Data Summary pg 2 of 6

U.S. EPA - CLP

3
BLANKS

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

Lab code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

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	96.0	U	96.0	U	96.0	U	96.0	U	19.200	U	P
Antimony	55.0	U	55.0	U	55.0	U	55.0	U	11.000	U	P
Arsenic	2.0	U	2.0	U	2.0	U			.400	U	F
Barium	8.0	U	8.0	U	8.0	U	8.0	U	1.600	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	91.0	U	91.0	U	91.0	U	91.0	U	18.200	U	P
Chromium	4.0	U	4.0	U	4.0	U	4.0	U	.800	U	P
Cobalt	8.0	U	8.0	U	8.0	U	8.0	U	1.600	U	P
Copper	42.0 8.4	B	55 11.0	B	58 11.6	B	79.5 15.9	B	1.200	U	P
Iron	11.0	U	143 38.6	B	36.0	U	213.5 42.7	B	7.200	U	P
Lead			2.0	U	2.0	U	2.0	U	.880		F OK
Magnesium	119.0	U	676 135.2	B	984 196.8	B	1158 231.6	B	23.800	U	P
Manganese	3.0	U	3.0	U	3.0	U	3.0	U	.600	U	P
Mercury	.1	U	.1	U	.1	U			.050	U	CV
Nickel	10.0	U	10.0	U	10.0	U	10.0	U	2.000	U	P
Potassium	551.0	U	955.0	U	955.0	U	955.0	U	191.000	U	P
Selenium			2.0	U	2.0	U	2.0	U	.400	U	F
Silver	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Sodium	108.0	U	108.0	U	904 180.8	B	1001.5 212.3	B	170 34.000	B	P
Thallium	2.0	U	2.0	U	11.5 2.3	B	2.0	U	.400	U	F
Vanadium	10.0	U	58 11.6	B	141 28.2	B	144.5 28.9	B	15.5 3.100	B	P
Zinc	24.0 4.8	B	48 9.6	B	39.5 7.9	B	48 9.6	B	.800	U	P
Cyanide			20.0	U	20.0	U			1.000	U	C

FORM III - IN 03/90

4/21/97

Blank and Sample Data Summary pg 3 of 6

U.S. EPA - CLP

3
BLANKS

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

Lab code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

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											NR
Antimony											NR
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U			F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead			2.0	U	2.0	U	2.0	U			F
Magnesium											NR
Manganese											NR
Mercury	.1	U	.1	U	.1	U	.1	U	.36	.072 B	CV
Nickel											NR
Potassium											NR
Selenium			2.0	U	2.0	U	2.0	U			F
Silver											NR
Sodium											NR
Thallium			2.0	U	2.0	U	2.0	U			F
Vanadium											NR
Zinc											NR
Cyanide											NR

FORM III - IN 03/90

Blank and Sample Data Summary

0000121

Analysis Report Tue 08-20-91 12:34:28 PM page 1

Method: HSLONLY Sample Name: 9107L222-001 Operator: MLD

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Run Time: 08/20/91 12:32:03

Comment:

Mode: CONC Corr. Factor: 1

Elem	Ag3281	Al3082	Ba4934	Be3130	Ca3179	Cd2288	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	3.660	18080.	265.3	2.155	46500.	3.883	22.30
SDev	2.716	40.	2.0	1.293	130.	1.682	.73
%RSD	74.21	.2191	.7402	60.00	.2795	43.30	3.268
#1	4.251	18100.	267.5	3.448	46620.	1.942	23.14
#2	6.030	18110.	264.1	2.155	46540.	4.854	21.88
#3	.6968	18040.	264.1	.8621	46360.	4.854	21.88

Elem	Cr2677	Cu3247	Fe2599	K-7664	Mg2790	Mn2576	Na5889
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Avge	26.51	49.88 u	42920.	4140.	15800.	1176.	418.6
SDev	1.31	3.60	63.	404.	48.	3.	22.4
%RSD	4.928	7.223	.1459	9.758	.3054	.2209	5.362
#1	25.37	53.48	42930.	4373.	15820.	1178.	444.4
#2	27.94	49.89	42980.	3673.	15830.	1177.	408.0
#3	26.23	46.28	42850.	4373.	15740.	1173.	403.4

