START 9713527.0495

7A

9105L637-WES-074

1/2

0046472

WESTON

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 05-16-91
RFW #: 9105L637, GC/MS VOLATILE
W.O. #: 6168-02-01

NARRATIVE

One (1) soil sample was collected on 05-14-91.

The sample and its associated QC samples were analyzed according to criteria set forth in CLP SOW 2/88 (rev 5/89) for TCL Volatile target compounds on 05-21-91.

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. Matrix spike and spike duplicate samples are associated with RFW lot 9105L597.

4. The laboratory blank contained the common contaminants methylene chloride and acetone at levels less than 4x the CRQL and the target compound xylene at a level less than the CRQL.

5. All internal standard area and retention time criteria were met.

JAN 1997 RECEIVED EDMC

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

7/09/
Date

Custody Transfer Record/Lab Work Request

WESTON Analytics Use Only: 91052637

WS-HANFORD Project #: 91-019

Client: Westinghouse Hanford Co. (W. S. Thompson) — 6W65-02-01
Work Order: EE3E5
Date Rec'd.: 5/16/91 — Date Due: 6/20/91 As specified in SOW
RFW Contact: Peg Beaty
Client Contact/Phone: W.S. Thompson (509)376-2153

Refrigerator#	POLY COOLER									
#/Type Container	← G	455 →								
Volume	125ml	950 ml	1000 ml							
Preservative	← 4°C →									
ANALYSES REQUESTED	1	2	3	TOC	metals + Hg + BI	CN	Anions	N3N2		
WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected							
001	BOOX35 (3 sample jars)	SOIL	5/14/91	X	X	X	✓	✓	✓	✓

N/A

OC/Dol = CLP
TAT = 35 day

Anions - ICCl, ICFl, IC NO4, IC PO4, IC NO2, IC NO3

ANALYSES REQUESTED

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

Matrix:
S - Soil; SE - Sediment; SO - Solid; W - Water; O - Oil; A - Air; Wi - Wipe; DS - Drum Solids; DL - Drum Liquids; F - Fish; L - EP/TCLP Leachate; X - Other

Special Instructions:
Please call to confirm receipt and condition of sample

Item/Reason	Relinquished by	Received by	Date	Time
	Emery	Pbegin	5/16/91	4:30 pm
		SEE WHC C OF C		

Item/Reason	Relinquished by	Received by	Date	Time

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed) Y N
NOTES:

4 Properly Preserved Y N
NOTES:

5 Received Within Holding Times Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N
4 Unbroken on Sample Y N
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

RFW 21-21-001/A-12/88

7-115

0000002

9105 2637 0496

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List
Report Date: 07/01/91 10:05

RFW Batch Number: 9105L637 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Page: 1a

		Cust ID:	B00X35		VBLK	
Sample Information		RFW#:	001		91LVR014-MB1	
		Matrix:	SOIL		SOIL	
		D.F.:	1.02		1.00	
		Units:	ug/Kg		ug/Kg	
	Toluene-d8		110	%	96	%
Surrogate Recovery	Bromofluorobenzene		95	%	91	%
	1,2-Dichloroethane-d4		99	%	83	%
Chloromethane			10	U	10	U
Bromomethane			10	U	10	U
Vinyl Chloride			10	U	10	U
Chloroethane			10	U	10	U
Methylene Chloride			2	JB	2	J
Acetone			4	JB	32	
Carbon Disulfide			5	U	5	U
1,1-Dichloroethene			5	U	5	U
1,1-Dichloroethane			5	U	5	U
1,2-Dichloroethene (total)			5	U	5	U
Chloroform			5	U	5	U
1,2-Dichloroethane			5	U	5	U
2-Butanone			10	U	10	U
1,1,1-Trichloroethane			5	U	5	U
Carbon Tetrachloride			5	U	5	U
Vinyl Acetate			10	U	10	U
Bromodichloromethane			5	U	5	U
1,2-Dichloropropane			5	U	5	U
cis-1,3-Dichloropropene			5	U	5	U
Trichloroethene			5	U	5	U
Dibromochloromethane			5	U	5	U
1,1,2-Trichloroethane			5	U	5	U
Benzene			5	U	5	U
Trans-1,3-Dichloropropene			5	U	5	U
Bromoform			5	U	5	U
4-Methyl-2-pentanone			10	U	10	U
2-Hexanone			10	U	10	U
Tetrachloroethene			5	U	5	U
1,1,2,2-Tetrachloroethane			5	U	5	U

*= Outside of EPA CLP QC limits.

0000005

9713522 0492

	Cust ID:	B00X35	VBLK	
	RFW#:	001	91LVR014-MB1	
Toluene		5 U	5 U	
Chlorobenzene		5 U	5 U	
Ethylbenzene		5 U	5 U	
Styrene		5 U	5 U	
Xylene (total)		5 U	1 J	

*= Outside of EPA CLP QC limits.

0000006

9713527.0498

1A

VOLATILE ORGANICS ANALYSIS SHEET

0 0 0 0 0 1 6 CLIENT SAMPLE NO.

B00X35

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L637-001

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: R052105

Level: (low/med) LOW

Date Received: 05/16/91

% Moisture: not dec. 2

Date Analyzed: 05/21/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

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	4	JB
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0 0 0 0 0 1 7 CLIENT SAMPLE NO.

B00X35

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L637-001

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: R052105

Level: (low/med) LOW

Date Received: 05/16/91

% Moisture: not dec. 2

Date Analyzed: 05/21/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

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
Report Date: 07/09/91 19:02

RFW Batch Number: 9105L637 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Page: 1a

	Cust ID:	BOOX35	BOOX35	BOOX35	SBLK	SBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	91LE0666-MB1	91LE0666-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.11	1.11	1.11	1.11	1.11
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	85 %	93 %	85 %	106 %	94 %
	2-Fluorobiphenyl	82 %	91 %	84 %	97 %	96 %
	p-Terphenyl-d14	82 %	94 %	81 %	109 %	115 %
	Phenol-d5	101 %	113 %	99 %	113 %	111 %
	2-Fluorophenol	98 %	105 %	90 %	105 %	107 %
	2,4,6-Tribromophenol	72 %	86 %	68 %	57 %	71 %
Phenol		370 U	114 * %	103 * %	370 U	97 * %
bis(2-Chloroethyl)ether		370 U	380 U	380 U	370 U	370 U
2-Chlorophenol		370 U	101 %	89 %	370 U	89 %
1,3-Dichlorobenzene		370 U	380 U	380 U	370 U	370 U
1,4-Dichlorobenzene		370 U	92 %	84 %	370 U	89 %
Benzyl alcohol		370 U	380 U	380 U	370 U	370 U
1,2-Dichlorobenzene		370 U	380 U	380 U	370 U	370 U
2-Methylphenol		370 U	380 U	380 U	370 U	370 U
bis(2-Chloroisopropyl)ether		370 U	380 U	380 U	370 U	370 U
4-Methylphenol		370 U	380 U	380 U	370 U	370 U
N-Nitroso-Di-n-propylamine		370 U	97 %	92 %	370 U	80 %
Hexachloroethane		370 U	380 U	380 U	370 U	370 U
Nitrobenzene		370 U	380 U	380 U	370 U	370 U
Isophorone		370 U	380 U	380 U	370 U	370 U
2-Nitrophenol		370 U	380 U	380 U	370 U	370 U
2,4-Dimethylphenol		370 U	380 U	380 U	370 U	370 U
Benzoic acid		1800 U	1900 U	1900 U	1800 U	1800 U
bis(2-Chloroethoxy)methane		370 U	380 U	380 U	370 U	370 U
2,4-Dichlorophenol		370 U	380 U	380 U	370 U	370 U
1,2,4-Trichlorobenzene		370 U	103 %	93 %	370 U	100 %
Naphthalene		370 U	380 U	380 U	370 U	370 U
4-Chloroaniline		370 U	380 U	380 U	370 U	370 U
Hexachlorobutadiene		370 U	380 U	380 U	370 U	370 U
4-Chloro-3-methylphenol		370 U	101 %	88 %	370 U	92 %
2-Methylnaphthalene		370 U	380 U	380 U	370 U	370 U
Hexachlorocyclopentadiene		370 U	380 U	380 U	370 U	370 U

*= Outside of EPA CLP QC limits.

