

December 2, 1974



Memo To: Bill Burwell

From: Shirley Prescott

Subject: Palouse STP Efficiency Study

An efficiency study was completed on September 25, 1974. The lab and field results are shown on the attached survey report form.

The plant area is fenced and locked; the buildings are in reasonably good repair, however, housekeeping in the "lab" area does need improvement.

Neil Myott, the plant operator, now has a young man working with him (Dennis Shaw) who will be taking over general operation of the plant.. Dennis hopes to be certified soon and plans to implement a routine testing schedule.

Two grab samples were taken from the river; approximately 200 feet above and below the STP outfall. The samples were taken from the opposite shore in the most accessible areas.

Since these samples gave us some rather strange results, we will plan to do further sampling in this area on a subsequent trip in this area.

SP:eme

Enclosure

STP Survey Report Form

Efficiency Study

City Palouse Plant Type Trickling Filter Pop. Served Approx. 800 Design 850
 Receiving Water Palouse River Perennial X Intermittent _____
 Capacity _____

Date 9/25 Survey Period 10/3 Survey Personnel Shirley Prescott

Comp. Sampling Frequency Hourly Sampling Alequot 1,000

Weather Conditions (24 hr) Clear & dry Are facilities provided for complete by-pass of raw sewage? X Yes _____ No/Frequency of bypass once a year

Reason for bypass _____ Flooding Is bypass chlorinated? X Yes _____ X No _____ if mechanical failure _____ if flooding _____

Was DOE Notified? No Discharge - Intermittent _____ Continuous _____

Plant Operation

Total flow .18 mgd No flow meter _____ How measured Parshall flume

Maximum flow 210 tgd severe Time of Max. Floods and heavy rain

Minimum flow _____ Time of Min. _____

Pre Cl₂ _____ #/day Post Cl₂ 5 lbs. #/day

Field Results

Influent

Effluent

Determinations	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	19.4	18.2		19.2	19.8	18.		18.9
pH (Units)	8.2	7.8		7.8	8.0	7.8		7.9
Conductivity (µmhos/cm ²)	525	450		500	575	550		550
Settleable Solids (mls/l)	9.0	4.	5.5		.02	trace	trace	

Laboratory Results on Composites

	Influent	Effluent	% Reduction
Laboratory No.	<u>3883</u>	<u>3884</u>	
5-Day BOD ppm	<u>160</u>	<u>40</u>	<u>.75%</u>
COD ppm	<u>260</u>	<u>100</u>	<u>.62%</u>
T.S. ppm	<u>547</u>	<u>452</u>	<u>17%</u>
T.N.V.S. ppm	<u>295</u>	<u>297</u>	<u>--</u>
T.S.S. ppm	<u>127</u>	<u>166</u>	<u>--</u>
N.V.S.S. ppm	<u>23</u>	<u>31</u>	<u>--</u>
pH (Units)	<u>7.9</u>	<u>7.9</u>	
Conductivity (µmhos/cm ²)	<u>660</u>	<u>750</u>	
Turbidity (JTU's)	<u>58</u>	<u>21</u>	
Chlorides	<u>13</u>	<u>22</u>	

Laboratory Bacteriological Results

Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual	
		Total Coliform	Fecal Coliform	Fecal Strep	15 sec.	3 min.
7487	10:30	680	10 Est.		.5	.4
7488	11:30	520	10 Est.		.75	.75
7489	13:15	160	< 20		.75	.75
7490	14:15	100	< 20		1.0	1.0
7485	Above STP	20,000	130 Est.			
7786	Below STP	15,000	100 Est.			

