START 9613402.1105 0000007 9107L200-WES-119 99

0043034

WESTON

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-18-91
RFW #: 9107L200, GC/MS VOLATILE
W.O. #: 6168-02-01

NARRATIVE

One (1) water sample was collected on 07-16-91.

The sample and its associated QC sample was analyzed according to criteria set forth in CLP SOW 2/88 (rev 5/89) for TCL Volatile target compounds on 07-22-91.

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 9107L112.

4. The laboratory blank contained the common contaminant methylene chloride at a level less than the CRQL.

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

FEB 1996

Jack R. Tuschall, Ph.D. 8.5.91.
Laboratory Manager Date
Lionville Analytical Laboratory

Custody Transfer Record/Lab Work Request

WESTON

WESTON Analytics Use Only
9107L200

Project #: 91-019

Client: Westinghouse Hanford Co.

Work Order: EE3E5 W. S. Thompson

Date Rec'd.: 7/18/91 Date Due: 8/22/91 As specified in SOW

RFW Contact: Peg Beaty

Client Contact/Phone: W.S.Thompson(509)376-2153

Refrigerator#	1	5M	6	7	3	3	3	5	1	
#/Type Container	3G	AG	Plastic			2L	→	G	Plastic	
Volume	250	1000	1000	1000	1000	250	250	250	8 Liters	
Preservative	none	none	NaOH	HNO3	none	H2SO4			HNO3	
ANALYSES REQUESTED →	1	2	3	4	5	6	7	8		

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	1	2	3	4	5	6	7	8	
001	1300R81	W	7/16/91	X	X	X	X	X	X	X	X	

QC/DEL = CLP
TAT = 35 day.

Rad info to follow

Cur #1 7-19-91
Sample not Radioactive.

ANALYSES REQUESTED

1. VOA (CLP)
2. Semi-VOA, PCB's, Pesticides (CLP)
3. Cyanide (CLP)
4. ICP Metals, AA metals, Bismuth (CLP)
5. IC Anions (300.0) ICFL, ICCL, ICSO4, ICPO4
6. NO2/NO3
7. Tritium
8. Total alpha/beta, GEA, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240, Ru-106, Total Uranium

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

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

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
All	Federal Ex. Emergy.	Brian E. [illegible]	7/18/91	1:30					
		SEE WHC C OF C							

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: Anions out of Hold.

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: See above.

0000002

9613402.1106

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

7-115

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

RFW Batch Number: 9107L200 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 07/31/91 11:29 Page: 1a

	Cust ID:	BOOX81		VBLK	
Sample Information	RFW#:	001		91LVW115-MB1	
	Matrix:	WATER		WATER	
	D.F.:	1.00		1.00	
	Units:	ug/L		ug/L	
Surrogate Recovery	Toluene-d8	101	%	103	%
	Bromofluorobenzene	101	%	102	%
	1,2-Dichloroethane-d4	88	%	98	%
Chloromethane		10	U	10	U
Bromomethane		10	U	10	U
Vinyl Chloride		10	U	10	U
Chloroethane		10	U	10	U
Methylene Chloride		49	B	4	J
Acetone		150		10	U
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.

0000004
9613402.1107

Cust ID:	BOOX81	VBLK
RFW#:	001	91LVW115-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	5 U

*= Outside of EPA CLP QC limits.

0000005

9613402.1108

9613502.1109

1A

VOLATILE ORGANICS ANALYSIS SHEET

0000016 CLIENT SAMPLE NO.

BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: W072208

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. _____ Date Analyzed: 07/22/91

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

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	49	B
67-64-1	Acetone	150	
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

0000017 CLIENT SAMPLE NO.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L200-001

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

Lab File ID: W072208

Level: (low/med) LOW

Date Received: 07/18/91

% Moisture: not dec. _____

Date Analyzed: 07/22/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

Custody Transfer Record/Lab Work Request

WESTON

WESTON Analytics Use Only
9107L200

Project #: 91-019

Client: Westinghouse Hanford Co.

Work Order: 618-02-01 EE3E5 W. S. Thompson

Date Rec'd.: 7/18/91 Date Due: 8/22/91 As specified in SOW

RFW Contact: Peg Beaty

Client Contact/Phone: W.S.Thompson(509)376-2153

Refrigerator#	1	5	1	6	3	3	3	3	5	1
#/Type Container	3G				Plastic	2L			G	Plastic
Volume	250	1000	1000	1000	1000	250	250	250	250	8 Liters
Preservative	none	none	NaOH	HNO3	none	H2SO4				HNO3
ANALYSES REQUESTED	1	2	3	4	5	6	7	8		

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	1	2	3	4	5	6	7	8
001	1300X81	W	7/16/91	X	X	X	X	X	X	X	X

Revision #2 7/24/91 Radiochem added to Tl. Revisions to follow

QC/DEL = CLP

TAT = 35 day.

Rev #1 7-19-91 Sample not Radioactive.

ANALYSES REQUESTED

1. VOA (CLP)
2. Semi-VOA, PCB's, Pesticides (CLP)
3. Cyanide (CLP)
4. ICP Metals, AA metals, Bismuth (CLP) ICNO2, ICNO3
5. IC Anions (300.0) ICFL, ICCL, ICSO4, ICPO4
6. NO2/NO3
7. Tritium
8. Total alpha/beta, GEA, Tc-99, 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	Item/Reason	Relinquished by	Received by	Date	Time
All	Federal Ex. Remegh.	Brian E. [illegible]	7/18/91	1:30					
		SEE WHC C OF C							

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: Anions out of Hold.

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: See above.

0000002

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

7-115

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

RFW Batch Number: 9107L200 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 08/01/91 10:58 Page: 1a

	Cust ID:	B00X81		SBLK		SBLK BS		SBLK BSD	
Sample Information	RFW#:	001		91LE0927-MB1		91LE0927-MB1		91LE0927-MB1	
	Matrix:	WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	59	%	69	%	82	%	76	%
	2-Fluorobiphenyl	56	%	63	%	74	%	63	%
	p-Terphenyl-d14	85	%	76	%	89	%	90	%
	Phenol-d5	55	%	54	%	63	%	64	%
	2-Fluorophenol	54	%	33	%	68	%	62	%
	2,4,6-Tribromophenol	71	%	51	%	90	%	82	%
Phenol		10	U	10	U	69	%	66	%
bis(2-Chloroethyl)ether		10	U	10	U	10	U	10	U
2-Chlorophenol		10	U	10	U	67	%	62	%
1,3-Dichlorobenzene		10	U	10	U	10	U	10	U
1,4-Dichlorobenzene		10	U	10	U	54	%	47	%
Benzyl alcohol		10	U	10	U	10	U	10	U
1,2-Dichlorobenzene		10	U	10	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	10	U
bis(2-Chloroisopropyl)ether		10	U	10	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	10	U
N-Nitroso-Di-n-propylamine		10	U	10	U	63	%	56	%
Hexachloroethane		10	U	10	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	10	U
Isophorone		10	U	10	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	U	10	U	10	U	10	U
Benzoic acid		50	U	50	U	50	U	50	U
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	10	U	69	%	60	%
Naphthalene		10	U	10	U	10	U	10	U
4-Chloroaniline		10	U	10	U	10	U	10	U
Hexachlorobutadiene		10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	10	U	74	%	72	%
2-Methylnaphthalene		10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	10	U	10	U	10	U

*= Outside of EPA CLP QC limits.

0000004
9613402.1112

Cust ID:	B00X81		SBLK		SBLK BS		SBLK BSD	
RFW#:	001		91LE0927-MB1		91LE0927-MB1		91LE0927-MB1	
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	50	U	50	U	50	U	50	U
2-Chloronaphthalene	10	U	10	U	10	U	10	U
2-Nitroaniline	50	U	50	U	50	U	50	U
Dimethylphthalate	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U
3-Nitroaniline	50	U	50	U	50	U	50	U
Acenaphthene	10	U	10	U	79	%	71	%
2,4-Dinitrophenol	50	U	50	U	50	U	50	U
4-Nitrophenol	50	U	50	U	85 *	%	81 *	%
Dibenzofuran	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	U	10	U	87	%	88	%
Diethylphthalate	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U
4-Nitroaniline	50	U	50	U	50	U	50	U
4,6-Dinitro-2-methylphenol	50	U	50	U	50	U	50	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	10	U
Pentachlorophenol	50	U	50	U	77	%	49	%
Phenanthrene	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	1	JB	1	J	10	U	10	U
Fluoranthene	10	U	10	U	10	U	10	U
Pyrene	10	U	10	U	82	%	84	%
Butylbenzylphthalate	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	20	U	20	U	20	U	20	U
Benzo(a)anthracene	10	U	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	1	J	10	U	10	U	10	U
Di-n-Octyl phthalate	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U
Dibenzo(a,h)anthracene	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U

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

0000005
9613402.1113

9613402.1114

6A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-18-91
RFW #: 9107L200, SEMIVOLATILE
W.O. #: 6168-02-01

NARRATIVE

One (1) water sample was collected on 07-16-91.