000003
91525-0501

Cust ID:	BOOX35	BOOX35	BOOX35	SBLK	SBLK BS
RFW#:	001	001 MS	001 MSD	91LE0666-MB1	91LE0666-MB1
2,4,6-Trichlorophenol	370 U	380 U	380 U	370 U	370 U
2,4,5-Trichlorophenol	1800 U	1900 U	1900 U	1800 U	1800 U
2-Chloronaphthalene	370 U	380 U	380 U	370 U	370 U
2-Nitroaniline	1800 U	1900 U	1900 U	1800 U	1800 U
Dimethylphthalate	370 U	380 U	380 U	370 U	370 U
Acenaphthylene	370 U	380 U	380 U	370 U	370 U
2,6-Dinitrotoluene	370 U	380 U	380 U	370 U	370 U
3-Nitroaniline	1800 U	1900 U	1900 U	1800 U	1800 U
Acenaphthene	370 U	109 %	97 %	370 U	101 %
2,4-Dinitrophenol	1800 U	1900 U	1900 U	1800 U	1800 U
4-Nitrophenol	1800 U	130 * %	114 %	1800 U	60 %
Dibenzofuran	370 U	380 U	380 U	370 U	370 U
2,4-Dinitrotoluene	370 U	115 * %	105 * %	370 U	89 %
Diethylphthalate	760	380 U	380 U	370 U	370 U
4-Chlorophenyl-phenylether	370 U	380 U	380 U	370 U	370 U
Fluorene	370 U	380 U	380 U	370 U	370 U
4-Nitroaniline	1800 U	1900 U	1900 U	1800 U	1800 U
4,6-Dinitro-2-methylphenol	1800 U	1900 U	1900 U	1800 U	1800 U
N-Nitrosodiphenylamine (1)	370 U	380 U	380 U	370 U	370 U
4-Bromophenyl-phenylether	370 U	380 U	380 U	370 U	370 U
Hexachlorobenzene	370 U	380 U	380 U	370 U	370 U
Pentachlorophenol	1800 U	124 * %	108 %	1800 U	72 %
Phenanthrene	370 U	380 U	380 U	370 U	370 U
Anthracene	370 U	380 U	380 U	370 U	370 U
Di-n-Butylphthalate	89 JB	1600 B	380 B	48 J	370 U
Fluoranthene	370 U	380 U	380 U	370 U	370 U
Pyrene	370 U	97 %	88 %	370 U	110 %
Butylbenzylphthalate	370 U	380 U	380 U	370 U	370 U
3,3'-Dichlorobenzidine	740 U	750 U	750 U	740 U	740 U
Benzo(a)anthracene	370 U	380 U	380 U	370 U	370 U
Chrysene	370 U	380 U	380 U	370 U	370 U
bis(2-Ethylhexyl)phthalate	370 U	57 J	380 U	370 U	370 U
Di-n-Octyl phthalate	370 U	380 U	380 U	370 U	370 U
Benzo(b)fluoranthene	370 U	380 U	380 U	370 U	370 U
Benzo(k)fluoranthene	370 U	380 U	380 U	370 U	370 U
Benzo(a)pyrene	370 U	380 U	380 U	370 U	370 U
Indeno(1,2,3-cd)pyrene	370 U	380 U	380 U	370 U	370 U
Dibenzo(a,h)anthracene	370 U	380 U	380 U	370 U	370 U
Benzo(g,h,i)perylene	370 U	380 U	380 U	370 U	370 U

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

0000004

97-3527-0502

9713527.0503 5A

WESTON

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 05-16-91
RFW #: 9105L637, SEMIVOLATILE
W.O. #: 6168-02-01

NARRATIVE

One (1) soil sample was collected on 05-14-91.

The sample and its associated QC samples were extracted on 05-22-91 and analyzed according to criteria set forth in CLP SOW 02/88 (Rev. 05/89) for TCL Semivolatile target compounds on 06-23,24-91.

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. Six (6) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

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

5. The laboratory blank contained the common contaminants di-n-butylphthalate at a level less than 2x the CRQL.

6. Internal standard areas were outside QC limits for the blank spike 91LE0666-MB1 BS. The associated original analysis and blank spike duplicate analysis fulfilled its re-analysis requirement.

Jack R. Tuschall, Ph.D. — Date 7.15.91.
Laboratory Manager
Lionville Analytical Laboratory

9218527.0504

0000016 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

BOOX35

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S062304

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/23/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
100-51-6	Benzyl alcohol	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	bis(2-Chloroisopropyl)ether	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-Di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
65-85-0	Benzoic acid	1800	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U

9713527.0505

0000017 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

BOOX35

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S062304

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/23/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	370	U
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	760	
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
84-74-2	Di-n-Butylphthalate	89	JB
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	740	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	370	U
117-84-0	Di-n-Octyl phthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

0000018 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOX35

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S062304

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/23/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.11

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		ALDOL CONDENSATE	4.43	600	ABJ
2.		UNKNOWN	4.73	200	J
3.		ALDOL CONDENSATE	4.92	100	AJ
4.		UNKNOWN	5.90	100	J

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List
Report Date: 07/10/91 19:30

RFW Batch Number: 9105L637 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Page: 1

	Cust ID:	BOOX35	BOOX35	BOOX35	PBLK	PBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	91LE0666-MB2	91LE0666-MB2
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	4.00	4.00	1.00	4.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: Di-n-butylchlorendate		92 %	97 %	96 %	100 %	106 %
		fl	fl	fl	fl	fl
Alpha-BHC		8.0 U	33 U	33 U	8.0 U	32 U
Beta-BHC		8.0 U	33 U	33 U	8.0 U	32 U
Delta-BHC		8.0 U	33 U	33 U	8.0 U	32 U
gamma-BHC (Lindane)		8.0 U	80 %	90 %	8.0 U	82 %
Heptachlor		8.0 U	85 %	92 %	8.0 U	85 %
Aldrin		8.0 U	70 %	78 %	8.0 U	70 %
Heptachlor epoxide		8.0 U	33 U	33 U	8.0 U	32 U
Endosulfan I		8.0 U	33 U	33 U	8.0 U	32 U
Dieldrin		16 U	90 %	93 %	16 U	88 %
4,4'-DDE		16 U	65 U	65 U	16 U	64 U
Endrin		16 U	156 * %	157 * %	16 U	146 * %
Endosulfan II		16 U	65 U	65 U	16 U	64 U
4,4'-DDD		16 U	65 U	65 U	16 U	64 U
Endosulfan sulfate		16 U	65 U	65 U	16 U	64 U
4,4'-DDT		16 U	101 %	107 %	16 U	100 %
Methoxychlor		80 U	330 U	330 U	80 U	320 U
Endrin ketone		16 U	65 U	65 U	16 U	64 U
alpha-Chlordane		80 U	330 U	330 U	80 U	320 U
gamma-Chlordane		80 U	330 U	330 U	80 U	320 U
Toxaphene		160 U	650 U	650 U	160 U	640 U
Aroclor-1016		80 U	330 U	330 U	80 U	320 U
Aroclor-1221		80 U	330 U	330 U	80 U	320 U
Aroclor-1232		80 U	330 U	330 U	80 U	320 U
Aroclor-1242		80 U	330 U	330 U	80 U	320 U
Aroclor-1248		80 U	330 U	330 U	80 U	320 U
Aroclor-1254		160 U	650 U	650 U	160 U	640 U
Aroclor-1260		160 U	650 U	650 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

0000004
9113527-0507

9713527.0508 5A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE-HANFORD **SAMPLES RECEIVED:** 05-16-91
RFW #: 9105L637, PEST/PCB
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of one (1) soil sample collected on 05-14-91.

