

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
DANIEL J. EVANS JOHN A. BIGGS
GOVERNOR DIRECTOR

July 19, 1972

Publication No. 72-e12

MEMORANDUM

TO: Stew Messman
FROM: Ron Devitt
SUBJECT: Enumclaw STP

On June 20, 1972 a survey was conducted at Enumclaw STP. Composites were collected at the end of the grit channel (influent), at the outlet from the primary clarifier, and from the outlet of the secondary clarifier (final effluent). There was no way to sample the effluent from the trickling filter.

The housekeeping of the plant was very good. Additional landscaping is underway. There were filter flies emerging, but not in problem numbers.

The field values were routine until 1300 hours, when the pH of the influent was 5.1. Values as low as 4.8 were observed. At 1400 hours, pH was 6.0; at 1500 hours it was up to 6.6. Throughout this time, conductivity was also increased by a factor of ten. This acidic slug altered the pH and conductivity of the primary effluent. Operator Jim Crossler checked with Farman's Pickles, but they denied any responsibility for the condition.

The flow meter was not operating; estimates of flow were made by measuring the head height of the proportional weirs and using the formula

$$Q_{cfs} = 4.97 (\sqrt{a}) (b) (h_Q - \frac{a}{3})$$

Where b is the width of the base, a is the height of the base and h_Q is the head height. a, b and h_Q are in feet. Q is cfs.

RCD:bj

cc: Ron Pine
Lloyd Taylor
Glenn Phillips
Bob McCormick

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

Forced Air

City Enumclaw STP **Plant Type** T. Filter **Population Served** 2700 **Design Capacity** 2 MGD

Receiving Water Boise Creek **Engineer** Stew Messman

Date 6-20-72 **Survey Period** 0900-1530 **Survey Personnel** Ron Devitt

Comp. Sampling Frequency 30 minutes **Weather Conditions** Light Sprinkles
(last 48 hours)

Sampling Alequot 1000 ml/sample

PLANT OPERATION

Total Flow Recorder Inoperative **How Measured** Head Height Proportional Weirs

Max. (Flow) .97 **Time of Max.** 1200 **Min.** .40 **Time of Min.** 0900

Pre Cl₂ ? #/day **Post Cl₂** ? #/day

FIELD RESULTS

Influent

Final

Effluent

Determinations

Temp. °C

Conductivity (umhos/cm)

Settleable Solids

	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	17.1	15.3	16.4	16.8	17.1	16.4	16.7	16.8
Conductivity (umhos/cm)	7.2	5.0	6.7	7.0	7.3	7.1	7.2	7.2
Settleable Solids	6800	450	2060	575	1000	750	920	950
	9.0	2.5	6	6.0	.4	.05	.2	.1

LABORATORY RESULTS ON COMPOSITE IN PPM

1st Clarifier. / Final

Total Plant

Laboratory Number

5-Day BOD

COD

T.S.

T.N.V.S.

T.S.S.

N.V.S.S.

pH

Conductivity

Turbidity

	Influent	Effluent		% Reduction
		72-2220	72-2219	
	72-2218			-----
5-Day BOD	294	204	14	95
COD	512	401	169	67
T.S.	520	1090	1102	None
T.N.V.S.	395	815	781	None
T.S.S.	138	119	60	57
N.V.S.S.	25	29	41	None
pH	6.9	6.8	7.3	-----
Conductivity	1780	1880	1010	-----
Turbidity	93	48	21	-----

Enumclaw STP

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample in bottle After _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		15 sec.	3 min.
		Total	Fecal	Cl Residual ppm	Residual (after secs)
72-2221	1010	<200	<80	.5	>1.0
72-2222	1440	200	<80	.2	1.0

Operator's Name Jim Crossler Phone # City Hall TA 5 - 3591

Comments: _____

ENUMCLAW

INFLUENT

31.	TIME	T	FINAL PH	ESS COND	SS	Chlorine 3min	TIME	H	COND	Notes
	0910	16.8	7.1	1000	.05	—	1300	5.1	6500	
	0940	17.0	7.1	750	—	—	1305	5.0	—	check
	1010	16.4	7.2	950	.1	.5 > 1.0	1310	4.8	7500	pH Recorder
	1040	16.8	7.2	950	—	—	1312	4.8	8000	(C)
	1110	16.7	7.2	950	.4	.4 > 1.0	1314	5.2	6500	Farmans
	1140	16.7	7.2	925	—	—	1315	5.4	5500	
	1210	16.5	7.3	900	—	—	1316	5.5	5250	
	1240	16.7	7.3	875	—	—	17	5.4	5500	LIME feed
	1310	16.5	7.1	950	—	—	18	5.2	5600	
	1340	—	—	—	—	—	19	5.0	6000	Flow
	1410	—	—	—	—	—	20	5.0	6250	TIME
	1440	16.8	7.1	—	—	.2 (1.0)	21	4.9	6500	PH
	1510	16.8	7.1	—	—	—	22	4.9	6600	COND
	1610	17.1	—	—	—	—	24	4.8	6300	47
							27	4.9	7000	6.1
							29	5.0	6800	50
							32	5.0	6800	51
							35	6.2	4500	53
							36	6.4	4000	55
							37	6.5	3700	57
							38	6.4	4000	59
							43	6.4	4300	1510
							45	6.2	4500	6.1

HEAD operator J.M. [Signature]

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO: R. DeWitt
 COPIES TO:

 LAB FILES

Source E NUMCLAW STP

Collected By P.C.D.

Date Collected 6-20

Goal, Pro./Obj. 2 2 2

Log Number: <u>7722</u>	18	19	20	21	22						STORET	
Station:	STP INF	STP EFF	PRIM CLAR EFF	EFF 1010	EFF 1440							
pH	6.9	7.3	6.8									00403
Turbidity (JTU)	93	21	48									00070
Conductivity (umhos/cm)@25°C	1740	1010	1880									00095
COD	512	169	401									00340
BOD (5 day)	294	14	204									00310
Total Coliform (Col./100ml)				< 200	200							31504
Fecal Coliform (Col./100ml)				< 80	< 80							31616
NO3-N (Filtered)												00620
N2-N (Filtered)												00615
NH3-N (Unfiltered)												00610
T. Kjeldahl-N (Unfiltered)												00625
O-PO4-P (Filtered)												00671
Total Phos.-P (Unfiltered)												00665
Total Solids	522	1102	1090									00500
Total Non Vol. Solids	395	781	755									
Total Suspended Solids	138	60	119									00530
Total Sus. Non Vol. Solids	25	41	29									

Note: All results are in PPM unless otherwise specified. ND is "None Detected"
 Convert those marked with a * to PPB (PPM X 10³) prior to entry into STORET

Summary By Stephen D. Rull Date 7-6-72