



Water Body No. WA-37-1010
WA-37-1020
Segment No. 18-37-01

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

7171 Cleanwater Lane, Building 8, LH-14 • Olympia, Washington 98504-6814

September 27, 1991

TO: Bob Barwin and Steve Saunders

THROUGH: Bill Yake ^{bx.}

FROM: Art Johnson and Dave Serdar ^{art}

SUBJECT: Organochlorine analysis of Yakima River samples for State of the Environment Report

On June 4 of this year we collected several water and fish samples from the Yakima River for chlorinated pesticides/PCBs analysis. The data were needed to bring up to date a section of the State of the Environment Report (SER) that describes the historical trend in DDT contamination in the river, first described in reports of an Ecology 1985 survey (Johnson *et al.*, 1986 and 1988 - enclosed). The attached figure is the end product being used in the SER. In as much as the SER will not contain the individual data, they are provided here for your information.

Data reports from the contract laboratories and data reviews by Stuart Magoon of the Manchester lab are attached. Sample collections and findings are briefly summarized below:

Water samples were collected as two separate grabs (Ecology sample numbers 238023 and 238024) at mid-channel off the Benton City bridge. Neither pesticides nor PCBs were detected, with the exception of a trace amount (0.015 ppb) of alpha-BHC (one sample only).

The fish samples were collected by electroshocking at Granger and consisted of two composite samples of largescale suckers (*Catostomus macrocheilus*) and one composite sample of northern squawfish (*Ptychocheilus oregonensis*). The fish were analyzed whole, three fish per composite. A summary of the compounds detected in these samples is provided on the following page.

The results on water samples were as expected. During the 1985 survey, pesticide detections in water samples - many of which exceeded water quality criteria - were primarily restricted to creeks or drains with substantial irrigation return flows, rather than the mainstem. Unpublished USGS data, of which you are probably already aware, show this problem continues to the present day. The pesticide residues in the fish samples are little different from nearby samples collected in 1985, except for the greater number of compounds detected in squawfish. Two of these, methoxychlor and BHC, were not detected in 1985 fish samples. I have not seen recent USGS fish tissue data.

Bob Barwin
September 27, 1991
Page Two

Chlorinated Pesticide Concentrations in Yakima River Fish Collect at Granger, June 4, 1991
(ug/Kg, wet; ppb).

Ecology Sample No.:	238020	238021	238022
Species:	Sucker	Sucker	Squawfish
Total Lengths (mm):	366;395;444	384;406;456	272;331;360
Fresh Weights (g):	517;601;874	602;660;1001	149;331;406

Chlorinated Pesticides:

4,4'-DDT	10	11	16
4,4'-DDE	530	760	710
4,4'-DDD	230	130	130
Total DDT	770	901	856
Dieldrin	ND	ND	17
Aldrin	ND	ND	8.5
Endosulfan I	19	27	28
Endosulfan sulfate	ND	ND	18
Methoxychlor	ND	ND	19
alpha-BHC	ND	ND	3.3
PCBs:	ND	ND	ND
% Lipid:	9.5	4.9	5.9

ND = not detected

Although the trend figure prepared for the SER may lead one to believe that contamination by chlorinated pesticides is largely a historical problem, the concentrations in water and fish in the Yakima drainage should be viewed as a continuing concern.

References

- Johnson, A., D. Norton, and B. Yake. Occurrence and significance of DDT compounds and other contaminants in fish, water, and sediment from the Yakima River basin. Washington State Department of Ecology, Report No. 86-5. 1986
- Johnson, A., D. Norton, and B. Yake. Persistence of DDT in the Yakima River drainage, Washington. Archives Environmental Contamination and Toxicology, 17, 289 - 297. 1988.