The sample was extracted on 05-22-91 and analyzed according to criteria set forth in the Contract Laboratory Program for Pesticide and PCB target compounds on 06-25-91.

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

1. Linearity and breakdown criteria were met for all compounds on the primary column except aldrin (RSD of calibration factors exceeded 10%). No quantitation of target compounds was required.

2. Continuing calibration criteria were met for all compounds on both the primary and confirmation columns in standards analyzed prior to sample extracts except for 4,4'-DDT and methoxychlor on 06-25-91 at 13:15.

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

4. All surrogate recoveries were within EPA QC limits.

5. Two (2) of twelve (12) matrix spike recoveries were outside the EPA QC limit. The matrix spike recoveries for endrin (156% and 157%) exceeded the EPA QC limit of 139%.

6. One (1) of six (6) blank spike recoveries was outside EPA QC limits. The blank spike recovery for endrin (146%) exceeded the EPA QC limit of 139%.

9713527.0509 5B

WESTON

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

7.22.91.

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

9213927 0510

PESTICIDE ORGANICS ANALYSIS SHEET

0000013 CLIENT SAMPLE NO.

BOOX35

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 06249109.21

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/25/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
319-84-6	Alpha-BHC	8.0	U
319-85-7	Beta-BHC	8.0	U
319-86-8	Delta-BHC	8.0	U
58-89-9	gamma-BHC (Lindane)	8.0	U
76-44-8	Heptachlor	8.0	U
309-00-2	Aldrin	8.0	U
1024-57-3	Heptachlor epoxide	8.0	U
959-98-8	Endosulfan I	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	16	U
72-43-5	Methoxychlor	80	U
53494-70-5	Endrin ketone	16	U
5103-71-9	alpha-Chlordane	80	U
5103-74-2	gamma-Chlordane	80	U
8001-35-2	Toxaphene	160	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

DER 7/17/91

9713527.0511

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 05-16-91
RFW #: 9105L637
W.O. #: 6168-02-01

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%. 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. Recoveries were within the 75-125% guidance limit with the exception of chloride and phosphate. All %RPD were within the 20% 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 chloride, nitrate and sulfate.

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

6-20-91
Date

pas\i5-637

1 8-30-94

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 06/19/91

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

WESTON BATCH #: 9105L637

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOX35	% Solids	98.5		%	0.10
		Chloride by IC	29.4		mg/kg	0.89
		Fluoride by IC	1.8	u	mg/kg	1.8
		Nitrite by IC	0.89	u	mg/kg	0.89
		Nitrate by IC	1.5		mg/kg	0.89
		Cyanide, Total	1.0	u	MG/KG	1.0
		Phosphate by IC	0.89	u	mg/kg	0.89
		Sulfate by IC	21.8		mg/kg	0.89
		Nitrate Nitrite	3.5		MG/KG	1.0
		Total Organic Carbon	0.61		%	0.010

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VALIDATION SUMMARY

9713527.0514

Science Applications International Corporation
An Employee-Owned Company

0355-PKB.92
April 14, 1992

Mr. Mark A. Buckmaster
Westinghouse Hanford Company
P.O. Box 1970, MSIN H4-55
Richland, WA 9932

Subject: Deliverable for 200-BP-1 Data Validation, Task Order S-92-19, WHC Contract No. MLW-SVV-073750

Dear Mr. Buckmaster:

Enclosed please find a copy of the Data Validation Summary Reports for Data Packages CLP555 and CLP637 produced under the referenced task order. This deliverable was prepared by a team of Golder Associates with support from SAIC under the direction of Mr. Kent Angelos.

Should you have any questions, please do not hesitate to contact the following: Mr. Kent Angelos, Golder Associates at (206) 883-0777, Mr. Mike Hoxie or myself at (509) 943-3133.

Sincerely yours,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

P. K. Brockman
Program Manager

Enclosure
PKB/kdc

w. enc.
R. Bechtold, WHC
LB/Task S-92-19 Deliv File

w/o enc.
M. Adams, WHC
D. Caldwell, Golder
D. Martin, Albq
D. Wilson, WHC

w/enc. including original data package
T. Tonning, WHC

9713527.0515

Report To

Westinghouse Hanford Company
Richland, Washington

Data Validation Report
200-BP-1 RI/FS
Data Package: 9105L637-WES-074
SDG No.: CLP637
Analysis Type: Organics/Wet Chemistry

Prepared By

Golder Associates Inc.
Redmond, Washington

Validated by: Sandy Sutton-Schildt
Sandy Sutton-Schildt
Staff Environmental Scientist

Reviewed by: Kent Angelos
Kent Angelos
Associate

April 10, 1992

913-1719

9713527.0516

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	3.2 Minor Deficiencies	2
	3.2.1 Volatile Organic Analysis	2
	3.2.2 Semivolatile Organic Analysis	2
	3.2.3 Pesticide/PCB Analysis	3
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4.	CONCLUSIONS	4
5.	REFERENCES	4

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

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1. INTRODUCTION

This report presents the results of data validation on SDG: 9105L637 consisting of one (1) soil sample for contract laboratory program/target compound list (CLP/TCL) volatile and semivolatile organics, pesticides, PCBs; and anions and wet chemistry. Sample identifications, locations, and sample dates are provided in the tabular data summary provided in Attachment 3.

The samples were analyzed by the Weston - Lionville laboratory using the 2/88 (Rev. 5/89) CLP statement of work (SOW) for TCL organic compounds. Anions (nitrate, phosphate, and sulfate), were analyzed by ion chromatography (IC), (EPA, 1984). Total organic carbon (TOC) was analyzed by method 505.B (APHA, 1985). Nitrate+nitrite was analyzed using EPA methods (EPA, 1979).

Validation was conducted in accordance with "Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision 0, November 1991" including Revision A, dated December 1991.

2. DATA QUALITY OBJECTIVES

The data packages were complete for all requested analyses and met the data quality objectives of the "RI/FS Work Plan for the 200-BP-1 Operable Unit, Hanford Site, Richland, Washington, DOE/RL 88-32". Data quality objectives for the project specified the use of CLP methods for the TCL organics, pesticides, and PCBs, and the use of standard methods for the analysis of wet chemistry parameters.

Sample quantitation limits were in most samples less than the contract required quantitation limit (CRQL) specified in the QAPjP (DOE, 1989) with the exception of semivolatile organics. Semivolatile organics that have a CRQL of 330 µg/Kg were reported to a quantitation limit of 370 µg/Kg, those with a CRQL of 1600 µg/Kg were reported to a quantitation limit of 1800 µg/Kg, and 3,3'-dichlorobenzidine with a CRQL of 660 µg/Kg was reported to a quantitation limit of 740 µg/Kg. However, all analyses were reported to within five times the CRQL.

With the exception of the minor deficiencies noted in section 3.2, the precision and accuracy goals specified in the work plan and 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.

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3.1 Major Deficiencies

All aldol condensate results tentatively identified in the semivolatile fraction were rejected.

