

April 8, 1974

WA-12-1110

Memo to: Jim Krull, Ron Robinson

From: Pat Lee

Subject: Survey of Flett Creek.

A brief water quality survey was conducted on Flett Creek on January 23, 1974. Samples were collected at the following four stations:

- #1 Upstream of Puget Sound Rendering by 100 yards at the weir.
- #2 The effluent of the Puget Sound Rendering "Lagoon" system.
- #3 Flett Creek at the Valley Chapel Road approximately 50 yards downstream from Station #2.
- #4 Flett Creek at Lakewood Drive downstream of both Puget Sound Rendering and the Flett Dairy.

The following field observations were noted:

1. It had been raining on the previous three days and on the day of the survey, thus any surface water runoff was occurring during the survey.
2. The temperature of the "lagoon" effluent was 6.4° C.
3. I walked the length of the Puget Sound Rendering Lagoon System and found it to be an open channel from the plant to Flett Creek. It had some bends in it but essentially it was just a waterway. I probed the juncture of the lagoon and the creek with our 10' sampler and did not find a bottom, thus I would tend to doubt a "non-overflow" condition had existed for a while.

The relevant lab data is summarized below:\*\*

	#1	#2	#3	#4
pH	6.9	6.7	6.8	6.6
Conductivity	110	160	120	150
COD	---	39	19	23
BOD	8	14	< 8	< 12
T. Coliform	3,300	> 160,000	18,000	19,000
F. Coliform	70	54,000	1,600	2,200
Fecal Strep.	180	19,000	1,000	1,200
NO <sub>3</sub> -N	.96	.80	1.15	1.79
NH <sub>3</sub> -N	.02	3.0	.12	.30
T.Kjeldahl-N	.16	3.4	.46	.70
O-PO <sub>4</sub> -P	.20	.10	.25	.20
T-PO <sub>4</sub> -P	1.0	1.3	1.3	1.0
Total Solids	100	142	109	132

Memo to: Jim Krull, Ron Robinson  
Page 2  
April 8, 1974

	#1	#2	#3	#4
T. Sus. Solids	15	24	10	10
T. Dis. Solids	85	118	99	122
Color	60	210	73	96
Oil		None Detected		

\*Not Analyzed

\*\*All results are reported in ppm except coliform and fecal strep which are reported in colonies per 100 ml. and pH.

Interpretation of the above results is not too difficult. Essentially the increase of the concentration of pollutants between Stations #1 and #3 is due to the addition of wastes from Puget Sound Rendering (Station #2). Likewise the increase of the concentration of pollutants between Stations #3 and #4 is due to the influence of the Dairy on the creek. Because Flett Dairy is a non-point source, no sample was taken of its discharge. One additional point should be made regarding the fecal coliform/fecal strep ratio's. The ratios are as follows:

	#1	#2	#3	#4
<u>Fecal Coliform</u>	.39	2.8	1.6	1.9
Fecal Strep				

Station #1 indicates non-human sources (cows, sheep, etc.) while Stations #2, #3 and #4 indicate a mixed loading of both human and non-human sources. Ratios  $\geq 4.0$  indicate strictly human sources. As can be seen, Station #2, the effluent from the rendering plant, exhibits the highest ratio.

PL:jmh

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO: ..P. Lee D. Anderson  
COPIES TO:  
.....  
.....  
LAB FILES .....

Source PUGET SOUND RENDERING

Collected By P. Lee D. Anderson

Date Collected 1/23/74

Goal, Pro./Obj. \_\_\_\_\_

Log Number:	74-0183	0184	0185	0186							STORET
Station:	1	3	4	5							
pH	6.9	6.7	6.8	6.6	X						00403
Turbidity (JTU)	10	8	5	4							00070
Conductivity (umhos/cm)@25°C	110	160	120	150	X						00095
COD	-*	39	19	23	X						00340
BOD (5 day)	<8	14	<8	<12							00310
Total Coliform (Col./100ml)	3,300	1.6x10 <sup>5</sup>	1.8x10 <sup>4</sup>	1.9x10 <sup>4</sup>	X						31504
Fecal Coliform (Col./100ml)	70	5.4x10 <sup>4</sup>	EST 1600	EST 2200	X						31616
NO3-N (Filtered)	.96	.80	1.15	1.79	X						00620
NO2-N (Filtered)	ND	ND	.01	.01							00615
NH3-N (Unfiltered)	.02	3.0	.12	.3	X						00610
T. Kjeldahl-N (Unfiltered)	.16	3.4	.46	.7	X						00625
O-PO4-P (Filtered)	.20	.10	.25	.20	X						00671
Total Phos.-P (Unfiltered)	1.0	1.3	1.3	1.0			FDS				00665
Total Solids	100	142	109	132	X		75	118	101	125	00500
Total Non Vol. Solids	65	81	72	83							
Total Suspended Solids	15	24	10	10	X						00530
Total Sus. Non Vol. Solids	12	13	8	7							
FECAL STREP (col/100 ml)	180	1.9x10 <sup>4</sup>	1000	1200	X						
COLOR	60	210	73	96	X						116 00000
CHLORIDES	5	10	6	7							
OILS & GREASES	-	ND	-	-	X						
FCLFS	.39	2.8	1.6	1.9							

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

\* INSURE SAMPLE

(115)

Summary By Stephen A. Roll Date 2-28-74