AJ/DS:krd
Enclosures

cc: Dick Wallace

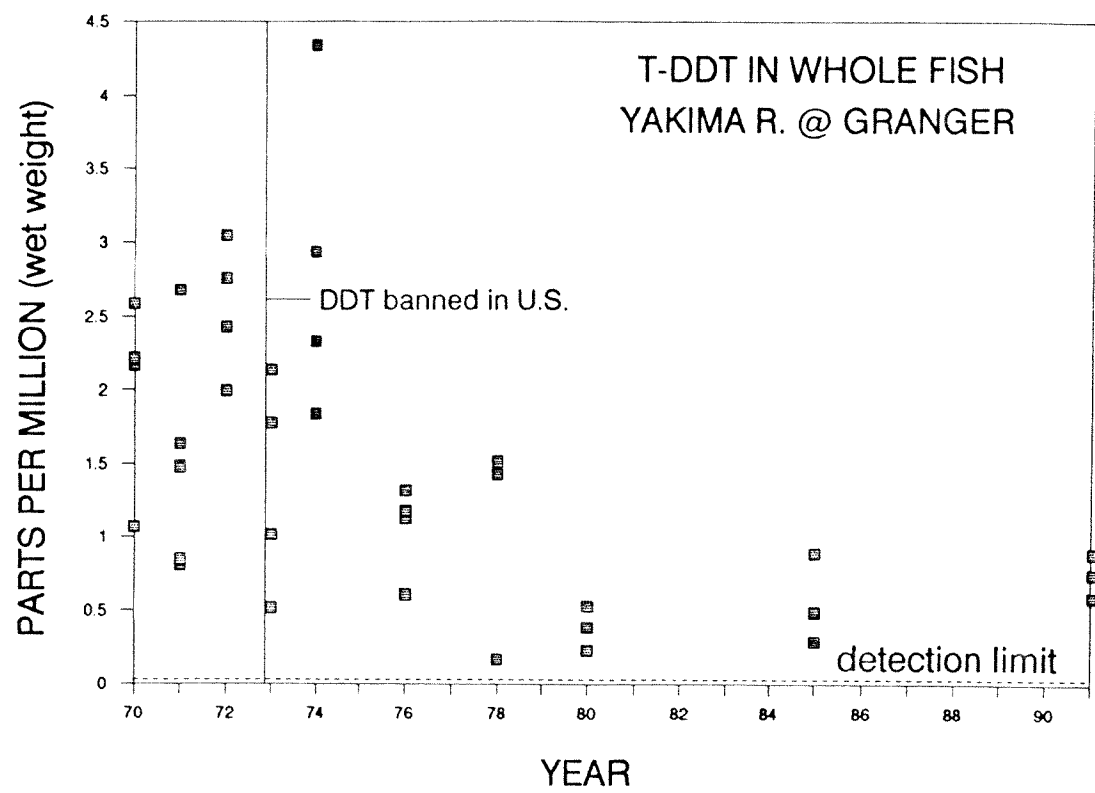
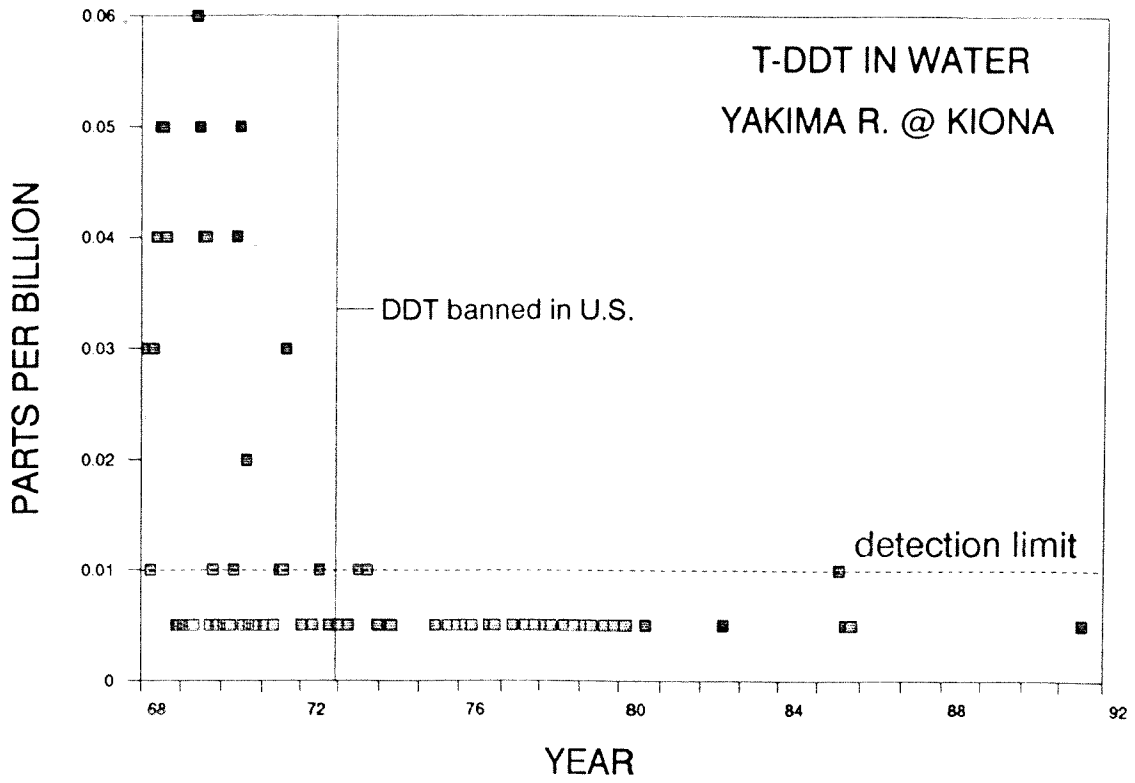


Figure DDT Trends in Yakima River Water and Fish (T-DDT = DDT + metabolites DDE and DDD)


State of Washington Department of Ecology
Manchester Environmental Laboratory
7411 Beach Dr. East Port Orchard WA. 98366

Data Review
September 11, 1991

Project: **Yakima River Pesticide Trends**

Samples: 238020 238021 238022

Laboratory: Weyerhaeuser Analytical and Testing Services 6005

By: Stuart Magoon 

Case Summary

These analyses were reviewed for qualitative and quantitative accuracy, validity, and usefulness.

There is no need to assimilate the "dilution factor" or "sample wt/vol" into the final values reported; these calculations have already been figured into the reported values.

The results have been reported on an as received basis (wet weight).

Ecology Field ID	Ecology Lab ID	Weyer Lab ID
GRANGER	238020	73317
GRANGER	238021	73318
GRANGER	238022	73319

DATA QUALIFIER DEFINITIONS

- U - The analyte was not detected at or above the reported result.
- J - The analyte was positively identified. The associated numerical result is an estimate.
- NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.
- UJ - The analyte was not detected at or above the reported estimated result.
- E - The analyte was positively identified. The associated numerical result is an estimate because the concentration exceeded the calibration range. Dilution required.