The sample and its associated QC samples were extracted on 07-22-91 and analyzed according to criteria set forth in CLP SOW 02/88 (Rev. 05/89) for TCL Semivolatile target compounds on 07-30,31-91.

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

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

2. All surrogate recoveries were within EPA QC limits.

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

4. The laboratory blank contained the common contaminant di-n-butylphthalate at a level less than the CRQL.

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

9.6.91

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

1B 0000015

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B00X81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 990 (g/mL) ML Lab File ID: V073018

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. ____ dec. Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 07/31/91

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

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

CAS NO.	COMPOUND		
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C 0000016

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B00X81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 990 (g/mL) ML Lab File ID: V073018

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. _____ dec. Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 07/31/91

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

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	1	JB
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	J
117-84-0	Di-n-Octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

CLIENT SAMPLE NO.

BOOX81

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L200-001

Sample wt/vol: 990 (g/mL) ML

Lab File ID: V073018

Level: (low/med) LOW

Date Received: 07/18/91

% Moisture: not dec. _____ dec.

Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 07/31/91

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

Dilution Factor: 1.00

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLOHEXENONE	7.47	5	JB
2.	ORGANIC ACID	10.17	3	J
3.	UNKNOWN	31.73	30	J

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

RFW Batch Number: 9107L200 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 09/10/91 16:07 Page: 1

	Cust ID:	BOOX81	PBLK	PBLK BS	PBLK BSD
Sample Information	RFW#:	001	91LE0923-MB1	91LE0923-MB1	91LE0923-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	2.00	2.00
	Units:	ug/L	ug/L	ug/L	ug/L

Surrogate: Di-n-butylchlorendate	111	%	116	%	117	%	110	%							
==========		fl		fl		fl		fl		fl		fl		fl	
Alpha-BHC	0.051	U	0.050	U	0.10	U	0.10	U							
Beta-BHC	0.051	U	0.050	U	0.10	U	0.10	U							
Delta-BHC	0.051	U	0.050	U	0.10	U	0.10	U							
gamma-BHC (Lindane)	0.051	U	0.050	U	90	%	90	%							
Heptachlor	0.051	U	0.050	U	60	%	55	%							
Aldrin	0.051	U	0.050	U	50	%	40	%							
Heptachlor epoxide	0.051	U	0.050	U	0.10	U	0.10	U							
Endosulfan I	0.051	U	0.050	U	0.10	U	0.10	U							
Dieldrin	0.10	U	0.10	U	90	%	90	%							
4,4'-DDE	0.10	U	0.10	U	0.20	U	0.20	U							
Endrin	0.10	U	0.10	U	94	%	98	%							
Endosulfan II	0.10	U	0.10	U	0.20	U	0.20	U							
4,4'-DDD	0.10	U	0.10	U	0.20	U	0.20	U							
Endosulfan sulfate	0.10	U	0.10	U	0.20	U	0.20	U							
4,4'-DDT	0.10	U	0.10	U	94	%	88	%							
Methoxychlor	0.51	U	0.50	U	1.0	U	1.0	U							
Endrin ketone	0.10	U	0.10	U	0.20	U	0.20	U							
alpha-Chlordane	0.51	U	0.50	U	1.0	U	1.0	U							
gamma-Chlordane	0.51	U	0.50	U	1.0	U	1.0	U							
Toxaphene	1.0	U	1.0	U	2.0	U	2.0	U							
Aroclor-1016	0.51	U	0.50	U	1.0	U	1.0	U							
Aroclor-1221	0.51	U	0.50	U	1.0	U	1.0	U							
Aroclor-1232	0.51	U	0.50	U	1.0	U	1.0	U							
Aroclor-1242	0.51	U	0.50	U	1.0	U	1.0	U							
Aroclor-1248	0.51	U	0.50	U	1.0	U	1.0	U							
Aroclor-1254	1.0	U	1.0	U	2.0	U	2.0	U							
Aroclor-1260	1.0	U	1.0	U	2.0	U	2.0	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
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WESTON

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-18-91
RFW #: 9107L200, PEST/PCB
W.O. #: 6168-02-01

NARRATIVE

One (1) water sample was collected on 07-16-91.

The sample was extracted on 07-22-91 and analyzed according to criteria set forth in the Contract Laboratory Program for Pesticide and PCB target compounds on 08-13-91.

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

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

2. Continuing calibration criteria were met on both the primary and confirmation columns.

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

4. All surrogate recoveries were within EPA QC limits.

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

6. The blank spike samples required two-fold dilutions to maintain the pesticide concentrations within the linear range of the instrument.

9.13.91.

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

9613402.1120 0000012

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L200-001

Sample wt/vol: 980 (g/mL) ML

Lab File ID: ~~BLK0608H.01~~ 0812H03.17

Level: (low/med) LOW

Date Received: 07/18/91

% Moisture: not dec. _____ dec.

Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 08/13/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.051	U
319-85-7	Beta-BHC	0.051	U
319-86-8	Delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.51	U
5103-74-2	gamma-Chlordane	0.51	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.51	U
11104-28-2	Aroclor-1221	0.51	U
11141-16-5	Aroclor-1232	0.51	U
53469-21-9	Aroclor-1242	0.51	U
12672-29-6	Aroclor-1248	0.51	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

DG 8-15-91

9613402.1121

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-18-91
RFW #: 9107L200
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. Sample holding times as required by 40CFR136 were met for water samples with the exception of nitrite, nitrate and phosphate.

2. All preparation blanks were analyzed below the required detection limit.

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

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

5. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. Recoveries were within the 75-125% guidance limit with the exception of nitrate nitrite. All %RPD were within the 20% guidance limit.

6. Replicate results are summarized on the Inorganic Precision report contained within this document. All results were within the 20% RPD guidance limit.

7. The analytical methods applied by the laboratory, unless otherwise requested, for 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).

8.27.91.

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

Date

SEP 1991 RECEIVED DATA RECEIPT

pas.21\i7-200

MLC 4-19-95

9613402.1122

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/22/91

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

WESTON BATCH #: 9107L200

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	BOOX81	Chloride by IC	0.25 u	mg/L	0.25
		Fluoride by IC	0.50 u	mg/L	0.50
		Nitrite by IC	0.25 u	mg/L	0.25
		Nitrate by IC	0.25 u	mg/L	0.25
		Cyanide, Total	10.0 u	UG/L	10.0
		Phosphate by IC	0.25 u	mg/L	0.25
		Sulfate by IC	0.25 u	mg/L	0.25
		Nitrate Nitrite	0.10 u	MG/L	0.10

WESTON

Roy F. Weston, INC.
Lionville Laboratory

CLIENT:WESTINGHOUSE HANFORD **SAMPLES RECEIVED:**7/18/91
RFW #:9107L200
W.O.#:6168-02-01

METALS NARRATIVE

The set of samples consisted of one (1) water sample collected on 7/16/91.

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

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

1. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.
2. All ICV and CCV values were within control limits.
3. All ICB and CCB values were within control limits.
4. All preparation blank values were within control limits.
5. All LCS results were within the 80-120% control limits.
6. All matrix spike recoveries were within the 75-125% control limits.
7. All duplicate analyses were within the 20% RPD control limit.

WESTON

8. The code CV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). Hg1 is complete with autosampler and software but does not add reagents; HG2 is operated by the analyst and produces a strip chart. Reference SOP21-15-0245.1. Sample volumes and reagents have been proportionally scaled down to adapt to a new automated technique. The volume used for all water analysis is 33 mls. For soils, 0.1 gram of sample in a final volume of 50 mls.