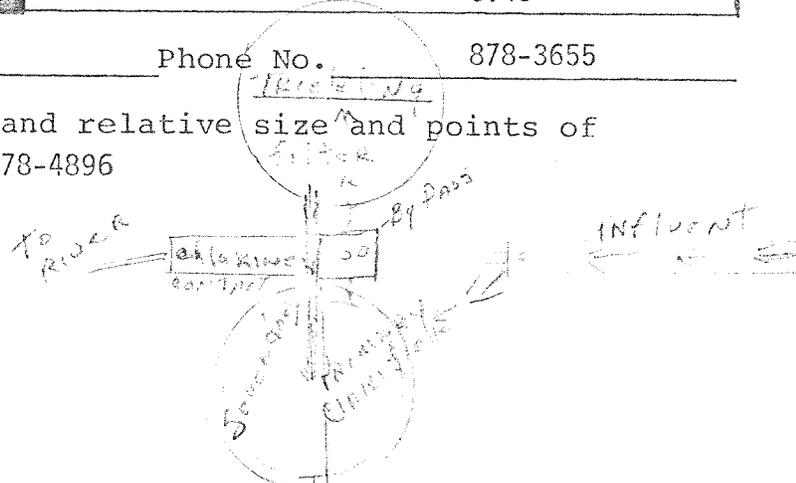
Additional Laboratory Results

	Effluent #7484		Above STP #7485	Below STP #7486
	NO ₃ -N ppm -	.03		.06
NO ₂ -N ppm -	N.D.		N.D.	N.D.
NH ₃ -N ppm -	16.		N.D.	N.D.
T. Kjeldahl-N ppm	-18.2		.14	.44
O-PO ₄ -P ppm -	4.60		0.46	0.10
T-PO ₄ -P ppm -	7.95		0.68	0.43

Operator's Name Neil Myott Phone No. 878-3655

Furnish a flow diagram with sequence and relative size and points of chlorination. Dennis Shaw - - Phone 878-4896

Flow goes through headworks, then follows arrows to primary half of dual clarifier. From there it goes to trickling filter, where it comes back to secondary side of dual clarifier. It then goes into chlorine contact chamber and into river.



Type of Collection System

Combined Separate Both
Some houses into sewer drain rather than storm drain.

Estimate flow contributed by surface or ground water (infiltration)

Heavy rains about double the flow. MGD

Plant Loading Information

Annual average daily flow rate (mgd)

Peak flow rate (mgd)

Dry .12 MG

Dry .12 MGd

Wet .21 MG

Wet .21 to .5 MGD (or more)

COMMENTS: Sludge pumped to bank of river - - no drying bed or other - - pumped and dumped - - leaches into river, with first flooding it all goes to river.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO: S. Prescott
COPIES TO:
.....
.....
LAB FILES

Source PALOUSE STP

Collected By S. Prescott

Date Collected 9-25-74

Goal, Pro./Obj. _____

Log Number:	74-3883	84	85	86	87	88	89	90	STORET
Station:	WE	CFE	Above STP	below STP	1030	1130	1315	1415	
pH	7.9	7.9							00403
Turbidity (JTU)	58.	21.							00070
Conductivity (umhos/cm)@25°C	660.	750.							00095
COD	260.	100.							00340
BOD (5 day)	160.	40							00310
Total Coliform (Col./100ml)	-	-	20,000	15,000	680	520	160	100	31504
Fecal Coliform (Col./100ml)	-	-	EST 130	EST 100	EST 10	EST 10	<20	<20	31616
NO3-N (Filtered)		.03	.06	.14					00620
NO2-N (Filtered)		ND	ND	ND					00615
NH3-N (Unfiltered)		16.	ND	ND					00610
T. Kjeldahl-N (Unfiltered)		18.2	.14	.44					00625
O-PO4-P (Filtered)		4.60	0.46	0.10					00671
Total Phos.-P (Unfiltered)		7.95	0.68	0.43					00665
Total Solids	547	452							00500
Total Non Vol. Solids	295	297							
Total Suspended Solids	127	166							00530
Total Sus. Non Vol. Solids	23	31							
<u>Chlorides</u>	13.	22.							

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. Rell Date 10-16-74