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32-1080

DEPARTMENT OF ECOLOGY

August 5, 1997

TO: Carl Nuechterlein, David T. Knight, and Jim Jacobsen, ERO  
FROM: Art Johnson, <sup>aj</sup>EILS  
SUBJECT: Results from Additional Pesticide Sampling in the Walla Walla Drainage, April and May 1997

**Summary of Findings: Limited sampling for insecticides in Yellowhawk, Lower Mud, Dry, and Pine Creeks in April and May, 1997 showed no evidence of water quality concerns due to diazinon, malathion, aldrin, or DDT, identified through a survey the previous year. Trace levels (0.002 - 0.017 ug/L; ppb) of diazinon, azinphos, methyl parathion, and dimethoate were found in the 1997 samples. Extremely high concentrations of total suspended solids were observed in Yellowhawk, Dry, and Pine Creeks.**

In reporting to you the results of pesticide sampling done in the Walla Walla River drainage during April and June 1996, I recommended doing more intensive water sampling for insecticides in Yellowhawk, Lower Mud, Dry, and Pine Creeks (Johnson, 1997) Four insecticides--diazinon, malathion, aldrin, and 4,4'-DDT--had been detected on one occasion in each of these tributaries and the concentrations of all but diazinon exceeded water quality criteria. Otherwise, the survey results, although limited, showed few instances where pesticides appeared to be a significant water quality concern.

This spring some additional sampling, again very limited, was done for organophosphorus and organochlorine insecticides in the above four tributaries. Sampling locations are shown in Figure 1. Sampling and analytical methods were identical to the 1996 survey. Water samples were collected as composites of simple grabs from quarter-points across each stream. The samples were analyzed by Manchester Laboratory using EPA Method 8085. No significant problems were encountered in the analyses and data quality is good.

The results are summarized in Table 1 along with data from the previous year. Data qualifiers, chiefly indicating that certain values are estimates, were omitted from the table to make it more readable. The complete data for each sample showing all insecticides analyzed, detection limits, and data qualifiers are in Appendix A.

Of the four compounds detected in 1996, only diazinon was again detected in 1997, but this time in Mud Creek rather than Yellowhawk Creek. The other insecticides detected in the 1997 samples were methyl parathion, once each in Yellowhawk and Mud Creek; azinphos, once in

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each creek except Yellowhawk; and dimethoate, once each in Yellowhawk and Pine Creeks  
The lower quantitation limits achieved for the 1997 samples may have contributed to a different set of compounds being identified.

On a statewide basis, diazinon, malathion, azinphos, dimethoate, and 4,4'-DDI are detected in from 5 -20% of samples collected for Ecology's Washington State Pesticide Monitoring Program (Davis, 1996). Aldrin and methyl parathion are rarely detected.

Water quality criteria for these insecticides are shown in Table 2. In contrast to 1996, none of the insecticide concentrations measured in 1997 exceeded criteria. No criteria were available for methyl parathion, but the concentrations detected are an order of magnitude or more below LC-50s for fish and aquatic invertebrates (EPA, 1987)

One additional finding of note is the very high total suspended solids concentrations seen in some of these samples, especially in Yellowhawk, Pine and Dry Creeks in April 1997; 210, 681, and 835 mg/L, respectively. EPA has concluded there is probable impairment of aquatic habitat and organisms at >100 mg/L TSS (Mills et al , 1985). The National Academy of Sciences (1973) considers that TSS concentrations > 80 mg/L offers a low level of protection for aquatic communities.

AJ:gd  
Attachments

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**References:**

CCREM 1987 Canadian Water Quality Guidelines Canadian Council of Resource and Environmental Ministers, Ottawa, Ontario.

Davis, D. 1996. Washington State Pesticide Monitoring Program: 1994 Surface Water Sampling Report. Washington State Dept. Ecology, Olympia Pub No. 96-305.

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EPA 1987 Pesticide Fact Sheet: Methyl Parathion. EPA 540/FS-87-151

Johnson, A. 1997 Pesticides Detected in the Walla Walla Drainage, April and June 1996. Memorandum to C. Nuechterlein, D. Knight, and J. Jacobson Washington State Dept. Ecology, Olympia

Menconi, M. and C. Cox. 1994. Hazard Assessment of the Insecticide Diazinon to Aquatic Organisms in the Sacramento-San Joaquin River System. California Dept. Fish & Game, Environmental Services Division. Administrative Rept. 94-2.

Mills, W.B., D.B. Porcella, M.J. Unga, S.A. Gherini, K.V. Summers, et al. 1985. Water Quality Assessment: A screening procedure for toxic and conventional pollutants in surface and ground water. EPA/600/6-85/002a.

National Academy of Sciences 1973 Water Quality Criteria, 1972 EPA R3-73-033

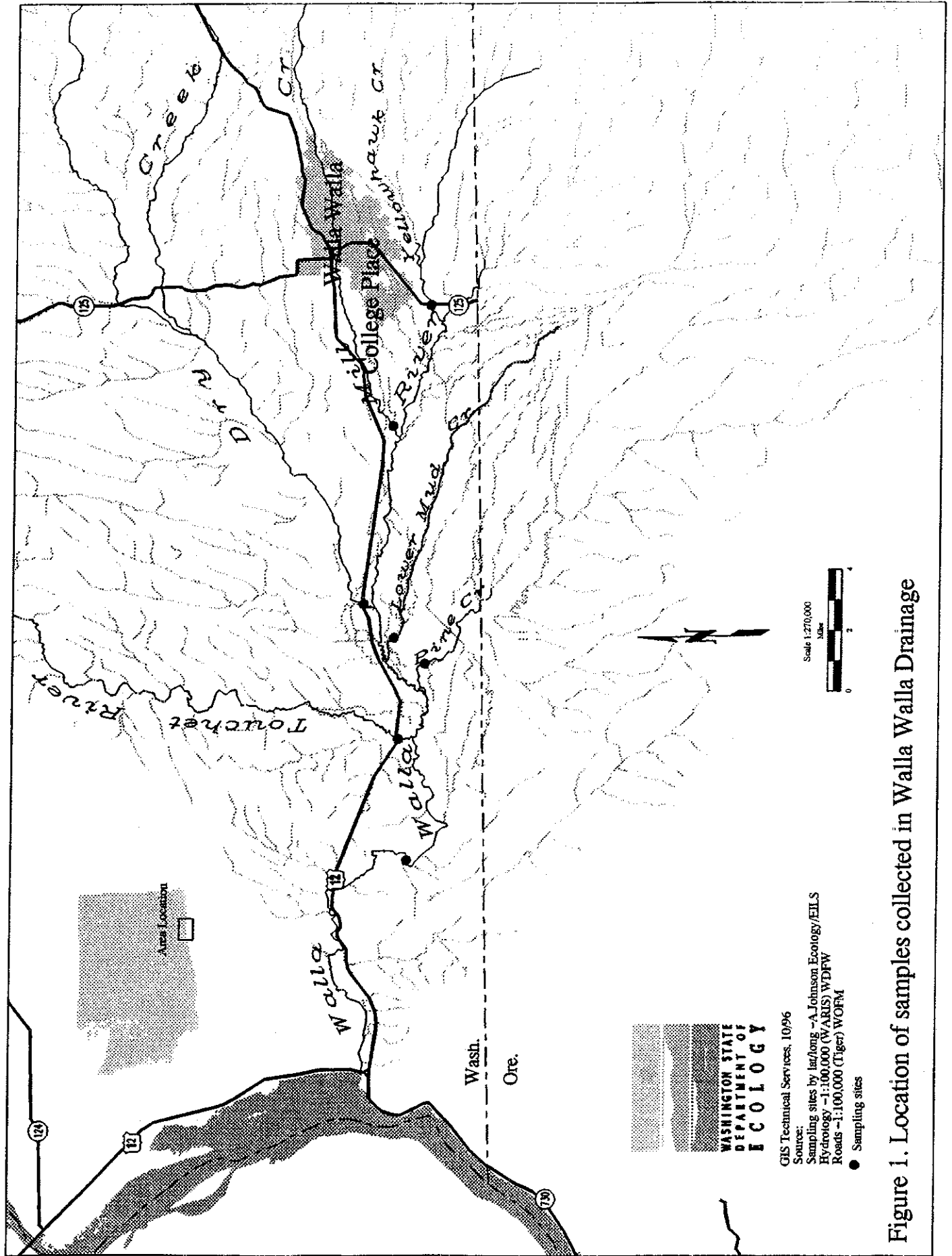


Figure 1. Location of samples collected in Walla Walla Drainage

Table 1. Insecticides Detected in Four Walla Walla River Tributaries during 1996 and 1997 (ug/L)