Elem	Ni2316	Sb2068	V-2924	Zn2138	Pb2203
Units	ppb	ppb	ppb	ppb	ppb
Avge	26.66	3.444	52.02	103.2 ok	19.00
SDev	2.01	9.564	3.32	2.8	10.76
%RSD	7.531	277.7	6.385	2.688	56.63
#1	24.34	13.87	55.63	106.4	26.74
#2	27.82	-4.931	49.09	101.6	6.714
#3	27.82	1.399	51.35	101.6	23.54

4/29/92

nalysis Report Blank and Sample Data Summary Wed 08-21-91 10:03:38 AM page 1

thod: HSLONLY Sample Name: 9107L222-002 Operator: MLD
un Time: 08/21/91 10:01:10
omment:
de: CONC Corr. Factor: 1

pg. 5 of 6

Elem	Ag3281	Al3082	Ba4934	Be3130	Ca3179	Cd2288	Co2286
Units	ppb	ppb	ppb	ppb	ppb	ppb	ppb
vge	3.470	13140.	252.4	1.435	36690.	2.049	24.61
SDev	2.016	39.	1.1	.000	164.	4.695	1.61
%RSD	58.10	.2937	.4518	.0000	.4465	229.1	6.536
1	5.797	13090.	251.3	1.435	36550.	3.074	23.68
#2	2.278	13150.	252.4	1.435	36640.	-3.074	26.47
3	2.334	13170.	253.6	1.435	36870.	6.148	23.68

Elem	Cr2677	Cu3247	Fe2599	K-7664	Mg2790	Mn2576	Na5889
Units	ppb	ppb	ppb ok	ppb	ppb ok	ppb	ppb
vge	10.14	41.82 u	32820.	3421.	10570.	915.1	567.4 ok
SDev	1.41	1.82	179.	653.	34.	1.9	23.6
%RSD	13.89	4.346	.5440	19.09	.3197	.2099	4.160
1	8.912	43.64	32660.	4176.	10540.	913.2	593.9
#2	11.68	41.82	32790.	3044.	10550.	915.0	548.7
3	9.834	40.01	33010.	3044.	10600.	917.0	559.5

Elem	Ni2316	Sb2068	V-2924	Zn2138	Pb2203
Units	ppb	ppb	ppb ok	ppb ok	ppb
vge	20.57	-54.52	61.07	74.63	2.370
SDev	7.79	16.54	.80	2.63	17.09
%RSD	37.89	-30.34	1.317	3.527	720.9
1	13.50	-39.19	61.58	77.28	21.67
#2	28.92	-52.33	61.48	72.02	-10.82
3	19.28	-72.05	60.14	74.59	-3.738

4/29/92

Recovery is 60.4% (outside of specified limits)

9615102.1083 0000317

Blank and Sample Data Summary

Se ID: 9107L222-002 Seq. No.: 00024 A/S Pos.: 4 Date: 08/09/91

Replicate 1 Time: 04:18
Concentration (ug/L): 2.8

Replicate 2 Time: 04:20
Concentration (ug/L): 3.7

Mean Conc (ug/L): 3.2 u SD: 0.62 RSD(%): 19.29

Se ID: 9107L222-002 Seq. No.: 00025 A/S Pos.: 4 Date: 08/09/91

Replicate 1 Time: 04:23
Concentration (ug/L): 11.0

Replicate 2 Time: 04:25
Concentration (ug/L): 10.7

Mean Conc (ug/L): 10.8 SD: 0.19 RSD(%): 1.74

Recovery is 76.0% (outside of specified limits)

Se ID: 9107L222-002R Seq. No.: 00026 A/S Pos.: 5 Date: 08/09/91

Replicate 1 Time: 04:27
Concentration (ug/L): 2.5

Replicate 2 Time: 04:30
Concentration (ug/L): 3.3

Mean Conc (ug/L): 2.9 SD: 0.50 RSD(%): 17.42

Se ID: 9107L222-002R Seq. No.: 00027 A/S Pos.: 5 Date: 08/09/91

Replicate 1 Time: 04:32
Concentration (ug/L): 12.8

Replicate 2 Time: 04:35
Concentration (ug/L): 9.0

Mean Conc (ug/L): 10.9 SD: 2.66 RSD(%): 24.38

Recovery is 80.3% (outside of specified limits)