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

9.12.91.
Date

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 09/12/91

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

WESTON BATCH #: 9107L200

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOX81	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Beryllium, Total	5.0	u	UG/L	5.0
		Bismuth, Total	200	u	UG/L	200
		Calcium, Total	5000	u	UG/L	5000
		Cadmium, Total	5.0	u	UG/L	5.0
		Cobalt, Total	50.0	u	UG/L	50.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Potassium, Total	5000	u	UG/L	5000
		Magnesium, Total	5000	u	UG/L	5000
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Antimony, Total	60.0	u	UG/L	60.0
		Selenium, Total	5.0	u	UG/L	5.0
		Thallium, Total	10.0	u	UG/L	10.0
		Vanadium, Total	50.0	u	UG/L	50.0
		Zinc, Total	23.1		UG/L	20.0

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOX81

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP200

Matrix (soil/water): WATER Lab Sample ID: 910720001

Level (low/med): LOW Date Received: 7/18/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	96.00	U		P
7440-36-0	Antimony	55.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	8.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	4.00	U		P
7440-70-2	Calcium	91.00	U		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	8.00	U		P
7440-50-8	Copper	13.40	B		P
7439-89-6	Iron	36.00	U		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	119.00	U		P
7439-96-5	Manganese	3.70	B		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	10.00	U		P
7440-09-7	Potassium	955.00	U		P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	7.00	U		P
7440-23-5	Sodium	134.00	B		P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	10.00	U		P
7440-66-6	Zinc	23.10			P
	Cyanide	5.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613402.1127

VALIDATION SUMMARY

9613402.1128

9107L200-WBS-119

Science Applications International Corporation
An Employee-Owned Company

0517-PKB.92
May 12, 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 9107L081 and 9107L200 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

for P. K. Brockman
Program Manager

Enclosure
PKB/srj

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

9613402.1129

Report To

Westinghouse Hanford Company
Richland, Washington

Data Validation Report
200-BP-1 RI/FS
Data Package: 9107L200-WES-119
Sample ID: B00X81
Matrix: Water
Analysis Type: Organics/Metals/Wet Chemistry

Prepared By

Golder Associates Inc.
Redmond, Washington

Validated by: _____
Susan Winter
Staff Chemist

Reviewed by: _____
Kent Angelos
Associate

May 7, 1992

913-1719

9613402.1130

TABLE OF CONTENTS

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3.2 Minor Deficiencies	2
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3.2.2 Semivolatile Organics	2
3.2.3 Pesticide/PCB Organics	3
3.2.4 Metals	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

1. INTRODUCTION

This report presents the results of data validation on data package 9107L200-WES-119 consisting of one (1) water sample for contract laboratory program target compound list (CLP/TCL) volatiles, semivolatiles, pesticides and PCBs, CLP target analyte list (TAL) metals and total cyanide, and wet chemistry parameters. Sample identifications, locations and sample dates are provided in the tabular data summary provided in Attachment 3.

Data validation was conducted in accordance with the statement of work (WHC 1991) and validation procedures (WHC 1992).

2. DATA QUALITY OBJECTIVES

The data package was complete for all requested analyses and met the data quality objectives of the work plan. Data quality objectives for the project specified the use of CLP methods for the TCL volatiles, semivolatiles, pesticides/PCBs and TAL metals and cyanide. EPA methods were used for the analysis of the wet chemistry parameters based.

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

Sample B00X81 was identified as an equipment blank. There were detected results in the volatile, semivolatile, and metals fractions for acetone, methylene chloride, bis(2-ethylhexyl)-phthalate, manganese, and sodium. All other results were not detected.

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

3. QUALIFIED DATA

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

3.1 Major Deficiencies

Cyclohexanone was detected in the semivolatile fraction of B00X81 as well as in the blank. The result has been rejected since it is a suspected laboratory contaminant.

3.2 Minor Deficiencies

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

3.2.1 Volatile Organics

- The initial calibration relative standard deviation (RSD) for acetone was out of the control limit. The associated sample, B00X81, was qualified as estimated (J).

- Methylene chloride was detected in the laboratory method blank at a concentration of 4 µg/L. The sample concentration was 49 µg/L which is greater than ten times the blank concentration, 40 µg/L, and therefore did not require qualification.

3.2.2 Semivolatile Organics

- The initial calibration RSD for benzyl alcohol was out of the control limits. The associated sample, B00X81, was qualified as estimated (UJ).

- The continuing calibration percent difference (%D) was out of the control limits for pyrene and the surrogate p-terphenyl-d14. The associated sample result for pyrene was qualified as estimated (UJ).

- Di-n-butylphthalate was detected in both the sample and laboratory blank and has been qualified as undetected (U).

- An organic acid and an unknown compound reported as tentatively identified compounds (TIC) have been determined to be valid and have been qualified as presumptive and estimated (NJ).

3.2.3 Pesticide/PCB Organics

- There were no qualifications required in the validation of the pesticide/PCB data for this sample.

3.2.4 Metals

- Copper, zinc, and iron were present in the initial, calibration, and preparation blanks (see Attachment 4). Results for copper and zinc were less than five times the respective blank concentration and have been qualified as not detected (U). The sample result for iron was already not detected and therefore did not require qualification.

3.2.5 Wet Chemistry

- The samples for phosphate, nitrate, and nitrite were analyzed out of the required holding times. The associated results have been qualified as estimated (UJ).

- The matrix spike/matrix spike duplicate percent recovery (%R) for nitrate+nitrite-N were out of the control limits. The associated result has been qualified as estimated (UJ).

4. CONCLUSIONS

Sections 1 through 3 present a summary of the data quality for the subject data package. The data as qualified are acceptable for use with the exception of cyclohexenone detected in the semivolatile fraction. The attachments provide supporting documentation and a tabular summary of the qualified data. The original, as-received data package is enclosed for submittal to the project QA record.

5. REFERENCES

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

WHC, 1992, Westinghouse Hanford Company, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1992. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

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

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

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

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

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

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

N - Indicates presumptive evidence of a compound.

9613402.1135

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9613402.1136

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: CLP200	REVIEWER: Klein	DATE: 4/30/92	PAGE 1 OF 1
COMMENTS: VOA/BNA/WetChem			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	J	B00X81	ICV %RSD > 30%
Benzyl Alcohol	UJ	B00X81	ICV %RSD 30%
Pilarine	UJ	B00X81	CCV %D > 25%
p-terphenyl-d14 surrogate	none	↓	↓
Di-n-Butylphthalate	U	B00X81	Present in blank
Cyclohexanone	R	B00X81	Laboratory contaminant and present in blank
[illegible]	UJ	B00X81	Analyzed out of hold time
[illegible]	UJ	↓	↓
[illegible]	UJ	↓	↓
[illegible]	R	B00X81	[illegible]
[illegible]	UJ	B00X81	MS/MSD %R out of control limits
Copper	U	B00X81	Present in blank
Zinc	U	↓	↓
Iron	none	↓	↓
All TIC's in SV Fraction	NJ	B00X81	Valid

5/05/92

5/15/92

Klein 4/30/92

9613402.1137

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

Project		200-BP-1																			
Laboratory		WESTON																			
Case		SDG 9107L200																			
Sample Number		B00X81																			
Location		216-B-57A EQUIPMENT BLANK																			
Remarks																					
Sample Date		07/16/91																			
Analysis Date		07/22/91																			
Volatile Organic Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U																		
Bromomethane	10	10	U																		
Vinyl Chloride	10	10	U																		
Chloroethane	10	10	U																		
Methylene Chloride	5	49	B																		
Acetone	10	150	J																		
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	U																		
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	U																		
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																		

9613402.1138

Project		200-BP-1																		
Laboratory		WESTON																		
Case		SDG 9107L200																		
Sample Number		B00X81																		
Location		216-B-57A EQUIPMENT BLANK																		
Remarks																				
Sample Date		07/16/91																		
Extraction Date		07/22/91																		
Analysis Date		07/31/91																		
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	10	10	U																
bis(2-Chloroethyl)ether	10	10	U																
2-Chlorophenol	10	10	U																
1,3-Dichlorobenzene	10	10	U																
1,4-Dichlorobenzene	10	10	U																
Benzyl alcohol	10	10	UJ																
1,2-Dichlorobenzene	10	10	U																
2-Methylphenol	10	10	U																
bis(2-Chloroisopropyl)ether	10	10	U																
4-Methylphenol	10	10	U																
N-Nitroso-di-n-propylamine	10	10	U																
Hexachloroethane	10	10	U																
Nitrobenzene	10	10	U																
Isophorone	10	10	U																
2-Nitrophenol	10	10	U																
2,4-Dimethylphenol	10	10	U																
Benzoic acid	50	50	U																
bis(2-Chloroethoxy)methane	10	10	U																
2,4-Dichlorophenol	10	10	U																
1,2,4-Trichlorobenzene	10	10	U																
Naphthalene	10	10	U																
4-Chloroaniline	10	10	U																
Hexachlorobutadiene	10	10	U																
4-Chloro-3-methylphenol	10	10	U																
2-Methylnaphthalene	10	10	U																
Hexachlorocyclopentadiene	10	10	U																
2,4,6-Trichlorophenol	10	10	U																
2,4,5-Trichlorophenol	50	50	U																
2-Chloronaphthalene	10	10	U																
2-Nitroaniline	50	50	U																
Dimethylphthalate	10	10	U																
Acenaphthylene	10	10	U																