Location:	Yellowhawk Creek		Lower Mud Creek		Dry Creek		Pine Creek	
	1996	1997	1996	1997	1996	1997	1996	1997
Year:								
Date (month-day):	4-23 6-18 8092	4-28 5-27 8008 8014	4-22 6-18 8194 8088	4-28 5-27 8006 8012	4-22 6-18 8193 8086	4-28 5-27 8007 8013	4-22 6-18 8192 8084	4-28 5-27 8005 8011
Sample Number:								
diazinon	<b>.006</b> <.067	<.015 <.016	<.065 <.067	<.015 <b>.003</b>	<.066 <.067	<.015 <.016	<.063 <.069	<.015 <.015
malathion	<.064 <.067	<.015 <.016	<.065 <b>0.18</b>	<.015 <.016	<.066 <.067	<.015 <.016	<.063 <b>.48</b>	<.015 <.015
aldrin	<.048 <b>.11</b>	<.012 <.012	<.049 <.050	<.011 <.012	<.049 <.050	<.012 <.012	<.047 <.052	<.012 <.012
4,4'-DDT	<.048 <.050	<.012 <.012	<.049 <.050	<.011 <.012	<.049 <b>.006</b>	<.012 <.012	<.047 <.052	<.012 <.012
azinphos	<.14 <.15	<.031 <.033	<.15 <.15	<.030 <b>.002</b>	<.15 <.15	<.031 <b>.003</b>	<.14 <.16	<.031 <b>.013</b>
methyl parathion	<.056 <.059	<.013 <b>.003</b>	<.057 <.058	<.013 <b>.017</b>	<.057 <.059	<.013 <.014	<.055 <.060	<.013 <.013
dimethoate	<.064 <.067	<.015 <b>.013</b>	<.065 <.067	<.015 <.016	<.066 <.067	<.015 <.016	<.063 <.069	<.015 <b>.007</b>
conductivity (umho/cm)	156 150	112 210	452 378	379 211	237 508	182 399	221 340	181 283
t. suspended solids (mg/L)	137 56	210 18	9 1	41 10	62 19	835 4	23 21	681 23

**Table 2. Water Quality Criteria for Insecticides Detected (ug/L)**

Insecticide	Aquatic Life Criteria	
	Acute	Chronic
diazinon	0.08 <sup>1</sup>	0.04 <sup>1</sup>
malathion	--	0.1 <sup>2</sup>
aldrin	2.5 <sup>3</sup>	0.0019 <sup>3</sup>
4,4'-DDT	1.1 <sup>3</sup>	0.001 <sup>3</sup>
azinphos	--	0.01 <sup>2</sup>
methyl parathion	--	--
dimethoate	6.2 <sup>4</sup>	--

<sup>1</sup>Menconi and Cox (1994) California Dept Fish & Game

<sup>2</sup>EPA (1986) Quality Criteria for Water

<sup>3</sup>Washington State Water Quality Standards, WAC 173-201A

<sup>4</sup>CCREM (1987) Canadian Water Quality Guidelines

Department of Ecology

Analysis Report for

Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178196

Date Received: 04/24/96

Method: EPA1618

Field ID: YELLOW BK

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96

Units: ug/L

Analyte	Result	Qualifier
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Demeton-O	0.056	U
Sulfotepp	0.048	U
Demeton-S	0.056	UJ
Fonofos	0.048	U
Disulfoton (Di-Syston)	0.048	U
Methyl Chlorpyrifos	0.064	U
Fenitrothion	0.056	U
Malathion	0.064	U
Chlorpyrifos	0.064	U
Merphos (1 & 2)	0.096	U
Ethion	0.056	U
Carbophenothion	0.080	U
EPN	0.080	U
Azinphos Ethyl	0.13	U
Ethoprop	0.064	U
Phorate	0.056	U
Dimethoate	0.064	U
<b>Diazinon</b>	<b>0.006</b>	<b>J</b>
Methyl Parathion	0.056	U
Ronnel	0.056	U
Fenthion	0.056	U
Parathion	0.064	U
Fensulfothion	0.080	U
Bolstar (Sulprofos)	0.056	U
Imidan	0.088	U
Azinphos (Guthion)	0.14	U
Coumaphos	0.096	U
Dichlorvos (DDVP)	0.064	U
Mevinphos	0.080	U
Dioxathion	0.14	U
Propetamphos	0.16	U
Methyl Paraoxon	0.14	U
Phosphamidate	0.19	UJ
Tetrachlorvinphos (Gardona)	0.16	U
Fenamiphos	0.12	UJ
Butifos (DEF)	0.11	U
Abate (Temephos)	0.72	U

Surrogate Recoveries

Triphenyl Phosphate	129	%
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# Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

## Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178194

Date Received: 04/24/96

Method: EPA1618

Field ID: MUD CR

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96

Units: ug/L

Analyte	Result	Qualifier	
Demeton-O	0.057	U	Surrogate Recoveries
Sulfotepp	0.049	U	
Demeton-S	0.057	UJ	Triphenyl Phosphate 130 %
Fonofos	0.049	U	
Disulfoton (Di-Syston)	0.049	U	
Methyl Chlorpyrifos	0.065	U	
Fenitrothion	0.057	U	
Malathion	0.065	U	
Chlorpyrifos	0.065	U	
Merphos (1 & 2)	0.098	U	
Ethion	0.057	U	
Carbophenothion	0.081	U	
EPN	0.081	U	
Azinphos Ethyl	0.13	U	
Ethoprop	0.065	U	
Phorate	0.057	U	
Dimethoate	0.065	U	
Diazinon	0.065	U	
Methyl Parathion	0.057	U	
Ronnel	0.057	U	
Fenthion	0.057	U	
Parathion	0.065	U	
Fensulfothion	0.081	U	
Bolstar (Sulprofos)	0.057	U	
Imidan	0.089	U	
Azinphos (Guthion)	0.15	U	
Coumaphos	0.098	U	
Dichlorvos (DDVP)	0.065	U	
Mevinphos	0.081	U	
Dioxathion	0.14	U	
Propetamphos	0.16	U	
Methyl Paraoxon	0.15	U	
Phosphamidan	0.20	UJ	
Tetrachlorvinphos (Gardona)	0.16	U	
Fenamiphos	0.12	UJ	
Butifos (DEF)	0.11	U	
Abate (Temephos)	0.73	U	

Authorized By: 

Release Date: 7/1/96

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## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178193

Date Received: 04/24/96

Method: EPA1618

Field ID: DRY CR

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96


Units: ug/L

Analyte	Result	Qualifier
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Demeton-O	0.057	U
Sulfotepp	0.049	U
Demeton-S	0.057	UJ
Fonofos	0.049	U
Disulfoton (Di-Syston)	0.049	U
Methyl Chlorpyrifos	0.066	U
Fenitrothion	0.057	U
Malathion	0.066	U
Chlorpyrifos	0.066	U
Merphos (1 & 2)	0.098	U
Ethion	0.057	U
Carbophenothion	0.082	U
EPN	0.082	U
Azinphos Ethyl	0.13	U
Ethoprop	0.066	U
Phorate	0.057	U
Dimethoate	0.066	U
Diazinon	0.066	U
Methyl Parathion	0.057	U
Ronnel	0.057	U
Fenthion	0.057	U
Parathion	0.066	U
Fensulfothion	0.082	U
Bolstar (Sulprofos)	0.057	U
Imidan	0.090	U
Azinphos (Guthion)	0.15	U
Coumaphos	0.098	U
Dichlorvos (DDVP)	0.066	U
Mevinphos	0.082	U
Dioxathion	0.14	U
Propetamphos	0.16	U
Methyl Paraoxon	0.15	U
Phosphamidan	0.20	UJ
Tetrachlorvinphos (Gardona)	0.16	U
Fenamiphos	0.12	UJ
Butifos (DEF)	0.11	U
Abate (Temephos)	0.74	U