Se ID: CCV Seq. No.: 00028 A/S Pos.: 38 Date: 08/09/91

Replicate 1 Time: 04:37
Concentration (ug/L): 41.7

Replicate 2 Time: 04:39
Concentration (ug/L): 40.1

4/6/92

Accuracy Data Summary 9613402.1884 0000046 Pg. 1 of 2

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

BOOX65S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 98.4

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	77.1000		11.1815	U	101.60	75.9		P
Arsenic	75-125	7.5000		3.2000		7.40	58.1	N	F
Barium	75-125	421.3000		53.9000		406.60	90.4		P
Beryllium	75-125	9.1000		.4500	B	10.20	84.8		P
Cadmium	75-125	8.4000		.7900	B	10.20	74.6		P
Calcium									NR
Chromium	75-125	40.5000		5.4000		40.70	86.2		P
Cobalt	75-125	92.8000		4.5000	B	101.60	86.9		P
Copper	75-125	51.5000		10.1000		50.80	81.5		P
Iron									NR
Lead	75-125	6.3000		7.7000		3.70	-37.8	N	F
Magnesium									NR
Manganese	75-125	270.7000		239.1000		101.60	31.1	N	P
Mercury	75-125	.4890		.0508	U	.51	95.9		CV
Nickel	75-125	96.6000		5.4000	B	101.60	89.8		P
Potassium									NR
Selenium	75-125	1.3000		.4066	U	1.80	72.2	N	F
Silver	75-125	9.0000		1.4231	U	10.20	88.2		P
Sodium									NR
Thallium	75-125	5.8000		.4066	U	9.20	63.0	N	F
Vanadium	75-125	101.6000		10.6000		101.60	89.6		P
Zinc	75-125	107.3000		21.0000		101.60	84.9		P
Cyanide	75-125	4.7930		1.0160	U	5.08	94.4		C

Comments:

Accuracy Summary 0000047 Pg. 2 of 2

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

BOOX79S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 96.9

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	54.0000		10.0540	U	84.60	63.8	N	P
Arsenic	75-125	8.9000		.4800	B	7.00	120.3	N	F
Barium	75-125	360.2000		46.1000		338.40	92.8		P
Beryllium	75-125	7.4000		.2600	B	8.50	84.0		P
Cadmium	75-125	5.6000		.3700		8.50	61.5	N	P
Calcium									NR
Chromium	75-125	33.0000		1.8000		33.80	92.3		P
Cobalt	75-125	73.9000		4.5000	B	84.60	82.0		P
Copper	75-125	41.3000		7.6000		42.30	79.7		P
Iron									NR
Lead	75-125	7.9000		2.1000		3.50	165.7	N	F
Magnesium									NR
Manganese	75-125	263.3999		167.3000		84.60	113.6		P
Mercury	75-125	.4680		.0516	U	.52	90.0		CV
Nickel	75-125	78.4000		3.8000	B	84.60	88.2		P
Potassium									NR
Selenium	75-125	1.7000		.5400	B	1.80	64.4		F
Silver	75-125	6.7000		1.2796	U	8.50	78.8		P
Sodium									NR
Thallium	75-125	7.2000		.3398	U	8.80	81.8		F
Vanadium	75-125	82.3000		11.2000		84.60	84.0		P
Zinc	75-125	86.6000		13.6000		84.60	86.3		P
Cyanide									NR

Comments:

9613402.1086 0000059

Precision Data Summary

pg 1 of 1

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

BOOX65L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP222

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	18083.00		17759.50		1.8		P
Antimony	55.00	U	275.00	U			P
Arsenic							NR
Barium	265.30		283.50	B	6.9		P
Beryllium	2.20	B	6.50	B	195.5		P
Cadmium	4.00	U	20.00	U			P
Calcium	46503.80		46511.99		0.0		P
Chromium	26.50		38.50	B	45.3		P
Cobalt	22.30	B	40.00	U	100.0		P
Copper	49.90		148.50		197.6		P
Iron	42919.30		42907.50		0.0		P
Lead							NR
Magnesium	15796.00		15691.50	B	.7		P
Manganese	1176.10		1180.00		.3		P
Mercury							NR
Nickel	26.70	B	50.00	U	100.0		P
Potassium	4139.90	B	5685.00	B	37.3		P
Selenium							NR
Silver	7.00	U	35.00	U			P
Sodium	418.60	B	540.00	U	100.0		P
Thallium							NR
Vanadium	52.00		52.50	B	1.0		P
Zinc	103.20		195.50		89.4		P