Organochlorine Pesticides (PEST/PCB's)

Sample	Date Collect	Date Extd	Date Anlz	#Days Collect to ext	#Days extract to anal
238020	6/4	7/23	7/27	49 of NE	4 of 40
238020DIL	6/4	7/23	8/9	49 of NE	17 of 40
238021	6/4	7/23	7/27	49 of NE	4 of 40
238021DIL	6/4	7/23	8/2	49 of NE	10 of 40
238022	6/4	7/23	7/27	49 of NE	4 of 40
238022DIL	6/4	7/23	8/2	49 of NE	10 of 40

These fish tissue samples were kept frozen prior to extraction. There is no established pre-analytical holding time for fish tissue. Forty-nine days is a reasonable period of time to store frozen tissue prior to analysis. All the extracts were analyzed within the SW 846 recommended holding time of forty days for sample extracts.

Surrogates:

There were three surrogates added to each sample or blank. With the exception of the Tetrachlorobenzene (XCLBZ) surrogate, all recoveries for these samples, matrix spikes, and method blanks are within the Advisory limits. As case narrative states the very high XCLBZ surrogate recoveries are the result of matrix interference. Since the other two surrogates are within control limits, no corrective action or qualification of the results was necessary.

All three samples required dilutions in order to quantitate 4,4' DDE within the calibration range. Due to these dilutions the surrogates were not detectable, and therefore no recoveries could be reported.

Method Blank:

No target analytes were detected in the method blank.

Matrix Spike and Matrix Spike Duplicate (MS/MSD):

Matrix spike and matrix spike duplicate recoveries and precision (RPD) data are reasonable, acceptable, and within QC limits, with the exception of 4,4' DDT recoveries. The Case Narrative states that these high recoveries are due to a "matrix problem". Matrix interference is a likely reason for the high recoveries, and considering that all the other spiked analytes, and the surrogates are within control limits, consider the high 4,4' DDT recoveries an anomaly, no action required.

Sample Data:

This data is acceptable for use with the added qualifiers where appropriate. Note that data qualifiers may modify the usefulness of the individual values.

I have added a "J" qualifier to several compounds that were quantitated from a response below that of the lowest calibration standard.

Percent Lipid data

This data may be of limited use because samples 238020 and 238021 appear to have a low percent lipid value. The test results show a negative number which is physically not possible. A larger sample size may have provided a more reasonable number, unfortunately no method blank was performed.

Weyerhaeuser is re-running these tests and useable values should be available within a week.



32901 Weyerhaeuser Way South
Federal Way, Washington 98003
Analytical Chemistry Laboratories
Tacoma, Washington 98477
Tel (206) 924 6872
Fax (206) 924 6654

CASE NARRATIVE

WEYERHAEUSER (WEYER) ANALYTICAL AND TESTING SERVICES

Case Number: SR 06005
SDG Number: 238020
Contract Number: Yakima River

Samples from this Case were received on 6/14/91. This case was comprised of fish for pesticides/PCBs. The requested analysis is listed below.

<u>SAMPLE ID</u>	<u>MATRIX</u>	<u>ANALYSIS REQUESTED</u>
238020	Fish	Pesticides
238021	Fish	Pesticides
238022	Fish	Pesticides
238022MS	Fish	Pesticides
238022MSD	Fish	Pesticides

Several anomalies existed with this sample set and are listed below.

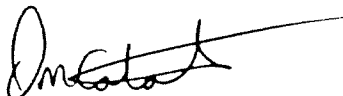
1 Pesticides

- a) The second surrogate used was Tetrachlorobenzene and this was interfered with on both columns producing high recoveries. The other two surrogates were fine indicating a good extraction.
- b) DDT spike recovery was slightly high in both the MS and MSD. The %RPD was only 4% indicating a matrix problem.
- c) The percent lipid in these fish were very low. The only fish that had measurable lipids was the fish that had the MS/MSD.

00001



I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.



Dennis Catalano
Laboratory Manager

8/20/81

Date

Please feel free to contact me with any questions concerning this data report. I can be reached at (206) 924-6242.

Sincerely,



Dennis Catalano, Manager
Organic Laboratory
Weyerhaeuser Analytical & Testing Services

00002

238020

Lab Name: WEYERHAEUSER Contract: MAGOON

Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____

Matrix: (body/fillet) BODY Lab Sample ID: 73317

Sample wt/vol: 10.6 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted. (Y/N) _____ Date Received: 06/14/91

Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91

Concentration Extracted Volume: 5000 (uL) Date Analyzed: 07/27/91

Injection Volume: 1 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y % Lipid: 0 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) Ug/KG Q

319-84-6	alpha-BHC	5	U
319-85-7	beta-BHC	5	U
319-86-8	delta-BHC	5	U
58-89-9	gamma-BHC (Lindane)	5	U
76-44-8	Heptachlor	5	U
309-00-2	Aldrin	5	U
1024-57-3	Heptachlor epoxide	5	U
959-98-8	Endosulfan I	19	
60-57-1	Dieldrin	10	U
72-55-9	4,4'-DDE	630	E
72-20-8	Endrin	10	U
33213-65-9	Endosulfan II	10	U
72-54-8	4,4'-DDD	230	
1031-07-8	Endosulfan sulfate	10	U
50-29-3	4,4'-DDT	10	NJ
72-43-5	Methoxychlor	50	U
7421-36-3	Endrin Aldehyde	10	U
53494-70-5	Endrin ketone	10	U
5103-71-9	alpha-Chlordane	5	U
5103-74-2	gamma-Chlordane	5	U
8001-35-2	Toxaphene	500	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