#### Surrogate Recoveries

Triphenyl Phosphate	138	%
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### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178192

Date Received: 04/24/96

Method: EPA1618

Field ID: PINE CR

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96

Units: ug/L

Analyte	Result	Qualifier	
Demeton-O	0.055	U	Surrogate Recoveries
Sulfotepp	0.047	U	
Demeton-S	0.055	UJ	<b>Triphenyl Phosphate</b> <b>138</b> <b>%</b>
Fonofos	0.047	U	
Disulfoton (Di-Syston)	0.047	U	
Methyl Chlorpyrifos	0.063	U	
Fenitrothion	0.055	U	
Malathion	0.063	U	
Chlorpyrifos	0.063	U	
Merphos (1 & 2)	0.094	U	
Ethion	0.055	U	
Carbophenothion	0.079	U	
EPN	0.079	U	
Azinphos Ethyl	0.13	U	
Ethoprop	0.063	U	
Phorate	0.055	U	
Dimethoate	0.063	U	
Diazinon	0.063	U	
Methyl Parathion	0.055	U	
Ronnel	0.055	U	
Fenthion	0.055	U	
Parathion	0.063	U	
Fensulfothion	0.079	U	
Bolstar (Sulprofos)	0.055	U	
Imidan	0.087	U	
Azinphos (Guthion)	0.14	U	
Coumaphos	0.094	U	
Dichlorvos (DDVP)	0.063	U	
Mevinphos	0.079	U	
Dioxathion	0.13	U	
Propetamphos	0.16	U	
Methyl Paraoxon	0.14	U	
Phosphamidan	0.19	UJ	
Tetrachlorvinphos (Gardona)	0.16	U	
Fenamiphos	0.12	UJ	
Butifos (DEF)	0.11	U	
Abate (Temephos)	0.71	U	

Authorized By: 

Release Date: 7/1/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178196

Date Received: 04/24/96

Method: EPA1618

Field ID: YELLOW BK

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96

Units: ug/L

Analyte	Result	Qualifier	
Alpha-BHC	0.048	U	Surrogate Recoveries
Beta-BHC	0.048	U	
Gamma-BHC (Lindane)	0.048	U	Decachlorobiphenyl 71 %
Delta-BHC	0.048	U	
Heptachlor	0.048	U	
Aldrin	0.048	U	
Heptachlor Epoxide	0.048	U	
Trans-Chlordane (Gamma)	0.048	U	
Endosulfan I	0.048	U	
Dieldrin	0.048	U	
4,4'-DDE	0.048	U	
Endrin	0.048	U	
Endosulfan II	0.048	U	
4,4'-DDD	0.048	U	
Endrin Aldehyde	0.048	U	
Endosulfan Sulfate	0.048	U	
4,4'-DDT	0.048	U	
Endrin Ketone	0.048	U	
Methoxychlor	0.048	U	
Alpha-Chlordene	0.048	U	
Gamma-Chlordene	0.048	U	
Oxychlordane	0.048	U	
DDMU	0.048	U	
Cis-Chlordane (Alpha-Chlordane)	0.048	U	
Cis-Nonachlor	0.048	U	
Kelthane	0.19	UJ	
Captan	0.14	U	
2,4'-DDE	0.048	U	
Trans-Nonachlor	0.048	U	
2,4'-DDD	0.048	U	
2,4'-DDT	0.048	U	
Captafol	0.24	U	
Mirex	0.048	U	
Toxaphene	0.96	U	

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### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178194

Date Received: 04/24/96

Method: EPA1618

Field ID: MUD CR

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.049	U
Beta-BHC	0.049	U
Gamma-BHC (Lindane)	0.049	U
Delta-BHC	0.049	U
Heptachlor	0.049	U
Aldrin	0.049	U
Heptachlor Epoxide	0.049	U
Trans-Chlordane (Gamma)	0.049	U
Endosulfan I	0.049	U
Dieldrin	0.049	U
4,4'-DDE	0.049	U
Endrin	0.049	U
Endosulfan II	0.049	U
4,4'-DDD	0.049	U
Endrin Aldehyde	0.049	U
Endosulfan Sulfate	0.049	U
4,4'-DDT	0.049	U
Endrin Ketone	0.049	U
Methoxychlor	0.049	U
Alpha-Chlordene	0.049	U
Gamma-Chlordene	0.049	U
Oxychlordane	0.049	U
DDMU	0.049	U
Cis-Chlordane (Alpha-Chlordane)	0.049	U
Cis-Nonachlor	0.049	U
Kelthane	0.20	UJ
Captan	0.15	U
2,4'-DDE	0.049	U
Trans-Nonachlor	0.049	U
2,4'-DDD	0.049	U
2,4'-DDT	0.049	U
Captafol	0.24	U
Mirex	0.049	U
Toxaphene	0.98	U

#### Surrogate Recoveries

Decachlorobiphenyl	69	%
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## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides

LIMS Project ID: 1282-96

Sample: 96178193

Date Received: 04/24/96

Method: EPA1618

Field ID: DRY CR

Date Prepared: 04/25/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/02/96

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.049	U
Beta-BHC	0.049	U
Gamma-BHC (Lindane)	0.049	U
Delta-BHC	0.049	U
Heptachlor	0.049	U
Aldrin	0.049	U
Heptachlor Epoxide	0.049	U
Trans-Chlordane (Gamma)	0.049	U
Endosulfan I	0.049	U
Dieldrin	0.049	U
4,4'-DDE	0.049	U
Endrin	0.049	U
Endosulfan II	0.049	U
4,4'-DDD	0.049	U
Endrin Aldehyde	0.049	U
Endosulfan Sulfate	0.049	U
4,4'-DDT	0.049	U
Endrin Ketone	0.049	U
Methoxychlor	0.049	U
Alpha-Chlordene	0.049	U
Gamma-Chlordene	0.049	U
Oxychlorane	0.049	U
DDMU	0.049	U
Cis-Chlordane (Alpha-Chlordane)	0.049	U
Cis-Nonachlor	0.049	U
Kelthane	0.20	UJ
Captan	0.15	U
2,4'-DDE	0.049	U
Trans-Nonachlor	0.049	U
2,4'-DDD	0.049	U
2,4'-DDT	0.049	U
Captafol	0.25	U
Mirex	0.049	U
Toxaphene	0.98	U

#### Surrogate Recoveries

Decachlorobiphenyl	88	%
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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

**Project Name:** Walla Walla Pesticides

**LIMS Project ID:** 1282-96

**Sample:** 96178192

**Date Received:** 04/24/96

**Method:** EPA1618

**Field ID:** PINE CR

**Date Prepared:** 04/25/96

**Matrix:** Water

**Project Officer:** Art Johnson

**Date Analyzed:** 05/02/96

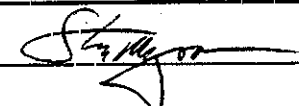
**Units:** ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.047	U
Beta-BHC	0.047	U
Gamma-BHC (Lindane)	0.047	U
Delta-BHC	0.047	U
Heptachlor	0.047	U
Aldrin	0.047	U
Heptachlor Epoxide	0.047	U
Trans-Chlordane (Gamma)	0.047	U
Endosulfan I	0.047	U
Dieldrin	0.047	U
4,4'-DDE	0.047	U
Endrin	0.047	U
Endosulfan II	0.047	U
4,4'-DDD	0.047	U
Endrin Aldehyde	0.047	U
Endosulfan Sulfate	0.047	U
4,4'-DDT	0.047	U
Endrin Ketone	0.047	U
Methoxychlor	0.047	U
Alpha-Chlordene	0.047	U
Gamma-Chlordene	0.047	U
Oxychlordane	0.047	U
DDMU	0.047	U
Cis-Chlordane (Alpha-Chlordane)	0.047	U
Cis-Nonachlor	0.047	U
Kelthane	0.19	UJ
Captan	0.14	U
2,4'-DDE	0.047	U
Trans-Nonachlor	0.047	U
2,4'-DDD	0.047	U
2,4'-DDT	0.047	U
Captafol	0.24	U
Mirex	0.047	U
Toxaphene	0.94	U