9613402.1139

Project		200-BP-1																		
Laboratory		WESTON																		
Case		SDG 9107L200																		
Sample Number		B00X81																		
Location		216-B-57A EQUIPMENT BLANK																		
Remarks																				
Sample Date		07/16/91																		
Extraction Date		07/22/91																		
Analysis Date		07/31/91																		
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,6-Dinitrotoluene	10	10	U																
3-Nitroaniline	50	50	U																
Acenaphthene	10	10	U																
2,4-Dinitrophenol	50	50	U																
4-Nitrophenol	50	50	U																
Dibenzofuran	10	10	U																
2,4-Dinitrotoluene	10	10	U																
Diethylphthalate	10	10	U																
4-Chlorophenyl-phenyl ether	10	10	U																
Fluorene	10	10	U																
4-Nitroaniline	50	50	U																
4,6-Dinitro-2-methylphenol	50	50	U																
N-Nitrosodiphenylamine	10	10	U																
4-Bromophenyl-phenylether	10	10	U																
Hexachlorobenzene	10	10	U																
Pentachlorophenol	50	50	U																
Phenanthrene	10	10	U																
Anthracene	10	10	U																
Di-n-butylphthalate	10	10	U																
Fluoranthene	10	10	U																
Pyrene	10	10	UJ																
Butylbenzylphthalate	10	10	U																
3,3'-Dichlorobenzidine	20	20	U																
Benz(a)anthracene	10	10	U																
Chrysene	10	10	U																
bis(2-Ethylhexyl)phthalate	10	1	J																
Di-n-octylphthalate	10	10	U																
Benzo(b)fluoranthene	10	10	U																
Benzo(k)fluoranthene	10	10	U																
Benzo(a)pyrene	10	10	U																
Indeno(1,2,3-cd)pyrene	10	10	U																
Dibenz(a,g)anthracene	10	10	U																

0411 2043196

Project		200-BP-1																		
Laboratory		WESTON																		
Case		SDG 9107L200																		
Sample Number		B00X81																		
Location		216-B-57A EQUIPMENT BLANK																		
Remarks																				
Sample Date		07/16/91																		
Extraction Date		07/22/91																		
Analysis Date		07/31/91																		
Semivolatile Compound	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Benzo(g,h,i)perylene	10	10	U																
Cyclohexenone @ 7.47		5	R																
Organic Acid @ 10.17		3	NJ																
Unknown @ 31.73		30	NJ																

9613403.1141

Project		200-BP-1															
Laboratory		WESTON															
Case		SDG 9107L200															
Sample Number		B00X81															
Location		216-B-57A EQUIPMENT BLANK															
Remarks																	
Sample Date		07/16/91															
Extraction Date		07/22/91															
Analysis Date		08/13/91															
Pesticide/PCB	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
alpha-BHC	0.05	0.051	U														
beta-BHC	0.05	0.051	U														
delta-BHC	0.05	0.051	U														
gamma-BHC (Lindane)	0.05	0.051	U														
Heptchlor	0.05	0.051	U														
Aldrin	0.05	0.051	U														
Heptachlor epoxide	0.05	0.051	U														
Endosulfan I	0.05	0.051	U														
Dieldrin	0.1	0.1	U														
4,4'-DDE	0.1	0.1	U														
Endrin	0.1	0.1	U														
Endosulfan II	0.1	0.1	U														
4,4'-DDD	0.1	0.1	U														
Endosulfan sulfate	0.1	0.1	U														
4,4'-DDT	0.1	0.1	U														
Methoxychlor	0.5	0.51	U														
Endrin Ketone	0.1	0.1	U														
alpha-Chlordane	0.5	0.51	U														
gamma-Chlordane	0.5	0.51	U														
Toxaphene	1.0	1	U														
Arochlor-1016	0.5	0.51	U														
Arochlor-1221	0.5	0.51	U														
Arochlor-1232	0.5	0.51	U														
Arochlor-1242	0.5	0.51	U														
Arochlor-1248	0.5	0.51	U														
Arochlor-1254	1.0	1	U														
Arochlor-1260	1.0	1	U														

9613402.1142

Project	200-BP-1																	
Laboratory	WESTON																	
Case	SDG	CLP200																
Sample Number		B00X81																
Location		216-B-57A EQUIPMENT BLANK																
Remarks																		
Sample Date		07/16/91																
Inorganic Analytes	CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	200	96	U														
Antimony	60	55	U														
Arsenic	10	2	U														
Barium	200	8	U														
Beryllium	5	1	U														
Cadmium	5	4	U														
Calcium	5000	91	U														
Chromium	10	4	U														
Cobalt	50	8	U														
Copper	25	13.4	U														
Iron	100	36	U														
Lead	3	2	U														
Magnesium	5000	119	U														
Manganese	15	3.7	B														
Mercury	0.2	0.1	U														
Nickel	40	10	U														
Potassium	5000	955	U														
Selenium	5	2	U														
Silver	10	7	U														
Sodium	5000	134	B														
Thallium	10	2	U														
Vanadium	50	10	U														
Zinc	20	23.1	U														
Cyanide	10	5	U														
Bismuth	60	200	U														
Chloride, mg/L	0.5	0.25	U														
Fluoride, mg/L	0.5	0.5	U														
Nitrite, mg/L	0.5	0.25	UJ														
Nitrate, mg/L	0.5	0.25	UJ														
Phosphate, mg/L	0.5	0.25	UJ														
Sulfate, mg/L	0.5	0.25	U														
Nitrate+Nitrite, mg/L	0.1	0.1	UJ														

9613402.1143

9613402.1144

1A

0000016

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A
Equipment Blank
BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L200-001

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

Lab File ID: W072208

Level: (low/med) LOW

Date Received: 07/18/91

% Moisture: not dec. _____

Date Analyzed: 07/22/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	49	B
67-64-1	Acetone	150	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

Kloria 4/30/92

9613402.1145

1E

0000017

CLIENT SAMPLE NO.

216-B-57A Equipment Blank

BOOX81

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L200-001

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

Lab File ID: W072208

Level: (low/med) LOW

Date Received: 07/18/91

% Moisture: not dec. _____

Date Analyzed: 07/22/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC

12/88 Rev.

5/5/92

K Ozie 4/30/97

9613402.1146

1B

0000015

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A Equipment Blank
BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 990 (g/mL) ML Lab File ID: V073018

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. _____ dec. Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 07/31/91

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

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

CAS NO.	COMPOUND		
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl alcohol	10	~~U~~ UJ
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic acid	50	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

Klone 4/30/92

9613402.1147 1C 0000016

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A Equipment BLANK
BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 990 (g/mL) ML Lab File ID: V073018

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. ____ dec. Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 07/31/91

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

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

CAS NO.	COMPOUND			
99-09-2	3-Nitroaniline	50	U	
83-32-9	Acenaphthene	10	U	
51-28-5	2,4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	
534-52-1	4,6-Dinitro-2-methylphenol	50	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	50	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	~~1~~ 10	~~JB~~	U
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	~~U~~	U J
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	20	U	
56-55-3	Benzo(a)anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)phthalate	1	J	
117-84-0	Di-n-Octyl phthalate	10	U	
205-99-2	Benzo(b)fluoranthene	10	U	
207-08-9	Benzo(k)fluoranthene	10	U	
50-32-8	Benzo(a)pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)pyrene	10	U	
53-70-3	Dibenzo(a,h)anthracene	10	U	
191-24-2	Benzo(g,h,i)perylene	10	U	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

K Lonie 4/30/92

9613402.1148

1F

0000017

CLIENT SAMPLE NO.
216-B-57A
Equipment Blank
BOOX81

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 990 (g/mL) ML Lab File ID: V073018

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. _____ dec. Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 07/31/91

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

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
~~1.~~	~~CYCLOHEXENONE~~	~~7.47~~	~~5~~	~~JB~~	R
2.	ORGANIC ACID	10.17	3	~~J~~	~~JN~~ NJ
3.	UNKNOWN	31.73	30	~~J~~	~~JN~~ NJ

5/5/92

5/5/92

FORM 1 SV-TIC 12/88 Rev.

Klonie 4/30/92

9613402.1149

1D 0000012

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.
216-B-57A Equipment Blank
BOOX81

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

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9107L200-001

Sample wt/vol: 980 (g/mL) ML Lab File ID: ~~BLK0608H.01~~ 0612G.03.17

Level: (low/med) LOW Date Received: 07/18/91

% Moisture: not dec. ____ dec. Date Extracted: 07/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 08/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.051	U
319-85-7	Beta-BHC	0.051	U
319-86-8	Delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.51	U
5103-74-2	gamma-Chlordane	0.51	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.51	U
11104-28-2	Aroclor-1221	0.51	U
11141-16-5	Aroclor-1232	0.51	U
53469-21-9	Aroclor-1242	0.51	U
12672-29-6	Aroclor-1248	0.51	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

DG 01-31

FORM 1 PEST 12/88 Rev.