See dilution

PESTICIDE ORGANICS

TEST DATA SHEET

238020DIL

Lab Name: WEYERHAEUSER Contract: MAGOON

Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____

Matrix: (body/fillet) BODY Lab Sample ID: 73317Z

Sample wt/vol: 10.6 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted. (Y/N) _____ Date Received: 06/14/91

Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91

Concentration Extracted Volume: 5000 (uL) Date Analyzed: 08/09/91

Injection Volume: 1 (uL) Dilution Factor: 100

GPC Cleanup: (Y/N) Y % Lipid: 0 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) Ug/KG Q

319-84-6	alpha-BHC	500	U
319-85-7	beta-BHC	500	U
319-86-8	delta-BHC	500	U
58-89-9	gamma-BHC (Lindane)	500	U
76-44-8	Heptachlor	500	U
309-00-2	Aldrin	500	U
1024-57-3	Heptachlor epoxide	500	U
959-98-8	Endosulfan I	500	U
60-57-1	Dieldrin	1000	U
72-55-9	4,4'-DDE	530	
72-20-8	Endrin	1000	U
33213-65-9	Endosulfan II	1000	U
72-54-8	4,4'-DDD	1000	U
1031-07-8	Endosulfan sulfate	1000	U
50-29-3	4,4'-DDT	1000	U
72-43-5	Methoxychlor	500	U
7421-36-3	Endrin Aldehyde	1000	U
53494-70-5	Endrin ketone	1000	U
5103-71-9	alpha-Chlordane	500	U
5103-74-2	gamma-Chlordane	500	U
8001-35-2	Toxaphene	5000	U
12674-11-2	Aroclor-1016	10000	U
11104-28-2	Aroclor-1221	20000	U
11141-16-5	Aroclor-1232	10000	U
53469-21-9	Aroclor-1242	10000	U
12672-29-6	Aroclor-1248	10000	U
11097-69-1	Aroclor-1254	10000	U
11096-82-5	Aroclor-1260	10000	U

238021

Lab Name: WEYERHAEUSER Contract: MAGOON
 Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____
 Matrix: (body/fillet) BODY Lab Sample ID: 73318
 Sample wt/vol: 10.6 (g/mL) G Lab File ID: _____
 % Moisture: 26 decanted. (Y/N) _____ Date Received: 06/14/91
 Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91
 Concentration Extracted Volume: 5000 (uL) Date Analyzed: 07/27/91
 Injection Volume: 1 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) Y % Lipid: 0 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

319-84-6	alpha-BHC	5	U
319-85-7	beta-BHC	5	U
319-86-8	delta-BHC	5	U
58-89-9	gamma-BHC (Lindane)	5	U
76-44-8	Heptachlor	5	U
309-00-2	Aldrin	5	U
1024-57-3	Heptachlor epoxide	5	U
959-98-8	Endosulfan I	27	
60-57-1	Dieldrin	10	U
72-55-9	4,4'-DDE	920	E
72-20-8	Endrin	10	U
33213-65-9	Endosulfan II	10	U
72-54-8	4,4'-DDD	130	
1031-07-8	Endosulfan sulfate	10	U
50-29-3	4,4'-DDT	11	NJ
72-43-5	Methoxychlor	50	U
7421-36-3	Endrin Aldehyde	10	U
53494-70-5	Endrin ketone	10	U
5103-71-9	alpha-Chlordane	5	U
5103-74-2	gamma-Chlordane	5	U
8001-35-2	Toxaphene	500	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

See dilution

238021DIL

Lab Name: WEYERHAEUSER Contract: MAGOON
 Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____
 Matrix: (body/fillet) BODY Lab Sample ID: 73318Z
 Sample wt/vol: 10.6 (g/mL) G Lab File ID: _____
 % Moisture: 26 decanted. (Y/N) _____ Date Received: 06/14/91
 Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91
 Concentration Extracted Volume: 5000 (uL) Date Analyzed: 08/02/91
 Injection Volume: 1 (uL) Dilution Factor: 100
 GPC Cleanup: (Y/N) Y % Lipid: 0 Sulfur Cleanup: (Y/N) N

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

CAS NO. COMPOUND Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>Ug/KG</u>	Q
319-84-6	alpha-BHC	500	U
319-85-7	beta-BHC	500	U
319-86-8	delta-BHC	500	U
58-89-9	gamma-BHC (Lindane)	500	U
76-44-8	Heptachlor	500	U <i>u</i>
309-00-2	Aldrin	500	U
1024-57-3	Heptachlor epoxide	500	U
959-98-8	Endosulfan I	500	U
60-57-1	Dieldrin	1000	U
72-55-9	4,4'-DDE	760	
72-20-8	Endrin	1000	U
33213-65-9	Endosulfan II	1000	U
72-54-8	4,4'-DDD	1000	U
1031-07-8	Endosulfan sulfate	1000	U
50-29-3	4,4'-DDT	1000	U
72-43-5	Methoxychlor	5000	U
7421-36-3	Endrin Aldehyde	1000	U
53494-70-5	Endrin ketone	1000	U
5103-71-9	alpha-Chlordane	500	U
5103-74-2	gamma-Chlordane	500	U
8001-35-2	Toxaphene	50000	U
12674-11-2	Aroclor-1016	10000	U
11104-28-2	Aroclor-1221	20000	U
11141-16-5	Aroclor-1232	10000	U
53469-21-9	Aroclor-1242	10000	U
12672-29-6	Aroclor-1248	10000	U
11097-69-1	Aroclor-1254	10000	U
11096-82-5	Aroclor-1260	10000	U