#### Surrogate Recoveries

<b>Decachlorobiphenyl</b>	<b>73</b>	<b>%</b>
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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258092

Date Received: 06/20/96

Method: EPA1618

Field ID: YELLOWHAWK

Date Prepared: 06/20/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

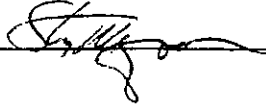
Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.059	U
Sulfotepp	0.050	U
Demeton-S	0.059	UJ
Fonofos	0.050	U
Disulfoton (Di-Syston)	0.050	U
Methyl Chlorpyrifos	0.067	U
Fenitrothion	0.059	U
Malathion	0.067	U
Chlorpyrifos	0.067	U
Merphos (1 & 2)	0.10	U
Ethion	0.059	U
Carbophenothion	0.084	U
EPN	0.084	U
Azinphos Ethyl	0.13	U
Ethoprop	0.067	U
Phorate	0.059	U
Dimethoate	0.067	U
Diazinon	0.067	U
Methyl Parathion	0.059	U
Ronnel	0.059	U
Fenthion	0.059	U
Parathion	0.067	U
Fensulfothion	0.084	U
Bolstar (Sulprofos)	0.059	U
Imidan	0.092	U
Azinphos (Guthion)	0.15	U
Coumaphos	0.10	U
Dichlorvos (DDVP)	0.067	U
Mevinphos	0.084	U
Dioxathion	0.14	U
Propetamphos	0.17	U
Methyl Paraoxon	0.15	U
Phosphamidan	0.20	UJ
Tetrachlorvinphos (Gardona)	0.17	U
Fenamiphos	0.13	UJ
Butifos (DEF)	0.12	U
Abate (Temephos)	0.76	U

#### Surrogate Recoveries

Triphenyl Phosphate	107	%
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Authorized By: 

Release Date: 8/27/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

**Project Name:** Walla Walla Pesticides - 25

**LIMS Project ID:** 1413-96

**Sample:** 96258088

**Date Received:** 06/20/96

**Method:** EPA1618

**Field ID:** MUD CR

**Date Prepared:** 06/20/96

**Matrix:** Water

**Project Officer:** Art Johnson

**Date Analyzed:** 07/12/96

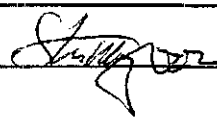
**Units:** ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.058	U
Sulfotepp	0.050	U
Demeton-S	0.058	UJ
Fonofos	0.050	U
Disulfoton (Di-Syston)	0.050	U
Methyl Chlorpyrifos	0.067	U
Fenitrothion	0.058	U
<b>Malathion</b>	<b>0.18</b>	
Chlorpyrifos	0.067	U
Merphos (1 & 2)	0.10	U
Ethion	0.058	U
Carbophenothion	0.083	U
EPN	0.083	U
Azinphos Ethyl	0.13	U
Ethoprop	0.067	U
Phorate	0.058	U
Dimethoate	0.067	U
Diazinon	0.067	U
Methyl Parathion	0.058	U
Ronnel	0.058	U
Fenthion	0.058	U
Parathion	0.067	U
Fensulfothion	0.083	U
Bolstar (Sulprofos)	0.058	U
Imidan	0.092	U
Azinphos (Guthion)	0.15	U
Coumaphos	0.10	U
Dichlorvos (DDVP)	0.067	U
Mevinphos	0.083	U
Dioxathion	0.14	U
Propetamphos	0.17	U
Methyl Paraoxon	0.15	U
Phosphamidan	0.20	UJ
Tetrachlorvinphos (Gardona)	0.17	U
Fenamiphos	0.13	UJ
Butifos (DEF)	0.12	U
Abate (Temephos)	0.75	U

#### Surrogate Recoveries

<b>Triphenyl Phosphate</b>	<b>108</b>	<b>%</b>
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Authorized By: 

Release Date: 7/27/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258086

Date Received: 06/20/96

Method: EPA1618

Field ID: DRY CR

Date Prepared: 06/20/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.059	U
Sulfotepp	0.050	U
Demeton-S	0.059	UJ
Fonofos	0.050	U
Disulfoton (Di-Syston)	0.050	U
Methyl Chlorpyrifos	0.067	U
Fenitrothion	0.059	U
Malathion	0.067	U
Chlorpyrifos	0.067	U
Merphos (1 & 2)	0.10	U
Ethion	0.059	U
Carbophenothion	0.084	U
EPN	0.084	U
Azinphos Ethyl	0.13	U
Ethoprop	0.067	U
Phorate	0.059	U
Dimethoate	0.067	U
Diazinon	0.067	U
Methyl Parathion	0.059	U
Ronnel	0.059	U
Fenthion	0.059	U
Parathion	0.067	U
Fensulfothion	0.084	U
Bolstar (Sulprofos)	0.059	U
Imidan	0.092	U
Azinphos (Guthion)	0.15	U
Coumaphos	0.10	U
Dichlorvos (DDVP)	0.067	U
Mevinphos	0.084	U
Dioxathion	0.14	U
Propetamphos	0.17	U
Methyl Paraoxon	0.15	U
Phosphamidan	0.20	UJ
Tetrachlorvinphos (Gardona)	0.17	U
Fenamiphos	0.13	UJ
Butifos (DEF)	0.12	U
Abate (Temephos)	0.76	U

#### Surrogate Recoveries

Triphenyl Phosphate	130	%
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Authorized By: 

Release Date: 8/27/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258084

Date Received: 06/20/96

Method: EPA1618

Field ID: PINE CR

Date Prepared: 06/20/96


Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

Units: ug/L

Analyte	Result	Qualifier	
Demeton-O	0.060	U	Surrogate Recoveries
Sulfotepp	0.052	U	
Demeton-S	0.060	UJ	Triphenyl Phosphate 127 %
Fonofos	0.052	U	
Disulfoton (Di-Syston)	0.052	U	
Methyl Chlorpyrifos	0.069	U	
Fenitrothion	0.060	U	
<b>Malathion</b>	<b>0.48</b>		
Chlorpyrifos	0.069	U	
Merphos (1 & 2)	0.10	U	
Ethion	0.060	U	
Carbophenothion	0.086	U	
EPN	0.086	U	
Azinphos Ethyl	0.14	U	
Ethoprop	0.069	U	
Phorate	0.060	U	
Dimethoate	0.069	U	
Diazinon	0.069	U	
Methyl Parathion	0.060	U	
Ronnel	0.060	U	
Fenthion	0.060	U	
Parathion	0.069	U	
Fensulfothion	0.086	U	
Bolstar (Sulprofos)	0.060	U	
Imidan	0.095	U	
Azinphos (Guthion)	0.16	U	
Coumaphos	0.10	U	
Dichlorvos (DDVP)	0.069	U	
Mevinphos	0.086	U	
Dioxathion	0.15	U	
Propetamphos	0.17	U	
Methyl Paraoxon	0.16	U	
Phosphamidan	0.21	UJ	
Tetrachlorvinphos (Gardona)	0.17	U	
Fenamiphos	0.13	UJ	
Butifos (DEF)	0.12	U	
Abate (Temephos)	0.78	U	

Authorized By: 

Release Date: 8/27/96

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# Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258092

Date Received: 06/20/96

Method: EPA1618

Field ID: YELLOWHAWK

Date Prepared: 06/20/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

Units: ug/L

Analyte	Result	Qualifier	
Alpha-BHC	0.050	U	Surrogate Recoveries
Beta-BHC	0.050	U	
Gamma-BHC (Lindane)	0.050	U	<b>Decachlorobiphenyl</b> <b>90</b> <b>%</b>
Delta-BHC	0.050	U	
Heptachlor	0.050	U	
<b>Aldrin</b>	<b>0.11</b>		
Heptachlor Epoxide	0.050	U	
Trans-Chlordane (Gamma)	0.050	U	
Endosulfan I	0.050	U	
Dieldrin	0.050	U	
4,4'-DDE	0.050	U	
Endrin	0.050	U	
Endosulfan II	0.050	U	
4,4'-DDD	0.050	U	
Endrin Aldehyde	0.050	U	
Endosulfan Sulfate	0.050	U	
4,4'-DDT	0.050	U	
Endrin Ketone	0.050	U	
Methoxychlor	0.050	U	
Alpha-Chlordene	0.050	U	
Gamma-Chlordene	0.050	U	
Oxychlordane	0.050	U	
DDMU	0.050	U	
Cis-Chlordane (Alpha-Chlordane)	0.050	U	
Cis-Nonachlor	0.050	U	
Kelthane	0.20	UJ	
Captan	0.15	U	
2,4'-DDE	0.050	U	
Trans-Nonachlor	0.050	U	
2,4'-DDD	0.050	U	
2,4'-DDT	0.050	U	
Captafol	0.25	U	
Mirex	0.050	U	
Toxaphene	1.0	U	

