

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILE 8672
1877 SCOMM 75: MARICULTURE (FISH FARMING), 1987-1990

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ATTACHMENT 3

Dave Seiler, WDF Fish Carcass Survey Report

STATE OF WASHINGTON
DEPARTMENT OF FISHERIES
PLANNING, RESEARCH AND HARVEST MANAGEMENT

MEMO

TO: Greg Sorlie and Pat Lee
FROM: Dave Seiler *DS*
SUBJECT: Black River Fish Kill

August 17, 1989

This memo documents Department of Fisheries' involvement in the initial investigation of the Black River fish kill.

On Tuesday, August 8, 1989, I received a phone call at 3pm at my office from Mr. Rich Hendricks, a resident of lower Black River (approximately 1/2 mile downstream of Gate). He stated that "something is wrong with the river". On Monday evening his grandchildren swam in the river and as a consequence, suffered severe eye irritation. When he began finding dead fish on Tuesday it became obvious that something was indeed wrong.

I advised him to call the Department of Ecology. He stated that he already had and was transferred five times and felt like he never did connect with anyone that would handle the report. He was very frustrated. I told him that I would come down but that he still needed to persist in reporting this to Ecology because they were the proper agency to respond to such a complaint. Mr. Hendricks called me at home about 6pm and reported that the closer he looked in the river the more dead fish he found. No one had responded to his complaint yet and he was even more concerned for the health of his family as it became clear that a serious fish kill had occurred. I told him I would be down shortly.

As soon as my wife, Kay (an Ecology inspector) got home from work we drove down to Mr. Hendricks' place, arriving there at 7:15 pm. For a moment, I considered the possibility of a natural fish kill as the water temperature was warm (69.5 F). This notion evaporated as I proceeded upstream. The bottom was littered with dead sculpins, lampreys, and crayfish. Even the freshwater mussels were dead. As these species are more tolerant of warm temperatures and low DO's than salmonids, it became apparent that this kill did not result from natural conditions.

I proceeded upstream about 200 yards criss-crossing the channel where possible and inspecting near both banks. I found dead fish everywhere and saw no sign of anything alive except one moribund lamprey. I collected coho salmon fry and cutthroat trout in addition to the other species listed above. I retained a sample (5-10 fish) of each species for possible tissue analysis. Based on the condition of the bodies, I estimate that they died at least 24 hours to 48 hours earlier, possibly even more than this. During my survey I detected no unusual odor or any

other evidence in the water or on the dead fish that gave me any clues as to a contaminant or the cause of death.

We returned home around 9:30 pm and at this time, Kay called the spill hotline number and was immediately contacted by Bob Warren. She appraised him of the severity of the fish kill. He was somewhat surprised because that same evening, he had driven the spill van down to the Moon Road bridge and had not seen any dead fish.

First thing in the morning (Wednesday, Aug. 9) I sent two of my staff, Mike Ackley and Pete Topping down to the Black River to determine the upstream extent of the kill. I also reported my observations of the previous night to Bill Young, Ecology water quality inspector, and advised him that my staff were enroute to the river. I also contacted Fisheries' pathology lab to inquire about tissue analysis. Pathologists were not available at this time so I was referred to Ray Brunson, USFWS. He advised me that the fish samples had been dead too long to be analyzed.

At 10 am, Mike and Pete launched a canoe at River Mile 9.8 and paddled upstream to R.M. 10.3. At the launch point and upstream no dead fish were found, only live fish. They proceeded downstream and encountered the first dead fish just below the train tressel (R.M.9.2). From this point down to R.M. 8.0 they found a few dead fish. The number of dead fish greatly increased below R.M. 8.0, and continued to increase through R.M. 7.2 where they pulled out. Mortalities included the following species: coho salmon fry, trout fry (age 0+), cutthroat trout (up to 12"), sculpins, large scale suckers, lampreys, crayfish and freshwater clams. The only live fish observed below R.M. 8.0 were cyprinid fry (approximately 3/4" in length).

During the float trip, four water samples were collected (table). Before the trip, the plastic sample bottles were rinsed with distilled water. At the time of collection each bottle was labeled as to location.

Sample #	River Mile	Location within channel
1	9.2	@ surface, 5' off left bank
2	8.0	@ surface, mid-channel
3	7.5	@ surface, mid-channel
4	9.7	@ surface, 2' off left bank

Mike and Pete returned to the office around 3pm. At this time I coordinated with Ecology personnel (Bob Warren and Bill Young) and we shared observations. I offered the water samples for analysis but they stated that there would be no point in analyzing these samples because they did not know what to analyze for and whatever it was would be gone by this time. We still have these samples but they have not been refrigerated.

At around 3:30 pm I contacted Gene Deschamps, fish biologist for the Chehalis Tribe at Oakville, and informed him of the fish kill and asked

him if he would survey lower Black River to determine the downstream extent of the kill. He said they would begin on Thursday morning. At 2 pm Thursday afternoon Gene reported that the kill extended downstream past the Highway 12 bridge but apparently had not reached the lower Black River bridge (R.M. 1.2) as live fish were observed here. Gene said they would float the stretch between these bridges on Friday, August 11.

The next report I received from Gene came around 6 pm on Saturday, August 12. At this time he reported that they were recovering dead adult chinook from the Chehalis River below the confluence of the Black River. We both thought it important to advise Ecology of this development but could not find Bill Young's home phone number. I gave Gene Ecology's spill hotline number and he was able to make contact through this channel.

During our two surveys we did not attempt any systematic counting of densities of dead bodies as it was apparent to me that such an approach was simply inappropriate for assessing the loss of juvenile fish in this situation for several reasons.

1. Visibility is very poor in the Black River. Aquatic vegetation is extremely heavy and the water is also very dark. Even where the weeds were not too thick, visibility was less than two feet. Every time I reached into a mass of weed growth I found dead fish, usually coho. It soon became apparent that the visible (floating) fish represented the "tip of the iceberg".

2. Extremely heavy brush extends well out from the banks further precluding carcass recovery and visibility.

3. In addition to these problems, the length of time that had elapsed since the kill would render any estimate based on a dead count unusable due to downstream transport and removal by predators. Two of the larger trout (10-12") had what appeared to be bird peck wounds. Birds probably removed most of the smaller fish such as coho fry that were on the surface.

We have evaluated Black River coho production and survival over a number of years and based on these studies could produce an estimate of the coho salmon loss. If a resource damage assessment is called for you may count on our help.

DES:des

cc: Ed Manary
Gene DiDonato
Kahler Martinson
Lloyd Phinney
Tony Floor
Tom Cooney
Dennis Austin
Rich Lincoln
Brian Edie

ATTACHMENT 4

Lab Data Sheets: General Chemistry, Metals, Organics

Black River Fish Kill Sample Inventory
Black River Fish Kill, August 6 - 7, 1989

October 4, 1989

LAB NO. ?	DATE	TIME	COLLECTOR	LOCATION	RIVER	RM	DEPTH	MATRIX	ANALY
FIELD	8/18	505	Bernhardt	GATE	BLACK	7.10	0	W	G
FIELD	8/18	453	Bernhardt	HWY-12	BLACK	4.00	0	W	G
FIELD	8/18	345	Bernhardt	LITTLE ROCK	BLACK	17.00	0	W	G
FIELD	8/18	1125	Kittle	R.M. 11	BLACK	11.00	0	W	G
FIELD	8/18	413	Bernhardt	SICKMAN FORD	CHEHALIS	44.00	0	W	G
FIELD	8/18	522	Bernhardt	200 YDS ABOVE RR	BLACK	9.30	0	W	G
FIELD	8/18	1210	Kittle	R.M. 9.35	BLACK	7.80	0	W	G
FIELD	8/18	1020	Kittle	R.M. 13	BLACK	13.00	0	W	G
337093	8/11	1545	Pickett	GLOWELL	GLOBAL		0	W	GF
337094	8/11	1600	Pickett	GLQ POND	GLOBAL		0	W	GF
337095	8/11	1605	Pickett	GLQ SETT	GLOBAL		0	W	GF
337096	8/11	1610	Pickett	GLQ SEDS	GLOBAL		8	S	GFS
337099	8/15	1300	Pelletier	MONTESANO	CHEHALIS	14.00	0	W	GFOM
337100	8/15	1730	Pelletier	KEYS RD.	CHEHALIS	21.00	0	W	GFOM
337101	8/15	1850	Pelletier	PORTER	CHEHALIS	33.00	0	W	GFOM
337102	8/15	1930	Pelletier	SICKMAN FORD	CHEHALIS	44.00	0	W	GFOM
337104 *	8/9	1100	Fagerness	BIG ROCK	BLACK	7.70	0	W	GFOM
337105	8/12	1000	Warren	CANOE LAUNCH	BLACK	14.20	0	W	GFOM
337116	8/16	1930	Kittle	LITTLE ROCK	BLACK	17.00	0	W	GM
337117	8/16	1845	Kittle	RR Bridge	BLACK	9.20	0	W	GM
337118	8/16	1750	Kittle	Moon Street	BLACK	7.10	0	W	GM
337119	8/16	1630	Kittle	Little Rock	BLACK	17.00	0	W	GM
337121	8/16	1830	Pickett	Channel	GLOBAL		0	W	G
337122	8/16	1500	Pickett	Settling Pond	GLOBAL		0	W	G
337124	8/17	1330	Yake	RM9.8 (BR-1B)	BLACK	9.80	8	W	G
337125	8/17	1340	Yake	RM9.8 (BR-1S)	BLACK	9.80	0	W	G
337126	8/17	1415	Yake	RM 9.3 (BR-2B)	BLACK	9.30	8	W	G
337127	8/17	1425	Yake	RM9.3 (BR-2S)	BLACK	9.30	0	W	G
337128	8/17	1530	Yake	BIG ROCK (BR-3S)	BLACK	7.70	0	W	G
347153	8/18	1725	Pickett	SWKSLU01	SWECKER		0	W	G
347154	8/18	1430	Pickett	RCHSLU02	ROCK SL.		0	W	G
347155	8/18	1520	Pickett	CRLWELL	CARLSON		0	W	G
347156	8/18	1530	Pickett	CRLEFF01	CARLSON		0	W	G
347157	8/18	1715	Pickett	SWKSED	SWECKER		8	S	GOM
347158	8/18	1415	Pickett	SSFSED01	Steelham		8	S	GOM
347159	8/17	1445	Pickett	RCHSLU01	Steelham		0	W	G
347160	8/18	755	Kittle	Little Rock	BLACK	17.00	0	W	G
347161	8/18	820	Kittle	R.M. 15.3	BLACK	15.30	0	W	G
347162	8/18	1020	Kittle	R.M. 13	BLACK	13.00	0	W	G
347163	8/18	1125	Kittle	R.M. 11	BLACK	11.00	0	W	G
347164	8/18	1210	Kittle	R.M. 9.35	BLACK	9.30	0	W	G
347165	8/18	1305	Kittle	Moon Street	BLACK	7.10	0	W	G
347166	8/21	945	Pickett	SWKBLR-01	ROCK. SL.	9.60	0	W	GM
347167 *	8/9		WDF	WDF-01	BLACK	9.20	0	W	GM
347168 *	8/9		WDF	WDF-02	BLACK	8.00	0	W	GM
347169 *	8/9		WDF	WDF-03	BLACK	7.50	0	W	GM
347170 *	8/9		WDF	WDF-04	BLACK	9.70	0	W	GM
348000	8/18	755	Kittle	Little Rock	BLACK	17.00	8	S	OM
348001	8/18	820	Kittle	RM 15.3	BLACK	15.30	8	S	OM
348002	8/18	1020	Kittle	RM 13.0	BLACK	13.00	8	S	OM

?/* = Sample results questionable due to no preservation.

G = General Chemistry M = Metals O = Organics S = Sulfate

Matrix: W = Water S = Sediment Depth: B = Bottom

Black River Fish Kill Sample Inventory
Black River Fish Kill, August 6 - 7, 1989

October 4, 1989

LAB NO. ?	DATE	TIME	COLLECTOR	LOCATION	RIVER	RM	DEPTH	MATRIX	ANALY
348003	8/18	1125	Kittle	RM 11.0	BLACK	11.00	B	S	OM
348004	8/18	1305	Kittle	Moon Street	BLACK	7.10	B	S	OM

F = Formaldehyde Analysis

.....
?/* = Sample results questionable due to no preservation.
G = General Chemistry M = Metals O = Organics S = Sulfate
Matrix: W = Water S = Sediment Depth: B = Bottom

WASHINGTON STATE DEPARTMENT OF ECOLOGY
ENVIRONMENTAL INVESTIGATIONS AND LABORATORY SERVICES
MANCHESTER LABORATORY

M E M O R A N D U M

TO: Steve Hunter
FROM: Despina Strong *DS*
SUBJECT: Chehalis River / Total Phosphate BOD data
DATE: August 30, 1989

The total phosphate analysis is now completed. The results can be found on the enclosed final update of the Chehalis River report.

The BOD analysis was requested on only two samples, 337021 and 337066. The BOD values for the above two samples are 6400 mg/L and 3 mg/L respectively.

Let me know if any additional information is needed from General Chemistry.

DS:db

SAMPLE	SAMPLE	pH	CONDUCTANCE	ALKALINITY	HARDNESS	CHL	TOC	OP04	NH3	NO2/NO3	TOTAL P	CHLORIDE	SULFATE	CYANIDE	TURBIDITY	PHENOL	TSI
ORIGIN	ID#	std units	uohm/cm	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	NTU	ug/l	mg/l
PAUL PICKETT/ BLACK RIVER	337153	6.7	135	-	51	10.3	2.96	-	0.29	3.00	0.26	-	-	-	-	-	-
	337154	HC	HC	HC	HC	12.3	2.39	-	0.1	0.19	0.52	-	-	-	-	-	-
	337155	6.6	120	-	45	17.0	2.15	-	-	-	-	-	-	-	-	-	-
	337156	6.7	119	-	46	0.60	1.27	-	0.43	2.09	0.16	-	-	-	-	-	-
	337159	6.5	114	-	42	40.2	6.66	-	-	-	-	-	-	-	-	-	-
CAVE HALLOCK/ CHEHALIS RIVER	337160	6.8	90	-	-	20.6	4.21	0.02	0.02	0.61 U	0.06	-	-	-	-	-	-
	337161	6.7	95	-	-	13.5	2.31	0.02	0.03	0.41	0.06	-	-	-	-	-	-
	337162	6.9	95	-	-	17.6	3.97	0.01 U	0.0 U	0.62	0.05	-	-	-	-	-	-
	337163	7.0	97	-	-	15.0	3.00	0.02	0.0 U	0.29	0.00	-	-	-	-	-	-
	337164	7.1	110	-	-	19.7	2.90	0.04	0.04	0.52	0.19	-	-	-	-	-	-
	337165	7.1	110	-	-	23.3	3.06	0.05	0.02	0.44	0.15	-	-	-	-	-	-
PAUL PICKETT/	337166	7.0	110	-	40	20.9	0.00	-	0.02	0.30	0.12	-	-	-	-	2 U	4
BILL YOUNG/ CHEHALIS	337167	6.6	117	-	-	17.5	4.62	-	0.01 U	2.01	0.25	-	-	-	1.7	-	-
	337168	6.3	114	-	-	11.0	3.94	-	0.32	1.17	0.15	-	-	-	0.6	-	-
	337169	6.3	113	-	-	13.0	4.11	-	0.01	1.30	0.18	-	-	-	0.4	-	-
	337170	7.0	112	-	-	12.7	3.07	-	0.01 U	1.06	0.13	-	-	-	1.2	-	-

s: Sediment (7.1 % solids)

* n.a.: No Analysis Requested

NA: Not analyzed; analysis not completed due to instrument problem

J: Estimated value

U: Compound analyzed but not detected

HC: No Container provided for this analysis

GENERAL CHEMISTRY RESULTS : CHEMALS AND BLACK RIVER FISH KILL PROJECT

Page 1 of 2

SAMPLE ORIGIN	SAMPLE ID#	pH std units	CONDUCTANCE uohms/cm	ALKALINITY mg/l	HARDNESS mg/l	COD mg/l	TOC mg/l	CPH4 mg/l	NO3 mg/l	NO2/NO3 mg/l	TOTAL P mg/l	CHLORIDE mg/l	SULFATE mg/l	CYANIDE mg/l	TURBIDITY NTL	PHOSPH. ug/l	TSS mg/l
PAUL PICKETT/ GLOBAL AQUA	337093	8.0	0	-	-	-	5.16	-	-	-	-	6.48	-	-	-	-	-
	337094	6.9	-	-	-	-	351	-	-	-	-	519	-	-	-	-	-
	337095	7.0	-	-	-	-	61.9	-	-	-	-	86.1	-	-	-	-	-
	337096	6.6	-	-	-	-	8	-	-	-	-	73.5	0.47	-	-	-	-
BILL YOUNG/ BLACK RIVER	337099	7.1	290	-	50	-	3.00	0.01 U	0.01 U	0.03	0.05	-	-	0.02 U	-	-	-
	337100	7.3	123	-	30	-	6.00	0.01 U	0.01 U	0.03	0.07	-	-	0.02 U	-	-	-
	337101	7.5	120	-	30	-	3.57	0.01 U	0.03 J	0.23	0.07	-	-	0.02 U	-	-	-
	337102	7.5	124	-	40	-	2.61	0.02	0.01 U	0.33	0.00	-	-	0.02 U	-	-	-
	337104	7.3	116	-	61	-	23.8	-	0.06	0.35	0.19	6.81	-	-	-	-	-
	337105	6.8	96	-	37	-	7.10	-	0.01 U	0.01 U	0.04	4.26	-	-	-	-	-
LEW KITTLE/ BLACK RIVER	337116	8.2	126	-	53	-	-	-	-	-	-	-	-	-	-	-	-
	337117	7.3	115	-	50	-	-	-	-	-	-	-	-	-	-	-	-
	337118	7.3	121	-	43	-	-	-	-	-	-	-	-	-	-	-	-
	337119	6.8	124	-	46	-	-	-	-	-	-	-	-	-	-	-	-
PAUL PICKETT/ BLACK RIVER	337121	7.3	5540	-	-	11,000	2190	-	703	0.06	NA1	-	-	-	-	-	-
	337122	6.7	635	-	-	220	34.2	-	12.3	0.01	0.66	-	-	-	-	-	-
BILL YACE/ BLACK RIVER	337124	6.8	117	48	-	15.1	-	-	0.37	0.35	0.18	-	-	-	-	-	-
	337125	7.4	112	44	-	16.0	-	-	0.01	0.51	0.11	-	-	-	-	-	-
	337126	6.9	124	45	-	15.4	-	-	0.12	0.73	0.13	-	-	-	-	-	-
	337127	7.0	111	44	-	13.4	-	-	0.09	0.70	0.11	-	-	-	-	-	-
	337128	7.2	121	44	-	15.4	-	-	0.05	0.70	0.00	-	-	-	-	-	-

WASHINGTON STATE DEPARTMENT OF ECOLOGY
ENVIRONMENTAL INVESTIGATIONS AND LABORATORY SERVICES
MANCHESTER LABORATORY

M E M O R A N D U M

TO: Dickey Hunter
FROM: Steve Twiss *ST*
SUBJECT: Black River/Chehalis River Fish Kill Sample Results
DATE: August 17, 1989

Samples from the Black and Chehalis Rivers numbered 337099, 337100, 337101, 337102, 337104 and 337105 were received by the Manchester Laboratory on August 16, 1989. Samples numbered 337116, 337117, 337118 and 337119 were received on August 17, 1989. These samples were analyzed by ICP on an "as is" (not digested) basis. All the metals on the priority pollutant list were not detected in these samples with the exceptions of thallium and mercury. Mercury was not analyzed for and the levels of thallium were at or near the instrumental detection limit. The thallium levels are therefore not significant.