238022

Lab Name: WEYERHAEUSER Contract: MAGOON
 Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____
 Matrix: (body/fillet) BODY Lab Sample ID: 73319
 Sample wt/vol: 10.3 (g/mL) G Lab File ID: _____
 % Moisture: 27 decanted. (Y/N) _____ Date Received: 06/14/91
 Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91
 Concentration Extracted Volume: 5000 (uL) Date Analyzed: 07/27/91
 Injection Volume: 1 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) Y % Lipid: 4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>Ug/KG</u>		Q
319-84-6	alpha-BHC	3.3	J	
319-85-7	beta-BHC	5.0	U	
319-86-8	delta-BHC	5.0	U	
58-89-9	gamma-BHC (Lindane)	5.0	U	
76-44-8	Heptachlor	11	U <u>UJ</u>	<i>fm</i>
309-00-2	Aldrin	8.5		
1024-57-3	Heptachlor epoxide	5.0	U	
959-98-8	Endosulfan I	28		
60-57-1	Dieldrin	17		
72-55-9	4,4'-DDE	810	E	<i>Sea dilution fm</i>
72-20-8	Endrin	10	U	
33213-65-9	Endosulfan II	10	U	
72-54-8	4,4'-DDD	130		
1031-07-8	Endosulfan sulfate	18		
50-29-3	4,4'-DDT	16	NJ	
72-43-5	Methoxychlor	19		
7421-36-3	Endrin Aldehyde	10	U	
53494-70-5	Endrin ketone	10	U	
5103-71-9	alpha-Chlordane	5.0	U	
5103-74-2	gamma-Chlordane	5.0	U	
8001-35-2	Toxaphene	500	U	
12674-11-2	Aroclor-1016	100	U	
11104-28-2	Aroclor-1221	200	U	
11141-16-5	Aroclor-1232	100	U	
53469-21-9	Aroclor-1242	100	U	
12672-29-6	Aroclor-1248	100	U	
11097-69-1	Aroclor-1254	100	U	
11096-82-5	Aroclor-1260	100	U	

1D
PESTICIDE ANALYSIS DATA SHEET

DOE SAMPLE NO.

238022DIL

Lab Name: WEYERHAEUSER Contract: MAGOON

Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____

Matrix: (body/fillet) BODY Lab Sample ID: 73319Z

Sample wt/vol: 10.3 (g/mL) G Lab File ID: _____

% Moisture: 27 decanted. (Y/N) _____ Date Received: 06/14/91

Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91

Concentration Extracted Volume: 5000 (uL) Date Analyzed: 08/02/91

Injection Volume: 1 (uL) Dilution Factor: 100

GPC Cleanup: (Y/N) Y % Lipid: 4 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) Ug/KG Q

319-84-6-----alpha-BHC	500	U
319-85-7-----beta-BHC	500	U
319-86-8-----delta-BHC	500	U
58-89-9-----gamma-BHC (Lindane)	500	U
76-44-8-----Heptachlor	500	U
309-00-2-----Aldrin	500	U
1024-57-3-----Heptachlor epoxide	500	U
959-98-8-----Endosulfan I	500	U
60-57-1-----Dieldrin	1000	U
72-55-9-----4,4'-DDE	710	
72-20-8-----Endrin	1000	U
33213-65-9-----Endosulfan II	1000	U
72-54-8-----4,4'-DDD	1000	U
1031-07-8-----Endosulfan sulfate	1000	U
50-29-3-----4,4'-DDT	1000	U
72-43-5-----Methoxychlor	50	U
7421-36-3-----Endrin Aldehyde	1000	U
53494-70-5-----Endrin ketone	1000	U
5103-71-9-----alpha-Chlordane	5000	U
5103-74-2-----gamma-Chlordane	5000	U
8001-35-2-----Toxaphene	5000	U
12674-11-2-----Aroclor-1016	10000	U
11104-28-2-----Aroclor-1221	20000	U
11141-16-5-----Aroclor-1232	10000	U
53469-21-9-----Aroclor-1242	10000	U
12672-29-6-----Aroclor-1248	10000	U
11097-69-1-----Aroclor-1254	10000	U
11096-82-5-----Aroclor-1260	10000	U

PBLK1

Lab Name: WEYERHAEUSER Contract: MAGOON

Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____

Matrix: (body/fillet) BODY Lab Sample ID: PBLK1_S06005

Sample wt/vol: 10.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted. (Y/N) _____ Date Received: 06/14/91