Authorized By: 

Release Date: 8/22/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258088

Date Received: 06/20/96

Method: EPA1618

Field ID: MUD CR

Date Prepared: 06/20/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.050	U
Beta-BHC	0.050	U
Gamma-BHC (Lindane)	0.050	U
Delta-BHC	0.050	U
Heptachlor	0.050	U
Aldrin	0.050	U
Heptachlor Epoxide	0.050	U
Trans-Chlordane (Gamma)	0.050	U
Endosulfan I	0.050	U
Dieldrin	0.050	U
4,4'-DDE	0.050	U
Endrin	0.050	U
Endosulfan II	0.050	U
4,4'-DDD	0.050	U
Endrin Aldehyde	0.050	U
Endosulfan Sulfate	0.050	U
4,4'-DDT	0.050	U
Endrin Ketone	0.050	U
Methoxychlor	0.050	U
Alpha-Chlordene	0.050	U
Gamma-Chlordene	0.050	U
Oxychlordane	0.050	U
DDMU	0.050	U
Cis-Chlordane (Alpha-Chlordane)	0.050	U
Cis-Nonachlor	0.050	U
Kelthane	0.20	UJ
Captan	0.15	U
2,4'-DDE	0.050	U
Trans-Nonachlor	0.050	U
2,4'-DDD	0.050	U
2,4'-DDT	0.050	U
Captafol	0.25	U
Mirex	0.050	U
Toxaphene	1.0	U

#### Surrogate Recoveries

Decachlorobiphenyl	79	%
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Authorized By: 

Release Date: 8/27/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258086

Date Received: 06/20/96

Method: EPA1618

Field ID: DRY CR

Date Prepared: 06/20/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.050	U
Beta-BHC	0.050	U
Gamma-BHC (Lindane)	0.050	U
Delta-BHC	0.050	U
Heptachlor	0.050	U
Aldrin	0.050	U
Heptachlor Epoxide	0.050	U
Trans-Chlordane (Gamma)	0.050	U
Endosulfan I	0.050	U
Dieldrin	0.050	U
4,4'-DDE	0.050	U
Endrin	0.050	U
Endosulfan II	0.050	U
4,4'-DDD	0.050	U
Endrin Aldehyde	0.050	U
Endosulfan Sulfate	0.050	U
4,4'-DDT	0.006	NJ
Endrin Ketone	0.050	U
Methoxychlor	0.050	U
Alpha-Chlordane	0.050	U
Gamma-Chlordane	0.050	U
Oxychlordane	0.050	U
DDMU	0.050	U
Cis-Chlordane (Alpha-Chlordane)	0.050	U
Cis-Nonachlor	0.050	U
Kelthane	0.20	UJ
Captan	0.15	U
2,4'-DDE	0.050	U
Trans-Nonachlor	0.050	U
2,4'-DDD	0.050	U
2,4'-DDT	0.050	U
Captafol	0.25	U
Mirex	0.050	U
Toxaphene	1.0	U

#### Surrogate Recoveries

Decachlorobiphenyl	106	%
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Authorized By: 

Release Date: 8/27/96

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Pesticides - 25

LIMS Project ID: 1413-96

Sample: 96258084

Date Received: 06/20/96

Method: EPA1618

Field ID: PINE CR

Date Prepared: 06/20/96

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 07/12/96

Units: ug/L

Analyte	Result	Qualifier	
Alpha-BHC	0.052	U	Surrogate Recoveries
Beta-BHC	0.052	U	
Gamma-BHC (Lindane)	0.052	U	Decachlorobiphenyl 99 %
Delta-BHC	0.052	U	
Heptachlor	0.052	U	
Aldrin	0.052	U	
Heptachlor Epoxide	0.052	U	
Trans-Chlordane (Gamma)	0.052	U	
Endosulfan I	0.052	U	
Dieldrin	0.052	U	
4,4'-DDE	0.052	U	
Endrin	0.052	U	
Endosulfan II	0.052	U	
4,4'-DDD	0.052	U	
Endrin Aldehyde	0.052	U	
Endosulfan Sulfate	0.052	U	
4,4'-DDT	0.052	U	
Endrin Ketone	0.052	U	
Methoxychlor	0.052	U	
Alpha-Chlordene	0.052	U	
Gamma-Chlordene	0.052	U	
Oxychlordane	0.052	U	
DDMU	0.052	U	
Cis-Chlordane (Alpha-Chlordane)	0.052	U	
Cis-Nonachlor	0.052	U	
Kelthane	0.21	UJ	
Captan	0.16	U	
2,4'-DDE	0.052	U	
Trans-Nonachlor	0.052	U	
2,4'-DDD	0.052	U	
2,4'-DDT	0.052	U	
Captafol	0.26	U	
Mirex	0.052	U	
Toxaphene	1.0	U	

Authorized By: 

Release Date: 8/27/96

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# Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188007 Date Received: 04/29/97 Method: EPA1618

Field ID: DRY CR Date Prepared: 04/30/97 Matrix: Water

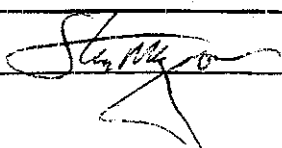
Project Officer: Art Johnson Date Analyzed: 05/20/97 Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.013	U
Sulfotepp	0.012	U
Demeton-S	0.013	UJ
Fonofos	0.012	U
Disulfoton (Di-Syston)	0.012	U
Methyl Chlorpyrifos	0.015	U
Fenitrothion	0.013	U
Malathion	0.015	U
Chlorpyrifos	0.015	U
Merphos (1 & 2)	0.023	U
Ethion	0.013	U
Carbophenothion	0.019	U
EPN	0.019	U
Azinphos Ethyl	0.031	U
Ethoprop	0.015	U
Phorate	0.013	U
Dimethoate	0.015	U
Diazinon	0.015	U
Methyl Parathion	0.013	U
Ronnel	0.013	U
Fenthion	0.013	U
Parathion	0.015	U
Fensulfothion	0.019	U
Bolstar (Sulprofos)	0.013	U
Imidan	0.021	U
Azinphos (Guthion)	0.031	U
Coumaphos	0.023	U
Dichlorvos (DDVP)	0.015	U
Mevinphos	0.019	U
Dioxathion	0.033	U
Propetamphos	0.038	U
Methyl Paraoxon	0.035	U
Phosphamidan	0.046	UJ
Tetrachlorvinphos (Gardona)	0.038	U
Fenamiphos	0.029	UJ
Butifos (DEF)	0.027	U
Abate (Temephos)	0.17	U

Surrogate Recoveries

Triphenyl Phosphate	114	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188005

Date Received: 04/29/97

Method: EPA1618

Field ID: PINE CR

Date Prepared: 04/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/20/97

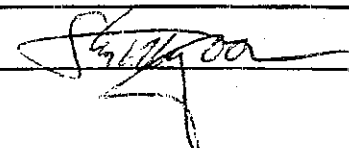
Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.013	U
Sulfotepp	0.012	U
Demeton-S	0.013	UJ
Fonofos	0.012	U
Disulfoton (Di-Syston)	0.012	U
Methyl Chlorpyrifos	0.015	U
Fenitrothion	0.013	U
Malathion	0.015	U
Chlorpyrifos	0.015	U
Merphos (1 & 2)	0.023	U
Ethion	0.013	U
Carbophenothion	0.019	U
EPN	0.019	U
Azinphos Ethyl	0.031	U
Ethoprop	0.015	U
Phorate	0.013	U
Dimethoate	0.015	U
Diazinon	0.015	U
Methyl Parathion	0.013	U
Ronnel	0.013	U
Fenthion	0.013	U
Parathion	0.015	U
Fensulfothion	0.019	U
Bolstar (Sulprofos)	0.013	U
Imidan	0.021	U
Azinphos (Guthion)	0.031	U
Coumaphos	0.023	U
Dichlorvos (DDVP)	0.015	U
Mevinphos	0.019	U
Dioxathion	0.033	U
Propetamphos	0.038	U
Methyl Paraoxon	0.035	U
Phosphamidan	0.046	UJ
Tetrachlorvinphos (Gardona)	0.038	U
Fenamiphos	0.029	UJ
Butifos (DEF)	0.027	U
Abate (Temphos)	0.17	U