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 Organic Analysis

- The percent relative standard deviation (%RSD) values for acetone and chloromethane were greater than 30% in the initial calibration. The percent difference (%D) values were greater than 25% for bromomethane, 2-butanone, and bromoform in the continuing calibration check. Associated results have been qualified as estimated (J for detects, UJ for non-detects).

- Methylene chloride and acetone were detected in the laboratory blanks and the sample. The sample results have been qualified as non-detects (U) in accordance with validation requirements.

- The matrix spike and matrix spike duplicate were performed in RFW lot 9105L597. A summary of the results were provided in the data packet for evaluation and the recovery and relative percent difference (RPD) values were within control limits.

3.2.2 Semivolatile Organic Analysis

- The holding time for sample extraction was exceeded. All associated results have been qualified as estimated (UJ for non-detects).

- The %RSD for hexachlorocyclopentadiene, 3-nitroaniline, 2,4-dinitrophenol, 4-nitroaniline, and bis(2-ethylhexyl)phthalate exceeded 30% in the initial calibration. The %D values for nine of the semivolatile compounds exceeded 30% during the continuing calibration checks. No qualification was necessary due to the holding time being exceeded.

- Di-n-butylphthalate and aldol condensate were found in the blank and in the sample. The sample result for di-n-butylphthalate has been qualified as undetected (U) and the sample results for aldol condensate have been rejected.

- The matrix spike recovery of phenol, 4-nitrophenol, 2,4-dinitrotoluene, and pentachlorophenol exceeded the control limits. No qualification was necessary due to the holding time being exceeded.

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- Two valid tentatively identified compounds (TICs) have been qualified as presumptive and estimated (JN) in accordance with validation procedures.

3.2.3 Pesticide/PCB Analysis

- The holding time for the pesticide/PCB sample extraction and analysis was exceeded. All sample results have been qualified as estimated (UJ for non-detects).

- The %RSD values for aldrin and 4,4'-DDT exceeded the control limits in the initial calibration. No qualification was necessary due to the holding time being exceeded.

- Endrin ketone coeluted in the standards for the quantitation column and was not within the retention time (RT) window on the confirmation column.

- The %D for 4,4'-DDT, methoxychlor, and endrin exceeded control limits in the continuing calibration. No qualification was necessary due to the holding time being exceeded.

- The DDT breakdown values were reported incorrectly according to the raw data provided. Values calculated from the raw data were less than those reported in the summary and all were within the control limits while the summary indicates they were not within control limits.

- The matrix spike recovery for endrin exceeded control limits. No qualification was necessary due to the holding time being exceeded.

3.2.4 Wet Chemistry Analysis

- Holding times for nitrate, nitrite, and phosphate were exceeded. Associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

- The matrix spike recovery of chloride exceeded control limits. Associated sample results have been qualified as estimated (J for detects). Recovery of phosphate also exceeded control limits but no qualification was necessary due to the holding time being exceeded.

- The RPD for chloride, nitrate, and sulfate exceeded control limits. Only the sulfate results were qualified as estimated (J) as chloride and nitrate results were previously qualified.

- Laboratory control samples were reported for cyanide only.

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4. CONCLUSIONS

Sections 1 through 3 present a summary of the data quality for the subject data package. The results contained in this data package are acceptable for use as qualified. 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

APHA 1985, Standard Methods for the Examination of Water and Wastewater, 16th Edition. American Public Health Association, Washington, D.C.

APHA 1989, Standard Methods for the Examination of Water and Wastewater, 17th Edition. American Public Health Association, Washington, D.C.

DOE, 1989, Remedial Investigation/Feasibility Study Work Plan for the 200-BP-1 Operable Unit Hanford Site, Richland, Washington, DOE/RL 88-32. United States Department of Energy, Richland, Washington.

EPA 1979, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.

EPA 1984, Test Method: The Determination of Inorganic Anions in Water by Ion Chromatography - Method 300.0. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.

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

9713527.0521

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

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.

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.

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.

B - Indicates the compound or analyte was analyzed for and detected. The associated value is less than the CRQL but greater than the IDL.

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.

9713527.0522

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9713527.0523

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 91052637	REVIEWER: SSchuldt	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: VOA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Chloromethane	UJ	B00X35	%RSD>30%
Acetone	J	↓	↓
Bromomethane	UJ		%D>25%
2-butanone	↓		↓
Bromoform	↓		
Methylene chloride	U		Compound found
Acetone	↓	↓	in blank

4/1/92

9713527.0524

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9105L637	REVIEWER: S Schulz	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: BNA			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	J	B00X35	Holding time exceeded
Aldol condensate	R	B00X35	Found in blank
Di-n-butylphthalate	UJ	"	"

4/7/92

9713527.0525

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9105637	REVIEWER: Schuldt	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: Pesticide / PCB			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
all	UJ	B00X35	Holding times exceeded

4/7/92

9713527.0526

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9105L637	REVIEWER: Schild	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: Wet Chemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
NO_2	UJ	BOOK35	Holding time exceeded
NO_3	J	↓	↓
PO_4	UJ	↓	↓
NO_3+NO_2	J	↓	↓
Cl	J	↓	Matrix spike recovery >125%

4/7/92

9713527.0527

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

Project	200-BP-1		
Laboratory	WESTON		
Case 9105L637	SDG	9105L637	
Sample Number		B00X35	
Location		216-B-61A	
Remarks		13.8-16.6	
Sample Date		5-14-91	
Organic Compounds	CRQL	Result	Q
Chloromethane	10	10	UJ
Bromomethane	10	10	UJ
Vinyl Chloride	10	10	U
Chloroethane	10	10	U
Methylene Chloride	5	5	U
Acetone	10	10	UJ
Carbon Disulfide	5	5	U
1,1-Dichloroethene	5	5	U
1,1-Dichloroethane	5	5	U
1,2-Dichloroethene (total)	5	5	U
Chloroform	5	5	U
1,2-Dichloroethane	5	5	U
2-Butanone	10	10	UJ
1,1,1-Trichloroethane	5	5	U
Carbon Tetrachloride	5	5	U
Vinyl Acetate	10	10	U
Bromodichloromethane	5	5	U
1,2-Dichloropropane	5	5	U
cis-1,3-Dichloropropene	5	5	U
Trichloroethene	5	5	U
Dibromochloromethane	5	5	U
1,1,2-Trichloroethane	5	5	U
Benzene	5	5	U
Trans-1,3-Dichloropropene	5	5	U
Bromoform	5	5	UJ
4-Methyl-2-pentanone	10	10	U
2-Hexanone	10	10	U
Tetrachloroethene	5	5	U
1,1,2,2-Tetrachloroethane	5	5	U
Toluene	5	5	U
Chlorobenzene	5	5	U
Ethylbenzene	5	5	U
Styrene	5	5	U
Xylene (total)	5	5	U

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1A

VOLATILE ORGANICS ANALYSIS SHEET

0 0 0 0 0 1 6 CLIENT SAMPLE NO.

BOOX35
216-B-61A / 13.8-16.6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L637-001

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: R052105

Level: (low/med) LOW

Date Received: 05/16/91

% Moisture: not dec. 2

Date Analyzed: 05/21/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg		
74-87-3	Chloromethane	10	~~U~~	UJ
74-83-9	Bromomethane	10	~~U~~	UJ
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	~~2~~	~~JB~~	5U
67-64-1	Acetone	~~4~~	~~JB~~	~~5~~ 10 UJ
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	~~U~~	UJ
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~~	UJ
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	

6/1/91

9713527.0530

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0 0 0 0 0 1 7 CLIENT SAMPLE NO.

BOOX35
216-B-61A/13.8-16.6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L637-001

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: R052105

Level: (low/med) LOW

Date Received: 05/16/91

% Moisture: not dec. 2

Date Analyzed: 05/21/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

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.