Klonie 4/30/9

9613402.1150 000001E

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

216-8-57A

BOOX81

Equipment Blank

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP200

Matrix (soil/water): WATER Lab Sample ID: 910720001

Level (low/med): LOW Date Received: 7/18/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	96.00	U		P	
7440-36-0	Antimony	55.00	U		P	
7440-38-2	Arsenic	2.00	U		F	
7440-39-3	Barium	8.00	U		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	91.00	U		P	
7440-47-3	Chromium	4.00	U		P	
7440-48-4	Cobalt	8.00	U		P	
7440-50-8	Copper	13.40	B		P	u
7439-89-6	Iron	36.00	U		P	
7439-92-1	Lead	2.00	U		F	
7439-95-4	Magnesium	119.00	U		P	
7439-96-5	Manganese	3.70	B		P	
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	10.00	U		P	
7440-09-7	Potassium	955.00	U		P	
7782-49-2	Selenium	2.00	U		F	
7440-22-4	Silver	7.00	U		P	
7440-23-5	Sodium	134.00	B		P	
7440-28-0	Thallium	2.00	U		F	
7440-62-2	Vanadium	10.00	U		P	
7440-66-6	Zinc	23.10			P	u
	Cyanide	5.00	U		C	
7440-69-9	Bismuth	200.00	U			

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

5/7/92

FORM I - IN 03/90

9613402.1151

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/22/91

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

WESTON BATCH #: 9107L200

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	BOOX81	Chloride by IC	0.25 u	mg/L	0.25
		Fluoride by IC	0.50 u	mg/L	0.50
		Nitrite by IC	0.25 ~~u~~	mg/L u5	0.25
		Nitrate by IC	0.25 ~~u~~	mg/L u5	0.25
		Cyanide, Total	10.0 u	UG/L	10.0
		Phosphate by IC	0.25 ~~u~~	mg/L u5	0.25
		Sulfate by IC	0.25 u	mg/L	0.25
		Nitrate Nitrite	0.10 ~~u~~	MG/L u5	0.10

9613402.1152

ATTACHMENT 4

DATA REVIEW SUPPORTING DOCUMENTATION

9613402.1153

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 200-BP-1	REVIEWER: [illegible] 5/5/92	DATE: 4/30/92
LABORATORY: Weston	CASE: 9107620	SDG: CLP200
SAMPLES/MATRIX: Boex81 / water		

1. DATA PACKAGE COMPLETENESS

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

Data Package Item	Present?: Yes	No	N/A	
Case Narrative	✓			
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	X		~~✓~~	5/5/92
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	✓			
Raw QC Data				
Tuning report, spectra and mass lists	✓			
Blank analysis reports	✓			
TIC reports for all blanks	✓		~~✓~~	5/5/92
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				

K Lowe 4/30/92

Data Package Item	Present?: Yes	No	N/A
Quantitation and calculation data for all TIC			✓
MS/MSD report forms	✓		
RIC and quantitation reports for MS/MSD		X	5/5/92
Additional Data			
Moisture/% solids data sheets			✓
Reduction formulae		✓	
Instrument time logs	X		5/5/92
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, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

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

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

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

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

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

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

3.2 INITIAL CALIBRATION

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

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

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

5/7/92

Klonie 4/30/

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

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

3.3. CONTINUING CALIBRATION

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

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

4. BLANKS

4.1 LABORATORY BLANKS

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

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

5/7/9

Klorice 4/30

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Equipment blank Yes No ~~N/A~~ 2/5/92

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

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

Klair

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

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

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

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

5.2 MATRIX SPIKE RECOVERY

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

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

Are there any calculation errors? Yes No N/A

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

Klair 4/30/92

5.3 PERFORMANCE AUDIT SAMPLES

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

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

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

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

6.2 FIELD DUPLICATE SAMPLES

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

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

6.3 FIELD SPLIT SAMPLES

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

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

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

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

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

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

Klonie 4/30/9

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? Yes No N/A

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

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

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

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

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

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

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

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

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

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

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

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

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

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

KLowe 4/30/94

9. OVERALL ASSESSMENT AND SUMMARY

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

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

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

5/7/92

Klozie 4/30/9

9613402.1160

COMMENTS (attach additional sheets as necessary):

1 Requalify form 1's for initial Calibration for % RSD for Acetone out of limits

2. ~~Blank~~ Klein MeCl2 was found in Blank but ~~the~~ sample result was greater than 10x the Blank value no qualification needed.

MS/MSD was performed on RFW lot 9107L112.

This sample BCCX81 is an equipment blank - it contains MeCl2 and acetone at 49 and 150 ug/L, respectively.

3/7/92

Klein 4/30/92

HOLDING TIME SUMMARY - FORM B-1

SDG: CLP3600	REVIEWER: Kenny Klorie	DATE: 4/30/92	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
B00X81	VOA	7/16/91		7/22/91		6	None

Klorie 4/30/92 [signature] Starto

9613402.1161

CALIBRATION DATA SUMMARY - FORM B-2

SDG: CLP200	REVIEWER: Kenny Klonie	DATE: 4/30/92	PAGE 1 OF 1
COMMENTS:			
CALIB. TYPE: (INITIAL) CONTINUING		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	(RSD)/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/26/91	acetone		49.5	Pbox81	J

Klonie 5/5/92
4/30/92

9613402.1162

9613402.1163

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: LLP.00 REVIEWER: Kenneth Klein DATE: 4/30/92 PAGE 1 OF 1

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
B00X81	Mecl2	4	J		ug/L		40	None	None
								B00X81 is at 49 ug/L	
								5/5/92	

K Klein 4/30/92

5/5/92

9613402.1164

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

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

5/05/92

PROJECT: 200-BP-1	REVIEWER: Klein	DATE: 4/30/92
LABORATORY: Weston	CASE: 91076200	SDG: CLP200
SAMPLES/MATRIX: Boox81 / water		

1. DATA PACKAGE COMPLETENESS

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

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
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	✓		
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	✓		

5/7/92

Klein 4/30/92

Data Package Item	Present?: Yes	No	N/A
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 were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

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

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

3.2 INITIAL CALIBRATION

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

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

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

3.3. CONTINUING CALIBRATION

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

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

4. BLANKS

4.1 LABORATORY BLANKS

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

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

Klein 4/30/92

4.2. FIELD BLANKS

5/5/92

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

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

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND RECOVERY

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

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

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

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

5.2 MATRIX SPIKE RECOVERY

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

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

Are there any calculation errors? Yes No N/A

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

5/7/92
klowe
4/30/92

5.3 PERFORMANCE AUDIT SAMPLES

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

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

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

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

Are there any calculation errors? Yes No N/A

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

6.2 FIELD DUPLICATE SAMPLES

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

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

6.3 FIELD SPLIT SAMPLES

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

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

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

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

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

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

Klein 4/30/92

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard? Yes No N/A

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

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

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

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

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

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards for quantitation? Yes No N/A

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

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

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

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

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

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

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

9. OVERALL ASSESSMENT AND SUMMARY

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

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

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

4/30/97

Klowe 4/30/97

9613402.1171

COMMENTS (attach additional sheets as necessary):

1. Requalify form 1's for Blank

2. Qualify form 1's for RSD 7307. for ~~Pyrene~~ Klorie Benzyl Alcohol.

3. Qualify form 1's for 07D 22570 for Pyrene

5/7/92

Klorie 4/30/

9613402.1172

HOLDING TIME SUMMARY - FORM B-1

@ 5/5/92

SDG: 61200	REVIEWER: Kenny Klein	DATE: 4/30/92	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
Boox81	BNA	7/16/91	7/22/91	7/31/91	6	~~15~~ 9 @ 5/5/92	None

Klein 5/5/92
4/30/92

CALIBRATION DATA SUMMARY - FORM B-2

page 1 of 2

SDG: CLP-00	REVIEWER: Kenny Jones	DATE: 4/30/92	PAGE ~~2~~ OF ~~2~~
COMMENTS:			
CALIB. TYPE: (INITIAL) CONTINUING		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
1/14/92	Benzyl Alcohol		32.5	Block 81	10 U J

Klorine 4/30/92 5/5/92

9613402.1173

9613402.1174

CALIBRATION DATA SUMMARY - FORM B-2

page 2 of 2

SDG:	REVIEWER:	DATE:	PAGE 1 OF 1
COMMENTS:			
CALIB. TYPE: INITIAL / CONTINUING		INSTRUMENT:	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
7/16/91	Pyrene		40.2	Boox81	UJ
1/16/91	p-terphenyl-d14 surrogate		34.2	none	none