Extraction: (SepF/Cont/Sox) SOX Date Extracted: 07/23/91

Concentration Extracted Volume: 5000 (uL) Date Analyzed: 07/27/91

Injection Volume: 1 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>Ug/KG</u>	Q
319-84-6	alpha-BHC	5 U	f
319-85-7	beta-BHC	5 U	
319-86-8	delta-BHC	5 U	
58-89-9	gamma-BHC (Lindane)	5 U	
76-44-8	Heptachlor	2.9 U	s
309-00-2	Aldrin	5 U	
1024-57-3	Heptachlor epoxide	5 U	
959-98-8	Endosulfan I	5 U	
60-57-1	Dieldrin	10 U	
72-55-9	4,4'-DDE	10 U	
72-20-8	Endrin	10 U	
33213-65-9	Endosulfan II	10 U	
72-54-8	4,4'-DDD	10 U	
1031-07-8	Endosulfan sulfate	10 U	
50-29-3	4,4'-DDT	10 U	
72-43-5	Methoxychlor	50 U	
7421-36-3	Endrin Aldehyde	10 U	
53494-70-5	Endrin ketone	10 U	
5103-71-9	alpha-Chlordane	5 U	
5103-74-2	gamma-Chlordane	5 U	
8001-35-2	Toxaphene	500 U	
12674-11-2	Aroclor-1016	100 U	
11104-28-2	Aroclor-1221	200 U	
11141-16-5	Aroclor-1232	100 U	
53469-21-9	Aroclor-1242	100 U	
12672-29-6	Aroclor-1248	100 U	
11097-69-1	Aroclor-1254	100 U	
11096-82-5	Aroclor-1260	100 U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

DOE SAMPLE NO.

PBLK2

Lab Name: WEYERHAEUSER Contract: MAGOON

Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____

Matrix: (body/fillet) BODY Lab Sample ID: PBLK2_S06005

Sample wt/vol: 10.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted. (Y/N) _____ Date Received: 06/14/91

Extraction: (SepF/Cont/Sox) SOX Date Extracted: 08/02/91

Concentration Extracted Volume: 5000 (uL) Date Analyzed: 08/09/91

Injection Volume: 1 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y Sulfur Cleanup: (Y/N) N

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>Ug/KG</u>	Q
319-84-6-----	alpha-BHC	5 U	
319-85-7-----	beta-BHC	5 U	
319-86-8-----	delta-BHC	5 U	
58-89-9-----	gamma-BHC (Lindane)	5 U	
76-44-8-----	Heptachlor	5 U	
309-00-2-----	Aldrin	5 U	
1024-57-3-----	Heptachlor epoxide	5 U	
959-98-8-----	Endosulfan I	5 U	
60-57-1-----	Dieldrin	10 U	
72-55-9-----	4,4'-DDE	1.1 J	sm
72-20-8-----	Endrin	10 U	
33213-65-9-----	Endosulfan II	10 U	
72-54-8-----	4,4'-DDD	10 U	
1031-07-8-----	Endosulfan sulfate	10 U	
50-29-3-----	4,4'-DDT	10 U	
72-43-5-----	Methoxychlor	50 U	
7421-36-3-----	Endrin Aldehyde	10 U	
53494-70-5-----	Endrin ketone	10 U	
5103-71-9-----	alpha-Chlordane	5 U	
5103-74-2-----	gamma-Chlordane	5 U	
8001-35-2-----	Toxaphene	500 U	
12674-11-2-----	Aroclor-1016	100 U	
11104-28-2-----	Aroclor-1221	200 U	
11141-16-5-----	Aroclor-1232	100 U	
53469-21-9-----	Aroclor-1242	100 U	
12672-29-6-----	Aroclor-1248	100 U	
11097-69-1-----	Aroclor-1254	100 U	
11096-82-5-----	Aroclor-1260	100 U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

DOE SAMPLE NO.

238022MS

Lab Name: WEYERHAEUSER Contract: MAGOON

Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____

Matrix: (body/fillet) BODY Lab Sample ID: 73319MS

Sample wt/vol: 10.0 (g/mL) G Lab File ID: _____

% Moisture: 27 decanted. (Y/N) _____ Date Received: 06/14/91

Extraction: (SepF/Cont/Sox) SOX Date Extracted: 08/02/91

Concentration Extracted Volume: 5000 (uL) Date Analyzed: 08/09/91

Injection Volume: 1 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y % Lipid: 8 Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) Ug/KG Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>Ug/KG</u>	Q
319-84-6	alpha-BHC	5 U NR	fm
319-85-7	beta-BHC	5 U	
319-86-8	delta-BHC	5 U	
58-89-9	gamma-BHC (Lindane)	5 U	
76-44-8	Heptachlor	5 U NR	fm
309-00-2	Aldrin	5 U NR	fm
1024-57-3	Heptachlor epoxide	5 U	
959-98-8	Endosulfan I	21	
60-57-1	Dieldrin	10 U NR	fm
72-55-9	4,4'-DDE	860 E	
72-20-8	Endrin	10 U NR	fm
33213-65-9	Endosulfan II	10 U	
72-54-8	4,4'-DDD	140	
1031-07-8	Endosulfan sulfate	10 U	
50-29-3	4,4'-DDT	10 U NR	fm
72-43-5	Methoxychlor	50 U	
7421-36-3	Endrin Aldehyde	10 U	
53494-70-5	Endrin ketone	10 U	
5103-71-9	alpha-Chlordane	5 U	
5103-74-2	gamma-Chlordane	5 U	
8001-35-2	Toxaphene	500 U	
12674-11-2	Aroclor-1016	100 U	
11104-28-2	Aroclor-1221	200 U	
11141-16-5	Aroclor-1232	100 U	
53469-21-9	Aroclor-1242	100 U	
12672-29-6	Aroclor-1248	100 U	
11097-69-1	Aroclor-1254	100 U	
11096-82-5	Aroclor-1260	100 U	