4/7/92

Project	200-BP-1		
Laboratory	WESTON		
Case 9105L637	SDG	9105L637	
Sample Number		B00X35	
Location		216-B-61A	
Remarks		13.8-16.6	
Sample Date		5-14-91	
Extraction Date		5-22-91	
Analysis Date		6-23-91	
Semivolatile Compound	CRQL	Result	Q
Phenol	330	370	UJ
bis(2-Chloroethyl)ether	330	370	UJ
2-Chlorophenol	330	370	UJ
1,3-Dichlorobenzene	330	370	UJ
1,4-Dichlorobenzene	330	370	UJ
Benzyl alcohol	330	370	UJ
1,2-Dichlorobenzene	330	370	UJ
2-Methylphenol	330	370	UJ
bis(2-Chloroisopropyl)ether	330	370	UJ
4-Methylphenol	330	370	UJ
N-Nitroso-di-n-propylamine	330	370	UJ
Hexachloroethane	330	370	UJ
Nitrobenzene	330	370	UJ
Isophorone	330	370	UJ
2-Nitrophenol	330	370	UJ
2,4-Dimethylphenol	330	370	UJ
Benzoic acid	1600	1800	UJ
bis(2-Chloroethoxy)methane	330	370	UJ
2,4-Dichlorophenol	330	370	UJ
1,2,4-Trichlorobenzene	330	370	UJ
Naphthalene	330	370	UJ
4-Chloroaniline	330	370	UJ
Hexachlorobutadiene	330	370	UJ
4-Chloro-3-methylphenol	330	370	UJ
2-Methylnaphthalene	330	370	UJ
Hexachlorocyclopentadiene	330	370	UJ
2,4,6-Trichlorophenol	330	370	UJ
2,4,5-Trichlorophenol	1600	1800	UJ
2-Chloronaphthalene	330	370	UJ
2-Nitroaniline	1600	1800	UJ
Dimethylphthalate	330	370	UJ
Acenaphthylene	330	370	UJ
2,6-Dinitrotoluene	330	370	UJ
3-Nitroaniline	1600	1800	UJ

9105L637.051

Project	200-B		
Laboratory	WESTON		
Case 9105L637	SDG	9105L637	
Sample Number		B00X35	
Location		216-B-61A	
Remarks		13.8-16.6	
Sample Date		5-14-91	
Extraction Date		5-22-91	
Analysis Date		6-23-91	
Semivolatile Compound	CRQL	Result	Q
Acenaphthene	330	370	UJ
2,4-Dinitrophenol	1600	1800	UJ
4-Nitrophenol	1600	1800	UJ
Dibenzofuran	330	370	UJ
2,4-Dinitrotoluene	330	370	UJ
Diethylphthalate	330	760	J
4-Chlorophenyl-phenyl ether	330	370	UJ
Fluorene	330	370	UJ
4-Nitroaniline	1600	1800	UJ
4,6-Dinitro-2-methylphenol	1600	1800	UJ
N-Nitrosodiphenylamine	330	370	UJ
4-Bromophenyl-phenylether	330	370	UJ
Hexachlorobenzene	330	370	UJ
Pentachlorophenol	1600	1800	UJ
Phenanthrene	330	370	UJ
Anthracene	330	370	UJ
Di-n-butylphthalate	330	330	UJ
Fluoranthene	330	370	UJ
Pyrene	330	370	UJ
Butylbenzylphthalate	330	370	UJ
3,3'-Dichlorobenzidine	660	740	UJ
Benz(a)anthracene	330	370	UJ
Chrysene	330	370	UJ
bis(2-Ethylhexyl)phthalate	330	370	UJ
Di-n-octylphthalate	330	370	UJ
Benzo(b)fluoranthene	330	370	UJ
Benzo(k)fluoranthene	330	370	UJ
Benzo(a)pyrene	330	370	UJ
Indeno(1,2,3-cd)pyrene	330	370	UJ
Dibenzo(a,h)anthracene	330	370	UJ
Benzo(g,h,i)perylene	330	370	UJ

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Project	200-BP-1		
Laboratory	WESTON		
Case 9105L637	SDG	9105L637	
Sample Number		B00X35	
Location		216-B-61A	
Remarks		13.8-16.6	
Sample Date		5-14-91	
Extraction Date		5-22-91	
Analysis Date		6-23-91	
TIC Semivolatile Compound	RT	Result	Q
Aldol condensate	4.43	600	R
Unknown	4.73	200	JN
Aldol condensate	4.92	100	R
Unknown	5.90	100	JN

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1B

0000016 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

BOOX35
216-B-61A / 13.8-16.6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S062304

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/23/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg		
108-95-2	Phenol	370	U	UJ
111-44-4	bis(2-Chloroethyl)ether	370	U	
95-57-8	2-Chlorophenol	370	U	
541-73-1	1,3-Dichlorobenzene	370	U	
106-46-7	1,4-Dichlorobenzene	370	U	
100-51-6	Benzyl alcohol	370	U	
95-50-1	1,2-Dichlorobenzene	370	U	
95-48-7	2-Methylphenol	370	U	
108-60-1	bis(2-Chloroisopropyl)ether	370	U	
106-44-5	4-Methylphenol	370	U	
621-64-7	N-Nitroso-Di-n-propylamine	370	U	
67-72-1	Hexachloroethane	370	U	
98-95-3	Nitrobenzene	370	U	
78-59-1	Isophorone	370	U	
88-75-5	2-Nitrophenol	370	U	
105-67-9	2,4-Dimethylphenol	370	U	
65-85-0	Benzoic acid	1800	U	
111-91-1	bis(2-Chloroethoxy)methane	370	U	
120-83-2	2,4-Dichlorophenol	370	U	
120-82-1	1,2,4-Trichlorobenzene	370	U	
91-20-3	Naphthalene	370	U	
106-47-8	4-Chloroaniline	370	U	
87-68-3	Hexachlorobutadiene	370	U	
59-50-7	4-Chloro-3-methylphenol	370	U	
91-57-6	2-Methylnaphthalene	370	U	
77-47-4	Hexachlorocyclopentadiene	370	U	
88-06-2	2,4,6-Trichlorophenol	370	U	
95-95-4	2,4,5-Trichlorophenol	1800	U	
91-58-7	2-Chloronaphthalene	370	U	
88-74-4	2-Nitroaniline	1800	U	
131-11-3	Dimethylphthalate	370	U	
208-96-8	Acenaphthylene	370	U	
606-20-2	2,6-Dinitrotoluene	370	U	

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1C

0000017 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

BOOX35
216-B-61A/13.8-16.6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S062304

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/23/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg		
99-09-2	3-Nitroaniline	1800	U	UJ
83-32-9	Acenaphthene	370	U	
51-28-5	2,4-Dinitrophenol	1800	U	
100-02-7	4-Nitrophenol	1800	U	
132-64-9	Dibenzofuran	370	U	
121-14-2	2,4-Dinitrotoluene	370	U	
84-66-2	Diethylphthalate	760	J	J
7005-72-3	4-Chlorophenyl-phenylether	370	U	UJ
86-73-7	Fluorene	370	U	
100-01-6	4-Nitroaniline	1800	U	
534-52-1	4,6-Dinitro-2-methylphenol	1800	U	
86-30-6	N-Nitrosodiphenylamine (1)	370	U	
101-55-3	4-Bromophenyl-phenylether	370	U	
118-74-1	Hexachlorobenzene	370	U	
87-86-5	Pentachlorophenol	1800	U	
85-01-8	Phenanthrene	370	U	
120-12-7	Anthracene	370	U	
84-74-2	Di-n-Butylphthalate	~~89~~	~~JB~~	UJ 330
206-44-0	Fluoranthene	370	U	UJ
129-00-0	Pyrene	370	U	
85-68-7	Butylbenzylphthalate	370	U	
91-94-1	3,3'-Dichlorobenzidine	740	U	
56-55-3	Benzo(a)anthracene	370	U	
218-01-9	Chrysene	370	U	
117-81-7	bis(2-Ethylhexyl)phthalate	370	U	
117-84-0	Di-n-Octyl phthalate	370	U	
205-99-2	Benzo(b)fluoranthene	370	U	
207-08-9	Benzo(k)fluoranthene	370	U	
50-32-8	Benzo(a)pyrene	370	U	
193-39-5	Indeno(1,2,3-cd)pyrene	370	U	
53-70-3	Dibenzo(a,h)anthracene	370	U	
191-24-2	Benzo(g,h,i)perylene	370	U	