Klonie Allinto 5/5/92
4/30/92

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: CLP200 REVIEWER: Kenney Lewis DATE: 4/30/92 PAGE 1 OF 1

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
~~Blank~~ Klank									
SBLK	Di-n-Butylphthalate	1J			ug/L		10J	B00x81	U
SBLK (TICs)	Cyclohexanone @ 7.45	8J			ug/L	40		B00x81	U (already rejected)
	Trichloropropane @ 7.78	8J			ug/L	40		none	none
	Unknown @ 11.88	3J			ug/L	15		↑	none

Klank 4/30/92

[signature] 5/5/92

9613402.1175

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

ACCURACY DATA SUMMARY - FORM B-4

SDG: CLP2CO	REVIEWER: Kenney Low	DATE: 4/30/92	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
~~Prep~~ Klonie				
SBIKE0927-MB1	4 - Nitrophenol	85	None	None
	4 - Nitrophenol	81 (MSD)	"	"

Klonie [signature] 5/5/92
4/30/92

9613402.1176

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-BP-1	REVIEWER: Klein	DATE: 4/30/92
LABORATORY: Weston	CASE: 91076200	SDG: CLP200
SAMPLES/MATRIX: B00X81 / Water		

1. DATA PACKAGE COMPLETENESS

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

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	5/5/92	✓		X
GC/MS confirmation spectra	5/5/92	✓		X
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		✓		

5/7/92

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets			✓
Reduction formulae			✓
Instrument time logs	X		X 5/5/92
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, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

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

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

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

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

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

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

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

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

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

5/7/92

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

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

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

3.2 CALIBRATIONS (2/88 SOW)

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

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

Has a 3-point calibration been conducted for DDT or toxaphene? ~~**Yes**~~ No **N/A** 5/5/92

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

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

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

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

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

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

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

Is peak resolution acceptable? Yes No N/A

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

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

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

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

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

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

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

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

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

3.4 CALIBRATION VERIFICATION (3/90 SOW)

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

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

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

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

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

3/7/92

K. Lewis 4/30/9

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

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

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

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

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

4. BLANKS

4.1 LABORATORY BLANKS

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

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

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

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

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

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Equipment blank Yes No N/A 5/5/92

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

5/7/92

5. ACCURACY

5.1 SURROGATE RECOVERY

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

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

5.2 MATRIX SPIKE RECOVERY

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

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

5.3 PERFORMANCE AUDIT SAMPLES

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

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

5/7/92

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

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

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

6.2 FIELD DUPLICATE SAMPLES

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

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

6.3 FIELD SPLIT SAMPLES

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

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

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Klowe

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

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

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

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

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

Klowe 4/30/92

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

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

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

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

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

8. OVERALL ASSESSMENT AND SUMMARY

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

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

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

Klovil 4/30/9

COMMENTS (attach additional sheets as necessary):

1 % RSD for Aldrin and 4, 4'-DDT outside of limits of 10% on the SP2100 colum No qualification necessary since no target compounds were detected.

Klone 4/30

HOLDING TIME SUMMARY - FORM B-1

5/5/92

SDG:	REVIEWER:	DATE: 4/30/92	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
B00X91	~~Pest~~ Klor						
	Pest/PCB	7/16/91	7/22/91	8/13/91	6	~~28~~ 22	None
						5/5/92	

Klorie 5/5/92
4/30/

9613402.1186

9613402.1187

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 200-BP-1	REVIEWER: Klonie	DATE: 4/30/92
LABORATORY: Weston	CASE: 91071200	SDG: CLP200
SAMPLES/MATRIX: Boxes1 / water		

1. COMPLETENESS AND CONTRACT COMPLIANCE

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

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

5/7/92

K Klonie 4/30/92

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

2. HOLDING TIMES

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

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

3. INITIAL CALIBRATIONS

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

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

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

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

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

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

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

5. ICP INTERFERENCE CHECK SAMPLE

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

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

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

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

5/7/92

KLowi 4/30/10

6. LABORATORY BLANKS

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

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

7. FIELD BLANKS

Are target analytes present in the field blanks? Equipment blank Yes No ~~N/A~~ 5/5/92

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

8. MATRIX SPIKE SAMPLE ANALYSIS

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

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

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

9. LABORATORY CONTROL SAMPLE

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

Are there calculation errors? Yes No N/A

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

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

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

5/7/92

Klorie 4/30/92

10. PERFORMANCE AUDIT ANALYSES

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

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

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

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

12. ICP SERIAL DILUTION

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

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

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

13. FIELD DUPLICATE SAMPLES

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

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

14. FIELD SPLIT SAMPLES

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

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

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

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

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

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

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

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

If no, were MSA analyses performed when required? Yes No N/A

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

If no, was a second MSA analysis performed? Yes No N/A

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

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are results within the calibrated range of the instruments and within the linear range of the ICP? Yes No N/A

Are all detection limits below the CRQL? Yes No N/A

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

18. OVERALL ASSESSMENT AND SUMMARY

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

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

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

COMMENTS (attach additional sheets as necessary):

~~1. Quality format's for Blanks~~ 5/5/93

~~2. Quality formats for Duplicates~~ 5/5/93 they are within limits.

Iron and Zinc were detected in the initial and calibration blanks. Iron and zinc were detected in the preparation blank. Copper and zinc have qualified as non detect in sample Ecol.

5/7/93

Klonie 1301

9613402.1193

Holding Time Summary

page 1 of 2

RECEIVED SEP 1991 DMA RECEIPT

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

DATE RECEIVED: 07/18/91 RFW LOT # :9107L200

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Days
BOOX81							
SILVER, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	31
SILVER, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
SILVER, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
ALUMINUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
ALUMINUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
ALUMINUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
ARSENIC, TOTAL	001	W	91L1409	07/16/91	07/25/91	07/29/91	13
ARSENIC, TOTAL	001 REP	W	91L1409	07/16/91	07/25/91	07/29/91	
ARSENIC, TOTAL	001 MS	W	91L1409	07/16/91	07/25/91	07/29/91	
BARIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	31
BARIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
BARIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
BERYLLIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
BERYLLIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
BERYLLIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
BISMUTH, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/01/91	16
BISMUTH, TOTAL REP	001 REP	W	91L1410	07/16/91	07/25/91	08/01/91	
BISMUTH, TOTAL DUP S	001 MSD	W	91L1410	07/16/91	07/25/91	08/01/91	
CALCIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	31
CALCIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
CALCIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
CADMIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
CADMIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
CADMIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
COBALT, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
COBALT, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
COBALT, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
CHROMIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
CHROMIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
CHROMIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
COPPER, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
COPPER, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
COPPER, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
IRON, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
IRON, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
IRON, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
MERCURY, TOTAL	001	W	91C218A	07/16/91	07/25/91	07/26/91	10

3/5/92

9613402.1194

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Holding Time Summary

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

DATE RECEIVED: 07/18/91 RFW LOT # :9107L200

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Days
POTASSIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	31
POTASSIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
POTASSIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
MAGNESIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
MAGNESIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
MAGNESIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
MANGANESE, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
MANGANESE, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
MANGANESE, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
SODIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
SODIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
SODIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
NICKEL, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	
NICKEL, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
NICKEL, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
LEAD, TOTAL	001	W	91L1409	07/16/91	07/25/91	07/30/91	14
LEAD, TOTAL	001 REP	W	91L1409	07/16/91	07/25/91	07/30/91	
LEAD, TOTAL	001 MS	W	91L1409	07/16/91	07/25/91	07/30/91	
ANTIMONY, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	31
ANTIMONY, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
ANTIMONY, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
SELENIUM, TOTAL	001	W	91L1409	07/16/91	07/25/91	07/29/91	13
SELENIUM, TOTAL	001 REP	W	91L1409	07/16/91	07/25/91	07/29/91	
SELENIUM, TOTAL	001 MS	W	91L1409	07/16/91	07/25/91	07/29/91	
THALLIUM, TOTAL	001	W	91L1409	07/16/91	07/25/91	07/29/91	
THALLIUM, TOTAL	001 REP	W	91L1409	07/16/91	07/25/91	07/29/91	
THALLIUM, TOTAL	001 MS	W	91L1409	07/16/91	07/25/91	07/29/91	
VANADIUM, TOTAL	001	W	91L1410	07/16/91	07/25/91	08/16/91	31
VANADIUM, TOTAL	001 REP	W	91L1410	07/16/91	07/25/91	08/16/91	
VANADIUM, TOTAL	001 MS	W	91L1410	07/16/91	07/25/91	08/16/91	
ZINC, TOTAL	001	W	91L1594	07/16/91	08/20/91	08/21/91	36
ZINC, TOTAL	001 REP	W	91L1594	07/16/91	08/20/91	08/21/91	
ZINC, TOTAL	001 MS	W	91L1594	07/16/91	08/20/91	08/21/91	