Other analytes, that were not requested, were detected in the samples. The following list gives the analytes detected and the range of concentrations found.

<u>Analyte</u>	<u>Range of Results (in ppb)</u>	<u>Method Reporting Limit (in ppb)</u>
Aluminum	Not Detected-102	25
Barium	3-5	1
Calcium	8,870-10,990	1
Iron	62-253	5
Potassium	Not Detected-3,200	500
Magnesium	3,440-7,380	1
Manganese	Not Detected-33	1
Sodium	4,760-43,400	15
Strontium	Not Detected-66	1
Vanadium	Not Detected-6.5	2
Silica	8,560-11,700	10

It is felt that these levels are not significant in relation to the fish kill on the Black/Chehalis River system.

ST:mb

Final Report
Laboratory Analysis of Selected Parameters
Formaldehyde / MBTH Spectrophotometric



ANALYTICAL
RESOURCES
INCORPORATED

Matrix: Waters

Project No: Global Aqua/Black River
Chehalis River

Analytical
Chemists &
Consultants

Data Release Authorized: *MRP*
Prepared 08/17/89 - MAC:B

QC Report No: 3463 - WDOE
TSR: 08/15/89 & 08/16/89

333 Ninth Ave. North
Seattle, WA 98109-5187
(206) 621-6490
(206) 621-7523 (FAX)

Sample Data:

Lab ID	Client Sample NO	Formaldehyde	
		Distilled (mg/L)	w/o Distill (mg/L)
GLQWELL 3463 A	337093	<0.05	-
GLQACE 3463 B	337094	<0.05	-
POND 3463 C	337095	0.10	-
GLQSETT 3463 D	327096	12.74	-
GLQSEDS 3463 E	337104	<0.10	<0.10
	3463 F	337105	<0.10
	3463 G	337099	<0.10
	3463 H	337100	<0.10
	3463 I	337101	<0.10
	3463 J	337102	<0.10

Method Blank Analysis:

	Distilled (mg/L)
Method Blank 1	<0.10
Method Blank 2	<0.10
Method Detection Limit (MDL):	0.10

Check Standard: (Calculated Amount)
Standard Value

	Distilled (mg/L)	w/o Distill (mg/L)
	0.14	0.09
	0.11	0.11

Duplicate Analysis:

	Distilled (mg/L)		Distilled (mg/L)
3463C	0.10	3463H	<0.10
3463CDUP	0.10	3463HDUP	<0.10
RPD	0.0%	RPD	-

Spike Analysis:

	Distilled (mg/L)	(ANALYTICAL) (mg/L)
3463C	0.10	0.10
3463CSPK	0.24	0.51
Spike Amount:	0.99	0.44
%Rec	14.1%	93.2%

Spike Analysis:

	Distilled (mg/L)
3463J	<0.10
3463JSPK	0.47
Spike Amount:	0.99
%Rec	47.5%

WASHINGTON STATE DEPARTMENT OF ECOLOGY
ENVIRONMENTAL INVESTIGATIONS AND LABORATORY SERVICES
MANCHESTER LABORATORY

M E M O R A N D U M

To: Steve Hunter
From: Dick Hunsaker *OH*
Subject: Analysis Results for Black River/Chehalis River
Fish Kill.
Date: August 24, 1989

Samples from the Black and Chehalis Rivers collected on August 15, 1989 were received at the Manchester Environmental Laboratory on August 16, 1989 for analysis of acid/base-neutral organics, Volatile Organics (VOA), pesticides/PCB's, organo-phosphorous pesticides and herbicides.

Attached are the organic analysis results. All of the organic analysis has been completed and preliminary results were reported by phone and in my August 18th memo. Only the Volatile Organic Analysis (VOA) has yet to be reviewed and verified but no significant levels of compounds were detected.

Results for General Chemistry and Metals are discussed in the separate memorandum.

CC
Bill Yake

=> Transaction #: 08220811 Laboratory: (WE) Ecology, Manchester Lab
Work Group: (71) Pest/PCB - PP Scan
Instrument: (GCT-EC) Tracor GC 222 No.1, Ni-63 EC Detecto
Method: (EP2-608) GC Ext Scan
Chemist: (RKC) Cummings, Randy ESD Hours Worked:

Project: EDE-222A BLACK/CHEHALIS RIVER FISH KILL Prj Ele#: C32B5
Prj Off: Young, Bill DOE Analysis Due: 890816 Revised Due:

*** Sample Records in Transaction ***

Seq#	Sample #	QA	Date/Time	Description	Alternate Keys
01	89337099		890815	STA 1	
02	89337100		890815	STA 2	
03	89337101		890815	STA 5	
04	89337102		890815	STA 6	
05	89337099	LBK1	890815	STA 1	

Record Type: TRNIN3 Date Verified: 8-22-89 By: P. J. [Signature]
Transaction Status: New Transaction...First Printing...Unverified.
Processed: 22-AUG-89 08:19:58 Status: N Batch: (In CUR DB)

Transaction #: 08220811 Seq #: 01 (71) Pest/PCB - PF Scan
 Proj Code : DOE-222A BLACK/CHENALIS RIVER FISH KILL PB #: C3285

Sample No.: 89 337099

Alternate Keys:

Sample Matrix: (10) Water-Total Units: (11) ug/l %Sids:
 JA Code: () Unspecified Peaks Total:
 Date Extracted: 890816 Date Analyzed: 890816 # Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/l	0.004U
2	47749	Chlordane	ug/l	0.04U
3	60571	Dieldrin	ug/l	0.007U
4	50293	4,4'-DDT	ug/l	0.007U
5	72559	4,4'-DDE	ug/l	0.007U
6	72548	4,4'-DDD	ug/l	0.007U
7	959988	alpha-Endosulfan	ug/l	0.007U
8	33213659	beta-Endosulfan	ug/l	0.007U
9	1031078	Endosulfan sulfate	ug/l	0.007U
10	72208	Endrin	ug/l	0.007U
11	7421934	Endrin aldehyde	ug/l	0.007U
12	76448	Heptachlor	ug/l	0.004U
13	1024573	Heptachlor epoxide	ug/l	0.004U
14	319846	alpha-BHC	ug/l	0.004U
15	319857	beta-BHC	ug/l	0.004U
16	58899	gamma-BHC (Lindane)	ug/l	0.004U
17	319868	delta-BHC	ug/l	0.004U
18	8001352	Toxaphene	ug/l	0.3U
19	12674112	PCB - 1016	ug/l	0.05U
20	11104282	PCB - 1221	ug/l	0.05U
21	11141165	PCB - 1232	ug/l	0.05U
22	53469219	PCB - 1242	ug/l	0.05U
23	12672296	PCB - 1248	ug/l	0.05U
24	11097691	PCB - 1254	ug/l	0.05U
25	11096825	PCB - 1260	ug/l	0.05U
26	72435	Methoxychlor	ug/l	0.008U
27	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	84 (I.S.) PR
28	-200045	IntStd: Hexabromobenzene	% Recov	100 (I.S.) PR

Transaction #: 08220811 Seq #: 02 (71) Pct/PCB - PP Scan
 Proj Code: DOE-222A BLACK/CHEHALIS RIVER FISH KILL PG # 1 C3285

Sample No.: 89 337100 Alternate Keys:

Sample Matrix: (10) Water-Total Units: (11) ug/l
 QA Code: () Unspecified Peaks Total: 62
 Date Extracted: 890816 Date Analyzed: 890818 # Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value	std:
1	309002	Aldrin	ug/l	0.004U	
2	57749	Chlordane	ug/l	0.04U	
3	60571	Dieldrin	ug/l	0.007U	
4	50293	4,4'-DDT	ug/l	0.007U	
5	72559	4,4'-DDT	ug/l	0.007U	
6	72548	4,4'-DDD	ug/l	0.007U	
7	959988	alpha-Endosulfan	ug/l	0.007U	
8	33213659	beta-Endosulfan	ug/l	0.007U	
9	1031078	Endosulfan sulfate	ug/l	0.007U	
10	72208	Endrin	ug/l	0.007U	
11	7421934	Endrin aldehyde	ug/l	0.007U	
12	76448	Heptachlor	ug/l	0.004U	
13	1024573	Heptachlor epoxide	ug/l	0.004U	
14	119846	alpha-BHC	ug/l	0.004U	
15	319857	beta-BHC	ug/l	0.004U	
16	58899	gamma-BHC (Lindane)	ug/l	0.004U	
17	319868	delta-BHC	ug/l	0.004U	
18	8001352	Toxaphene	ug/l	0.3U	
19	12674112	PCB - 1016	ug/l	0.05U	
20	11104282	PCB - 1221	ug/l	0.05U	
21	11141165	PCB - 1232	ug/l	0.05U	
22	53469219	PCB - 1242	ug/l	0.05U	
23	12672296	PCB - 1248	ug/l	0.05U	
24	11097691	PCB - 1254	ug/l	0.05U	
25	11096825	PCB - 1260	ug/l	0.05U	
26	72435	Methoxychlor	ug/l	0.008U	
27	-10386842	Instcd: 4,4-Dibromooctatluor	# Recov	62	(I.S.) PR
28	-200045	Instcd: Hexabromobenzene	# Recov	110	(I.S.) PR

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Transaction #: 08220811 Seq #: 03 (71) Pest/PCB - PF Scan
Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337101

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

#Slits:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890818

Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/l	0.004U
2	57749	Chlordane	ug/l	0.04U
3	60571	Dieldrin	ug/l	0.007U
4	50293	4,4'-DDT	ug/l	0.007U
5	72559	4,4'-DDE	ug/l	0.007U
6	72548	4,4'-DDD	ug/l	0.007U
7	33213659	beta-Endosulfan	ug/l	0.007U
8	1031078	Endosulfan sulfate	ug/l	0.007U
9	72208	Endrin	ug/l	0.007U
10	7421934	Endrin aldehyde	ug/l	0.007U
11	76448	Heptachlor	ug/l	0.004U
12	1024573	Heptachlor epoxide	ug/l	0.004U
13	319846	alpha-BHC	ug/l	0.004U
14	319857	beta-BHC	ug/l	0.004U
15	58899	gamma-BHC (Lindane)	ug/l	0.004U
16	319868	delta-BHC	ug/l	0.004U
17	8001352	Toxaphene	ug/l	0.3U
18	12674112	PCB - 1016	ug/l	0.05U
19	11104282	PCB - 1221	ug/l	0.05U
20	11141165	PCB - 1232	ug/l	0.05U
21	53469219	PCB - 1242	ug/l	0.05U
22	12672296	PCB - 1248	ug/l	0.05U
23	11097691	PCB - 1254	ug/l	0.05U
24	11096825	PCB - 1260	ug/l	0.05U
25	72435	Methoxychlor	ug/l	0.08U
26	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	66 (I.S.) PR
27	-200045	IntStd: Hexabromobenzene	% Recov	110 (I.S.) PR
28				

Transaction #: 08220811 Seq #: 04 (71) Pest/PCB - PP Scan
 Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337102

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (1) ug/l

tSlds:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value	
1	309002	Aldrin	ug/l	0.004U	
2	57749	Chlordane	ug/l	0.04U	
3	60571	Dieldrin	ug/l	0.007U	
4	50293	4,4'-DDT	ug/l	0.007U	
5	72559	4,4'-DDE	ug/l	0.007U	
6	72548	4,4'-DDD	ug/l	0.007U	
7	959988	alpha-Endosulfan	ug/l	0.007U	
8	33213659	beta-Endosulfan	ug/l	0.007U	
9	1031078	Endosulfan sulfate	ug/l	0.007U	
10	72208	Endrin	ug/l	0.007U	
11	7421934	Endrin aldehyde	ug/l	0.007U	
12	76448	Heptachlor	ug/l	0.004U	
13	1024573	Heptachlor epoxide	ug/l	0.004U	
14	319846	alpha-BHC	ug/l	0.004U	
15	319857	beta-BHC	ug/l	0.004U	
16	58899	gamma-BHC (Lindane)	ug/l	0.004U	
17	319868	delta-BHC	ug/l	0.004U	
18	8001352	Toxaphene	ug/l	0.3U	
19	12674112	PCB - 1016	ug/l	0.05U	
20	11104282	PCB - 1221	ug/l	0.05U	
21	11141165	PCB - 1232	ug/l	0.05U	
22	53469219	PCB - 1242	ug/l	0.05U	
23	12672296	PCB - 1248	ug/l	0.05U	
24	11097691	PCB - 1254	ug/l	0.05U	
25	11096825	PCB - 1260	ug/l	0.05U	
26	72435	Methoxychlor	ug/l	0.008U	
27	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	45	(I.S.) PR
28	-200045	IntStd: Hexabromobenzene	% Recov	110	(I.S.) PR

Transaction #: 08220811 Seq #: 05 (71) Pest/PCB - PP Scan
 Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Blank ID : LSK 9228
 Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total Units: (11) ug/l %Slide:
 QA Code: (LSK1) Lab Blank Sample #1 Peaks Total:
 Date Extracted: 890816 Date Analyzed: 890816 # Days to Ext/Anal: 1/ 2

Line	Pat #	Parameter Description	Value
1	309002	Aldrin	0.01U
2	57749	Chlordane	0.10U
3	60571	Dieldrin	0.01U
4	50293	4,4'-DDT	ug/l 0.02U
5	72559	4,4'-DDE	ug/l 0.02U
6	72548	4,4'-DDD	ug/l 0.02U
7	959988	alpha-Endosulfan	ug/l 0.02U
8	33213659	beta-Endosulfan	ug/l 0.02U
9	1031078	Endosulfan sulfate	ug/l 0.02U
10	72208	Endrin	ug/l 0.02U
11	7421934	Endrin aldehyde	ug/l 0.02U
12	76448	Heptachlor	ug/l 0.01U
13	1024573	Heptachlor epoxide	ug/l 0.01U
14	319846	alpha-BHC	ug/l 0.01U
15	319857	beta-BHC	ug/l 0.01U
16	58899	gamma-BHC (Lindane)	ug/l 0.01U
17	319868	delta-BHC	ug/l 0.01U
18	8001352	Toxaphene	ug/l 0.7U
19	12674112	PCB - 1016	ug/l 0.13U
20	11104282	PCB - 1221	ug/l 0.13U
21	11141165	PCB - 1232	ug/l 0.13U
22	53469219	PCB - 1242	ug/l 0.13U
23	12672296	PCB - 1248	ug/l 0.13U
24	11097691	PCB - 1254	ug/l 0.13U
25	11096825	PCB - 1260	ug/l 0.13U
26	72435	Methoxychlor	ug/l 0.02U
27	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov 68 (I.S.) PR
28	-200045	IntStd: Hexabromobenzene	% Recov 110 (I.S.) PR

--> Transaction #: 08220829 Laboratory: (WE) Ecology, Manchester Lab
Work Group: (73) Herbicide Scan
Instrument: (GCT-EC) Tracor GC 222 No.1, N1-63 EC Detector
Method: (EP2-608) GC Ext Scan
Chemist: (RKC) Cummings, Randy ESD Hours Worked:
Project: DOE-222A BLACK/CHWALIS RIVER FISH KILL Prj Ele#: C32B5
Prj Off: Young, Bill DOE Analysis Due: 890816 Revised Due:

*** Sample Records in Transaction ***

Seq#	Sample #	QA	Date/Time	Description	Alternate Keys
01	89337099		890815	STA 1	
02	89337100		890815	STA 2	
03	89337101		890815	STA 5	
04	89337102		890815	STA 6	
05	89337099	LBK1	890815	STA 1	

Record Type: TRNIN3 Date Verified: 8-22-89 By: *[Signature]*
Transaction Status: New Transaction...First Printing...Unverified.
Processed: 22-AUG-89 08:35:36 Status: N Batch: (In CUR DB)

Transaction #: 08220829 Seq #: 01 (73) Herbicide Scan
 Proj Code : DOE-222A BLACK/CHWALIS RIVER FISH KILL

PE # : C3285

Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l %stds:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890817

Days to Ext/Anal: 1/ 1

Line	Par #	Parameter Description	Units	Value
1	94757	2,4-D	ug/l	.01U
2	94826	2,4-DB	ug/l	.04U
3	93765	2,4,5-T	ug/l	.005U
4	93801	2,4,5-TB	ug/l	.005U
5	93721	2,4,5-TP (Silvex)	ug/l	.005U
6	94746	MCPA	ug/l	0.5U
7	93652	MCPB	ug/l	0.5U
8	94815	MCPB	ug/l	0.5U
9	87865	Pentachlorophenol	ug/l	.005U
10	4901513	2,3,4,5-Tetrachlorophenol	ug/l	.005U
11	1918009	Dicamba	ug/l	.005U
12	1689845	Bromoxynil	ug/l	.005U
13	1689834	Ioxynil	ug/l	.005U
14	88857	Dinoseb	ug/l	.005U
15	1918021	Picloram	ug/l	.005U
16	-118766	IntStd: 2,4,6-Tribromophenol % Recov		95 (I.S.) PR

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Transaction #: 08220829 Seq #: 02 (73) Herbicide Scan
Proj Code : DOE-222A BL/ CHEHALIS RIVER FISH KILL

PE #: C32B5

Sample No.: 89 337100

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

%Sds:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890817

Days to Ext/Anal: 1/ 1

Line	Par #	Parameter Description	Units	Value
1	94757	2,4-D	ug/l	.01U
2	94826	2,4-DB	ug/l	.04U
3	93765	2,4,5-T	ug/l	.005U
4	93801	2,4,5-TB	ug/l	.005U
5	93721	2,4,5-TP (Silvex)	ug/l	.005U
6	94746	MCPA	ug/l	0.5U
7	93652	MCPB	ug/l	0.5U
8	94815	MCPB	ug/l	0.5U
9	87865	Pentachlorophenol	ug/l	.009
10	4901513	2,3,4,5-Tetrachlorophenol	ug/l	.00
11	1918009	Dicamba	ug/l	.005U
12	1689845	Bromoxynil	ug/l	.005U
13	1689834	Ioxynil	ug/l	.005U
14	88857	Dinoseb	ug/l	.005U
15	1918021	Picloram	ug/l	.005U
16	-118766	Intstd: 2,4,6-Tribromophenol	% Recov	100 (I.S.) PR

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Transaction #: 08220829 Seq #: 03 (73) Herbicide Scan
Proj Code : DOE-222A BLACK/CHWALIS RIVER FISH KILL

PE # : C32B5

Sample No.: 89 337101

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

%Slde:

JA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890817

Days to Ext/Anal: 1/ 1

Line	Par #	Parameter Description	Units	Value
1	94757	2,4-D	ug/l	.01U
2	94826	2,4-DB	ug/l	.04U
3	93765	2,4,5-T	ug/l	.005U
4	93801	2,4,5-TB	ug/l	.005U
5	93721	2,4,5-TF (Silvex)	ug/l	.005U
6	94746	MCPA	ug/l	0.5U
7	93652	MCPB	ug/l	0.5U
8	94815	MCPB	ug/l	0.5U
9	87865	Pentachlorophenol	ug/l	.05U
10	4901513	2,3,4,5-Tetrachlorophenol	ug/l	.05U
11	1918009	Dicamba	ug/l	.05U
12	1689845	Bromoxynil	ug/l	.05U
13	1689834	Toxynil	ug/l	.05U
14	88857	Dinoseb	ug/l	.005U
15	1918021	Picloram	ug/l	.005U
16	-118766	IntStd: 2,4,6-Tribromophenol % Recov		105 (I.S.) FR

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*** Lab Analysis Report ***

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Transaction #: 08220829 Seq #: 04 (73) Herbicide Scan
Proj Code: DOE-222A BLACK/CHEHALIS RIVER FISH KILL

PE #: C32B5

Sample No.: 89 337102

Alternate Keys:

Sample Matrix: (10) Water-Total

Units: (11) ug/l

#Slits:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890817

Days to Ext/Anal:

1/ 1

Line	Par #	Parameter Description	Units	Value
1	94757	2,4-D	ug/l	.01U
2	94826	2,4-DB	ug/l	.04U
3	93765	2,4,5-T	ug/l	.005U
4	93801	2,4,5-TB	ug/l	.005U
5	93721	2,4,5-TP (Silvex)	ug/l	.005U
6	94746	MCPA	ug/l	0.5U
7	93652	MCPP	ug/l	0.5U
8	94815	MCPB	ug/l	0.5U
9	87865	Pentachlorophenol	ug/l	.005U
10	4901513	2,3,4,5-Tetrachlorophenol	ug/l	.005U
11	1918009	Dicamba	ug/l	.005U
12	1689845	Bromoxynil	ug/l	.005U
13	1689834	loxynil	ug/l	.005U
14	88857	Dinoseb	ug/l	.005U
15	1918021	Picloram	ug/l	.005U
16	-118766	IntStd: 2,4,6-Tribromophenol	% Recov	113 (I.S.) PR

Transaction #: 08220829 Seq #: 05 (73) Herbicide Scan
Proj Code: DOE-222A BLACK/CHWALIS RIVER FISH KILL

PE #: C3285

Blank ID: BW 9228H
Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total Units: (11) ug/l %Sids:
QA Code: (LBN1) Lab Blank Sample #1 Peaks Total:
Date Extracted: 890816 Date Analysed: 890817 # Days to Ext/Anal: 1/ 1

Line	Par #	Parameter Description	Units	Value
1	94757	2,4-D	ug/l	.02U
2	94826	2,4-DB	ug/l	.08U
3	93765	2,4,5-T	ug/l	.01U
4	93801	2,4,5-TB	ug/l	.01U
5	93721	2,4,5-TP (Silvex)	ug/l	.01U
6	94746	MCPA	ug/l	1U
7	93652	MCPB	ug/l	1U
8	94815	MCPB	ug/l	1U
9	87865	Pentachlorophenol	ug/l	.01U
10	4901513	2,3,4,5-Tetrachlorophenol	ug/l	.01U
11	1918009	Dicamba	ug/l	.01U
12	1689845	Bromoxynil	ug/l	.01U
13	1689834	Toxynil	ug/l	.01U
14	AAAA57	Dinoseb	ug/l	.01U
15	1918021	Picloram	ug/l	.01U
16	-118766	IntStd: 2,4,6-Tribromophenol % Recov		85 (I.S.) PR

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*** Lab Analysis Report ***

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--> Transaction #: 08220801 Laboratory: (WE) Ecology, Manchester Lab
Work Group: (77) Pesticide - Organophosphate
Instrument: (GCT-EC) Tracor GC 222 No.1, Ni-63 EC Detector
Method: (EP2-608) GC Ext Scan
Chemist: (RHR) Rieck, Bob ESD Hours Worked:
Project: DOE-222A BLACK/CHERHALIS RIVER FISH KILL Prj Ele#: C32B5
Prj Off: Young, Bill DOE Analysis Due: 890816 Revised Due:

*** Sample Records in Transaction ***

Seq#	Sample #	QA	Date/Time	Description	Alternate Keys
01	89337099		890815	STA 1	
02	89337100		890815	STA 2	
03	89337101		890815	STA 5	
04	89337102		890815	STA 6	
05	89337099	LBN1	890815	STA 1	

Record Type: TRNIN3 Date Verified: 8-22-89 By: *[Signature]*
Transaction Status: New Transaction...First Printing...Unverified.
Processed: 22-AUG-89 08:08:16 Status: N Batch: (in CUR DB)

Transaction #: 08220801 Seq #: 01 (77) Pesticide - Organophosphate
 Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

ISLds:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value
1	86500	Azinphos (Guthion)	ug/l	0.02U
2	700100	Acetamethophos	ug/l	0.02U
3	56724	Coumaphos	ug/l	0.02U
4	78488	DEF	ug/l	0.02U
5	333415	Diazinon	ug/l	0.02U
6	62737	Dichlorvos (DDVP)	ug/l	0.02U
7	60515	Dimethoate	ug/l	0.02U
8	78342	Dioxathion	ug/l	0.02U
9	298044	Disulfoton (Di-syston)	ug/l	0.02U
10	2104645	EPM	ug/l	0.02U
11	563122	Ethion	ug/l	0.02U
12	2642719	Ethyl Azinphos (Ethyl Guthio	ug/l	0.02U
13	55389	Fenthion	ug/l	0.02U
14	150505	Folex	ug/l	0.02U
15	732116	Imidan	ug/l	0.02U
16	121755	Malathion	ug/l	0.02U
17	298000	Methyl Parathion	ug/l	0.02U
18	7786347	Mevinphos	ug/l	0.02U
19	6923224	Monocrotophos	ug/l	0.02U
20	56382	Parathion	ug/l	0.02U
21	2275141	Phencapton	ug/l	0.02U
22	298022	Phorate	ug/l	0.02U
23	299843	Ronnel	ug/l	0.02U
24	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	ND? (I.S.) PR
25	-200045	IntStd: Hexabromobenzene	% Recov	ND? (I.S.) PR

Transaction #: 08220801 Seq #: 02 (77) Pesticide - Organophosphate
 Proj Code : DOE-222A BLACK/CHERHALIS RIVER FISH KILL PE # : C3285

Sample No.: 89 337100

Alternate Keys:

Sample Matrix: (10) Water-Total

Units: (11) ug/l

Voids:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analysed: 890816

Days to Ext/Anal: 1/ 2

Line	Pat #	Parameter Description	Units	Value
1	86500	Asinphos (Guthion)	ug/l	0.02U
2	786196	Carbophenothion	ug/l	0.02U
3	56724	Coumaphos	ug/l	0.02U
4	78488	DEF	ug/l	0.02U
5	333415	Diazinon	ug/l	0.02U
6	62737	Dichlorvos (DDVP)	ug/l	0.02U
7	60515	Dimethoate	ug/l	0.02U
8	78342	Dioxathion	ug/l	0.02U
9	298044	Disulfoton (Di-Syston)	ug/l	0.02U
10	2104645	EPN	ug/l	0.02U
11	563122	Ethion	ug/l	0.02U
12	2642719	Ethyl Asinphos (Ethyl Guthio	ug/l	0.02U
13	55389	Fenthion	ug/l	0.02U
14	150505	Folex	ug/l	0.02U
15	732116	Imidan	ug/l	0.02U
16	121755	Malathion	ug/l	0.02U
17	298000	Methyl Parathion	ug/l	0.02U
18	7786347	Mevinphos	ug/l	0.02U
19	6923224	Monocrotophos	ug/l	0.02U
20	56382	Parathion	ug/l	0.02U
21	2275141	Phencapton	ug/l	0.02U
22	298022	Phorate	ug/l	0.02U
23	299843	Ronnel	ug/l	0.02U
24	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	ND? (I.S.) PR
25	-200045	IntStd: Hexabromobenzene	% Recov	ND? (I.S.) PR

Transaction #: 08220801 Seq #: 03 (77) Pesticide - Organophosphate
 Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C3285

Sample No.: 89 337101

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

%Slits:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890818

Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value
1	86500	Asinphos (Guthion)	ug/l	0.02U
2	786196	Carbophenothion	ug/l	0.02U
3	56724	Coumaphos	ug/l	0.02U
4	78488	DEF	ug/l	0.02U
5	333415	Diazinon	ug/l	0.02U
6	62737	Dichlorvos (DDVP)	ug/l	0.02U
7	60515	Dimethoate	ug/l	0.02U
8	78342	Dioxathion	ug/l	0.02U
9	298044	Disulfoton (Di-Syston)	ug/l	0.02U
10	2104645	EPN	ug/l	0.02U
11	563122	Ethion	ug/l	0.02U
12	2642719	Ethyl Asinphos (Ethyl Guthio	ug/l	0.02U
13	55389	Fenthion	ug/l	0.02U
14	150505	Folex	ug/l	0.02U
15	732116	Imidan	ug/l	0.02U
16	121755	Malathion	ug/l	0.02U
17	298000	Methyl Parathion	ug/l	0.02U
18	7786347	Mevinphos	ug/l	0.02U
19	6923224	Monocrotophos	ug/l	0.02U
20	56382	Parathion	ug/l	0.02U
21	2275141	Phencapton	ug/l	0.02U
22	298022	Phorate	ug/l	0.02U
23	299843	Ronnel	ug/l	0.02U
24	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	ND7 (I.S.) PR
25	-200045	IntStd: Hexabromobenzene	% Recov	ND7 (I.S.) PR

Transaction #: 08220801 Seq #: 04 (77) Pesticide - Organophosphate
 Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337102

Alternate Keys:

Samp Matrix: (10) Water-Total Units: (11) ug/l %Slde:
 QA Code: () Unspecified Peaks Total:
 Date Extracted: 890816 Date Analyzed: 890818 # Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value
1	86500	Asinphos (Guthion)	ug/l	0.02U
2	786196	Carbophenothion	ug/l	0.02U
3	56724	Coumaphos	ug/l	0.02U
4	78488	DEF	ug/l	0.02U
5	333415	Diazinon	ug/l	0.02U
6	62737	Dichlorvos (DDVP)	ug/l	0.02U
7	60515	Dimethoate	ug/l	0.02U
8	78342	Dioxathion	ug/l	0.02U
9	298044	Disulfoton (Di-Syston)	ug/l	0.02U
10	2104645	EPM	ug/l	0.02U
11	563122	Ethion	ug/l	0.02U
12	2642719	Ethyl Asinphos (Ethyl Guthio	ug/l	0.02U
13	55389	Fenthion	ug/l	0.02U
14	150505	Folex	ug/l	0.02U
15	732116	Imidan	ug/l	0.02U
16	121755	Malathion	ug/l	0.02U
17	298000	Methyl Parathion	ug/l	0.02U
18	7786347	Mevinphos	ug/l	0.02U
19	6923224	Munocrotophos	ug/l	0.02U
20	56382	Parathion	ug/l	0.02U
21	2275141	Phencapton	ug/l	0.02U
22	298022	Phorate	ug/l	0.02U
23	299843	Ronnel	ug/l	0.02U
24	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	ND? (I.S.) PR
25	-200045	IntStd: Hexabromobenzene	% Recov	ND? (I.S.) PR

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Washington State Department of Ecology
*** Lab Analysis Report ***

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Transaction #: 08220801 Seq #: 05 (77) Pesticide - Organophosphate
Proj Code: DOE-222A BLACK/CHERHALIS RIVER FISH KILL PE #: C3285

Blank ID: BW 9228

Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

ISLds:

QA Code: (LBR1) Lab Blank Sample #1

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 1/ 2

Line	Par #	Parameter Description	Units	Value
1	86500	Azinphos (Guthion)	ug/l	0.05U
2	786196	Carbophenothion	ug/l	0.05U
3	56724	Coumaphos	ug/l	0.05U
4	78488	DDP	ug/l	0.05U
5	333415	Diazinon	ug/l	0.05U
6	62737	Dichlorvos (DDVP)	ug/l	0.05U
7	60515	Dimethoate	ug/l	0.05U
8	78342	Dioxathion	ug/l	0.05U
9	298044	Disulfoton (Di-syston)	ug/l	0.05U
10	2104645	EPN	ug/l	0.05U
11	563122	Ethion	ug/l	0.05U
12	2642719	Ethyl Azinphos (Ethyl Guthio	ug/l	0.05U
13	55389	Fenthion	ug/l	0.05U
14	150505	Folex	ug/l	0.05U
15	732116	Imidan	ug/l	0.05U
16	121755	Malathion	ug/l	0.03U
17	298000	Methyl Parathion	ug/l	0.05U
18	7786347	Mevinphos	ug/l	0.05U
19	6923224	Monocrotophos	ug/l	0.05U
20	56382	Parathion	ug/l	0.05U
21	2275141	Phenacpton	ug/l	0.05U
22	298022	Phorate	ug/l	0.05U
23	299843	Ronnel	ug/l	0.05U
24	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	ND? (I.S.) PR
25	-200045	IntStd: Hexabromobenzene	% Recov	ND? (I.S.) PR

23-AUG-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 1

==> Transaction #: 08219904 Laboratory: (WB) Ecology, Manchester Lab
Work Group: (68) B/N/Acid Scan
Instrument: (GCMS-W1) DOE1 GC/MS INCOS-5100 Capillary Colu
Method: (EP2-625) GC/MS Ext Scan
Chemist: (LAB) Lab (General R/O) Hours Worked: _____
Project: DOE-222A BLACK/CHEHALIS RIVER FISH KILL Prj Ele#: C32B5
Prj Off: Young, Bill DOE Analysis Due: 890816 Revised Due:

*** Sample Records in Transaction ***

Seq#	Sample #	QA	Date/Time	Description	Alternate Keys
01	89337099		890815	STA 1	
02	89337100		890815	STA 2	
03	89337101		890815	STA 5	
04	89337102		890815	STA 6	
05	89337102	LBK1	890815	STA 6	

Record Type: TRNIN3 Date Verified: 8/23/89 By: [Signature]
Transaction Status: Edited Transaction... First Printing... Unverified.
Processed: 23-AUG-89 09:17:11 Status: E Batch: (In CUR DB)

Transaction #: 08219904 Seq #: 01 (68) B/N/Acid Scan
 Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL

PE # : C3285

Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

Isids: —

QA Code: () Unspecified

Peaks Total: —

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 17

0

Line	Par #	Parameter Description	Units	Value
1	108952	Phenol	ug/l	0.8U
2	111444	bis(2-Chloroethyl) Ether	ug/l	0.8U
3	95578	o-Chlorophenol	ug/l	0.8U
4	541731	1,3-Dichlorobenzene	ug/l	0.8U
5	106467	1,4-Dichlorobenzene	ug/l	0.8U
6	100516	Benzyl Alcohol	ug/l	0.8U
7	95501	1,2-Dichlorobenzene	ug/l	0.8U
8	95487	2-Methylphenol	ug/l	0.8U
9	39638329	bis(2-Chloroisopropyl) Ether	ug/l	0.8U
10	106445	4-Methylphenol	ug/l	0.8U
11	621647	N-Nitroso-di-n-Propylamine	ug/l	0.8U
12	67721	Hexachloroethane	ug/l	0.8U
13	98953	Nitrobenzene	ug/l	0.8U
14	78591	Isophorone	ug/l	0.8U
15	88755	2-Nitrophenol	ug/l	0.8U
16	105679	2,4-Dimethylphenol	ug/l	0.8U
17	65850	Benzoic acid	ug/l	4UJ
18	111911	bis(2-Chloroethoxy) Methane	ug/l	0.8U
19	120832	2,4-Dichlorophenol	ug/l	0.8U
20	120821	1,2,4-Trichlorobenzene	ug/l	0.8U
21	91203	Naphthalene	ug/l	0.8U
22	106478	4-Chloroaniline	ug/l	0.8U
23	87683	Hexachlorobutadiene	ug/l	0.8U
24	59507	4-Chloro-3-Methylphenol	ug/l	0.8U
25	91576	2-Methylnaphthalene	ug/l	0.8U
26	90120	Naphthalene, 1-Methyl-	ug/l	0.8U
27	77474	Hexachlorocyclopentadiene	ug/l	2UJ
28	88062	2,4,6-Trichlorophenol	ug/l	0.8U
29	95954	2,4,5-Trichlorophenol	ug/l	4U
30	91587	2-Chloronaphthalene	ug/l	0.8U
31	88744	2-Nitroaniline	ug/l	4U
32	131113	Dimethylphthalate	ug/l	0.8U
33	208968	Acenaphthylene	ug/l	0.8U
34	99092	3-Nitroaniline	ug/l	4UJ
35	83329	Acenaphthene	ug/l	0.8U
36	51285	2,4-Dinitrophenol	ug/l	4UJ
37	100027	4-Nitrophenol	ug/l	4U
38	132649	Dibenzofuran	ug/l	0.8U
39	121142	2,4-Dinitrotoluene	ug/l	0.8U
40	606202	2,6-Dinitrotoluene	ug/l	0.8U
41	84662	Diethylphthalate	ug/l	0.8U
42	7005723	4-Chlorophenyl-phenylether	ug/l	0.8U
43	86737	Fluorene	ug/l	0.8U
44	100016	4-Nitroaniline	ug/l	4UJ
45	534521	4,6-Dinitro-2-methylphenol(D	ug/l	4UJ
46	86306	N-Nitrosodiphenylamine	ug/l	0.8U
47	101553	4-Bromophenyl-phenylether	ug/l	0.8U
48	118741	Hexachlorobenzene	ug/l	0.8U
49	87865	Pentachlorophenol	ug/l	4UJ
50	85018	Phenanthrene	ug/l	0.8U

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Transaction #: 08219904 Seq #: 01 (68) B/N/Acid Scan

Sample No.: 89 337099 (continued from previous page)

Line	Par #	Parameter Description	Units	Value	
51	120127	Anthracene	ug/l	0.8U	
52	86748	Carbazole	ug/l	0.8UJ	
53	84742	Di-n-Butylphthalate	ug/l	0.8BU	
54	206440	Fluoranthene	ug/l	0.8U	
55	129000	Pyrene	ug/l	0.8BU	
56	483658	Retene	ug/l	0.8U	
57	85687	Butylbenzylphthalate	ug/l	0.8U	
58	91941	3,3'-Dichlorobenzidine	ug/l	0.8UJ	
59	56553	Benzo(a)anthracene	ug/l	0.8U	
60	117817	BIS(2-ETHYLHEXYL) PHTHALATE	ug/l	0.8BU	
61	218019	Chrysene	ug/l	0.8U	
62	117840	Di-n-Octyl Phthalate	ug/l	0.8U	
63	205992	Benzo(b)fluoranthene	ug/l	0.8U	
64	207089	Benzo(k)fluoranthene	ug/l	0.8U	
65	50328	Benzo(a)pyrene	ug/l	0.8U	
66	193395	Indeno(1,2,3-cd)pyrene	ug/l	0.8U	
67	53703	Dibenzo(a,h)anthracene	ug/l	0.8U	
68	191242	Benzo(ghi)perylene	ug/l	0.8U	
69	-4165600	Surrog: D5-Nitrobenzene	% Recov	93	(Surr) PR
70	-321608	Surrog: 2-Fluorobiphenyl	% Recov	88	(Surr) PR
71	-1718510	Surrog: D14-Terphenyl	% Recov	135	(Surr) PR
72	200001	Surrog: Pyrene D10	% Recov	136	(Surr) PR
73	-4165622	Surrog: D5-Phenol	% Recov	37	(Surr) PR
74	-367124	Surrog: 2-Fluorophenol	% Recov	72	(Surr) PR

Transaction #: 08219904 Seq #: 02 (68) B/N/Acid Scan
 Proj Code : DOE-222A BLACK/CHERLIS RIVER FISH KILL

PE # : C32B5

Sample No.: 89 337100

Alternate Keys:

3amp Matrix: (10) Water-Total

Units: (11) ug/l

%Sids: —

JA Code: () Unspecified

Peaks Total: —

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 17

0

Line	Par #	Parameter Description	Units	Value
1	108952	Phenol	ug/l	0.9U
2	111444	bis(2-Chloroethyl)Ether	ug/l	0.9U
3	95578	o-Chlorophenol	ug/l	0.9U
4	541731	1,3-Dichlorobenzene	ug/l	0.9U
5	106467	1,4-Dichlorobenzene	ug/l	0.9U
6	100516	Benzyl Alcohol	ug/l	0.9U
7	95501	1,2-Dichlorobenzene	ug/l	0.9U
8	95487	2-Methylphenol	ug/l	0.9U
9	39638329	bis(2-Chloroisopropyl)Ether	ug/l	0.9U
10	106445	4-Methylphenol	ug/l	0.9U
11	621647	N-Nitroso-di-n-Propylamine	ug/l	0.9U
12	67721	Hexachloroethane	ug/l	0.9U
13	98953	Nitrobenzene	ug/l	0.9U
14	78591	Isophorone	ug/l	0.9U
15	88755	2-Nitrophenol	ug/l	0.9U
16	105679	2,4-Dimethylphenol	ug/l	0.9U
17	65850	Benzoic acid	ug/l	4UJ
18	111911	bis(2-Chloroethoxy)Methane	ug/l	0.9U
19	120832	2,4-Dichlorophenol	ug/l	0.9U
20	120821	1,2,4-Trichlorobenzene	ug/l	0.9U
21	91203	Naphthalene	ug/l	0.9U
22	106478	4-Chloroaniline	ug/l	0.9U
23	87683	Hexachlorobutadiene	ug/l	0.9U
24	59507	4-Chloro-3-Methylphenol	ug/l	0.9U
25	91576	2-Methylnaphthalene	ug/l	0.9U
26	90120	Naphthalene, 1-Methyl-	ug/l	0.9U
27	77474	Hexachlorocyclopentadiene	ug/l	2UJ
28	88062	2,4,6-Trichlorophenol	ug/l	0.9U
29	95554	2,4,5-Trichlorophenol	ug/l	4U
30	91587	2-Chloronaphthalene	ug/l	0.9U
31	88744	2-Nitroaniline	ug/l	4U
32	131113	Dimethylphthalate	ug/l	0.9U
33	208968	Acenaphthylene	ug/l	0.9U
34	99092	3-Nitroaniline	ug/l	4UJ
35	51285	2,4-Dinitrophenol	ug/l	4UJ
36	100027	4-Nitrophenol	ug/l	4U
37	132649	Dibenzofuran	ug/l	0.9U
38	121142	2,4-Dinitrotoluene	ug/l	0.9U
39	606202	2,6-Dinitrotoluene	ug/l	0.9U
40	84662	Diethylphthalate	ug/l	0.9U
41	7005723	4-Chlorophenyl-phenylether	ug/l	0.9U
42	86737	Fluorene	ug/l	0.9U
43	100016	4-Nitroaniline	ug/l	4UJ
44	534521	4,6-Dinitro-2-methylphenol (p	ug/l	4UJ
45	86306	N-Nitrosodiphenylamine	ug/l	0.9U
46	101553	4-Bromophenyl-phenylether	ug/l	0.9U
47	118741	Hexachlorobenzene	ug/l	0.9U
48	87865	Pentachlorophenol	ug/l	4UJ
49	85018	Phenanthrene	ug/l	0.9U

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Transaction #: 06219904 Seq #: 02 (68) M/M/Acid Scan

Sample No.: 89 337100 (continued from previous page)

Line	Par #	Parameter Description	Units	Value	
51	120127	Anthracene	ug/l	0.90	
52	86748	Carbazole	ug/l	0.90	
53	84742	Di-n-butylphthalate	ug/l	0.90	
54	206440	Fluoranthene	ug/l	0.90	
55	129000	Pyrene	ug/l	0.90	
56	483658	Retene	ug/l	0.90	
57	85687	Butylbenzylphthalate	ug/l	0.90	
58	91941	3,3'-Dichlorobenzidine	ug/l	0.90	
59	56553	Benzo(a)anthracene	ug/l	0.90	
60	117817	BIS(2-ETHYLBUTYL) PHTHALATE	ug/l	0.28	
61	218019	Chrysene	ug/l	0.90	
62	117840	Di-n-Octyl Phthalate	ug/l	0.90	
63	205992	Benzo(b)fluoranthene	ug/l	0.90	
64	207089	Benzo(k)fluoranthene	ug/l	0.90	
65	50328	Benzo(a)pyrene	ug/l	0.90	
66	193395	Indeno(1,2,3-cd)pyrene	ug/l	0.90	
67	53703	Dibenzo(a,h)anthracene	ug/l	0.90	
68	191242	Benzo(ghi)perylene	ug/l	0.90	
69	-4165600	Surrog: D5-Mitrobenzene	% Recov	91	(Surf) PR
70	-321608	Surrog: 2-Fluorobiphenyl	% Recov	89	(Surf) PR
71	-1718510	Surrog: D14-Terphenyl	% Recov	117	(Surf) PR
72	200001	Surrog: Pyrene D10	% Recov	116	(Surf) PR
73	-4165622	Surrog: D5-Phenol	% Recov	43	(Surf) PR
74	-367124	Surrog: 2-Fluorophenol	% Recov	70	(Surf) PR

Transaction #: 08219904 Seq #: 03 (68) B/N/Acid Scan
 Proj Code: DOE-222A BLACK/CHUMALIS RIVER FISH KILL

PK #: C3285

Sample No.: 89 337101

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

#Slits: —

QA Code: () Unspecified

Peaks Total: —

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 17 0

Line	Par #	Parameter Description	Units	Value
1	108952	Phenol	ug/l	0.8U
2	111444	bis(2-Chloroethyl)Ether	ug/l	0.8U
3	95578	o-Chlorophenol	ug/l	0.8U
4	541731	1,3-Dichlorobenzene	ug/l	0.8U
5	106467	1,4-Dichlorobenzene	ug/l	0.8U
6	100516	Benzyl Alcohol	ug/l	0.8U
7	95501	1,2-Dichlorobenzene	ug/l	0.8U
8	95487	2-Methylphenol	ug/l	0.8U
9	39638329	bis(2-Chloroisopropyl)Ether	ug/l	0.8U
10	106445	4-Methylphenol	ug/l	0.8U
11	621647	N-Nitroso-di-n-Propylamine	ug/l	0.8U
12	67721	Hexachloroethane	ug/l	0.8U
13	98953	Nitrobenzene	ug/l	0.8U
14	78591	Isophorone	ug/l	0.8U
15	88753	2-Nitrophenol	ug/l	0.8U
16	105679	2,4-Dimethylphenol	ug/l	0.8U
17	65850	Benzoic acid	ug/l	4UJ
18	111911	bis(2-Chloroethoxy)Methane	ug/l	0.8U
19	120832	2,4-Dichlorophenol	ug/l	0.8U
20	120821	1,2,4-Trichlorobenzene	ug/l	0.8U
21	91203	Naphthalene	ug/l	0.8U
22	106478	4-Chloroaniline	ug/l	0.8U
23	87683	Hexachlorobutadiene	ug/l	0.8U
24	59507	4-Chloro-3-Methylphenol	ug/l	0.8U
25	91576	2-Methylnaphthalene	ug/l	0.8U
26	90120	Naphthalene, 1-Methyl-	ug/l	0.8U
27	77474	Hexachlorocyclopentadiene	ug/l	2UJ
28	88062	2,4,6-Trichlorophenol	ug/l	0.8U
29	95954	2,4,5-Trichlorophenol	ug/l	4U
30	91587	2-Chloronaphthalene	ug/l	0.8U
31	88744	2-Nitroaniline	ug/l	4U
32	131113	Dimethylphthalate	ug/l	0.8U
33	208968	Acenaphthylene	ug/l	0.8U
34	99092	3-Nitroaniline	ug/l	4UJ
35	83329	Acenaphthene	ug/l	0.8U
36	51285	2,4-Dinitrophenol	ug/l	4UJ
37	100027	4-Nitrophenol	ug/l	4U
38	132649	Dibenzofuran	ug/l	0.8U
39	121142	2,4-Dinitrotoluene	ug/l	0.8U
40	606202	2,6-Dinitrotoluene	ug/l	0.8U
41	84662	Diethylphthalate	ug/l	0.8U
42	7005723	4-Chlorophenyl-phenylether	ug/l	0.8U
43	86737	Fluorene	ug/l	0.8U
44	100016	4-Nitroaniline	ug/l	4UJ
45	534521	4,6-Dinitro-2-methylphenol(D	ug/l	4UJ
46	86306	N-Nitrosodiphenylamine	ug/l	0.8U
47	101553	4-Bromophenyl-phenylether	ug/l	0.8U
48	118741	Hexachlorobenzene	ug/l	0.8U
49	87865	Pentachlorophenol	ug/l	4UJ
50	85018	Phenanthrene	ug/l	0.8U

(continued on next page)

Transaction #: 08219904 Seq #: 03 (68) B/N/Acid Scan

Sample No.: 89 337101 (continued from previous page)

Line	Par #	Parameter Description	Units	Value	
51	120127	Anthracene	ug/l	0.8U	
52	86748	Carbazole	ug/l	0.8UJ	
53	84742	Di-n-Butylphthalate	ug/l	0.8BU	
54	206440	Fluoranthene	ug/l	0.8U	
55	129000	Pyrene	ug/l	0.8BU	
56	483658	Retene	ug/l	0.8U	
57	85687	Butylbenzylphthalate	ug/l	0.8U	
58	91941	3,3'-Dichlorobenzidine	ug/l	0.8UJ	
59	56553	Benzo(a)anthracene	ug/l	0.8U	
60	117817	NTS(2-ETHYLMERITYL) PHTHALATE	ug/l	0.2BJ	
61	218019	Chrysene	ug/l	0.8U	
62	117840	Di-n-Octyl Phthalate	ug/l	0.8U	
63	205992	Benzo(b)fluoranthene	ug/l	0.8U	
64	207089	Benzo(k)fluoranthene	ug/l	0.8U	
65	50328	Benzo(a)pyrene	ug/l	0.8U	
66	193395	Indeno(1,2,3-cd)pyrene	ug/l	0.8U	
67	53703	Dibenzo(a,h)anthracene	ug/l	0.8U	
68	191242	Benzo(ghi)perylene	ug/l	0.8U	
69	-4165670	Surrog: D5-Nitrobenzene	% Recov	89	(Surr) PR
70	-321608	Surrog: 2-Fluorobiphenyl	% Recov	84	(Surr) PR
71	-1718510	Surrog: D14-Terphenyl	% Recov	110	(Surr) PR
72	200001	Surrog: Pyrene D10	% Recov	114	(Surr) PR
73	-4165622	Surrog: D5-Phenol	% Recov	43	(Surr) PR
74	-367124	Surrog: 2-Fluorophenol	% Recov	66	(Surr) PR

Transaction #: 08219904 Seq #: 04 (68) B/N/Acid Scan
Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL

PE # : C3285

Sample No.: 89 337102

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

#Slits:

QA Code: () Unspecified

Peaks Total:

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 17 0

Line	Par #	Parameter Description	Units	Value
1	108952	Phenol	ug/l	0.8U
2	111444	bis(2-Chloroethyl)Ether	ug/l	0.8U
3	95578	o-Chlorophenol	ug/l	0.8U
4	541731	1,3-Dichlorobenzene	ug/l	0.8U
5	106467	1,4-Dichlorobenzene	ug/l	0.8U
6	100516	Benzyl Alcohol	ug/l	0.8U
7	95501	1,2-Dichlorobenzene	ug/l	0.8U
8	95487	2-Methylphenol	ug/l	0.8U
9	39638329	bis(2-Chloroisopropyl)Ether	ug/l	0.8U
10	106445	4-Methylphenol	ug/l	0.8U
11	621647	N-Nitroso-di-n-Propylamine	ug/l	0.8U
12	67721	Hexachloroethane	ug/l	0.8U
13	98953	Nitrobenzene	ug/l	0.8U
14	78591	Isophorone	ug/l	0.8U
15	88755	2-Nitrophenol	ug/l	0.8U
16	105679	2,4-Dimethylphenol	ug/l	0.8U
17	65850	Benzoic acid	ug/l	4UJ
18	111911	bis(2-Chloroethoxy)Methane	ug/l	0.8U
19	120832	2,4-Dichlorophenol	ug/l	0.8U
20	120821	1,2,4-Trichlorobenzene	ug/l	0.8U
21	91203	Naphthalene	ug/l	0.8U
22	106478	4-Chloroaniline	ug/l	0.8U
23	87683	Hexachlorobutadiene	ug/l	0.8U
24	59507	4-Chloro-3-Methylphenol	ug/l	0.8U
25	91576	2-Methylnaphthalene	ug/l	0.8U
26	90120	Naphthalene, 1-Methyl-	ug/l	0.8U
27	77474	Hexachlorocyclopentadiene	ug/l	2UJ
28	88062	2,4,6-Trichlorophenol	ug/l	0.8U
29	95954	2,4,5-Trichlorophenol	ug/l	4U
30	91587	2-Chloronaphthalene	ug/l	0.8U
31	88744	2-Nitroaniline	ug/l	4U
32	131113	Dimethylphthalate	ug/l	0.8U
33	208968	Acenaphthylene	ug/l	0.8U
34	99092	3-Nitroaniline	ug/l	4UJ
35	83329	Acenaphthene	ug/l	0.8U
36	51285	2,4-Dinitrophenol	ug/l	4UJ
37	100027	4-Nitrophenol	ug/l	4U
38	132649	Dibenzofuran	ug/l	0.8U
39	121142	2,4-Dinitrotoluene	ug/l	0.8U
40	606202	2,6-Dinitrotoluene	ug/l	0.8U
41	84662	Diethylphthalate	ug/l	0.8U
42	7005723	4-Chlorophenyl-phenylether	ug/l	0.8U
43	86737	Fluorene	ug/l	0.8U
44	100016	4-Nitroaniline	ug/l	4UJ
45	534521	4,6-Dinitro-2-methylphenol(D	ug/l	4UJ
46	86306	N-Nitrosodiphenylamine	ug/l	0.8U
47	101553	4-Bromophenyl-phenylether	ug/l	0.8U
48	118741	Hexachlorobenzene	ug/l	0.8U
49	87865	Pentachlorophenol	ug/l	4UJ
50	85018	Phenanthrene	ug/l	0.8U

(continued on next page)

Transaction #: 08219904 Seq #: 04 (68) B/N/Acid Scan

Sample No.: 89 337102 (continued from previous page)

Line	Par #	Parameter Description	Units	Value		
51	120127	Anthracene	ug/l	0.8U		
52	86748	Carbazole	ug/l	0.8UJ		
53	84742	Di-n-Butylphthalate	ug/l	0.8BU		
54	206440	fluoranthene	ug/l	0.8U		
55	129000	Pyrene	ug/l	0.8BU		
56	483658	Retene	ug/l	0.8U		
57	85687	Butylbenzylphthalate	ug/l	0.8U		
58	91941	3,3'-Dichlorobenzidine	ug/l	0.8UJ		
59	56553	Benzo(a)anthracene	ug/l	0.8U		
60	117817	BIS(2-ETHYLHEXYL) PHTHALATE	ug/l	0.2BJ		
61	218019	Chrysene	ug/l	0.8U		
62	117840	Di-n-Octyl Phthalate	ug/l	0.8U		
63	205992	Benzo(b)fluoranthene	ug/l	0.8U		
64	207089	Benzo(k)fluoranthene	ug/l	0.8U		
65	50328	Benzo(a)pyrene	ug/l	0.8U		
66	193395	Indeno(1,2,3-cd)pyrene	ug/l	0.8U		
67	53703	Dibenzo(a,h)anthracene	ug/l	0.8U		
68	191242	Benzo(ghi)perylene	ug/l	0.8U		
69	-4165600	Surrog: D5-Nitrobenzene	% Recov	87	(Surr)	PR
70	-321608	Surrog: 2-Fluorobiphenyl	% Recov	81	(Surr)	PR
71	-1718510	Surrog: D14-Terphenyl	% Recov	114	(Surr)	PR
72	200001	Surrog: Pyrene D10	% Recov	123	(Surr)	PR
73	-4165622	Surrog: D5-Phenol	% Recov	39	(Surr)	PR
74	367124	Surrog: 2-Fluorophenol	% Recov	66	(Surr)	PR

Transaction #: 08219904 Seq #: 05 (68) B/N/Acid Scan
Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL

PE #: C32B5

Blank ID : BW9228

Sample No.: 89 337102

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

%Slds: —

QA Code: (LBK1) Lab Blank Sample #1

Peaks Total: —

Date Extracted: 890816 Date Analyzed: 890816

Days to Ext/Anal: 17

0

Line	Par #	Parameter Description	Units	Value
1	108952	Phenol	ug/l	2U
2	111444	bis(2-Chloroethyl)Ether	ug/l	2U
3	95578	o-Chlorophenol	ug/l	2U
4	541731	1,3-Dichlorobenzene	ug/l	2U
5	106467	1,4-Dichlorobenzene	ug/l	2U
6	100516	Benzyl Alcohol	ug/l	2U
7	95501	1,2-Dichlorobenzene	ug/l	2U
8	95487	2-Methylphenol	ug/l	2U
9	39638329	bis(2-Chloroisopropyl)Ether	ug/l	2U
10	106445	4-Methylphenol	ug/l	2U
11	621647	N-Nitroso-di-n-Propylamine	ug/l	2U
12	67721	Hexachloroethane	ug/l	2U
13	98953	Nitrobenzene	ug/l	2U
14	78591	Isophorone	ug/l	2U
15	88755	2-Nitrophenol	ug/l	2U
16	105679	2,4-Dimethylphenol	ug/l	2U
17	65850	Benzoic acid	ug/l	10UJ
18	111911	bis(2-Chloroethoxy)Methane	ug/l	2U
19	120832	2,4-Dichlorophenol	ug/l	2U
20	120821	1,2,4-Trichlorobenzene	ug/l	2U
21	91203	Naphthalene	ug/l	2U
22	106478	4-Chloroaniline	ug/l	2U
23	87683	Hexachlorobutadiene	ug/l	2U
24	59507	4-Chloro-3-Methylphenol	ug/l	2U
25	91576	2-Methylnaphthalene	ug/l	2U
26	90120	Naphthalene, 1-Methyl-	ug/l	2U
27	77474	Hexachlorocyclopentadiene	ug/l	4UJ
28	88062	2,4,6-Trichlorophenol	ug/l	2U
29	95954	2,4,5-Trichlorophenol	ug/l	10U
30	91587	2-Chloronaphthalene	ug/l	2U
31	88744	2-Nitroaniline	ug/l	10U
32	131113	Dimethylphthalate	ug/l	2U
33	208968	Acenaphthylene	ug/l	2U
34	99092	3-Nitroaniline	ug/l	10UJ
35	83329	Acenaphthene	ug/l	2U
36	51285	2,4-Dinitrophenol	ug/l	10UJ
37	100027	4-Nitrophenol	ug/l	10U
38	132649	Dibenzofuran	ug/l	2U
39	121142	2,4-Dinitrotoluene	ug/l	2U
40	606202	2,6-Dinitrotoluene	ug/l	2U
41	84662	Diethylphthalate	ug/l	2U
42	7005723	4-Chlorophenyl-phenylether	ug/l	2U
43	86737	Fluorene	ug/l	2U
44	100016	4-Nitroaniline	ug/l	10UJ
45	534521	4,6-Dinitro-2-methylphenol(D	ug/l	10UJ
46	86306	N-Nitrosodiphenylamine	ug/l	2U
47	101553	4-Bromophenyl-phenylether	ug/l	2U
48	118741	Hexachlorobenzene	ug/l	2U
49	87865	Pentachlorophenol	ug/l	10UJ
50	85018	Phenanthrene	ug/l	2U

(continued on next page)

Transaction #: 08219904 Seq #: 05 (68) B/N/Acid Scan

Sample No.: 89 337102 (continued from previous page)

Line	Par #	Parameter Description	Units	Value	
51	120127	Anthracene	ug/l	2U	
52	86748	Carbazole	ug/l	2UJ	
53	84742	Di-n-Butylphthalate	ug/l	0.5J	
54	206440	Fluoranthene	ug/l	2U	
55	129000	Pyrene	ug/l	0.4J	
56	483658	Retene	ug/l	2U	
57	85687	Butylbenzylphthalate	ug/l	2U	
58	91941	3,3'-Dichlorobenzidine	ug/l	2UJ	
59	56553	Benzo(a)anthracene	ug/l	2U	
60	117817	BIS(2-ETHYLHEXYL) PHTHALATE	ug/l	0.6J	
61	218019	Chrysene	ug/l	2U	
62	117840	Di-n-Octyl Phthalate	ug/l	2U	
63	205992	Benzo(b)fluoranthene	ug/l	2U	
64	207089	Benzo(k)fluoranthene	ug/l	2U	
65	50328	Benzo(a)pyrene	ug/l	2U	
66	193395	Indeno(1,2,3-cd)pyrene	ug/l	2U	
67	53703	Dibenzo(a,h)anthracene	ug/l	2U	
68	191242	Benzo(ghi)perylene	ug/l	2U	
69	-4165600	Surrog: D5-Nitrobenzene	% Recov	90	(Surr) PR
70	-321608	Surrog: 2-Fluorobiphenyl	% Recov	83	(Surr) PR
71	-1718510	Surrog: D14-Terphenyl	% Recov	128	(Surr) PR
72	200001	Surrog: Pyrene D10	% Recov	128	(Surr) PR
73	-4165622	Surrog: D5-Phenol	% Recov	68	(Surr) PR
74	-367124	Surrog: 2-Fluorophenol	% Recov	88	(Surr) PR

22-AUG-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 1

--> Transaction #: 08219903

Laboratory: (WE) Ecology, Manchester Lab

Work Group: (KA) Tent Ident B/M/acid C==

Instrument: (GCMS-M1) DOE1 GC/MS INCOS-5100 Capillary Colu

Method: (EP2-625) GC/MS Ext Scan

Chemist: (LAB) Lab (General R/O)

Hours Worked: _____

Project: DOE-222A BLACK/CHEHALIS RIVER FISH KILL

Prg Ele#: C32B5

Prj Off: Young, Bill

DOE

Analysis Due: 890816 Revised Due:

*** Sample Records in Transaction ***

Seq#	Sample #	QA	Date/Time	Description	Alternate Keys
01	89337099		890815	STA 1	
02	89337100		890815	STA 2	
03	89337101		890815	STA 5	
04	89337102		890815	STA 6	
05	89337102	LAB1	890815	STA 6	

Record Type: TRNIN3

Date Verified: 8/23/89

By: C. J. [Signature]

Transaction Status: Edited Transaction...First Printing...Unverified.

Processed: 22-AUG-89 15:55:20 Status: E Batch: (In CUR DB)

12-AUG-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 2

Transaction #: 08219903 Seq #: 01 (6A) Tent Ident - B/N/Acid Scan
Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337099

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

tslds: —

QA Code: () Unspecified

Peaks Total: —

Date Extracted:

Date Analyzed: 890821

Days to Ext/Anal: 07 6

Line	Par #	Parameter Description	Units	Value
1	1678917	CYCLOHEXANE, ETHYL-	ug/l	0.67J
2	286204	7-OXABICYCLO[4.1.0]HEPTANE	ug/l	0.65JB
3	95476	Total Xylenes	ug/l	1.4JB
4	108383	m-Xylene	ug/l	1.7JB
5	106423	p-Xylene	ug/l	0.35J
6	930687	2-CYCLOHEXEN-1-ONE	ug/l	0.42JB
7	128370	PHENOL, 2,6-BIS(1,1-DIMETHYL	ug/l	0.62JB

Transaction #: 08219903 Seq #: 02 (6A) Tent Ident - B/N/Acid Scan
Proj Code : D02-222A BLACK/CHENNAIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337100

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

%Slds: —

QA Code: () Unspecified

Peaks Total: —

Date Extracted:

Date Analyzed: 890821

Days to Ext/Anal: —

07 6

Line	Par #	Parameter Description	Units	Value
1	286204	7-OXABICYCLO(4.1.0)HEPTANE	ug/l	0.63JB
2	95476	Total Xylenes	ug/l	1.1JB
3	108383	m-Xylene	ug/l	1.0JB
4	930687	2-CYCLOHEXEN-1-ONE	ug/l	0.38JB
5	128370	PHENOL, 2,6-BIS(1,1-DIMETHYL	ug/l	0.70JB

22-AUG-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 4

Transaction #: 08219903 Seq #: 03 (6A) Tent Ident - B/N/Acid Scan
Proj Code : DOE-222A BLACK/CHEMALIS RIVER FISH KILL PE # : C3285

Sample No.: 89 337101

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

%Slds: —

QA Code: () Unspecified

Peaks Total: —

Date Extracted:

Date Analyzed: 890821

Days to Ext/Anal: 07 6

Line	Par #	Parameter Description	Units	Value
1	1678917	CYCLOHEXANE, ETHYL-	ug/l	0.60J
2	286204	7-OXABICYCLO[4.1.0]HEPTANE	ug/l	0.59JB
3	95476	Total Xylenes	ug/l	1.1JB
4	108383	m-Xylene	ug/l	1.2JB
5	128370	PHENOL, 2,6-BIS(1,1-DIMETHYL	ug/l	0.73JB

22-AUG-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 5

Transaction #: 08219903 Seq #: 04 (6A) Tent Ident - B/M/Acid Scan
Proj Code : DOE-222A BLACK/CHEHALIS RIVER FISH KILL PE # : C32B5

Sample No.: 89 337102

Alternate Keys:

Samp Matrix: (10) Water-Total

Units: (11) ug/l

#Slits: —

QA Code: () Unspecified

Peaks Total: —

Date Extracted:

Date Analyzed: 890821

Days to Ext/Anal: 07 6

Line	Par #	Parameter Description	Units	Value
1	1678917	CYCLOHEXANE, ETHYL-	ug/l	0.57J
2	286204	7-OXABICYCLO[4.1.0]HEPTANE	ug/l	0.56JB
3	95476	Total Xylenes	ug/l	1.1JB
4	108383	m-Xylene	ug/l	0.98JB
5	128370	PHENOL, 2,6-BIS(1,1-DIMETHYL	ug/l	0.63JB

2-AUG-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 6

Transaction #: 08219903 Seq #: 05 (6A) Tent Ident - B/N/Acid Scan
Proj Code : DOE-222A BLACK/CHERHALIS RIVER FISH KILL PE # : C32B5

Blank ID : BW9228
Sample No.: 89 337102

Alternate Keys:

Samp Matrix: (10) Water-Total Units: (11) ug/l %Slds:
QA Code: (LBK1) Lab Blank Sample #1 Peaks Total:
Date Extracted: Date Analyzed: 890821 # Days to Ext/Anal: 0/ 6

Line	Par #	Parameter Description	Units	Value
1	286204	7-OXABICYCLO(4.1.0)HEPTANE	ug/l	1.3J
2	95476	Total Xylenes	ug/l	2.3J
3	108383	m-Xylene	ug/l	2.1J
4	930687	2-CYCLOHEXEN-1-ONE	ug/l	0.89J
5	128370	PHENOL, 2,6-BIS(1,1-DIMETHYL	ug/l	1.6J

HAIR SURROGATE PERCENT RECOVERY
(Page 1)

Case No. DOE-222A/1011

Contract Laboratory MANCHESTER LAB

Contract No. C3105

SMO TRAFFIC NO.	VOLATILE			SEMI-VOLATILE					
	Toluen e-d8	BFB	1,2-Di chloro ethane -d4	Nitroben zene -d5 (S)	2-Fluo rophen yl -d1 (4 SS)	Terpene -d1 (4 SS)	Pyrene -d10 (3 SS)	Phenol -d5 (3)	2-Fluo rophen yl -d5 (3)
WB9337099	86 119	85 121	77 120	41 120	44 119	38 128	38 125	15 103	23 121
WB9337100	—	—	—	93	88	135*	138*	37	72
WB9337101	—	—	—	91	89	117	116	43	70
WB9337102	—	—	—	89	84	110	114	43	68
WB9337102	—	—	—	87	81	114	123	39	66
WBW9228	—	—	—	96	83	128	128	68	88

* VALUES ARE OUTSIDE OF CONTRACT
REQUIRED QC LIMITS

Comments:

Volatiles: — out of 12; outside of QC limit
Semi-Volatiles: 2 out of 30; outside of QC limit
Pesticides: 8 out of 8; outside of QC limit

FORM 11

WETTED BLANK SUMMARY

Case NO DOE-222A/1011 Region YOUNG Contractor MANCHESTER LAB Contract No C3105

File ID	analysis	Frac	x	y	ID	CAS number	Compound (HSL, TIC, unknown)	Conc.	Units	C
WBW9228	08/16/89	ABN	W	L	5100	84-74-2	Di-n-butylphthalate	0.5	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	129-00-0	Pyrene	0.4	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	117-81-7	bis(2-Ethylhexyl)phthalate	0.6	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100		C130 D4-1,4-DICHLOROBENZENE (IS-1)	20	ug/L	J
WRW9228	08/16/89	ABN	W	L	5100		C140 D8-NAPHTHALENE (IS-2)	20	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100		C160 D10-ACENAPHTHENE (IS-3)	20	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100		C180 D10-PHENANTHRENE (IS-4)	20	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100		C170 D12-CHRYSENE (IS-5)	20	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100		C175 D12-PERYLENE (IS-6)	20	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	280-28-4	7-OXABICYCLO[4.1.0]HEPTANE	0.8	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	95-47-6	BENZENE, 1,2-DIMETHYL-	1	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	108-38-3	BENZENE, 1,3-DIMETHYL-	1	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	930-68-7	2-CYCLOHEXEN-1-ONE	0.5	ug/L	J
WBW9228	08/16/89	ABN	W	L	5100	128-37-8	PHENOL, 2,6-BIS(1,1-DIMETHYLETHYL)-4-METHYL-	1	ug/L	J

Comments:

FORM IV

SAMPLE HOLDING TIMES AND DILUTIONS

Laboratory MANCHESTER LAB

Case Number DOE-222A

Page
08/18.