(1) - Cannot be separated from Diphenylamine

4/1/92

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1F

0000016 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOX35
216-B-61A / 13.8-16.6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: S062304

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/23/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.11

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	ALDOL CONDENSATE	4.43	600	~~ABJ~~	~~J~~ R
2.	UNKNOWN	4.73	200	J	JN
3.	ALDOL CONDENSATE	4.92	100	~~AJ~~	R
4.	UNKNOWN	5.90	100	J	JN

4/10/91

4/17

Project	200-BP-1		
Laboratory	WESTON		
Case 9105L637	SDG	9105L637	
Sample Number		B00X35	
Location		216-B-61A	
Remarks		13.8-16.6	
Sample Date		5-14-91	
Extraction Date		5-22-91	
Analysis Date		6-25-91	
Pesticide/PCB	CRQL	Result	Q
alpha-BHC	8.0	8.0	UJ
beta-BHC	8.0	8.0	UJ
delta-BHC	8.0	8.0	UJ
gamma-BHC (Lindane)	8.0	8.0	UJ
Heptchlor	8.0	8.0	UJ
Aldrin	8.0	8.0	UJ
Heptachlor epoxide	8.0	8.0	UJ
Endosulfan I	8.0	8.0	UJ
Dieldrin	16.0	16	UJ
4,4'-DDE	16.0	16	UJ
Endrin	16.0	16	UJ
Endosulfan II	16.0	16	UJ
4,4'-DDD	16.0	16	UJ
Endosulfan sulfate	16.0	16	UJ
4,4'-DDT	16.0	16	UJ
Methoxychlor	80.0	80	UJ
Endrin Ketone	16.0	16	UJ
alpha-Chlordane	80.0	80	UJ
gamma-Chlordane	80.0	80	UJ
Toxaphene	160.0	160	UJ
Arochlor-1016	80.0	80	UJ
Arochlor-1221	80.0	80	UJ
Arochlor-1232	80.0	80	UJ
Arochlor-1242	80.0	80	UJ
Arochlor-1248	80.0	80	UJ
Arochlor-1254	160.0	160	UJ
Arochlor-1260	160.0	160	UJ

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ID

0 0 0 0 0 1 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

BOOX35
216-B-61A / 13.8-16.6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L637-001

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 06249109.21

Level: (low/med) LOW Date Received: 05/16/91

% Moisture: not dec. 2 dec. Date Extracted: 05/22/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/25/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg		
319-84-6	Alpha-BHC	8.0	U	
319-85-7	Beta-BHC	8.0	U	
319-86-8	Delta-BHC	8.0	U	
58-89-9	gamma-BHC (Lindane)	8.0	U	
76-44-8	Heptachlor	8.0	U	
309-00-2	Aldrin	8.0	U	
1024-57-3	Heptachlor epoxide	8.0	U	
959-98-8	Endosulfan I	8.0	U	
60-57-1	Dieldrin	16	U	
72-55-9	4,4'-DDE	16	U	DER 7/17/91
72-20-8	Endrin	16	U	
33213-65-9	Endosulfan II	16	U	
72-54-8	4,4'-DDD	16	U	
1031-07-8	Endosulfan sulfate	16	U	
50-29-3	4,4'-DDT	16	U	
72-43-5	Methoxychlor	80	U	
53494-70-5	Endrin ketone	16	U	
5103-71-9	alpha-Chlordane	80	U	
5103-74-2	gamma-Chlordane	80	U	
8001-35-2	Toxaphene	160	U	
12674-11-2	Aroclor-1016	80	U	
11104-28-2	Aroclor-1221	80	U	
11141-16-5	Aroclor-1232	80	U	
53469-21-9	Aroclor-1242	80	U	
12672-29-6	Aroclor-1248	80	U	
11097-69-1	Aroclor-1254	160	U	
11096-82-5	Aroclor-1260	160	U	

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Project	200-BP-1		
Laboratory	WESTON		
Case 9105L637	SDG	9105L637	
Sample Number		B00X35	
Location		216-B-61A	
Remarks		13.8-16.6	
Sample Date		5-14-22	
Wet Chemistry Analytes	CRQL	Result	Q
% Solids		98.5	
Chloride	4	29.4	J
Fluoride	4	1.8	U
Nitrite	4	0.89	UJ
Nitrate	4	1.5	J
Cyanide (total)	0.5	1	U
Phosphate	4	0.89	UJ
Sulfate	4	21.8	UJ
Nitrate Nitrite	4	3.5	J
Total Organic Carbon	50	0.61	

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ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 06/19/91

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

WESTON BATCH #: 9105L637

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS		REPORTING LIMIT
-001	BOOX35	% Solids	98.5		%		0.10
		Chloride by IC	29.4		mg/kg	J	0.89
		Fluoride by IC	1.8	u	mg/kg		1.8
		Nitrite by IC	0.89	u	mg/kg	UJ	0.89
		Nitrate by IC	1.5		mg/kg	J	0.89
		Cyanide, Total	1.0	u	MG/KG		1.0
		Phosphate by IC	0.89	u	mg/kg	UJ	0.89
		Sulfate by IC	21.8		mg/kg	UJ	0.89
		Nitrate Nitrite	3.5		MG/KG	J	1.0
		Total Organic Carbon	0.61		%		0.010

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ATTACHMENT 4

DATA REVIEW SUPPORTING DOCUMENTATION

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VOLATILE ORGANIC DATA REVIEW CHECKLIST - FORM A-1

PROJECT: 913-1719	REVIEWER: S Schlabach	DATE: 4/3/92
LABORATORY: Weston	CASE: 9105L637	SDG: 9105L637
SAMPLES/MATRIX: B00X35 / soil		

1. DATA PACKAGE COMPLETENESS

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

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

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Data Package Item	Present?:	Yes	No	N/A
Raw QC Data				
Tuning report, spectra and mass lists		✓	—	—
Blank analysis reports		✓	—	—
TIC reports for all blanks		✓	—	—
RIC and quantitation reports for blanks		✓	—	—
Raw and corrected spectra for all detected results in blanks		✓	—	—
Raw and corrected library search data for all reported TIC		—	—	✓
Quantitation and calculation data for all TIC		—	—	✓
MS/MSD report forms		—	—	✓
RIC and quantitation reports for MS/MSD		—	—	✓
Additional Data				
Moisture/% solids data sheets		✓	—	—
Reduction formulae		—	✓	—
Instrument time logs		—	✓	—
Chemist notebook pages		—	✓	—
Sample preparation sheets		✓	—	—

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, qualify associated samples as estimated (J for detects or UJ for non-detects).