FORM IX - IN

03/90

4/29/92

GFAA %RSD and Analytical Spike (AS) % Recovery (%R)

Blank Corrected Pk Area (A-s): 0.305
Concentration (ug/L): 44.8

Replicate 2 — Time: 13:26
Peak Area (A-s): 0.310 — Peak Height (A): 0.569
Background Pk Area (A-s): 0.044 — Background Pk Height (A): 0.045
Blank Corrected Pk Area (A-s): 0.308
Concentration (ug/L): 45.1

Mean Conc (ug/L): 45.0 — SD: 0.23 — RSD(%): 0.52

Recovery is 86.9%

As ID: 9107L222-001 — Seq. No.: 00027 — A/S Pos.: 4 — Date: 09/10/91

Replicate 1 — Time: 13:28
Peak Area (A-s): 0.109 — Peak Height (A): 0.147
Background Pk Area (A-s): 0.531 — Background Pk Height (A): 0.561
Blank Corrected Pk Area (A-s): 0.107
Concentration (ug/L): 15.7

Replicate 2 — Time: 13:30
Peak Area (A-s): 0.109 — Peak Height (A): 0.152
Background Pk Area (A-s): 0.587 — Background Pk Height (A): 0.587
Blank Corrected Pk Area (A-s): 0.107
Concentration (ug/L): 15.7

Mean Conc (ug/L): 15.7 — SD: 0.01 — RSD(%): 0.04

See MSA

S ID: 9107L222-001 — Seq. No.: 00028 — A/S Pos.: 4 — Date: 09/10/91

at end of run

Replicate 1 — Time: 13:32
Peak Area (A-s): 0.223 — Peak Height (A): 0.321
Background Pk Area (A-s): 0.622 — Background Pk Height (A): 0.671
Blank Corrected Pk Area (A-s): 0.221
Concentration (ug/L): 32.4

Replicate 2 — Time: 13:35
Peak Area (A-s): 0.225 — Peak Height (A): 0.318
Background Pk Area (A-s): 0.623 — Background Pk Height (A): 0.674
Blank Corrected Pk Area (A-s): 0.223
Concentration (ug/L): 32.7

Mean Conc (ug/L): J 32.6 — SD: 0.15 — RSD(%): 0.48

Recovery is ~~[illegible]~~ 845 [illegible] 10/15/91

MSB not necessary

S ID: 9107L222-001R — Seq. No.: 00029 — A/S Pos.: 5 — Date: 09/10/91

Replicate 1 — Time: 13:37
Peak Area (A-s): 0.046 — Peak Height (A): 0.070
Background Pk Area (A-s): 0.274 — Background Pk Height (A): 0.317
Blank Corrected Pk Area (A-s): 0.044

[illegible] 4/29/92

000019

As ID: CCB Seq. No.: 00028 A/S Pos.: 39 Date: 08/08/91

Replicate 1 Time: 02:37
Concentration (ug/L): 0.5

GFAA & RSD and AS & R

Replicate 2 Time: 02:40
Concentration (ug/L): -2.8

Mean Conc (ug/L): -1.2 SD: 2.36 RSD(%): 200.18

QC sample is within range -10.0 - 10.0

As ID: 91L1459-MB1 Seq. No.: 00029 A/S Pb5159 Pos.: 1 Date: 08/08/91

Replicate 1 Time: 02:42
Concentration (ug/L): -2.4

Replicate 2 Time: 02:44
Concentration (ug/L): -4.2

Mean Conc (ug/L): -3.3 SD: 1.26 RSD(%): 38.59

As ID: 91L1459-MB1 Seq. No.: 00030 A/S Pb5159 Pos.: 1 Date: 08/08/91

Replicate 1 Time: 02:46
Concentration (ug/L): 19.8

RSD out See Review

Replicate 2 Time: 02:48
Concentration (ug/L): 8.7

Mean Conc (ug/L): 14.2 SD: 7.85 RSD(%): 55.07

Recovery is 87.6%

As ID: 9107L222-002 Seq. No.: 00031 A/S Pos.: 4 Date: 08/08/91

J

Replicate 1 Time: 02:50
Concentration (ug/L): 2.8

Replicate 2 Time: 02:53
Concentration (ug/L): 2.9

Mean Conc (ug/L): 2.8 SD: 0.07 RSD(%): 2.59

As ID: 9107L222-002 Seq. No.: 00032 A/S Pos.: 4 Date: 08/08/91

Replicate 1 Time: 02:55
Concentration (ug/L): 28.8

Replicate 2 Time: 02:57
Concentration (ug/L): 26.7

Mean Conc (ug/L): 27.7 SD: 1.51 RSD(%): 5.43

W

4/29/92

Recovery is 124.5% (outside of specified limits) 0000197 J GFAA & RSD and AS 2R page 5 of 7