Sample number	M	L	Rcvd	VOA			BNA			PEST							
				Anal	Hld	Dil	Extr	Hld	Anal	Hld	Dil	Extr	Hld	Anal	Hld	Dil	
W89337099	W	L	08/10				08/10	0	08/10	0	0.167						
W89337100	W	L	08/10				08/10	0	08/10	0	0.176						
W89337101	W	L	08/10				08/10	0	08/10	0	0.168						
W89337102	W	L	08/10				08/10	0	08/10	0	0.168						

Transaction #: 09011233 Seq #: 01 (10) Gen Inorg/Phys-Specified
(WE) Ecology, Manchester Lab
Project: (DOE-222B) BLACK RIVER NRDA C32B5 LJK
Param: (403 S) pH LAB Meter Std Unts

QA Code: () Normal Data
Instrument: (PH-CORN) Corning pH Meter 125 #14987 (DOE)
Method: (EP1-150.1) pH, Electrometric
Chemist: (MOH) O'Herron, Mary DOE Hours Worked:
Lab Prep: () Unspecified
Matrix: (10) Water-Total Date Preprd:
Units: (06) Std Unts Date Anlyzd: 890817

Line	Sample #	Result	Sample Location/Description	#Days to Anl
1	89 337116	8.2	STA 4	890816 (1)
2	89 337117	7.3	STA 3	890816 (1)
3	89 337118	7.3	STA 2	890816 (1)
4	89 337119	6.8	STA 1	890816 (1)

Record Type: TRNIN2 Date Verified: 89/09/05 By: Jensen, Nancy
Transaction Status: Verified Transaction...Ready to release.
Processed: 5-SEP-89 12:04:14 Status: V Batch: (In CUR DB)

DC

Case No. DOE-222A Contractor MANCHESTER LAB Contract No. C3185
 Instrument ID 5188
 Lab (Tune) ID WDF9228

<u>SAMPLE ID</u>	<u>LAB (FILE) ID</u>	<u>DATE AND TIME OF ANALYSIS</u>
W89337000	W337000	88/10/89 16:13
W89337100	W337100	88/10/89 16:00
W89337101	W337101	88/10/89 16:50
W89337102	W337102	88/10/89 17:52
WRW9228	WRW9228	88/10/89 14:12

WASHINGTON STATE DEPARTMENT OF ECOLOGY
ENVIRONMENTAL INVESTIGATIONS AND LABORATORY SERVICES
MANCHESTER LABORATORY

M E M O R A N D U M

To: Steve Hunter
From: Dick Huntamer (D.H.)
Subject: Organic Analysis of Black/Chehalis Fish Kill Samples.
Date: August 18, 1989

Samples from the Black and Chehalis Rivers collected on August 15, 1989 were received at the Manchester Environmental Laboratory on August 16, 1989 for analysis of acid/base-neutral organics, Volatile Organics (VOA), pesticides/PCB's, organo-phosphorous pesticides and herbicides.

The acid/base-neutral, VOA and herbicide analysis has been completed. No significant levels of target priority pollutant organic compounds were detected in any of the above fractions. Quantification limits for the acid/base-neutral compounds were 1-5 ug/L (parts per billion, ppb) and for the VOA, one ppb. In addition, the acid/base-neutral and VOA analyses included a search for any significant amounts of non-priority pollutant target compounds which could be present in the sample. These compounds are usually referred to as Tentatively Identified Compounds (TIC). This search also failed to turn up any significant TIC compounds which are known to be toxic to fish at the levels detected.

No herbicides were detected in the samples. Pesticides/PCB's and organo-phosphorous pesticides are still being analyzed at this time. Results should be completed this afternoon.

Formaldehyde analysis results are attached. These included not only the samples mentioned above but additional samples 337104 and 337105 collected at the same time and samples 337093-96 (labeled 327093-96 on ARI report) collected at Global Aqua on August 11, 1989. Only samples 337095 (settling pond) and 337096 (sediment) had positive results for formaldehyde. All of the other samples were below the detection limit of 0.10 mg/L (part per million, ppm).

Results for General Chemistry and Metals are discussed in the attached memorandum.

1-SEP-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 1

Transaction #: 09011233 Seq #: 01 (10) Gen Inorg/Phys-Specified
(WE) Ecology, Manchester Lab
Project: (DOE-222B) BLACK RIVER NRDA C32B5 LJK
Param: (403 S) pH LAB Meter Std Unts

QA Code: () Normal Data
Instrument: (PH-CORN) Corning pH Meter 125 #14987 (DOE)
Method: (EP1-150.1) pH, Electrometric
Chemist: (MDH) O'Herron, Mary DOE Hours Worked:
Lab Prep: () Unspecified
Matrix: (10) Water-Total Date Preprd:
Units: (06) Std Unts Date Anlyzd: 890817

Line	Sample #	Result	Sample Location/Description	#Days to Anl
1	89 337116	8.2	STA 4	890816 (1)
2	89 337117	7.3	STA 3	890816 (1)
3	89 337118	7.3	STA 2	890816 (1)
4	89 337119	~~6.9~~ 6.8	STA 1	890816 (1)

Record Type: TRNIN2 Date Verified: By:
Transaction Status: New Transaction...First Printing...Unverified.
Processed: 1-SEP-89 12:47:10 Status: N Batch: (In CUR DB)

1-SEP-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 1

Transaction #: 09011237 Seq #: 01 (10) Gen Inorg/Phys-Specified
(WE) Ecology, Manchester Lab
Project: (DOE-222B) BLACK RIVER NRDA C32B5 LJK
Param: (95 S) Cond@25C Meter umho/cm

QA Code: () Normal Data
Instrument: (CONDOC) Conductivity Meter #XXXXXXX
Method: (EP1-120.1) Conductance, Specific
Chemist: (MOH) O'Herron, Mary DOE Hours Worked:
Lab Prep: () Unspecified
Matrix: (10) Water-Total Date Preprd:
Units: (03) umho/cm Date Anlyzd: 890817

Line	Sample #	Result	Sample Location/Description	#Days to Anl
1	89 337116	126	STA 4	890816 (1)
2	89 337117	115	STA 3	890816 (1)
3	89 337118	121	STA 2	890816 (1)
4	89 337119	124	STA 1	890816 (1)

Record Type: TRNIN2 Date Verified: _____ By: _____
Transaction Status: New Transaction...First Printing...Unverified.
Processed: 1-SEP-89 12:47:10 Status: N Batch: (In CUR DB)

1-SEP-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 1

Transaction #: 09011238 Seq #: 01 (10) Gen Inorg/Phys-Specified
(WE) Ecology, Manchester Lab
Project: (DOE-222B) BLACK RIVER NRDA C32B5 LJK
Param: (900 S) Hard-Tot CaCO3 mg/l

QA Ccde: () Normal Data
Instrument: (TITRIT) Titrimetric Measurement
Method: (EP1-130.2) Hardness, Total (mg/l as CaCO3), Titrimetric, EDTA
Chemist: (MOH) O'Herron, Mary DOE Hours Worked:
Lab Prep: () Unspecified
Matrix: (10) Water-Total Date Preprd:
Units: (10) mg/l Date Anlyzd: 890817

Line	Sample #	Result	Sample Location/Description	#Days to Anl
1	89 337116	53	STA 4	890816 (1)
2	89 337117	50	STA 3	890816 (1)
3	89 337118	43	STA 2	890816 (1)
4	89 337119	46	STA 1	890816 (1)

Record Type: TRNIN2 Date Verified: _____ By: _____
Transaction Status: New Transaction...First Printing...Unverified.
Processed: 1-SEP-89 12:47:10 Status: N Batch: (In CUR DB)

WASHINGTON STATE DEPARTMENT OF ECOLOGY
ENVIRONMENTAL INVESTIGATIONS AND LABORATORY SERVICES
MANCHESTER LABORATORY

M E M O R A N D U M

TO: Dave Halleck
FROM: Margaret Stinson *MS*
SUBJECT: Black/Chehalis River
Contract Lab Results of Salmonid Bioassay
DATE: September 25, 1989

Biomed Research Laboratories has submitted the attached reports on the Hazardous Waste Designation Salmonid Bioassays requested on sediments from the Black/Chehalis Rivers (Sample Numbers 34-8000 through 34-8003). No mortality was reported for any of the samples. A single mortality was reported for the control test for sample 34-8000. This is well within the 10% control mortality allowed by the test protocol. Chemical parameters measured were all in the ranges appropriate for the test organism. Fish measurements and loading data conform with the requirements of the test protocol.



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LABORATORY REPORT

CUSTOMER:

WA State Dept of Ecology
Attn: Margaret Stinson
P.O. Box 307
Manchester, WA 98353

BIOMED NO: 11523
RECEIVED: 8/24/89
CLIENT SAMPLE I.D.: WDOE sample #34-8000

LABORATORY USE ONLY

LAB #: 8/29/89
11523
REPORT DATE
CUSTOMER P.O. #
APPROVED

TEST PROCEDURE:

The sample was tested for toxic properties in accordance with Washington State Department of Ecology "General Procedure for Static Basic Acute Fish Toxicity Test."

TEST RESULTS:

The test data are tabulated in detail on the following pages.

TEST DETAILS:

The sample was tested at 100 and 1000 ppm (mg/L) by weight in water.

The test organisms were rainbow trout (*Oncorhynchus mykiss*). The organism length ranged from 30 to mm, giving a short to long ratio of 1:2. The average length was 32 mm. The average weight was .40 grams.

10 fish were added to 38 liters of sample/water in each aquarium. This gave a flesh-to-mixture ratio of .11 grams/liter.

The test was started 8/24/89 at 1420 hours and completed on 8/28/89 at 1420 hours.

CONCLUSIONS:

100 ppm (mg/L)	0/30 Fish Died	0% Mortality
1000 ppm (mg/L)	0/30 Fish Died	0% Mortality
Control	1/30 Fish Died	3% Mortality

Respectfully Submitted,

Steven A. Lock

Development Associate
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DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Laboratory BioMed
Analyst Steven Lock
Beginning Date 8/24/89 Time 14:20
Ending Date 8/28/89 Time 14:20
Test Organism Rainbow Trout Oncorhynchus mykiss
Required Test Temperature Range 11.5-12.5°C

Industry/Toxicant UPDE/ 34-8000
Address PO Box 307 Manchester, WA 98353
Collector W. E. W. S. L.
Date Sample Collected 8/23/89 8/18/89

Laboratory Reference Number	Test Container No.	Conc (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25°C					Temperature (C)					Total Hardness (mg/L CaCO ₃)		Total Alkalinity (mg/L CaCO ₃)		Conductivity (uMOS/cm)	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
control	1	0	0	0	0	0	0	10	—	—	—	8.75	—	—	—	—	7.0	12.5	—	—	—	—	18	24	126	12	46	40
"	2	0	0	1	0	0	0	10	—	—	—	8.70	—	—	—	—	7.8	12.5	—	—	—	—	20	20	128	13	41	43
"	3	0	0	0	0	0	0	10	—	—	—	8.94	—	—	—	—	7.2	12.5	—	—	—	—	138	18	224	13.8	64	44
11523	7	100	0	0	0	0	0	10	—	—	—	8.72	—	—	—	—	7.0	12.5	—	—	—	—	188	22	122	14	45	45
"	8	100	0	0	0	0	0	10	—	—	—	8.69	—	—	—	—	7.0	12.5	—	—	—	—	19	20	10.2	13.6	35	43
"	9	100	0	0	0	0	0	10	—	—	—	8.78	—	—	—	—	7.0	12.5	—	—	—	—	184	22	16.4	12.8	49	44
11523	10	1000	0	0	0	0	0	10	—	—	—	8.70	—	—	—	—	9.9	12.5	—	—	—	—	188	16	10.2	14.2	42	360
"	11	1000	0	0	0	0	0	10	—	—	—	8.74	—	—	—	—	7.3	12.5	—	—	—	—	188	24	12.4	14.6	47	45
"	12	1000	0	0	0	0	0	10	—	—	—	8.74	—	—	—	—	9.4	12.5	—	—	—	—	186	20	12.2	38	45	95

Sample Description 34-8000
Average Weight 40g Mean Length 32mm Longest 35mm Shortest 30mm Ratio (long/short) 1.2
Number of organisms per chamber 10 fish Ratio of fish to water 1:11g/L Comments No mortalities at either concentration



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LABORATORY REPORT

CUSTOMER:

WA State Dept of Ecology
Attn: Margaret Stinson
P.O. Box 307
Manchester, WA 98353

BIOMED NO: 11524
RECEIVED: 8/24/89
Client Sample I.D.: WDOE Sample #34-8001

LABORATORY USE ONLY

LAB #: 11524
REPORT DATE 9/5/89
CUSTOMER P.O. #
APPROVED

TEST PROCEDURE:

The sample was tested for toxic properties in accordance with Washington State Department of Ecology "General Procedure for Static Basic Acute Fish Toxicity Test."

TEST RESULTS:

The test data are tabulated in detail on the following pages.

TEST DETAILS:

The sample was tested at 100 and 1,000 ppm (mg/L) by weight in water.

The test organisms were rainbow trout (*Oncorhynchus mykiss*). The organism length ranged from 28 to 43 mm, giving a short to long ratio of 1:5. The average length was 35 mm. The average weight was .64 grams.

10 fish were added to 38 liters of sample/water in each aquarium. This gave a flesh-to-mixture ratio of .17 grams/liter.

The test was started Sept. 1, 1989 at 1500 hours and completed on Sept. 5, 1989 at 1500 hours.

CONCLUSIONS:

100 ppm (mg/L)	0/30 Fish Died	0% Mortality
1000 ppm (mg/L)	0/30 Fish Died	0% Mortality
Control	0/30 Fish Died	0% Mortality

Respectfully submitted,

Steven A. Lock

Development Associate

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Laboratory

LUDE/ 34-8001

Box 307 Manchester WA 98353

8/18/89

Beginning

Date 9/1/89

Analysis

Steven Zock

2

1517a

Ending

6/5/90

2

1517a

Test Questions

Ravibho Dant Encachachar mikkis

Received Test Temperature Ranges

11.5-12.5°C

Sample Description

34-8001

Average Weight

649

Mean Length

3.5 mm

Longest

43000

Shorts

28 mm

Ratio long/short

15

Number of organisms per chamber:

112 fish

Bathing of flesh in water:

17.1

Comments:

The mortalities

2

* Method on file with the Department of Ecology

GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

DATA VERIFIED BY

EHW > 10/30

DATE _____



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LABORATORY REPORT

CUSTOMER:

WA State Dept of Ecology
Attn: Margaret Stinson
P.O. Box 307
Manchester, WA 98353

BIOMED NO: 11525
RECEIVED: 8/24/89
CLIENT SAMPLE I.D.: WDOE sample #34-8002

LABORATORY USE ONLY

LAB #: 11525
9/13/89
REPORT DATE
CUSTOMER P.O. #
APPROVED

TEST PROCEDURE:

The sample was tested for toxic properties in accordance with Washington State Department of Ecology "General Procedure for Static Basic Acute Fish Toxicity Test."

TEST RESULTS:

The test data are tabulated in detail on the following pages.

TEST DETAILS:

The sample was tested at 100 and 1000ppm (mg/L) by weight in water.

The test organisms were rainbow trout (*Oncorhynchus mykiss*). The organism length ranged from 32 to 40mm, giving a short to long ratio of 1:3. The average length was 36mm. The average weight was .50 grams.

10 fish were added to 38 liters of sample/water in each aquarium. This gave a fish-to-mixture ratio of .13 grams/liter.