3. INSTRUMENT CALIBRATION AND TUNING

3.1 GC/MS TUNING

Is a BFB 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

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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 non-detects). 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%?	Yes	(No)	N/A
Are all RRF values ≥0.05?	(Yes)	No	N/A

ACTION: If any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all non-detects as unusable (R). If any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for non-detects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12h periods in which associated samples were analyzed ?	(Yes)	No	N/A
Are all RRF values ≥0.05?	(Yes)	No	N/A
Are all %D values ≤25%?	Yes	(No)	N/A

ACTION: If any RRF value is out of specification qualify all associated detected results as estimated and all non-detects as unusable (R). If any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for non-detects).

4. BLANKS

4.1 LABORATORY BLANKS

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

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

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4.2. FIELD BLANKS

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

ACTION: Qualify all detected sample results less than or equal to five times the amount in any valid field blank as non-detects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

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

Are any surrogate recoveries less than 10%? Yes (No) N/A

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

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

5.2 MATRIX SPIKE RECOVERY

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

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

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

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If 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.

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5.3 PERFORMANCE AUDIT SAMPLES

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

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

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? (Yes) No N/A

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

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. 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

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ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for non-detects). If area counts are outside the acceptance limits and the retention time criteria are not met qualify all non-detects in the associated samples as unusable (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 explained? (Yes) No N/A

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

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

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

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

Has the laboratory reported the sample quantitation limits within five times the CRQL values? (Yes) No N/A

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

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

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

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

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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 non-detects (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 non-detects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

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

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

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10 of the data validation requirements.

4/17

9713527.0549

COMMENTS (attach additional sheets as necessary):

1. Spike and duplicate in RFW lot 9105597 summary included.

HOLDING TIME SUMMARY - FORM B-1

SDG: 9105L637	REVIEWER: S Schildt	DATE: 4/3/92	PAGE 1 OF 1
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOOX35	VOA	5/14/91	5/21/91	5/21/91	7	7	none

9/19527 0550

4/3/92

CALIBRATION DATA SUMMARY - FORM B-2

SDG: 91052637	REVIEWER: S Schlolt	DATE: 4/3/92	PAGE 1 OF 1
COMMENTS: VOA			
CALIB. TYPE: (INITIAL) CONTINUING		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	(RSD)/%D/%R	SAMPLES AFFECTED	QUALIFIER
5/14/91	Chloromethane		34.7 %	BOOX35	UJ
↓	Acetone		42.7	↓	J

B-2

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91052637.059

CALIBRATION DATA SUMMARY - FORM B-2

SDG: 91051637	REVIEWER: S Schuldt	DATE: 4/3/92	PAGE 1 OF 1
COMMENTS: VOA			
CALIB. TYPE: INITIAL (CONTINUING)		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	RSD/(%D)/%R	SAMPLES AFFECTED	QUALIFIER
5/21/91	Bromomethane		-47.6	B00X35	UJ
	Acetone		-105	↓	none
	2-Butanone		-27.1		UJ
	Bromoform		-27.3	↓	UJ

B-2

4/3/92

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 9105637	REVIEWER: S Schmidt	DATE: 4/3/92	PAGE 1 OF 1
COMMENTS: VOA			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	Methylene chloride	2	J		ug/kg		20	B00X35	5U
	Acetone	32			↓		320	↓	10UJ
	Xylene	1	J		↓		10	↓	none

B-3

4/3/92

V92

9105637 0596

9713527.0554

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

PROJECT: 913-1719	REVIEWER: Schulak	DATE: 4/2/92
LABORATORY: Weston	CASE: 9105L637	SDG: 9105L637
SAMPLES/MATRIX: B00X35/soil		

1. DATA PACKAGE COMPLETENESS

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

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

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Data Package Item	Present?:	Yes	No	N/A
Raw QC Data				
Tuning report, spectra and mass lists		✓	—	—
Blank analysis reports		✓	—	—
TIC reports for all blanks		✓	—	—
RIC and quantitation reports for blanks		✓	—	—
Raw and corrected spectra for all detected results in blanks		✓	—	—
Raw and corrected library search data for all reported TIC		✓	—	—
Quantitation and calculation data for all TIC		—	✓	—
MS/MSD report forms		✓	—	—
RIC and quantitation reports for MS/MSD		✓	—	—
Additional Data				
Moisture/% solids data sheets		✓	—	—
Reduction formulae		—	✓	—
Instrument time logs		—	✓	—
Chemist notebook pages		—	✓	—
Sample preparation sheets		✓	—	—

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 have been exceeded, qualify all results for the associated samples as estimated (J for detects and UJ for non-detects).

3. INSTRUMENT CALIBRATION AND TUNING

3.1 GC/MS TUNING

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 non-detects). If all tuning criteria are not met, qualify all associated data as unusable (R).

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3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	(Yes)	No	N/A
Are all RSD values ≤30%?	Yes	(No)	N/A
Are all RRF values ≥0.05?	(Yes)	No	N/A

ACTION: If any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all non-detects as unusable (R). If any RSD value is out of specification qualify all associated data as estimated (J for detects and UJ for non-detects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12h periods in which associated samples were analyzed ?	(Yes)	No	N/A
Are all RRF values ≥0.05?	(Yes)	No	N/A
Are all %D values ≤25%?	Yes	(No)	N/A

ACTION: If any RRF value is out of specification qualify all associated detected results as estimated (J) and all non-detects as unusable (R). If any %D is out of specification, qualify all associated results as estimated (J for detects and UJ for non-detects).

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 <10X the highest blank concentration for the common laboratory contaminants, as non-detects (U) or at the SQL if the result is <CRQL. Qualify all remaining sample results <5X 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 less than or equal to five times the amount in any valid field blank as non-detects (U) and note the results of the field blanks in the validation narrative.

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5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	(No)	N/A
Are any surrogate recoveries less than 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 non-detects) 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 non-detect 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 MS/MSD analyses have not been conducted contact the laboratory for 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 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.

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6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are all 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 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 non-detects). If area counts are outside the acceptance limits and the retention time criteria are not met qualify all non-detects in the associated samples as unusable (R).

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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 explained?	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 five times the CRQL 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 non-detects (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 non-detects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

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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 of the data validation requirements.

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HOLDING TIME SUMMARY - FORM B-1

SDG: 91052637	REVIEWER: S Schildt	DATE: 4/2/92	PAGE 1 OF 1
COMMENTS: BNA			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOOX35	BNA	5/14/91	5/22/91	6/23/91	8	40	J

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CALIBRATION DATA SUMMARY - FORM B-2

SDG: 91052637	REVIEWER: S Schuldt	DATE: 4/2/92	PAGE 1 OF 1		
COMMENTS: BNA					
CALIB. TYPE: (INITIAL) CONTINUING		INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	(RSD)/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/18/91	Hexachlorocyclopentadiene		39.3%	B00X35	none
↓	3-Nitroaniline		32.1	↓	↓
	2,4-Dinitrophenol		34.5		
	4-Nitroaniline		33.6		
↓	bis(2-ethylhexyl)phthalate		35.9	↓	↓

91052637 0562

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CALIBRATION DATA SUMMARY - FORM B-2

SDG: 91052637	REVIEWER: S Schildt	DATE: 4/2/92	PAGE 1 OF 1
COMMENTS: BNA			
CALIB. TYPE: INITIAL (CONTINUING)		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	RSD/(%D)/%R	SAMPLES AFFECTED	QUALIFIER
6/23/91	Benzoic acid		28.8	B00X35	none
	Hexachlorocyclopentadiene		34.2	↓	↓
	3-Nitroaniline		-58.7		
	2,4-Dinitrophenol		56.6		
	4-Nitrophenol		-57.1		
	4,6-Dinitro-2-methylphenol		38.6		
↓	Benzo(k)fluoranthene		-25.5	↓	↓
6/24/91	Benzyl alcohol		40.5		
	Benzoic acid		32.0		
	Hexachlorocyclopentadiene		-31.6		
	3-Nitroaniline		-68.7		
	2,4-Dinitrophenol		50.8		
	4-Nitrophenol		-31.7		
	4,6-Dinitro-2-methylphenol		30.7		
↓	3,3'-Dichlorobenzidine		-37.3	↓	↓