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As ID: 9107L222-002R Seq. No.: 00033 A/S Pos.: 5 Date: 08/08/91

Replicate 1 Time: 02:59
Concentration (ug/L): 2.0

Replicate 2 Time: 03:02
Concentration (ug/L): 6.7

Mean Conc (ug/L): 4.3 E SD: 3.33 RSD 2nd Time RSD(%): 76.81

~~~~~~

As ID: 9107L222-002R Seq. No.: 00034 A/S Pos.: 5 Date: 08/08/91

Replicate 1 Time: 03:04
Concentration (ug/L): 27.5

Replicate 2 Time: 03:06
Concentration (ug/L): 26.7

Mean Conc (ug/L): 27.1 SD: 0.62 RSD(%): 2.27

Recovery is 113.9%

~~~~~~

As ID: CCV Seq. No.: 00035 A/S Pos.: 38 Date: 08/08/91

Replicate 1 Time: 03:08
Concentration (ug/L): 42.0

Replicate 2 Time: 03:11
Concentration (ug/L): 41.3

Mean Conc (ug/L): 41.7 SD: 0.47 RSD(%): 1.12

QC sample is within range 35.8 - 44.1

~~~~~~

As ID: CCB Seq. No.: 00036 A/S Pos.: 39 Date: 08/08/91

Replicate 1 Time: 03:13
Concentration (ug/L): -1.2

Replicate 2 Time: 03:15
Concentration (ug/L): -4.3

Mean Conc (ug/L): -2.8 SD: 2.23 RSD(%): 80.69

QC sample is within range -10.0 - 10.0

RSL for PMP 8-8-91

[signature] 4/29/92

GFAA %RSD and AS %R

Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.6

Mean Conc (ug/L): 0.7 SD: 0.19 RSD(%): 26.41

~~~~~~

Se ID: 9107L222-001 Seq. No.: 00018 A/S Pos.: 4 Date: 09/11/91

Replicate 1 Time: 18:58
Peak Area (A-s): 0.030 Peak Height (A): 0.082
Background Pk Area (A-s): 0.192 Background Pk Height (A): 0.141
Blank Corrected Pk Area (A-s): 0.031
Concentration (ug/L): 8.8

Replicate 2 Time: 19:00
Peak Area (A-s): 0.026 Peak Height (A): 0.077
Background Pk Area (A-s): 0.194 Background Pk Height (A): 0.139
Blank Corrected Pk Area (A-s): 0.026
Concentration (ug/L): 7.5

Mean Conc (ug/L): 8.2 SD: 0.87 RSD(%): 10.67

Recovery is 74.2% J W

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Se ID: 9107L222-001R Seq. No.: 00019 A/S Pos.: 5 Date: 09/11/91

Replicate 1 Time: 19:03
Peak Area (A-s): 0.002 Peak Height (A): 0.014
Background Pk Area (A-s): 0.104 Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.002
Concentration (ug/L): 0.7

Replicate 2 Time: 19:05
Peak Area (A-s): 0.005 Peak Height (A): 0.014
Background Pk Area (A-s): 0.087 Background Pk Height (A): 0.061
Blank Corrected Pk Area (A-s): 0.006
Concentration (ug/L): 1.6

Mean Conc (ug/L): 1.1 SD: 0.65 RSD(%): 58.66

W

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Se ID: 9107L222-001R Seq. No.: 00020 A/S Pos.: 5 Date: 09/11/91

Replicate 1 Time: 19:07
Peak Area (A-s): 0.032 Peak Height (A): 0.090
Background Pk Area (A-s): 0.085 Background Pk Height (A): 0.068
Blank Corrected Pk Area (A-s): 0.033
Concentration (ug/L): 9.4

Replicate 2 Time: 19:10
Peak Area (A-s): 0.031 Peak Height (A): 0.093
Background Pk Area (A-s): 0.083 Background Pk Height (A): 0.071
Blank Corrected Pk Area (A-s): 0.031
Concentration (ug/L): 8.9