The test was started Sept 7, 1989 at 1300 hours and completed on Sept 11, 1989 at 1300 hours.

CONCLUSIONS:

100 ppm (mg/L)	0/30 Fish Died	0% Mortality
1000 ppm (mg/L)	0/30 Fish Died	0% Mortality
Control	0/30 Fish Died	0% Mortality

Respectfully submitted,

Steven A. Lock

Development Associate

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DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Industry/Toxicant WDOE/ 34-8002
Address P.O. Box 307 Manchester, WA 98353
Collector _____
Date Sample Collected 8/18/89

Laboratory BiolMed
Analyst Steven Lock
Beginning Date 9/1/89 Time 13:00
Ending Date 9/10/89 Time 1300
Test Organism Rainbow Trout *Oncorhynchus mykiss*
Required Test Temperature Range 11.5°C - 12.5°C

Laboratory Reference Number	Test Container No.	Conc. (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25°C					Temperature (°C)					Total Hardness (mg/L CaCO ₃)		Total Alkalinity (mg/L CaCO ₃)		Conductivity (µmhos/cm)	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
	1	T	0	0	0	0	0	10	—	—	—	9	7.3	—	—	—	8.0	12	—	—	—	—	24	30	32	44	45	61
	2	J	0	0	0	0	0	10	—	—	—	9	7.5	—	—	—	7.5	12	—	—	—	—	26	28	26	32	46	49
	3	↓	0	0	0	0	0	10	—	—	—	9	7.2	—	—	—	7.1	12	—	—	—	—	24	24	26	28	48	41
#11525	4	1000 ^µ	0	0	0	0	0	10	—	—	—	8	7.5	—	—	—	8.9	12	—	—	—	—	26	18	24	52	39	89
↓	5	↓	0	0	0	0	0	10	—	—	—	8	7.5	—	—	—	7.1	12	—	—	—	—	26	34	24	22	36	36
↓	6	↓	0	0	0	0	0	10	—	—	—	8	7.5	—	—	—	7.0	12	—	—	—	—	26	28	34	52	45	84
#11525	7	1000	0	0	0	0	0	10	—	—	—	7	8.5	—	—	—	7.2	12	—	—	—	—	24	24	28	28	50	40
↓	8	↓	0	0	0	0	0	10	—	—	—	7	7.6	—	—	—	7.6	12	—	—	—	—	30	20	34	46	40	54
↓	9	↓	0	0	0	0	0	10	—	—	—	7	7.5	—	—	—	7.2	12	—	—	—	—	24	32	18	24	40	43

Sample Description 34-8002
Average Weight 1.50g Mean Length 36 mm Longest 40 mm Shortest 32 mm Ratio (long/short) 1.2
Number of organisms per chamber 10 fish Ratio of flesh to water 1.39/g Comments No mortalities at either concentration.

* Method on file with the Department of Ecology.

GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST

ECY 030-140

DATA VERIFIED BY Steven Lock DATE 9/1/89

EHW > 10/30

DW > 11/30



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LABORATORY REPORT

CUSTOMER:

WA state Dept of Ecology
Attn: Margaret Stinson
P.O. Box 307
Manchester, WA 98353

BIOMED NO: 11526
RECEIVED: 8/24/89
CLIENT SAMPLE I.D.: WDOE sample #34-8003

LABORATORY USE ONLY

LAB #: 11526
REPORT DATE 9/19/89
CUSTOMER P.O. #
APPROVED

TEST PROCEDURE:

The sample was tested for toxic properties in accordance with Washington State Department of Ecology "General Procedure for Static Basic Acute Fish Toxicity Test."

TEST RESULTS:

The test data are tabulated in detail on the following pages.

TEST DETAILS:

The sample was tested at 100 and 1000ppm (mg/L) by weight in water.

The test organisms were rainbow trout (*Oncorhynchus mykiss*). The organism length ranged from 33 to 45mm, giving a short to long ratio of 1:4. The average length was 39mm. The average weight was .64 grams.

10 fish were added to 38 liters of sample/water in each aquarium. This gave a flesh-to-mixture ratio of .17 grams/liter.

The test was started Sept. 14, 1989 at 1000 hours and completed on Sept 18, 1989 at 1000 hours.

CONCLUSIONS:

100 ppm (mg/L)	0/30 Fish Died	0% Mortality
1000 ppm (mg/L)	0/30 Fish Died	0% Mortality
Control	0/30 Fish Died	0% Mortality

Respectfully submitted,

Steven A. Lock

Development Associate

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DATA SHEET FOR STATIC BASIC ACUTE FISH TOXICITY TEST*

Industry/Toxicant WDDP/ 34-8003
Address Box 307 Manchester, WA 98353
Collector _____
Date Sample Collected 8/18/82

Laboratory BioMed
Analyst Stefanovich
Beginning Date 9/14/84 Time 07:11/11/87
Ending Date 9/18/84 Time 11:00
Test Organism Rainbow Trout Oncorhynchus mykiss
Required Test Temperature Range 11.5°C - 12.5°C

Laboratory Reference Number	Test Con- tainer No.	Conc (mg/l)	Number of Cumulative Deaths					Dissolved Oxygen (mg/l)					pH 25°C					Temperature (°C)					Total Hardness (mg/L CaCO ₃)		Total Alkalinity (mg/L CaCO ₃)		Conductivity µMOS/cm	
			0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	96	0	96	0	96
	1	T	0	0	0	0	0	10	—	—	—	8	7.1	—	—	—	7.1	12	—	—	—	—	14	14	34	22	60	38
	2	T	0	0	0	0	0	10	—	—	—	8	7.3	—	—	—	7.1	12	—	—	—	—	16	16	20	22	45	40
	3	↓	0	0	0	0	0	10	—	—	—	8	7.5	—	—	—	7.3	12	—	—	—	—	16	10	18	20	40	42
#11523	4	100	0	0	0	0	0	10	—	—	—	8	7.5	—	—	—	7.1	12	—	—	—	—	18	14	22	20	44	35
	5	↓	0	0	0	0	0	10	—	—	—	8	7.4	—	—	—	7.3	12	—	—	—	—	18	16	24	38	45	48
	6	↓	0	0	0	0	0	10	—	—	—	8	7.6	—	—	—	7.5	12	—	—	—	—	18	14	24	34	50	50
#11526	7	1000	0	0	0	0	0	10	—	—	—	7	7.1	—	—	—	7.3	12	—	—	—	—	20	16	18	18	45	45
	8	↓	0	0	0	0	0	10	—	—	—	7	7.3	—	—	—	7.6	12	—	—	—	—	20	14	22	24	37	50
	9	↓	0	0	0	0	0	10	—	—	—	7	7.7	—	—	—	7.4	12	—	—	—	—	18	12	22	26	49	50

Sample Description 34-8003
Average Weight 16.4g Mean Length 39mm Longest 45mm Shortest 33mm Ratio long/short 1.4
Number of organisms per chamber 10 fish Ratio of flesh to water 1.79/1 Comments No mortalities, O₂ level

* Method on file with the Department of Ecology
GENERAL PROCEDURE FOR STATIC BASIC ACUTE FISH TOXICITY TEST
ECY 090-1-40

DATA VERIFIED BY Stefanovich DATE 9/18/84
____ EHW > 10/30
____ DW > 11/30

14-SEP-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 1

==> Transaction #: 09141552 Laboratory: (WE) Ecology, Manchester Lab
Work Group: (72) Pesticide Scan
Instrument: (GCT-NPD0) DOE0 Tracor GC 585, Ni-63, EC Detect
Method: (EP2-608) GC Ext Scan
Chemist: (RHR) Rieck, Bob ESD Hours Worked: _____
Project: DOE-222J BLACK RIVER NRDA Prg Ele#: B32D5
Prj Off: Kittle, Lew DOE Analysis Due: 890817 Revised Due:

*** Sample Records in Transaction ***

Seq#	Sample #	QA	Date/Time	Description	Alternate Keys
01	89377227		890817	COMP. A	
02	89377228		890817	CONTROL B	
03	89377229		890817	MUSSEL	
04	89377228	LMX1	890817	CONTROL B	
05	89377227	LBK1	890817	COMP. A	
06	89377227	LBK2	890817	COMP. A	

Record Type: TRNIN3 Date Verified: 9-15-89 By: Baill
Transaction Status: Edited Transaction...First Printing...Unverified.
Processed: 14-SEP-89 16:21:09 Status: E Batch: (In CUR DB)

14-SEP-89

Washington State Department of Ecology
*** Lab Analysis Report ***

Page 2

Transaction #: 09141552 Seq #: 01 (72) Pesticide Scan
Proj Code : DOE-222J BLACK RIVER NRDA

PE # : B32D5

Sample No.: 89 377227

Alternate Keys:

Samp Matrix: (70) Tissue

Units: (22) ug/kg %Slds: _____

QA Code: () Unspecified

Peaks Total: _____

Date Extracted: 890911 Date Analyzed: 890913

Days to Ext/Anal: 25/ 2

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/kg	1U
2	57749	Chlordane	ug/kg	5U
3	60571	Dieldrin	ug/kg	1U
4	50293	4,4'-DDT	ug/kg	1U
5	72559	4,4'-DDE	ug/kg	1U
6	72548	4,4'-DDD	ug/kg	1U
7	959988	alpha-Endosulfan	ug/kg	1U
8	33213659	beta-Endosulfan	ug/kg	1U
9	1031078	Endosulfan sulfate	ug/kg	1U
10	72208	Endrin	ug/kg	1U
11	7421934	Endrin aldehyde	ug/kg	1U
12	76448	Heptachlor	ug/kg	1U
13	1024573	Heptachlor epoxide	ug/kg	1U
14	319846	alpha-BHC	ug/kg	1U
15	319857	beta-BHC	ug/kg	1U
16	58899	gamma-BHC (Lindane)	ug/kg	1U
17	319868	delta-BHC	ug/kg	1U
18	8001352	Toxaphene	ug/kg	34U
19	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	105 (I.S.) PR
20	-200045	IntStd: Hexabromobenzene	% Recov	88 (I.S.) PR

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*** Lab Analysis Report ***

Transaction #: 09141552 Seq #: 02 (72) Pesticide Scan

Proj Code : DOE-222J BLACK RIVER NRDA

PE # : B32D5

Sample No.: 89 377228

Alternate Keys:

Samp Matrix: (70) Tissue

Units: (22) ug/kg %Slds: _____

QA Code: () Unspecified

Peaks Total: _____

Date Extracted: 890911 Date Analyzed: 890913

Days to Ext/Anal: 25/ 2

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/kg	1U
2	57749	Chlordane	ug/kg	5U
3	60571	Dieldrin	ug/kg	1U
4	50293	4,4'-DDT	ug/kg	1U
5	72559	4,4'-DDE	ug/kg	1U
6	72548	4,4'-DDD	ug/kg	1U
7	959988	alpha-Endosulfan	ug/kg	1U
8	33213659	beta-Endosulfan	ug/kg	1U
9	1031078	Endosulfan sulfate	ug/kg	1U
10	72208	Endrin	ug/kg	1U
11	7421934	Endrin aldehyde	ug/kg	1U
12	76448	Heptachlor	ug/kg	1U
13	1024573	Heptachlor epoxide	ug/kg	1U
14	319846	alpha-BHC	ug/kg	1U
15	319857	beta-BHC	ug/kg	1U
16	58899	gamma-BHC (Lindane)	ug/kg	1U
17	319868	delta-BHC	ug/kg	1U
18	8001352	Toxaphene	ug/kg	34U
19	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	105 (I.S.) PR
20	-200045	IntStd: Hexabromobenzene	% Recov	86 (I.S.) PR

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*** Lab Analysis Report ***

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Transaction #: 09141552 Seq #: 03 (72) Pesticide Scan
Proj Code : DOE-222J BLACK RIVER NRDA

PE # : B32D5

Sample No.: 89 377229

Alternate Keys:

Samp Matrix: (70) Tissue

Units: (22) ug/kg %Slds: _____

QA Code: () Unspecified

Peaks Total: _____

Date Extracted: 890911 Date Analyzed: 890913

Days to Ext/Anal: 27 2

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/kg	3U
2	57749	Chlordane	ug/kg	10U
3	60571	Dieldrin	ug/kg	3U
4	50293	4,4'-DDT	ug/kg	3U
5	72559	4,4'-DDE	ug/kg	3U
6	72548	4,4'-DDD	ug/kg	3U
7	959988	alpha-Endosulfan	ug/kg	3U
8	33213659	beta-Endosulfan	ug/kg	3U
9	1031078	Endosulfan sulfate	ug/kg	3U
10	72208	Endrin	ug/kg	3U
11	7421934	Endrin aldehyde	ug/kg	3U
12	76448	Heptachlor	ug/kg	3U
13	1024573	Heptachlor epoxide	ug/kg	3U
14	319846	alpha-BHC	ug/kg	3U
15	319857	beta-BHC	ug/kg	3U
16	58899	gamma-BHC (Lindane)	ug/kg	3U
17	319868	delta-BHC	ug/kg	3U
18	8001352	Toxaphene	ug/kg	80U
19	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	98 (I.S.) PR
20	-200045	IntStd: Hexabromobenzene	% Recov	90 (I.S.) PR

*** Lab Analysis Report ***

Transaction #: 09141552 Seq #: 04 (72) Pesticide Scan

Proj Code : DOE-222J BLACK RIVER NRDA

PE # : B32D5

Sample No.: 89 377228

Alternate Keys:

Samp Matrix: (70) Tissue

Units: (94) % Recov %Slds: ____

QA Code: (LMX1) Lab Mtrx Spike #1 (% Rec

Peaks Total: ____

Date Extracted: 890911 Date Analyzed: 890913

Days to Ext/Anal: 25/ 2

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	% Recov	98
2	57749	Chlordane	% Recov	NOT ADDED
3	60571	Dieldrin	% Recov	96
4	50293	4,4'-DDT	% Recov	102
5	72559	4,4'-DDE	% Recov	95
6	72548	4,4'-DDD	% Recov	98
7	959988	alpha-Endosulfan	% Recov	93
8	33213659	beta-Endosulfan	% Recov	96
9	1031078	Endosulfan sulfate	% Recov	98
10	72208	Endrin	% Recov	101
11	7421934	Endrin aldehyde	% Recov	36
12	76448	Heptachlor	% Recov	91
13	1024573	Heptachlor epoxide	% Recov	96
14	319846	alpha-BHC	% Recov	93
15	319857	beta-BHC	% Recov	95
16	58899	gamma-BHC (Lindane)	% Recov	92
17	319868	delta-BHC	% Recov	92
18	8001352	Toxaphene	% Recov	NOT ADDED
19	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	99 (I.S.) PR
20	-200045	IntStd: Hexabromobenzene	% Recov	91 (I.S.) PR

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*** Lab Analysis Report ***

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Transaction #: 09141552 Seq #: 05 (72) Pesticide Scan
Proj Code : DOE-222J BLACK RIVER NRDA

PE # : B32D5

Blank ID : BT9254

Sample No.: 89 377227

Alternate Keys:

Samp Matrix: (70) Tissue

Units: (22) ug/kg %Slds: _____

QA Code: (LBK1) Lab Blank Sample #1

Peaks Total: _____

Date Extracted: 890911 Date Analyzed: 890912

Days to Ext/Anal: 25/ 1

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/kg	ND
2	57749	Chlordane	ug/kg	ND
3	60571	Dieldrin	ug/kg	ND
4	50293	4,4'-DDT	ug/kg	ND
5	72559	4,4'-DDE	ug/kg	ND
6	72548	4,4'-DDD	ug/kg	ND
7	959988	alpha-Endosulfan	ug/kg	ND
8	33213659	beta-Endosulfan	ug/kg	ND
9	1031078	Endosulfan sulfate	ug/kg	ND
10	72208	Endrin	ug/kg	ND
11	7421934	Endrin aldehyde	ug/kg	ND
12	73448	Heptachlor	ug/kg	ND
13	1024573	Heptachlor epoxide	ug/kg	ND
14	319846	alpha-BHC	ug/kg	ND
15	319857	beta-BHC	ug/kg	ND
16	58899	gamma-BHC (Lindane)	ug/kg	ND
17	319868	delta-BHC	ug/kg	ND
18	8001352	Toxaphene	ug/kg	ND
19	-10386042	IntStd: 4,4-Dibromooctafluor	% Recov	63 (I.S.) PR
20	-200045	IntStd: Hexabromobenzene	% Recov	70 (I.S.) PR

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*** Lab Analysis Report ***

Transaction #: 09141552 Seq #: 06 (72) Pesticide Scan

Proj Code : DOE-222J BLACK RIVER NRDA

PE # : B32D5

Blank ID : BT 9254D

Sample No.: 89 377227

Alternate Keys:

Samp Matrix: (70) Tissue

Units: (22) ug/kg

%Slds: _____

QA Code: (LBK2) Lab Blank Sample #2

Peaks Total: _____

Date Extracted: 890911 Date Analyzed: 890912

Days to Ext/Anal: 25/ 1

Line	Par #	Parameter Description	Units	Value
1	309002	Aldrin	ug/kg	ND
2	57749	Chlordane	ug/kg	ND
3	60571	Dieldrin	ug/kg	ND
4	50293	4,4'-DDT	ug/kg	ND
5	72559	4,4'-DDE	ug/kg	ND
6	72548	4,4'-DDD	ug/kg	ND
7	959988	alpha-Endosulfan	ug/kg	ND
8	33213659	beta-Endosulfan	ug/kg	ND
9	1031078	Endosulfan sulfate	ug/kg	ND
10	72208	Endrin	ug/kg	ND
11	7421934	Endrin aldehyde	ug/kg	ND
12	76448	Heptachlor	ug/kg	ND
13	1024573	Heptachlor epoxide	ug/kg	ND
14	319846	alpha-BHC	ug/kg	ND
15	319857	beta-BHC	ug/kg	ND
16	58899	gamma-BHC (Lindane)	ug/kg	ND
17	319868	delta-BHC	ug/kg	ND
18	8001352	Toxaphene	ug/kg	ND
19	-10386842	IntStd: 4,4-Dibromooctafluor	% Recov	87 (I.S.) PR
20	-200045	IntStd: Hexabromobenzene	% Recov	90 (I.S.) PR

ATTACHMENT 5

Pickett Facility Inspection & Miscellaneous Reports



INSPECTION REPORT

To Global Aqua - Black River

Date of Visit Aug 11, 1989

Name of Entity Same

City Cate County Thurston

Inspector Paul Pickett

Permit Number WA-003944-6

Permit Expires 4-16-86 (ext'd)

New Industry no

Person Contacted Oly Flatraaker, Tim Monfort

Type of Facility Aquaculture

Receiving Water Black River

Type of Treatment System Settling

Operation: ☐ Satisfactory ☒ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe Facility not in operation. Recent fish-kill (8/6/89) raised concerns with this facility.