238022MSD

Lab Name: WEYERHAEUSER Contract: MAGOON
 Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: _____
 Matrix: (body/fillet) BODY Lab Sample ID: 73319MSD
 Sample wt/vol: 10.0 (g/mL) G Lab File ID: _____
 % Moisture: 27 decanted. (Y/N) _____ Date Received: 06/14/91
 Extraction: (SepF/Cont/Sox) SOX Date Extracted: 08/02/91
 Concentration Extracted Volume: 5000 (uL) Date Analyzed: 08/09/91
 Injection Volume: 1 (uL) Dilution Factor: 1.0
 GPC Cleanup: (Y/N) Y % Lipid: 6 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/Kg) Ug/KG Q

319-84-6	alpha-BHC	5 U NR	5
319-85-7	beta-BHC	5 U	
319-86-8	delta-BHC	5 U	
58-89-9	gamma-BHC (Lindane)	5 U	
76-44-8	Heptachlor	5 U NR	5
309-00-2	Aldrin	5 U NR	5
1024-57-3	Heptachlor epoxide	5 U	
959-98-8	Endosulfan I	29	
60-57-1	Dieldrin	10 U NR	10
72-55-9	4,4'-DDE	890 E	
72-20-8	Endrin	10 U NR	10
33213-65-9	Endosulfan II	10 U	
72-54-8	4,4'-DDD	160	
1031-07-8	Endosulfan sulfate	10 U	
50-29-3	4,4'-DDT	10 U NR	10
72-43-5	Methoxychlor	50 U	
7421-36-3	Endrin Aldehyde	10 U	
53494-70-5	Endrin ketone	10 U	
5103-71-9	alpha-Chlordane	5 U	
5103-74-2	gamma-Chlordane	5 U	
8001-35-2	Toxaphene	500 U	
12674-11-2	Aroclor-1016	100 U	
11104-28-2	Aroclor-1221	200 U	
11141-16-5	Aroclor-1232	100 U	
53469-21-9	Aroclor-1242	100 U	
12672-29-6	Aroclor-1248	100 U	
11097-69-1	Aroclor-1254	100 U	
11096-82-5	Aroclor-1260	100 U	

TISSUE PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: WEYERHAEUSERContract: MAGOONLab Code: WEYERCase No.: 06005

SAS No.: _____

SDG No.: 238020Matrix Spike - DOE Sample No.: 238022Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane) _____	196	0	259	132	46-127
Heptachlor _____	196	11	139	71	35-130
Aldrin _____	196	9	172	88	34-132
Dieldrin _____	490	17	538	110	31-134
Endrin _____	490	0	668	130	42-139
4,4'-DDT _____	490	0 16	799	163* 160*	23-134

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
gamma-BHC (Lindane) _____	198	271	137	-2	50	46-127
Heptachlor _____	198	148	75	1	31	35-130
Aldrin _____	198	183	93	-3	43	34-132
Dieldrin _____	495	589	119	-3	38	31-134
Endrin _____	495	683	138	-5	45	42-139
4,4'-DDT _____	495	845	171* 166*	-4	50	23-134

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limitsSpike Recovery: 2 out of 12 outside limits

COMMENTS:

4C
PESTICIDE METHOD BLANK SUMMARY

Lab Name: WEYERHAEUSER Contract: MAGOON
 Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: 638020
 Lab Sample ID: PBLK1_F06005 Lab File ID: _____
 Matrix: (TISSUE) TISSUE Level: (low/med) LOW
 Date Extracted: 07/23/91 Extraction: (SepF/Cont/Sox) SOX
 Date Analyzed (1): 07/27/91 Date Analyzed (2): 07/27/91
 Time Analyzed (1): 1755 Time Analyzed (2): 1755
 Instrument ID (1): HARPO Instrument ID (2): HARPO-
 GC Column ID (1): DB1701 GC Column ID (2): DB608

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	DOE SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	238020	73317	07/27/91	07/27/91
02	238021	73318	07/27/91	07/27/91
03	238022	73319	07/27/91	07/27/91
04	238022MS	73319MS	07/27/91	07/27/91
04	238022MSD	73319MSD	07/27/91	07/27/91

COMMENTS:

4C
METHOD BLANK SUMMARY

Lab Name: WEYERHAEUSER Contract: MAGOON
 Lab Code: WEYER Case No.: 06005 SAS No.: _____ SDG No.: 238020
 Lab Sample ID: PBLK2_F06026 Lab File ID: _____
 Matrix: (TISSUE/water) TISSUE Level: (low/med) LOW
 Date Extracted: 08/02/91 Extraction: (SepF/Cont/Sonc) SONC
 Date Analyzed (1): 08/09/91 Date Analyzed (2): 08/09/91
 Time Analyzed (1): 1444 Time Analyzed (2): 1444
 Instrument ID (1): HARPO Instrument ID (2): HARPO-
 GC Column ID (1): DB1701 GC Column ID (2): DB608

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	DOE SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
02	238022MS	73319MS	08/09/91	08/09/91
03	238022MSD	73319MSD	08/09/91	08/09/91