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 91052637	REVIEWER: S Schuldt			DATE: 4/2/92				PAGE 1 OF 1	
COMMENTS: BNA									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
S61K	Di-n-butylphthalate	48	J		ug/kg		480	B80X35	330 UJ
	aldol condensate	200	AJ	4.43	↓	1000		↓	R

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91052637 0569

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ACCURACY DATA SUMMARY - FORM B-4

SDG: 9105L637	REVIEWER: S Schildt	DATE: 4/2/92	PAGE 1 OF 1	
COMMENTS: Spike Recovery - BNA				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B00X35MS	Phenol	114	B00X35	none
	4-Nitrophenol	130	↓	↓
	2,4-Dinitrotoluene	115		
	Pentachlorophenol	124		
B00X35MSD	Phenol	103		
	2,4-Dinitrotoluene	105		
SBLKMS	Phenol	97	↓	↓

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PESTICIDE/PCB DATA REVIEW CHECKLIST - FORM A-3

PROJECT: 913-1719	REVIEWER: S Schuldt	DATE: 4/7/92
LABORATORY: Weston	CASE: 9105L637	SDG: 9105L637
SAMPLES/MATRIX: B00X35 / soil		

1. DATA PACKAGE COMPLETENESS

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

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

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

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, qualify all affected sample results as estimated (J for detects and UJ for non-detects).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE

Are DDT retention times greater than 12 minutes?	(Yes)	No	N/A
Is resolution between DDT peaks acceptable?	(Yes)	No	N/A
Do all pesticide standards elute within the established retention time windows?	Yes	(No)	N/A
Are DDT breakdowns <20%?	Yes	(No)	N/A
Are endrin breakdowns <20%?	Yes	(No)	N/A
Are DBC retention time differences within specification?	(Yes)	No	N/A

ACTION: If DDT retention time is <12 minutes and resolution is ≤25% qualify associated data as unusable (R). 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). If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all non-detects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ). If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all non-

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detects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition qualify all results for endrin ketone as presumptive and estimated (NJ). 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 CALIBRATION

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	(No)	N/A
Have all standards been analyzed within 72 hours 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 72h sequence?	(Yes)	No	N/A
Have evaluation standards A, B, and C been analyzed within 72h of any sample?	(Yes)	No	N/A
Has the confirmation standard mix been analyzed after every 5 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 72h 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).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks for each matrix in the sample group?	(Yes)	No	N/A
Are target compounds present in the laboratory blanks?	Yes	(No)	N/A

ACTION: Qualify all associated positive results as non-detects (U) that are <5X the highest concentration in any acceptable blank.

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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 <5X the highest valid field blank concentrations as non-detects (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 non-detects 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 non-detects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated non-detects 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 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.

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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 not the results in the validation narrative. If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

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

6.3 FIELD SPLIT SAMPLES

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

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

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

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

Were positive results analyzed on disimilar columns? Yes No (N/A)

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation? 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 non-detects 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 non-detected (UJ). If

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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 five times the CRQL 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 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

1. Endrin ketone out of RT window @ 2337 on SP2100 confirmation column. No sample peaks in the RT window.

2. Endrin ketone coelutes on 2250/2401 quantitation column.

3. Endosulfan I, Endosulfan II, 4,4'-DDT, and methoxychlor out of RT window @ 0714 on SP100 column. No sample peaks @ those RTs.

4. 4,4'-DDT breakdown summary indicates breakdown >20% but raw data does not support summary of quantitation column

5. Endrin breakdown >20% @ 1131 on confirmation column.

4/17/91

HOLDING TIME SUMMARY - FORM B-1

SDG: 91052637	REVIEWER: S Schildt	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: Pesticide / PCB			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOOK35	Pest/PCB	5/14/91	5/22/91	6/25/91	8	42	UJ

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1/92

CALIBRATION DATA SUMMARY - FORM B-2

SDG: 9105L637	REVIEWER: S Schildt	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: Pesticide / PCB			
CALIB. TYPE: (INITIAL) CONTINUING		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	(RSD)/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/24/91	Aldrin		14.8%		
6/24/91	4,4'-DDT		12.3%		

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CALIBRATION DATA SUMMARY - FORM B-2

SDG: 91052637	REVIEWER: S Schildt	DATE: 4/7/92	PAGE 1 OF 1
COMMENTS: Pesticide / PCB			
CALIB. TYPE: ~~INITIAL~~ CONTINUING		INSTRUMENT: 2250/2401	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/25/91	4,4'-DDT		27.4		
	Methoxychlor		22.8		
	Endrin		38.1		

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ACCURACY DATA SUMMARY - FORM B-4

SDG: 9105L637	REVIEWER: S. Schuldt	DATE: 4/7/92	PAGE 1 OF 1	
COMMENTS: Pesticide/PCB Matrix spike recovery				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B00X35MS	Endrin	156		
B00X35MSD	Endrin	157		
P61KMS	Endrin	146		

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WET CHEMISTRY DATA REVIEW CHECKLIST - FORM A-7

PROJECT: 913-1719	REVIEWER: S Schlobohm	DATE: 4/3/92
LABORATORY: Weston	CASE: 9105L637	SDG: 9105L637
SAMPLES/MATRIX: B00X35 / soil		

1. DATA PACKAGE COMPLETENESS

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

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

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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 non-detects).

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

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 ~~field~~ LAB blanks? Yes (No) N/A

SSS 4/13/92

ACTION: Qualify all associated sample results for any analyte <5X the amount in any laboratory blank as non-detected (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 <5X the amount in any valid field blank as non-detected (U).

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7. MATRIX SPIKE SAMPLE ANALYSIS

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

ACTION: If spike recovery is outside the control limits and the sample results are greater than the CRQL, qualify the data as estimated (J). If the spike recovery is less than 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.

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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 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

1. Laboratory control samples for CN only -
2. No duplicate for CN.

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HOLDING TIME SUMMARY - FORM B-1

SDG: 9105L637	REVIEWER: S Schlicht	DATE: 4/3/92	PAGE 1 OF 1
COMMENTS: Wet Chemistry			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B00X35	Cl	5/14/91	—	5/23/91		9	none
	F	↓	—	↓		↓	↓
	NO_2		—				UJ
	NO_3		—	↓		↓	J
	CN		5/28/91	5/28/91	14	14	none
	PO_4		—	5/23/91		9	UJ
	SO_4		—	↓		9	none
	NO_3+NO_2		—	6/18/91		35	J
	TOC	✓	—	6/2/91		19	↓ none

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ACCURACY DATA SUMMARY - FORM B-4

SDG: 9105L637	REVIEWER: S Schildt	DATE: 4/3/02	PAGE 1 OF 1	
COMMENTS: Wet Chemistry Matrix Spike recovery				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B00X35MS	Chloride	137	B00X35	J
	Phosphate	54.9	↓	none

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PRECISION DATA SUMMARY - FORM B-5

SDG: 9105L637	REVIEWER S Schuldt	DATE: 4/3/92	PAGE 1 OF 1

COMMENTS: Wet Chemistry Duplicate analysis

COMPOUND	SAMPLE ID: B80X35	SAMPLE ID: B80X35D	RPD	SAMPLES AFFECTED	QUALIFIER
Chloride	29.4	37.1	23.4	B80X35	none
Nitrate	1.5	2.2	39.9	↓	↓
Sulfate	21.8	56.7	88.9	↓	J

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