[signature] 4/29/92
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Recovery is 60.4% (outside of specified limits)

9615402.1091 0000314 GFAA 8RSD and AS 2R

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Se ID: 9107L222-002 Seq. No.: 00024 A/S Pos.: 4 Date: 08/09/91

Replicate 1 Time: 04:18
Concentration (ug/L): 2.8

Replicate 2 Time: 04:20
Concentration (ug/L): 3.7

Mean Conc (ug/L): 3.2 SD: 0.62 RSD(%): 19.29

~~~~~~

Se ID: 9107L222-002 Seq. No.: 00025 A/S Pos.: 4 Date: 08/09/91

Replicate 1 Time: 04:23
Concentration (ug/L): 11.0

Replicate 2 Time: 04:25
Concentration (ug/L): 10.7 W

Mean Conc (ug/L): 10.8 SD: 0.19 RSD(%): 1.74

J

Recovery is 76.0% (outside of specified limits)

~~~~~~

Se ID: 9107L222-002R Seq. No.: 00026 A/S Pos.: 5 Date: 08/09/91

Replicate 1 Time: 04:27
Concentration (ug/L): 2.5

Replicate 2 Time: 04:30
Concentration (ug/L): 3.3

Mean Conc (ug/L): 2.9 SD: 0.50 RSD(%): 17.42

~~~~~~

Se ID: 9107L222-002R Seq. No.: 00027 A/S Pos.: 5 Date: 08/09/91

Replicate 1 Time: 04:32
Concentration (ug/L): 12.8

Replicate 2 Time: 04:35
Concentration (ug/L): 9.0 W

Mean Conc (ug/L): 10.9 SD: 2.66 RSD(%): 24.38

Recovery is 80.3% (outside of specified limits)

~~~~~~

Se ID: CCV Seq. No.: 00028 A/S Pos.: 38 Date: 08/09/91

Replicate 1 Time: 04:37
Concentration (ug/L): 41.7

Replicate 2 Time: 04:39
Concentration (ug/L): 40.1

4/29/92
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page 6 of 7
GFAA 2RSD and
AS 2R

T1 ID: 91L1457-LC1 Seq. No.: 00014 A/S Pos.: 2 Date: 09/23/91

LCS5157 CLS 9/26/91

Replicate 1 Time: 16:15
Concentration (ug/L): 48.6

Replicate 2 Time: 16:17
Concentration (ug/L): 47.2

Mean Conc (ug/L): 47.9 SD: 0.99 RSD(%): 2.06

Recovery is 67.3% (outside of specified limits)

T1 ID: 91L1457-LC2 Seq. No.: 00015 A/S Pos.: 3 Date: 09/23/91

LCS5257 CLS 9/26/91

Replicate 1 Time: 16:19
Concentration (ug/L): 33.5

Replicate 2 Time: 16:22
Concentration (ug/L): 29.3

Mean Conc (ug/L): 31.4 SD: 3.01 RSD(%): 9.58

T1 ID: 91L1457-LC2 Seq. No.: 00016 A/S Pos.: 3 Date: 09/23/91

LCS5257 CLS 9/26/91

Replicate 1 Time: 16:24
Concentration (ug/L): 45.6

Replicate 2 Time: 16:26
Concentration (ug/L): 47.5

Mean Conc (ug/L): 46.6 SD: 1.37 RSD(%): 2.95

Recovery is 75.8% (outside of specified limits)

T1 ID: 9107L222-001 Seq. No.: 00017 A/S Pos.: 4 Date: 09/23/91

S

Replicate 1 Time: 16:28
Concentration (ug/L): 1.8

W CLS 9/26/91

Replicate 2 Time: 16:30
Concentration (ug/L): 2.0

Mean Conc (ug/L): 1.9 SD: 0.16 RSD(%): 8.[illegible]

T1 ID: 9107L222-001 Seq. No.: 00018 A/S Pos.: 4 Date: 09/23/91

Replicate 1 Time: 16:[illegible]
Concentration (ug/L): 13.1

Replicate 2 Time: [illegible]
Concentration (ug/L): 15.8

Mean Conc (ug/L): 14.5 SD: 1.91 RSD(%): 13.16

4/29/92

9613402.1093

page 7 of 7

GFAA % RSD and AS %R

J

covery is 62.9% (outside of specified limits)