LAB QC:

SILVER LABORATORY	LC1 BS	W	91L1410	N/A	07/25/91	08/16/91
ALUMINUM LABORTORY	LC1 BS	W	91L1410	N/A	07/25/91	08/16/91
BARIUM LABORATORY	LC1 BS	W	91L1410	N/A	07/25/91	08/16/91
BERYLLIUM LABORATORY	LC1 BS	W	91L1410	N/A	07/25/91	08/16/91

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Filter and Sample Data Summary

U.S. EPA - CLP

3
BLANKS

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

Lab code: WESTON Case No.: WEST SAS No.: SDG No.: CLP200

Preparation Blank Matrix (soil/water): WATER

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
	5x		5x		5x				5x		
Aluminum	96.0	U	96.0	U	96.0	U			96.000	U	P
Antimony	55.0	U	55.0	U	55.0	U			55.000	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Barium	8.0	U	8.0	U	8.0	U			8.000	U	P
Beryllium	1.0	U	1.0	U	1.0	U			1.000	U	P
Cadmium	4.0	U	4.0	U	4.0	U			4.000	U	P
Calcium	91.0	U	91.0	U	91.0	U			91.000	U	P
Chromium	4.0	U	4.0	U	4.0	U			4.000	U	P
Cobalt	8.0	U	8.0	U	8.0	U			8.000	U	P
Copper	44.5 8.9	B	56.0 11.2	B	33.5 6.7	B			6.000	U	P
Iron	36.0	U	36.0	U	36.0	U			180.5 36.100	B	P
Lead	2.0	U	2.0	U	2.0	U	-2.0	B	2.000	U	F
Magnesium	119.0	U	119.0	U	119.0	U			119.000	U	P
Manganese	3.0	U	3.0	U	3.0	U			3.000	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.100	U	CV
Nickel	10.0	U	10.0	U	10.0	U			10.000	U	P
Potassium	955.0	U	955.0	U	955.0	U			955.000	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Silver	7.0	U	7.0	U	7.0	U			7.000	U	P
Sodium	108.0	U	108.0	U	108.0	U			108.000	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Vanadium	10.0	U	10.0	U	10.0	U			10.000	U	P
Zinc	36.0 7.2	B	42.5 8.5	B	40.5 8.1	B			22.0 4.400	B	P
Cyanide	10.0	U	10.0	U					10.000	U	C

FORM III - IN 03/90

5/5/92

Klaire 4/30/92

9613402.1196

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 200-BP-1	REVIEWER: [illegible] 5/05/92	DATE: 4/30/92
LABORATORY: Weston	CASE: 91071200	SDG: CLP200
SAMPLES/MATRIX: Boox81/water		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal 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	X	—	— 5/5/92
Additional Data			
Laboratory Sample Preparation Logs	✓	—	—
Instrument Run Logs	✓	—	—
Internal Laboratory Chain-of-Custory	5/5/92 ✓	X	—
Percent Solids Analysis Records	—	—	✓
Reduction Formulae	—	—	✓
Chemist Notebook Pages	—	—	✓

2. HOLDING TIMES

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

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

5/7/92

Klaine 4/30/92

3. INITIAL CALIBRATIONS

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

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

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

Was the titrant normality checked? Yes No **N/A**

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

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Are ICV and CCV percent recoveries within control? (Sulfate by IC) 05/5/92 ~~Yes~~ **No** N/A
~~Hardness~~, The associated ICV & CCV are in control.

Are there calculation errors? the CCVs out of control are not associated with the sample Yes **No** N/A

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

5. LABORATORY BLANKS

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

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

6. FIELD BLANKS

05/5/92

Are target analytes present in the field blanks? equipment blank Yes **No** ~~N/A~~

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

7. MATRIX SPIKE SAMPLE ANALYSIS

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

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

05/7/92

Klovie 4/30/92

8. LABORATORY CONTROL SAMPLE

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

Are there calculation errors? Yes No N/A

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

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

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

9. PERFORMANCE AUDIT ANALYSES

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

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

10. DUPLICATE SAMPLE ANALYSIS

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

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

11. FIELD DUPLICATE SAMPLES

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

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

12. FIELD SPLIT SAMPLES

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

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

Klowie 4/30/92

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

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

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

14. OVERALL ASSESSMENT AND SUMMARY

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

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

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

5/7/9

Lorie 4/30/9

COMMENTS (attach additional sheets as necessary):

1 Requalify Nitrate and Nitrite and phosphate results as Estimated (J) since 48h Holding Time Exceeded

2. Nitrate + Nitrite results are rejected because of Discrepancy with IC Data
All results are NO [illegible] 5/5/92

3. Nitrate + Nitrite outside of limits for QC or but NO sample qualification needed.

5/5/92 [illegible] CCV & D for sulfate for 3 CCV runs is out of the control limits - over the 110%. The sample data is not associated with these cal checks that are out.

[illegible] 5/7/92

Klosie 4/30/93

Holding 9613402.1201 Summary

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

DATE RECEIVED: 07/18/91 RFW LOT # :9107L200

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	# of Days
BOOX81							
CHLORIDE BY IC	001	W	91LIC126	07/16/91	08/08/91	08/08/91	23
FLUORIDE BY IC	001	W	91LIC126	07/16/91	08/08/91	08/08/91	
NITRITE BY IC	001	W	91LIC126	07/16/91	08/08/91	08/08/91	
NITRATE BY IC	001	W	91LIC126	07/16/91	08/08/91	08/08/91	
TOTAL CYANIDE	001	W	91LC236	07/16/91	07/22/91	07/22/91	6
PHOSPHATE BY IC	001	W	91LIC126	07/16/91	08/08/91	08/08/91	23
SULFATE BY IC	001	W	91LIC126	07/16/91	08/08/91	08/08/91	23
NITRATE NITRITE	001	W	91LNO194	07/16/91	07/22/91	07/22/91	6
NITRATE NITRITE	001 REP	W	91LNO194	07/16/91	07/22/91	07/22/91	
NITRATE NITRITE	001 MS	W	91LNO194	07/16/91	07/22/91	07/22/91	
NITRATE NITRITE	001 MSD	W	91LNO194	07/16/91	07/22/91	07/22/91	
SUB-OUT TEST FOR SUB	001	W		07/16/91			

LAB QC:

CHLORIDE BY IC	MB1	W	91LIC126	N/A	08/08/91	08/08/91
CHLORIDE BY IC	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
CHLORIDE BY IC	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
FLUORIDE BY IC	MB1	W	91LIC126	N/A	08/08/91	08/08/91
FLUORIDE BY IC	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
FLUORIDE BY IC	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
NITRITE BY IC	MB1	W	91LIC126	N/A	08/08/91	08/08/91
NITRITE BY IC	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
NITRITE BY IC	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
NITRATE BY IC	MB1	W	91LIC126	N/A	08/08/91	08/08/91
NITRATE BY IC	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
NITRATE BY IC	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
PHOSPHATE BY IC	MB1	W	91LIC126	N/A	08/08/91	08/08/91
PHOSPHATE BY IC	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
PHOSPHATE BY IC	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
SULFATE BY IC	MB1	W	91LIC126	N/A	08/08/91	08/08/91
SULFATE BY IC	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
SULFATE BY IC	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
NITRATE	MB1	W	91LIC126	N/A	08/08/91	08/08/91
NITRATE	MB1 BS	W	91LIC126	N/A	08/08/91	08/08/91
NITRATE	MB1 BSD	W	91LIC126	N/A	08/08/91	08/08/91
TOTAL CYANIDE	LC1 L	W	91LC236	N/A	07/22/91	07/22/91

9613402.1202

Associated Cal check

By 182 5

Sample Name: CCV			Date: Thu Aug 08 13:46:01 1991
Data File : D:\DATA\080891\RAWDATB1.D12			
Method : C:\DX\METHOD\AS4A7B.met			
ACI Address: 1	System : 1	Inject#: 12	Detector: CDM-1