Surrogate Recoveries

Triphenyl Phosphate	106	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188008

Date Received: 04/29/97

Method: EPA1618

Field ID: YELLOHKCR

Date Prepared: 04/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/20/97

Units: ug/L

Analyte	Result	Qualifier	
Alpha-BHC	0.012	U	Surrogate Recoveries
Beta-BHC	0.012	U	
Gamma-BHC (Lindane)	0.012	U	Decachlorobiphenyl (PCB congen 79) %
Delta-BHC	0.012	U	
Heptachlor	0.012	U	
Aldrin	0.012	U	
Heptachlor Epoxide	0.012	U	
Trans-Chlordane (Gamma)	0.012	U	
Endosulfan I	0.012	U	
Dieldrin	0.012	U	
4,4'-DDE	0.012	U	
Endrin	0.012	U	
Endosulfan II	0.012	U	
4,4'-DDD	0.012	U	
Endrin Aldehyde	0.012	U	
Endosulfan Sulfate	0.012	U	
4,4'-DDT	0.012	UJ	
Endrin Ketone	0.012	U	
Methoxychlor	0.012	UJ	
Alpha-Chlordene	0.012	U	
Gamma-Chlordene	0.012	U	
Oxychlordane	0.012	U	
DDMU	0.012	U	
Cis-Chlordane (Alpha-Chlordane)	0.012	U	
Cis-Nonachlor	0.012	U	
Kelthane	0.046	UJ	
Captan	0.035	U	
2,4'-DDE	0.012	U	
Trans-Nonachlor	0.012	U	
2,4'-DDD	0.012	U	
2,4'-DDT	0.012	U	
Captafol	0.058	UJ	
Mirex	0.012	U	
Toxaphene	0.23	U	

Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188006  
Field ID: MUD CR  
Project Officer: Art Johnson

Date Received: 04/29/97  
Date Prepared: 04/30/97  
Date Analyzed: 05/20/97  
Method: EPA1618  
Matrix: Water  
Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.011	U
Beta-BHC	0.011	U
Gamma-BHC (Lindane)	0.011	U
Delta-BHC	0.011	U
Heptachlor	0.011	U
Aldrin	0.011	U
Heptachlor Epoxide	0.011	U
Trans-Chlordane (Gamma)	0.011	U
Endosulfan I	0.011	U
Dieldrin	0.011	U
4,4'-DDE	0.011	U
Endrin	0.011	U
Endosulfan II	0.011	U
4,4'-DDD	0.011	U
Endrin Aldehyde	0.011	U
Endosulfan Sulfate	0.011	U
4,4'-DDT	0.011	UJ
Endrin Ketone	0.011	U
Methoxychlor	0.011	UJ
Alpha-Chlordene	0.011	U
Gamma-Chlordene	0.011	U
Oxychlordane	0.011	U
DDMU	0.011	U
Cis-Chlordane (Alpha-Chlordane)	0.011	U
Cis-Nonachlor	0.011	U
Kelthane	0.045	UJ
Captan	0.034	U
2,4'-DDE	0.011	U
Trans-Nonachlor	0.011	U
2,4'-DDD	0.011	U
2,4'-DDT	0.011	U
Captafol	0.057	UJ
Mirex	0.011	U
Toxaphene	0.23	U

#### Surrogate Recoveries

<u>Decachlorobiphenyl (PCB congen 68)</u>	<u>%</u>
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188007

Date Received: 04/29/97

Method: EPA1618

Field ID: DRY CR

Date Prepared: 04/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/20/97

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.012	U
Beta-BHC	0.012	U
Gamma-BHC (Lindane)	0.012	U
Delta-BHC	0.012	U
Heptachlor	0.012	U
Aldrin	0.012	U
Heptachlor Epoxide	0.012	U
Trans-Chlordane (Gamma)	0.012	U
Endosulfan I	0.012	U
Dieldrin	0.012	U
4,4'-DDE	0.012	U
Endrin	0.012	U
Endosulfan II	0.012	U
4,4'-DDD	0.012	U
Endrin Aldehyde	0.012	U
Endosulfan Sulfate	0.012	U
4,4'-DDT	0.012	UJ
Endrin Ketone	0.012	U
Methoxychlor	0.012	UJ
Alpha-Chlordene	0.012	U
Gamma-Chlordene	0.012	U
Oxychlordane	0.012	U
DDMU	0.012	U
Cis-Chlordane (Alpha-Chlordane)	0.012	U
Cis-Nonachlor	0.012	U
Kelthane	0.046	UJ
Captan	0.035	U
2,4'-DDE	0.012	U
Trans-Nonachlor	0.012	U
2,4'-DDD	0.012	U
2,4'-DDT	0.012	U
Captafol	0.058	UJ
Mirex	0.012	U
Toxaphene	0.23	U

#### Surrogate Recoveries

Decachlorobiphenyl (PCB congen 73)	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188005

Date Received: 04/29/97

Method: EPA1618

Field ID: PINE CR

Date Prepared: 04/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/20/97


Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.012	U
Beta-BHC	0.012	U
Gamma-BHC (Lindane)	0.012	U
Delta-BHC	0.012	U
Heptachlor	0.012	U
Aldrin	0.012	U
Heptachlor Epoxide	0.012	U
Trans-Chlordane (Gamma)	0.012	U
Endosulfan I	0.012	U
Dieldrin	0.012	U
4,4'-DDE	0.012	U
Endrin	0.012	U
Endosulfan II	0.012	U
4,4'-DDD	0.012	U
Endrin Aldehyde	0.012	U
Endosulfan Sulfate	0.012	U
4,4'-DDT	0.012	UJ
Endrin Ketone	0.012	U
Methoxychlor	0.012	UJ
Alpha-Chlordene	0.012	U
Gamma-Chlordene	0.012	U
Oxychlordane	0.012	U
DDMU	0.012	U
Cis-Chlordane (Alpha-Chlordane)	0.012	U
Cis-Nonachlor	0.012	U
Kelthane	0.046	UJ
Captan	0.035	U
2,4'-DDE	0.012	U
Trans-Nonachlor	0.012	U
2,4'-DDD	0.012	U
2,4'-DDT	0.012	U
Captafol	0.058	UJ
Mirex	0.012	U
Toxaphene	0.23	U

#### Surrogate Recoveries

Decachlorobiphenyl (PCB congen 79)	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228014

Date Received: 05/29/97

Method: EPA1618

Field ID: YELLOWHK

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.014	U
Sulfotepp	0.012	U
Demeton-S	0.014	UJ
Fonofos	0.012	U
Disulfoton (Di-Syston)	0.012	U
Methyl Chlorpyrifos	0.016	U
Fenitrothion	0.014	U
Malathion	0.016	U
Chlorpyrifos	0.016	U
Merphos (1 & 2)	0.024	U
Ethion	0.014	U
Carbophenothion	0.020	U
EPN	0.020	U
Azinphos Ethyl	0.033	U
Ethoprop	0.016	U
Phorate	0.014	U
Dimethoate	0.013	J
Diazinon	0.016	U
Methyl Parathion	0.003	J
Ronnel	0.014	U
Fenthion	0.014	U
Parathion	0.016	U
Fensulfothion	0.020	U
Bolstar (Sulprofos)	0.014	U
Imidan	0.022	U
Azinphos (Guthion)	0.033	U
Coumaphos	0.024	U
Dichlorvos (DDVP)	0.016	U
Mevinphos	0.020	U
Dioxathion	0.089	UJ
Propetamphos	0.041	U
Methyl Paraoxon	0.037	U
Phosphamidan	0.049	UJ
Tetrachlorvinphos (Gardona)	0.041	U
Fenamiphos	0.031	UJ
Butifos (DEF)	0.028	U
Abate (Temephos)	0.18	U