ID: 9107L222-001R Seq. No.: 00019 A/S Pos.: 5 Date: 09/23/91

plicate 1 Time: 16:37
ncentration (ug/L): 1.7

W cVS 9/23/91

plicate 2 Time: 16:39
ncentration (ug/L): -0.0

an Conc (ug/L): 0.8 SD: 1.20 RSD(%): 145.45

ID: 9107L222-001R Seq. No.: 00020 A/S Pos.: 5 Date: 09/23/91

plicate 1 Time: 16:42
ncentration (ug/L): 13.6

plicate 2 Time: 16:44
ncentration (ug/L): 12.4

an Conc (ug/L): 13.0 SD: 0.84 RSD(%): 6.47

covery is 61.0% (outside of specified limits)

ID: CCV ✓ Seq. No.: 00021 A/S Pos.: 38 Date: 09/23/91

plicate 1 Time: 16:46
ncentration (ug/L): 44.5

plicate 2 Time: 16:49
ncentration (ug/L): 42.2

an Conc (ug/L): 43.4 ✓ SD: 1.63 RSD(%): 3.77

sample is within range 35.8 - 44.1

ID: CCB Seq. No.: 00022 A/S Pos.: 39 Date: 09/23/91

plicate 1 Time: 16:51
ncentration (ug/L): 1.8

plicate 2 Time: 16:53
ncentration (ug/L): 2.8

an Conc (ug/L): 2.3 SD: 0.74 RSD(%): 32.[illegible]

sample is within range -10.0 - 10.0

ID: 9107L222-001S Seq. No.: 00023 A/S Pos.: [illegible] Date: 09/23/91

plicate 1 Time: 16:[illegible]
ncentration (ug/L): 29.[illegible]

[illegible]

4/29/92

PRECISION DATA SUMMARY - FORM B-5

SDG: 222	REVIEWER [illegible]	DATE: 04/29/92	PAGE 1 OF 2
COMMENTS: Field Duplicate			

COMPOUND	SAMPLE ID: B00X65	SAMPLE ID: B00X79	RPD	SAMPLES AFFECTED	QUALIFIER
Aluminum	3680	2400	42		
Antimony	11.20 U	10.10 UJ	NC		
Arsenic	3.20 J	.48 J	148		
Barium	53.90	46.10	16		
Beryllium	.45 B	.26 B	54		
Cadmium	.81 UJ	.73 UJ	NC		
Calcium	9450	6710	34		
Chromium	5.40	1.80 B	100		
Cobalt	4.50 B	4.50 B	Ø		
Copper	10.10 U	7.60 U	NC		
Iron	8730	6000	37		
Lead	7.70 J	2.10 J	114		
Magnesium	3210	1930	50		
Manganese	239 J	167	35		
Mercury	.05 U	.05 U	NC		
Nickel	5.40 B	3.80 B	35		
Potassium	842 B	625 B	30		

NC = Not Calculated

9613402.1094

PRECISION DATA SUMMARY - FORM B-5

SDG: 222	REVIEWER [illegible]	DATE: 4/29/92	PAGE 2 OF 2
COMMENTS: Field Duplicate			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
Selenium	.41 UJ	.54 UJ	NC		
Silver	1.42 U	1.28 U	NC		
Sodium	85.10 B	104 B	20		
Thallium	.41 UJ	.34 U	NC		
Vanadium	10.60	11.20	6		
Zinc	21.0 J	13.60	43		
Cyanide	1.02 U	1.03 U	NC		
Bismuth	40.70 U	36.60 U	NC		

NC= Not Calculated

9613402.1096

9613402.1096

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-BP-1	REVIEWER: [illegible]	DATE: 4/29/92
LABORATORY: Western	CASE: 91071222	SDG: 222
SAMPLES/MATRIX: Book65, Book79	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			~~No~~ TOC	TOX (SP) 4/29/92
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? 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.

COMMENTS (attach additional sheets as necessary):

Some information is not included in the raw data for TOC which prevents a thorough data validation of this parameter. The information not included in the data package concerns the prep. procedure, the dilution factor, and the calculation procedure.