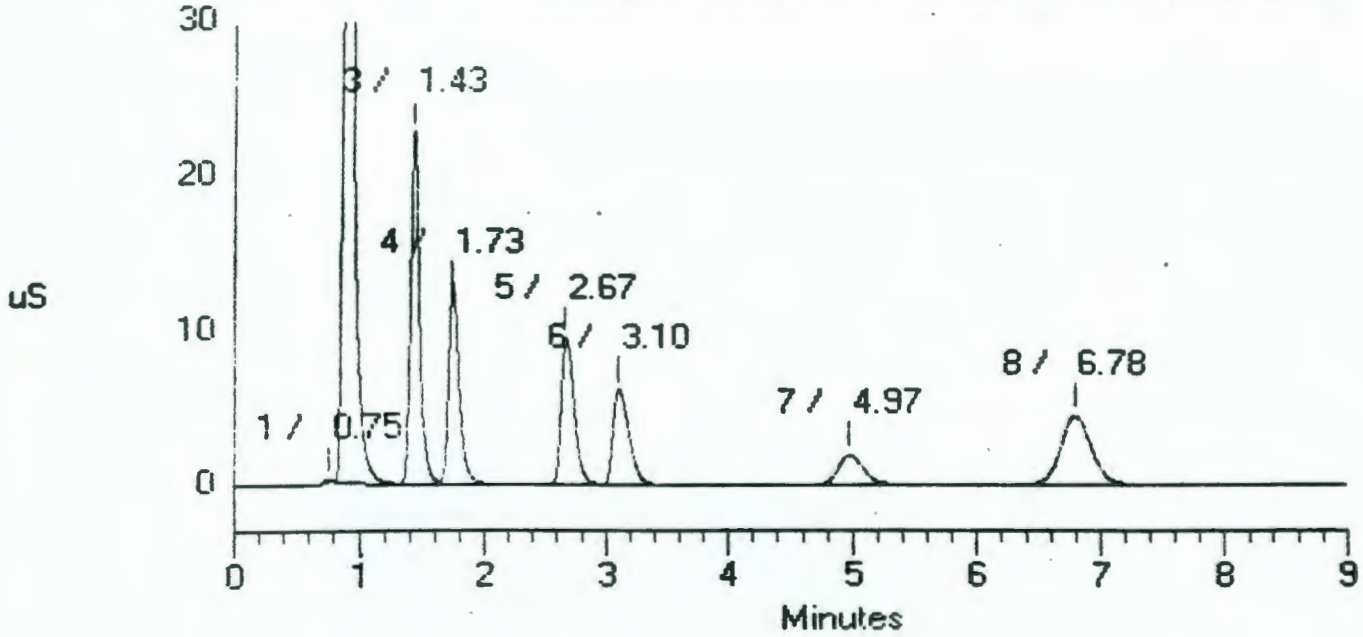
REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2700	5Hz	0.00	9.00	300

SWT 5/7/92

Pk. Num	Ret Time	Component Name	Concentration ug/mL	Height	Area	Bl. Code	%Delta
1	0.75		0.000	143	428	1	
2	0.90	FLUORIDE	9.888	63782	327423	1	0.00
3	1.43	CHLORIDE	5.134	22755	111981	2	-0.46
4	1.73	NITRITE	5.042	12270	76101	2	-0.07
5	2.67	BROMIDE	7.354	9319	68793	2	3.14
6	3.10	NITRATE	5.018	6084	56604	2	4.67
7	4.97	PHOSPHATE	5.049	1936	27417	1	3.59
8	6.78	SULFATE	4.960	4420	77000	1	3.63
		Totals	42.444	120708	745747		

ok

File: D:\DATA\080891\RAWDATB1.D12 Sample: CCV



5/5/92

9613402.1203

Calibration Summary

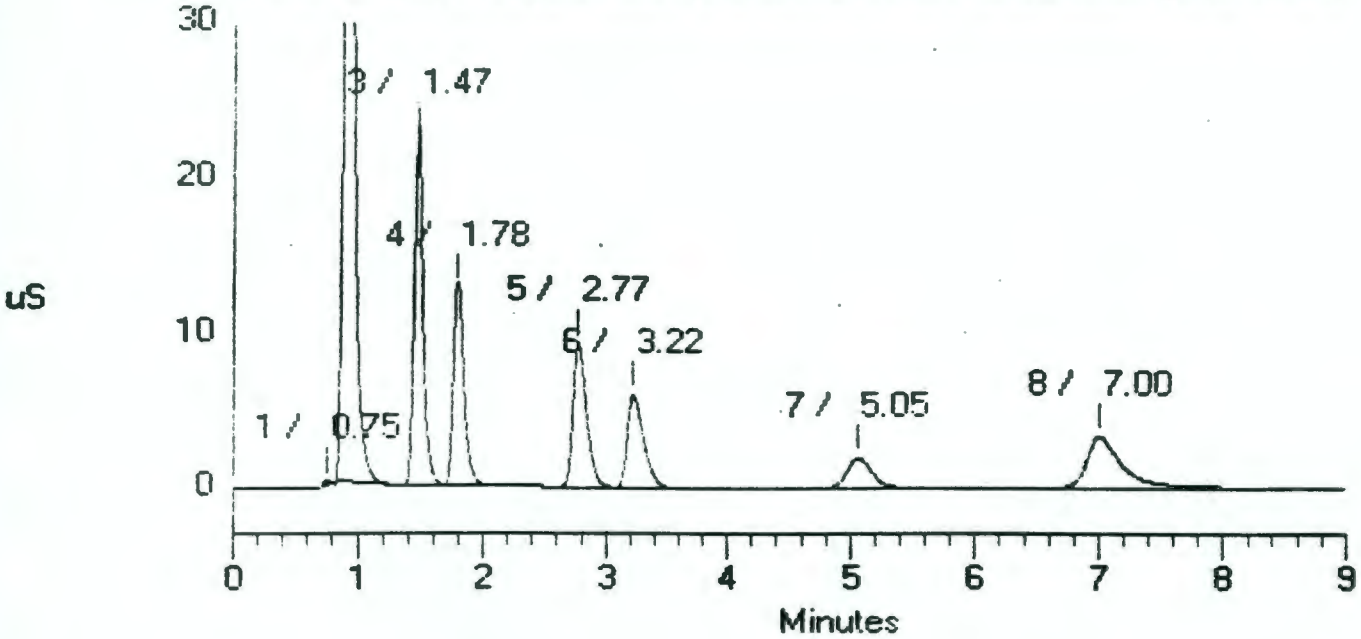
Pg 282 ~~Pg 585~~

Sample Name: CCV			Date: Fri Aug 09 02:39:11 1991
Data File : D:\DATA\080891\RAWDATB1.D83			
Method : C:\DX\METHOD\AS4A7B.met			
ACI Address: 1	System : 1	Inject#: 83	Detector: CDM-1

REPORT	VOLUME	DILUTION	POINTS	RATE	START	STOP	AREA REJ
External	1	1	2700	5Hz	0.00	9.00	300

Pk. Num	Ret Time	Component Name	Concentration ug/mL	Height	Area	Bl. Code	%Delta
1	0.75		0.000	214	742	1	
2	0.92	FLUORIDE	10.220	64415	337824	1	0.00
3	1.47	CHLORIDE	5.150	22696	112359	2	0.00
4	1.78	NITRITE	5.110	12788	77159	2	0.94
5	2.77	BROMIDE	7.561	9221	70846	2	5.06
6	3.22	NITRATE	5.026	5942	56703	2	6.63
7	5.05	PHOSPHATE	5.053	1913	27444	1	3.41
8	7.00	SULFATE	4.378	3378	67690	1	5.00
		Totals	42.497	120566	750767		

File: D:\DATA\080891\RAWDATB1.D83 Sample: CCV



9613402.1204

Accuracy Data Summary

ROY F. WESTON INC.

INORGANICS ACCURACY REPORT 08/22/91

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

WESTON BATCH #: 9107L200

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-001	BOOX81	Nitrate Nitrite	0.70	0.10u	1.0	69.8
		Nitrate Nitrite MSD	0.73	0.10u	1.0	72.7
BLANK10	91LIC126-MB1	Chloride by IC	10.3	0.25u	10.0	103
		Chloride by IC MSD	10.1	0.25u	10.0	101
		Fluoride by IC	19.7	0.50u	20.0	98.5
		Fluoride by IC MSD	18.4	0.50u	20.0	91.9
		Nitrite by IC	10.3	0.25u	10.0	103
		Nitrite by IC MSD	9.8	0.25u	10.0	97.8
		Nitrate by IC	10.4	0.25u	10.0	104
		Nitrate by IC MSD	9.8	0.25u	10.0	98.3
		Phosphate by IC	10.3	0.25u	10.0	103
		Phosphate by IC MSD	9.8	0.25u	10.0	98.3
		Sulfate by IC	10.3	0.25u	10.0	103
		Sulfate by IC MSD	9.8	0.25u	10.0	98.5
BLANK10	91LNO194-MB1	Nitrate Nitrite	0.39	0.10u	0.40	98.5
		Nitrate Nitrite MSD	0.42	0.10u	0.40	105
BLANK20	91LNO194-MB2	Nitrate Nitrite	0.40	0.10u	0.40	100
BLANK30	91LNO194-MB3	Nitrate Nitrite	0.41	0.10u	0.40	102

4/30/92