#### Surrogate Recoveries

Triphenyl Phosphate	94	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228012

Date Received: 05/29/97

Method: EPA1618

Field ID: MUD CR

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.014	U
Sulfotepp	0.012	U
Demeton-S	0.014	UJ
Fonofos	0.012	U
Disulfoton (Di-Syston)	0.012	U
Methyl Chlorpyrifos	0.021	UJ
Fenitrothion	0.014	U
Malathion	0.016	U
Chlorpyrifos	0.016	U
Merphos (1 & 2)	0.024	U
Ethion	0.014	U
Carbophenothion	0.047	UJ
EPN	0.020	U
Azinphos Ethyl	0.031	U
Ethoprop	0.016	U
Phorate	0.014	U
Dimethoate	0.016	U
<b>Diazinon</b>	<b>0.003</b>	<b>J</b>
<b>Methyl Parathion</b>	<b>0.017</b>	
Ronnel	0.014	U
Fenthion	0.014	U
Parathion	0.016	U
Fensulfothion	0.020	U
Bolstar (Sulprofos)	0.014	U
Imidan	0.022	U
<b>Azinphos (Guthion)</b>	<b>0.002</b>	<b>J</b>
Coumaphos	0.024	U
Dichlorvos (DDVP)	0.016	U
Mevinphos	0.020	U
Dioxathion	0.034	U
Propetamphos	0.039	U
Methyl Paraoxon	0.035	U
Phosphamidan	0.047	UJ
Tetrachlorvinphos (Gardona)	0.039	U
Fenamiphos	0.030	UJ
Butifos (DEF)	0.028	U
Abate (Temephos)	0.18	U

#### Surrogate Recoveries

<b>Triphenyl Phosphate</b>	<b>93</b>	<b>%</b>
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228013

Date Received: 05/29/97

Method: EPA1618

Field ID: DRY CR

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

Units: ug/L

Analyte	Result	Qualifier	
Demeton-O	0.014	U	Surrogate Recoveries
Sulfotepp	0.012	U	
Demeton-S	0.014	UJ	<b>Triphenyl Phosphate</b> 89 %
Fonofos	0.012	U	
Disulfoton (Di-Syston)	0.012	U	
Methyl Chlorpyrifos	0.016	U	
Fenitrothion	0.014	U	
Malathion	0.016	U	
Chlorpyrifos	0.016	U	
Merphos (1 & 2)	0.023	U	
Ethion	0.014	U	
Carbophenothion	0.028	UJ	
EPN	0.020	U	
Azinphos Ethyl	0.031	U	
Ethoprop	0.016	U	
Phorate	0.014	U	
Dimethoate	0.016	U	
Diazinon	0.016	U	
Methyl Parathion	0.014	U	
Ronnel	0.014	U	
Fenthion	0.014	U	
Parathion	0.016	U	
Fensulfothion	0.020	U	
Bolstar (Sulprofos)	0.014	U	
Imidan	0.022	U	
<b>Azinphos (Guthion)</b>	<b>0.003</b>	<b>NJ</b>	
Coumaphos	0.023	U	
Dichlorvos (DDVP)	0.016	U	
Mevinphos	0.020	U	
Dioxathion	0.033	U	
Propetamphos	0.039	U	
Methyl Paraoxon	0.035	U	
Phosphamidan	0.047	UJ	
Tetrachlorvinphos (Gardona)	0.039	U	
Fenamiphos	0.029	UJ	
Butifos (DEF)	0.027	U	
Abate (Temephos)	0.18	U	

Authorized By: 

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228011

Date Received: 05/29/97

Method: EPA1618

Field ID: PINE CR

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

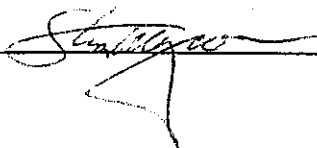
Units: ug/L

Analyte	Result	Qualifier
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Demeton-O	0.013	U
Sulfotepp	0.012	U
Demeton-S	0.013	UJ
Fonofos	0.012	U
Disulfoton (Di-Syston)	0.012	U
Methyl Chlorpyrifos	0.015	U
Fenitrothion	0.013	U
Malathion	0.015	U
Chlorpyrifos	0.015	U
Merphos (1 & 2)	0.023	U
Ethion	0.013	U
Carbophenothion	0.019	U
EPN	0.019	U
Azinphos Ethyl	0.031	U
Ethoprop	0.015	U
Phorate	0.013	U
<b>Dimethoate</b>	<b>0.007</b>	<b>J</b>
Diazinon	0.015	U
Methyl Parathion	0.013	U
Ronnel	0.013	U
Fenthion	0.013	U
Parathion	0.015	U
Fensulfothion	0.019	U
Bolstar (Sulprofos)	0.013	U
Imidan	0.021	U
<b>Azinphos (Guthion)</b>	<b>0.013</b>	<b>J</b>
Coumaphos	0.023	U
Dichlorvos (DDVP)	0.015	U
Mevinphos	0.019	U
Dioxathion	0.033	U
Propetamphos	0.038	U
Methyl Paraoxon	0.035	U
Phosphamidan	0.046	UJ
Tetrachlorvinphos (Gardona)	0.038	U
Fenamiphos	0.029	UJ
Butifos (DEF)	0.027	U
Abate (Temephos)	0.17	U

#### Surrogate Recoveries

Triphenyl Phosphate	99	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228014

Date Received: 05/29/97

Method: EPA1618

Field ID: YELLOWHK

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

Units: ug/L

Analyte	Result	Qualifier	
Alpha-BHC	0.012	U	Surrogate Recoveries
Beta-BHC	0.012	U	
Gamma-BHC (Lindane)	0.015	UJ	<u>Decachlorobiphenyl (PCB congen 106)</u> %
Delta-BHC	0.012	U	
Heptachlor	0.012	U	
Aldrin	0.012	U	
Heptachlor Epoxide	0.012	U	
Trans-Chlordane (Gamma)	0.012	U	
Endosulfan I	0.012	U	
Dieldrin	0.012	U	
4,4'-DDE	0.012	U	
Endrin	0.012	U	
Endosulfan II	0.012	U	
4,4'-DDD	0.012	U	
Endrin Aldehyde	0.012	U	
Endosulfan Sulfate	0.012	U	
4,4'-DDT	0.012	U	
Endrin Ketone	0.012	U	
Methoxychlor	0.012	UJ	
Alpha-Chlordene	0.012	U	
Gamma-Chlordene	0.012	U	
Oxychlordane	0.012	U	
DDMU	0.012	U	
Cis-Chlordane (Alpha-Chlordane)	0.012	U	
Cis-Nonachlor	0.012	U	
Kelthane	0.049	UJ	
Captan	0.037	U	
2,4'-DDE	0.012	U	
Trans-Nonachlor	0.012	U	
2,4'-DDD	0.012	U	
2,4'-DDT	0.012	U	
Captafol	0.061	U	
Mirex	0.012	U	
Toxaphene	0.24	U	

Authorized By: 

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# Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228012

Date Received: 05/29/97

Method: EPA1618

Field ID: MUD CR

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

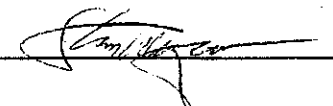
Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.012	U
Beta-BHC	0.012	U
Gamma-BHC (Lindane)	0.012	U
Delta-BHC	0.012	U
Heptachlor	0.012	U
Aldrin	0.012	U
Heptachlor Epoxide	0.012	U
Trans-Chlordane (Gamma)	0.012	U
Endosulfan I	0.012	U
Dieldrin	0.012	U
4,4'-DDE	0.012	U
Endrin	0.012	U
Endosulfan II	0.012	U
4,4'-DDD	0.012	U
Endrin Aldehyde	0.012	U
Endosulfan Sulfate	0.078	UJ
4,4'-DDT	0.012	U
Endrin Ketone	0.012	U
Methoxychlor	0.012	UJ
Alpha-Chlordane	0.012	U
Gamma-Chlordane	0.012	U
Oxychlordane	0.012	U
DDMU	0.012	U
Cis-Chlordane (Alpha-Chlordane)	0.012	U
Cis-Nonachlor	0.012	U
Kelthane	0.047	UJ
Captan	0.035	U
2,4'-DDE	0.012	U
Trans-Nonachlor	0.012	U
2,4'-DDD	0.012	U
2,4'-DDT	0.012	U
Captafol	0.059	U
Mirex	0.012	U
Toxaphene	0.24	U