* Aug 3 - furunculosis outbreak; pumps stopped; stock destroyed & buried w/ lime, some liming of channels.

* Tanks on-site: 16 - 50' CC, 12 - 6m fiberglass circular, 12 - 3m sq. c., 24 - 2m square sq., 23 - 1 1/2m sq. c.

* Tanks in use on 8/3: 6m, 3m, 1 1/2m tanks.

One 50m tank in use until end of July (#8).

Water in #10. ~~Water~~ Chlorine and floating buckets in #16. They say they disinfected most buckets.

Twenty-five barrels of formalin - mostly empty.

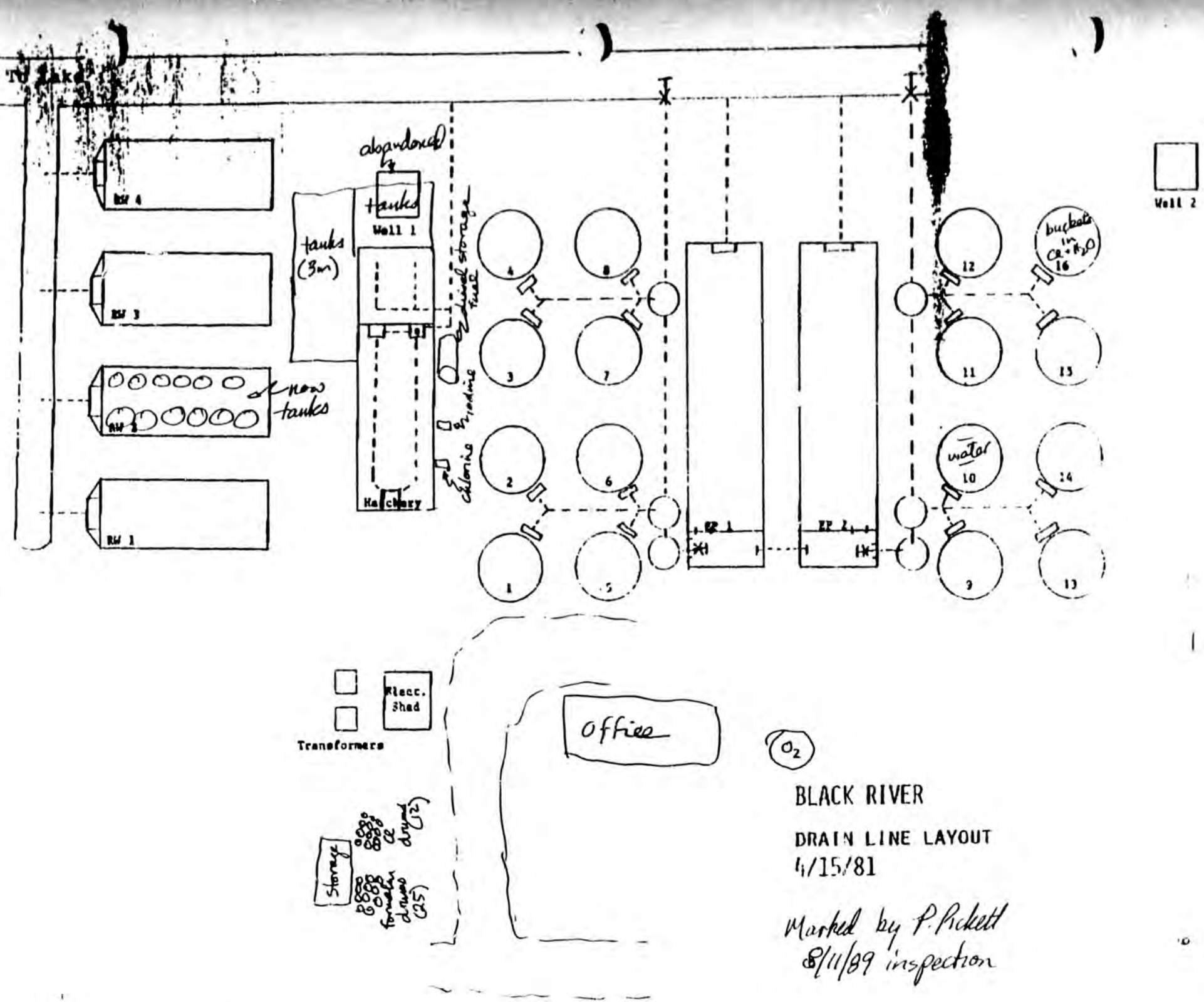
Twelve barrels of Chlorine - all full

One barrel of chl. at hatchery - half full

One barrel of rodnex at hatchery - half full

Three lined earth ponds - some lime

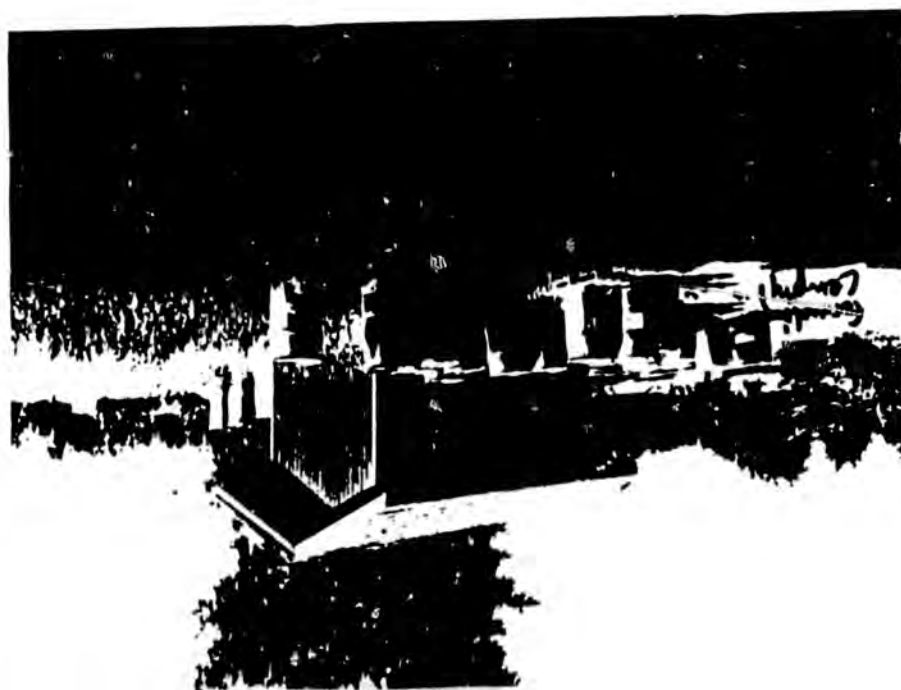
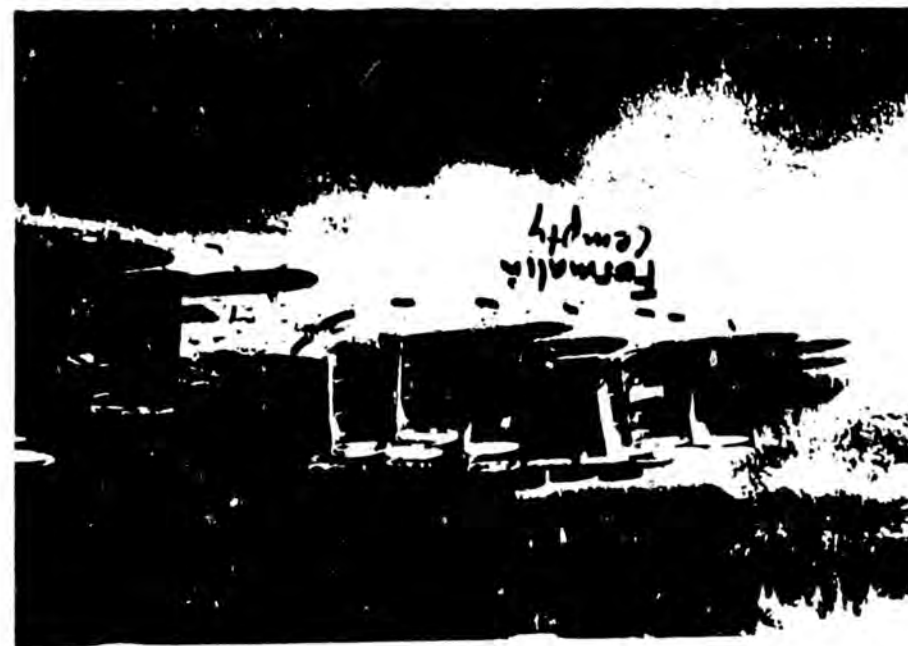
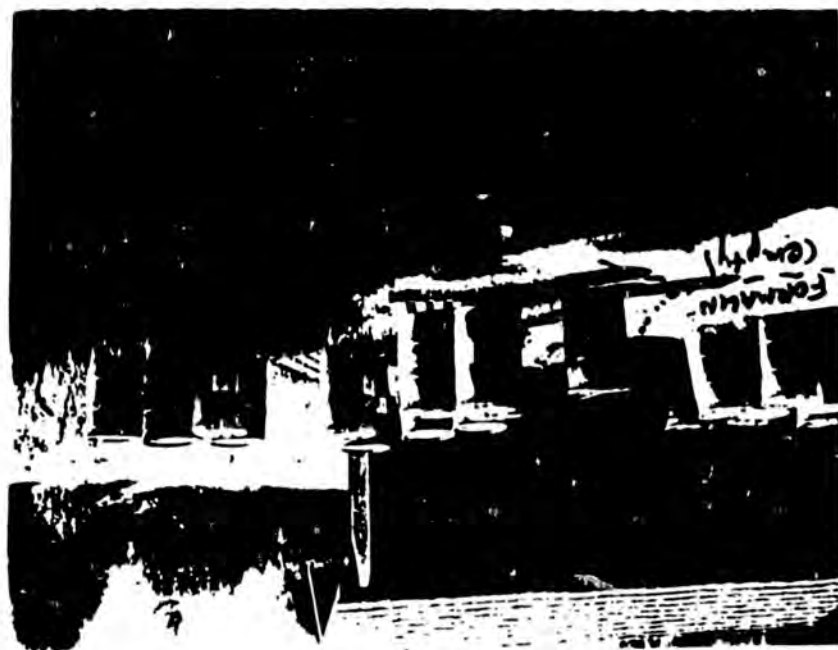
CC
(over)



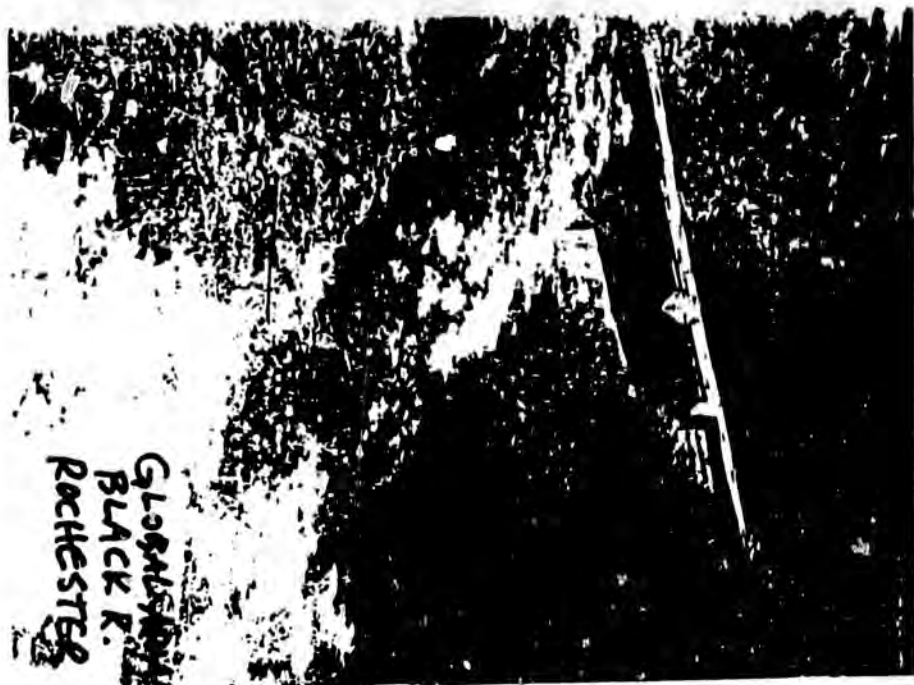
BLACK RIVER

DRAIN LINE LAYOUT
4/15/81

Marked by P. Pickett
8/11/89 inspection



20th Century Plastics
1-800-421-4662
STOCK # PPV35



GLOBAL AQUA/
BLACK R.
ROCHESTER



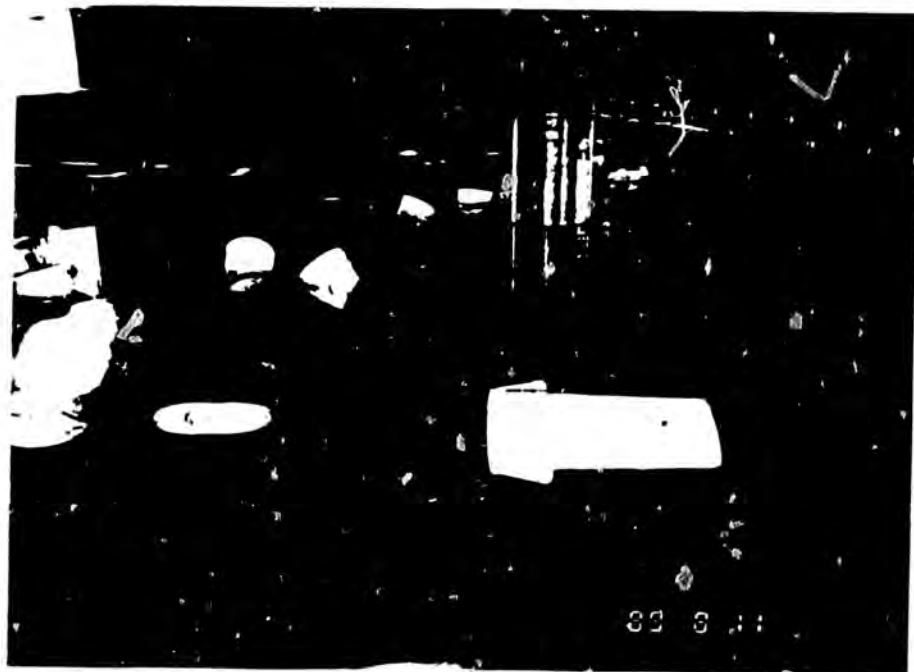
GLOBAL AQUA/BLACK R. ROCHESTER



GLOBAL AQUA/BLACK R. ROCHESTER

20th Century Plastics
 1-800-421-4562
 STOCK ★ PPV83







INSPECTION REPORT

To Rochester Vicinity Inspector Paul Pickett
Date of Visit 8-14-89 Permit Number
Name of Entit. City Storm Drains, Steelhammer, Permit Expires
Global Aqua
City Rochester County Thurston New Industry
Person Contacted Glen Steelhammer
Type of Facility Fish Rearing, Municipal Storm
Receiving Water Black River
Type of Treatment System

Operation: ☐ Satisfactory ☐ Fair ☐ Unsatisfactory

☐ Does not comply with permit conditions

Describe Because of Black/Chehalis Fish Kill - went
to investigate Rochester Slough + visit Global Aqua.
[Stops are numbered on attached map.]

① Steelhammer Salmon Farm: No sign of mort's
fish usually live in the pool. Talked to Glen Steel
hammer. No problems at their facility. They use "2
tablespoons" of chlorine to wash tanks.

② Rochester Slough at Forstrom Rd: Saw muskrat w/young
no sign of mort's

③ Rochester Slough at Schooland Rd: No sign of mort's

⑤ Rochester Slough at BNRR: Slight flow, saw
frog, no mort's.

④ Unnamed Slough at Schooland Rd: Dry, no sign of spill

⑥ Rochester Storm Drainage at 104th Ave: Dry, no sign of spill

⑦ Betts Hill Storm Drain at 103rd Way: Dry, no sign of spill

cc

(over)