COMMENTS:

	PAN WEIGHT	DRIED PAN WEIGHT	AMOUNT EXTRACTED	% LIPID	
73317	2.639	2.638	10.64	0.09%	- .094%
73318	2.653	2.647	10.55	0.57%	- .569%
73319	2.649	2.687	10.32	3.68%	
73319MS	2.609	2.69	10.249	7.90%	
73319MSD	2.602	2.662	10.099	5.94%	

PROCEDURE

1ML OF 10ML EXTRACT IS PIPETED INTO A PREWEIGHED PAN AND THE METHYLENE CHLORIDE IS EVAPORATED OF IN A HOOD. THE AMOUNT OF SOLID LEFT IS THE EXTRACTED LIPID

CALCULATION

$$\% \text{ LIPID} = (\text{DRIED PAN} - \text{PAN}) * 10 / (\text{AMOUNT EXTRACTED})$$



Man... Environmental Laboratory
 Environmental Investigations and Laboratory Services
 7411 Beach Drive East
 Port Orchard, Washington 98366
 FAX No. (206) 895-4357 or SCAN 744-4357

FAX TRANSMITTAL

Pages (including cover sheet) 1

Date 9/17/91

TO: <u>ART Johnson</u>	FAX NO.: <u>EI</u>
------------------------	--------------------

FROM: Stuart Magoon
 Telephone Number: (206) 895-4737 or SCAN 744-4737

COMMENTS

Re-analysis of % Lipids for
 YRPS

<u>Sample #</u>	<u>% Lipid</u>
238020	9.52
238021	4.90
238022	5.87
blank	- 0.37



A Joint Project of the State of Washington,
 and the US Environmental Protection Agency


State of Washington Department of Ecology
Manchester Environmental Laboratory
7411 Beach Dr. East Port Orchard WA. 98366

Data Review
September 19, 1991

Project: **Yakima River Pesticides Trend**

Samples: 238023 238024

Laboratory: North Creek Analytical 0256

By: Stuart Magoon 

Case Summary

These analyses were reviewed for qualitative and quantitative accuracy, validity, and usefulness.

There is no need to assimilate the "dilution factor" or "sample wt/vol" into the final values reported; these calculations have already been figured into the reported values.

DATA QUALIFIER DEFINITIONS

ND - The analyte was not detected at or above the reported level.

J - The analyte was positively identified. The associated numerical result is an estimate.

UJ - The analyte was not detected at or above the reported estimated level.

Pesticides/PCB's

Sample	Date Collect	Date Extd	Date Anlz	#Days collect to ext	#Days extract to anal
238023	6/4	6/12	6/13	8 of 7	1 of 40
238024	6/4	6/12	6/13	8 of 7	1 of 40

These samples were extracted one day beyond the SW 846 recommended holding time. The extracts were analyzed within the SW-846 recommended holding times. Exceeding the pre-analytical holding time by one day should not adversely effect the data quality.

Surrogates:

Surrogate recoveries for these samples and the blank are reasonable, acceptable and within the EPA advisory QC limits of 24-150%.

Sample Data:

This data is acceptable for use. Note that the alpha-BHC detected in sample 238023 was not confirmed on a second dissimilar column.

WA State Dept. of Ecology	Client Project ID: YRSC	Sampled: Jun 4, 1991
P.O. Box 307	Sample Descript: Water, 238023	Received: Jun 7, 1991
Manchester, WA 98353	Analysis Method: EPA 8080	Extracted: Jun 12, 1991
Attention: Stuart Magoon	Lab Number: 106-0256	Analyzed: Jun 13, 1991
		Reported: Jun 28, 1991

ORGANOCHLORINE PESTICIDES AND PCB'S (EPA 8080)

Analyte	Detection Limit µg/L (ppb)	Sample Results µg/L (ppb)
Aldrin.....	0.010	N.D.
alpha-BHC.....	0.010	N.D. 0.015 J &
beta-BHC.....	0.010	N.D.
delta-BHC.....	0.010	N.D.
gamma-BHC (Lindane).....	0.010	N.D. ND 0.015 J &
Chlordane.....	0.010	N.D.
4,4'-DDD.....	0.010	N.D.
4,4'-DDE.....	0.010	N.D.
4,4'-DDT.....	0.010	N.D.
Dieldrin.....	0.010	N.D.
Endosulfan I.....	0.010	N.D.
Endosulfan II.....	0.010	N.D.
Endosulfan sulfate.....	0.15	N.D.
Endrin.....	0.010	N.D.
Endrin aldehyde.....	0.050	N.D.
Heptachlor.....	0.010	N.D.
Heptachlor epoxide.....	0.010	N.D.
Methoxychlor.....	1.0	N.D.
Toxaphene.....	0.050	N.D.
PCB-1016.....	1.0	N.D.
PCB-1221.....	1.0	N.D.
PCB-1232.....	1.0	N.D.
PCB-1242.....	1.0	N.D.
PCB-1248.....	1.0	N.D.
PCB-1254.....	1.0	N.D.
PCB-1260.....	1.0	N.D.

Surrogate Recovery, %: 69

Analytes reported as N.D. were not present above the stated limit of detection. *SM*

NORTH CREEK ANALYTICAL

Scot Cocanour
 Scot Cocanour
 Laboratory Director