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December 7, 1973

State of Washington Department of Ecology

Memo to: John Hodgson and John Arnquist.

From: Pat Lee

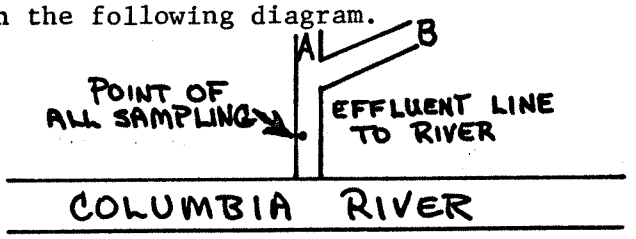
Subject: Chevron Chemical Survey of October 16, 1973.

A waste characteristic survey was conducted on Chevron Chemical Company in Finley, Washington on October 16, 1973. Chevron's effluent was composited every 45 minutes proportional to flow from 0845 hours to 1450 hours. Field tests for pH, conductivity, temperature, and settleable solids were conducted on site and are summarized below.

FIELD RESULTS

8 Determinations	Effluent			
	Max.	Min.	Mean	Median
Temp °C	27.5	26.5	27.0	27.0
pH	10.0	9.2	---	9.4
Conductivity (µmhos/cm)	450.	250.	315.	300.
Settleable Solids	0.0	0.0	0.0	0.0

The effluent was remarkably clear throughout the day except on two occasions. At 1110 hours, a strong ammonia smell was evident from the effluent and at 1320 hours, an amount of scum was noticed on the surface. An oil sample, collected at this time, showed a concentration of 290 ppm. Both times the pollutant was coming from the effluent line labeled A in the following diagram.



After compositing was finished, samples were split with Frank Spaniel of Chevron Chemical. I provided Mr. Spaniel with a list of tests which I had requested our lab to run. The results from both labs are as follows:

	PPM Department of Ecology Results	PPM Chevron Chemical Results
Total PO_4-P	3.80	2.54
Total Kjeldahl - N	31.6	53.1
NH_3-N	28.2	39.5
NO_3-N	.09	13.6

As can be seen, the results are relatively close considering different methods and transit time. The big difference in NO_3-N concentrations, is due to more than this. Rather than testing for NO_3 independently as we do, Mr. Spaniel subtracts the NH_3-N concentration from the total Kjeldahl-N concentration to arrive at his NO_3 value. After consultations with Merley McCall of the laboratory and Standard Methods, I consider Chevron's NO_3 method to be invalid. This conclusion is based on a statement made on page 469 of the 13th edition of Standard Methods for the Examination of Water and Wastewater.

"Total Kjeldahl nitrogen includes ammonia and organic nitrogen but does not include nitrite and nitrate nitrogen."

The rest of the results are reported below and agree pretty well with Chevron's Corps of Engineer application of 1971.

pH	9.7	Total Solids	150 ppm
Turbidity	1 J.T.U.	T.N.V.S.	79 "
Conductivity	360 µmhos/cm	T.S.S.	7 "
BOD	<2 ppm	T.S.N.V.S.	6 "
Total Coliform	110 colonies/100 ml	Alkalinity	73 "
Fecal Coliform	<20 colonies/100 ml	Fluorides	.4 "
NO_2-N	.16 ppm	Hardness	56 "
O-PO_4-P	.56 ppm	Calcium	16 "
		Magnesium	3.8 "
		Potassium	3.0 "

PL:jmh

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: R. Lee

COPIES TO:

LAB FILES

DATA SUMMARY

Source Chevron Chemical — Collected By P.M.L

Date Collected 10-16-73 — Goal, Pro./Obj.

Log Number: 73-	3766	67	68		STORET
Station:	EFF	0935	1320		
pH	9.7				00403
Turbidity (JTU)	1				00070
Conductivity (umhos/cm)@25°C	360				00095
COD					00340
BOD (5 day)	<2				00310
Total Coliform (Col./100ml)	110				31504
Fecal Coliform (Col./100ml)	<20				31616
NO3-N (Filtered)	.09	13.6		SAMPLE - 3766:	00620
NO2-N (Filtered)	.16			ALKALINITY (as $CaCO_3$): 73	00615
NH3-N (Unfiltered)	28.2	39.5	subtract	FLUORIDES: 0.4	00610
T. Kjeldahl-N (Unfiltered)	31.6	53.1		HARDNESS (as $CaCO_3$): 56	00625
O-PO4-P (Filtered)	.56				00671
Total Phos.-P (Unfiltered)	3.80	2.54			00665
Total Solids	150				00500
Total Non Vol. Solids	79				
Total Suspended Solids	7.				00530
Total Sus. Non Vol. Solids	6.				
OILS	-	-*	294		
COLOR	4				
CALCIUM	16.				
POTASSIUM	3.0				
MAGNESIUM	3.8				

Note: All results are in PPM unless otherwise specified. ND is "None Detected"
Convert those marked with a * to PPB (PPM X 10^3) prior to entry into STORET
* SPILLED SAMPLE

Summary By Stephen D. Noll Date 11-6-73