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Holding Time Summary

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

DATE RECEIVED: 07/20/91 RFW LOT # :9107L222

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	
BOOX65							
% SOLIDS	001	S	91LRS059	07/17/91	07/25/91	07/26/91	9
NITRATE BY IC	001	S	91LIC133	07/17/91	08/14/91	08/19/91	33
TOTAL CYANIDE	001	S	91LC241	07/17/91	07/29/91	07/30/91	13
TOTAL CYANIDE	001 REP	S	91LC241	07/17/91	07/29/91	07/30/91	13
TOTAL CYANIDE	001 MS	S	91LC241	07/17/91	07/29/91	07/30/91	13
PHOSPHATE BY IC	001	S	91LIC133	07/17/91	08/14/91	08/19/91	33
SULFATE BY IC	001	S	91LIC133	07/17/91	08/15/91	08/19/91	33
NITRATE NITRITE	001	S	91LNA209	07/17/91	08/23/91	08/23/91	37
TOTAL ORGANIC CARBON	001	S	91LTZ014	07/17/91	07/26/91	07/26/91	9
TOTAL ORGANIC CARBON	001 REP	S	91LTZ014	07/17/91	07/26/91	07/26/91	9
TOTAL ORGANIC CARBON	001 MS	S	91LTZ014	07/17/91	07/26/91	07/26/91	9
SUB-OUT TEST FOR SUB	001	S		07/17/91			
BOOX79							# of Days
% SOLIDS	002	S	91L%S132	07/17/91	07/23/91	07/24/91	7
NITRATE BY IC	002	S	91LIC130	07/17/91	08/13/91	08/13/91	27
TOTAL CYANIDE	002	S	91LC242	07/17/91	07/30/91	07/30/91	13
PHOSPHATE BY IC	002	S	91LIC130	07/17/91	08/13/91	08/13/91	27
SULFATE BY IC	002	S	91LIC130	07/17/91	08/13/91	08/13/91	27
NITRATE NITRITE	002	S	91LNA209	07/17/91	08/23/91	08/23/91	37
TOTAL ORGANIC CARBON	002	S	91LTZ016	07/17/91	08/19/91	08/19/91	33
TOTAL ORGANIC CARBON	002 REP	S	91LTZ016	07/17/91	08/19/91	08/19/91	33
TOTAL ORGANIC CARBON	002 MS	S	91LTZ016	07/17/91	08/19/91	08/19/91	33
SUB-OUT TEST FOR SUB	002	S		07/17/91			

LAB QC:

FLUORIDE BY IC	MB1	S	91LIC133	N/A	08/15/91	08/19/91
FLUORIDE BY IC	MB1 BS	S	91LIC133	N/A	08/15/91	08/19/91
NITRITE BY IC	MB1	S	91LIC133	N/A	08/14/91	08/19/91
NITRITE BY IC	MB1 BS	S	91LIC133	N/A	08/14/91	08/19/91
NITRATE BY IC	MB1	S	91LIC133	N/A	08/14/91	08/19/91
NITRATE BY IC	MB1 BS	S	91LIC133	N/A	08/14/91	08/19/91
PHOSPHATE BY IC	MB1	S	91LIC133	N/A	08/14/91	08/19/91
PHOSPHATE BY IC	MB1 BS	S	91LIC133	N/A	08/14/91	08/19/91
SULFATE BY IC	MB1	S	91LIC133	N/A	08/15/91	08/19/91

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Precision Summary

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ROY F. WESTON INC.

INORGANICS PRECISION REPORT 10/08/91

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9107L222

WORK ORDER: 6168-02-01-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	% DIFF
-001REP	BOOX65	Cyanide, Total	1.0 u	1.0 u	NC
		Total Organic Carbon	853	1510	55.5 J
-002REP	BOOX79	Total Organic Carbon	796	713	11.0

4/9/92

PRECISION DATA SUMMARY - FORM B-5

SDG: 222	REVIEWER [illegible]	DATE: 04/29/92	PAGE 1 OF 1

COMMENTS: Field Duplicate RPDs.

COMPOUND	SAMPLE ID: B00X65	SAMPLE ID: B00X79	RPD	SAMPLES AFFECTED	QUALIFIER
Percent Solids	98.4 J	96.9	2		
Nitrate by IC	1190 J	1470 J	21		
Cyanide, Total	1.0 u	1.0 u	NC		
Phosphate by IC	1.3 uJ	1.3 uJ	NC		
Sulfate by IC	3.9 J	6.6	51		
Nitrate/Nitrite	283 R	296 R	4		
TOC	853	796 J	7		

NC= Not Calculated

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