Surrogate Recoveries

Decachlorobiphenyl (PCB congener 91)	%
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Authorized By: 

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# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228013

Date Received: 05/29/97

Method: EPA1618

Field ID: DRY CR

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

Units: ug/L

Analyte	Result	Qualifier	
Alpha-BHC	0.012	U	Surrogate Recoveries
Beta-BHC	0.012	U	
Gamma-BHC (Lindane)	0.012	U	<b>Decachlorobiphenyl (PCB congener 95)</b> %
Delta-BHC	0.012	U	
Heptachlor	0.012	U	
Aldrin	0.012	U	
Heptachlor Epoxide	0.012	U	
Trans-Chlordane (Gamma)	0.012	U	
Endosulfan I	0.012	U	
Dieldrin	0.012	U	
4,4'-DDE	0.012	U	
Endrin	0.012	U	
Endosulfan II	0.012	U	
4,4'-DDD	0.012	U	
Endrin Aldehyde	0.012	U	
Endosulfan Sulfate	0.049	UJ	
4,4'-DDT	0.012	U	
Endrin Ketone	0.012	U	
Methoxychlor	0.012	UJ	
Alpha-Chlordane	0.012	U	
Gamma-Chlordane	0.012	U	
Oxychlordane	0.012	U	
DDMU	0.012	U	
Cis-Chlordane (Alpha-Chlordane)	0.012	U	
Cis-Nonachlor	0.012	U	
Kelthane	0.047	UJ	
Captan	0.035	U	
2,4'-DDE	0.012	U	
Trans-Nonachlor	0.012	U	
2,4'-DDD	0.012	U	
2,4'-DDT	0.012	U	
Captafol	0.059	U	
Mirex	0.012	U	
Toxaphene	0.23	U	

# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Chlorinated Pesticides (GC/AED)

Project Name: Walla Walla - 22

LIMS Project ID: 1271-97

Sample: 97228011

Date Received: 05/29/97

Method: EPA1618

Field ID: PINE CR

Date Prepared: 05/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 06/10/97

Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Alpha-BHC	0.012	U
Beta-BHC	0.012	U
Gamma-BHC (Lindane)	0.012	U
Delta-BHC	0.012	U
Heptachlor	0.012	U
Aldrin	0.012	U
Heptachlor Epoxide	0.012	U
Trans-Chlordane (Gamma)	0.012	U
Endosulfan I	0.012	U
Dieldrin	0.012	U
4,4'-DDE	0.012	U
Endrin	0.012	U
Endosulfan II	0.012	U
4,4'-DDD	0.012	U
Endrin Aldehyde	0.012	U
Endosulfan Sulfate	0.012	U
4,4'-DDT	0.012	U
Endrin Ketone	0.012	U
Methoxychlor	0.012	UJ
Alpha-Chlordene	0.012	U
Gamma-Chlordene	0.012	U
Oxychlordane	0.012	U
DDMU	0.012	U
Cis-Chlordane (Alpha-Chlordane)	0.012	U
Cis-Nonachlor	0.012	U
Kelthane	0.046	UJ
Captan	0.035	U
2,4'-DDE	0.012	U
Trans-Nonachlor	0.012	U
2,4'-DDD	0.012	U
2,4'-DDT	0.012	U
Captafol	0.058	U
Mirex	0.012	U
Toxaphene	0.23	U

#### Surrogate Recoveries

Decachlorobiphenyl (PCB congener 103)	%
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Authorized By: 

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**DATA QUALIFIER CODES:**

- U - The analyte was not detected at or above the reported value.
- J - The analyte was positively identified. The associated numerical value is an estimate
- UJ - The analyte was not detected at or above the reported estimated result.
- REJ - The data are unusable for all purposes.
- NAF - Not analyzed for
- N - For organic analytes there is evidence the analyte is present in this sample.
- NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.
- E - This qualifier is used when the concentration of the associated value exceeds the known calibration range.

# Manchester Environmental Laboratory

## Department of Ecology

### Analysis Report for

### Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188008

Date Received: 04/29/97

Method: EPA1618

Field ID: YELLOHKCR

Date Prepared: 04/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/20/97

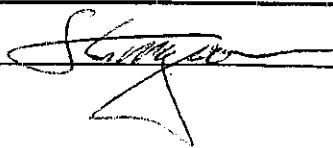
Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.013	U
Sulfotepp	0.012	U
Demeton-S	0.013	UJ
Fonofos	0.012	U
Disulfoton (Di-Syston)	0.012	U
Methyl Chlorpyrifos	0.015	U
Fenitrothion	0.013	U
Malathion	0.015	U
Chlorpyrifos	0.015	U
Merphos (1 & 2)	0.023	U
Ethion	0.013	U
Carbophenothion	0.019	U
EPN	0.019	U
Azinphos Ethyl	0.031	U
Ethoprop	0.015	U
Phorate	0.013	U
Dimethoate	0.015	U
Diazinon	0.015	U
Methyl Parathion	0.013	U
Ronnel	0.013	U
Fenthion	0.013	U
Parathion	0.015	U
Fensulfothion	0.019	U
Bolstar (Sulprofos)	0.013	U
Imidan	0.021	U
Azinphos (Guthion)	0.031	U
Coumaphos	0.023	U
Dichlorvos (DDVP)	0.015	U
Mevinphos	0.019	U
Dioxathion	0.033	U
Propetamphos	0.038	U
Methyl Paraaxon	0.035	U
Phosphamidan	0.046	UJ
Tetrachlorvinphos (Gardona)	0.038	U
Fenamiphos	0.029	UJ
Butifos (DEF)	0.027	U
Abate (Temephos)	0.17	U

Surrogate Recoveries

Triphenyl Phosphate	115	%
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Authorized By: 

Release Date: 7-17-97

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# Manchester Environmental Laboratory

Department of Ecology

Analysis Report for

## Organophosphorous Pesticides (GC/AED)

Project Name: Walla Walla Follow-up

LIMS Project ID: 1207-97

Sample: 97188006

Date Received: 04/29/97

Method: EPA1618

Field ID: MUD CR

Date Prepared: 04/30/97

Matrix: Water

Project Officer: Art Johnson

Date Analyzed: 05/20/97


Units: ug/L

Analyte	Result	Qualifier
---------	--------	-----------

Demeton-O	0.013	U
Sulfotepp	0.011	U
Demeton-S	0.013	UJ
Fonofos	0.011	U
Disulfoton (Di-Syston)	0.011	U
Methyl Chlorpyrifos	0.015	U
Fenitrothion	0.013	U
Malathion	0.015	U
Chlorpyrifos	0.015	U
Merphos (1 & 2)	0.023	U
Ethion	0.013	U
Carbophenothion	0.019	U
EPN	0.019	U
Azinphos Ethyl	0.030	U
Ethoprop	0.015	U
Phorate	0.013	U
Dimethoate	0.015	U
Diazinon	0.015	U
Methyl Parathion	0.013	U
Ronnel	0.013	U
Fenthion	0.013	U
Parathion	0.015	U
Fensulfothion	0.019	U
Bolstar (Sulprofos)	0.013	U
Imidan	0.021	U
Azinphos (Guthion)	0.030	U
Coumaphos	0.023	U
Dichlorvos (DDVP)	0.015	U
Mevinphos	0.019	U
Dioxathion	0.032	U
Propetamphos	0.038	U
Methyl Paraoxon	0.034	U
Phosphamidan	0.045	UJ
Tetrachlorvinphos (Gardona)	0.038	U
Fenamiphos	0.028	UJ
Butifos (DEF)	0.027	U
Abate (Temephos)	0.17	U

Surrogate Recoveries

Triphenyl Phosphate	112	%
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Authorized By: 

Release Date: 7-17-97

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