

Memo To: Gerry Calkins & Howard Steeley

From: Darrel Anderson

Subject: Efficiency Study at Winlock STP

Date: January 28, 1975

An efficiency study was conducted at Winlock STP on October 30, 1974. The influent and effluent were composited for five hours at half-hour intervals.

Disinfection seemed to be very good (10-30 colonies), but there is no contact chamber and adequate disinfection may not occur at all times.

The operator, Fred Aust, indicated to me that severe infiltration occurs during the rainy season and that sewage is frequently bypassed. He also indicated that the bypassed sewage is chlorinated.

The plant seems to be showing its age, the trickling filter wall is starting to crumble.

Since this survey was taken during a dry period of the year, a good comparison can be made with a previous survey taken on February 26, 1974 by Pat Lee.

DA:ee
Attachment

STP Survey Report Form

Efficiency Study

City Winlock Plant Type Trickling filter Pop. Served 974 Design 2,000
 Capacity
 Receiving Water Olequa Perennial X Intermittent
 Date 10-30-74 Survey Period 1100 Survey Personnel Darrel Anderson
 Comp. Sampling Frequency 1/2 hour Sampling Alequot 1000 ml
 Weather Conditions (24 hr) fog - dry Are facilities provided for complete by-
 pass of raw sewage? X Yes No/Frequency of bypass during wet periods
 Reason for bypass infiltration-overloading Is bypass chlorinated? X Yes No
 Was DOE Notified? Discharge - Intermittent Continuous

Plant Operation

Total flow .126 MGD How measured proportional weir
 Maximum flow .155 MGD Time of Max. 1100
 Minimum flow .098 MGD Time of Min. 1600
 Pre Cl₂ none #/day Post Cl₂ 20 #/day

Field Results

Influent

Effluent

<u>Determinations</u>	<u>Max.</u>	<u>Min.</u>	<u>Mean</u>	<u>Median</u>	<u>Max.</u>	<u>Min.</u>	<u>Mean</u>	<u>Median</u>
Temp °C	15	15		15	13	13		13
pH (Units)	7.2	6.8		7.0	7.0	6.8		7.0
Conductivity (µmhos/cm ²)	400	250		350	300	250		250
Settleable Solids (mls/l)	4	1	2.5	2	ND	- -	- -	- -

Laboratory Results on Composites

	<u>Influent</u>	<u>Effluent</u>	<u>% Reduction</u>
Laboratory No.	<u>74-4321</u>	<u>4322</u>	
5-Day BOD ppm	<u>88</u>	<u>45</u>	<u>50</u>
COD ppm	<u>112</u>	<u>62</u>	<u>45</u>
T.S. ppm	<u>258</u>	<u>225</u>	<u>13</u>
T.N.V.S. ppm	<u>137</u>	<u>140</u>	<u>- -</u>
T.S.S. ppm	<u>147</u>	<u>45</u>	<u>70</u>
N.V.S.S. ppm	<u>8</u>	<u>16</u>	<u>- -</u>
pH (Units)	<u>7.1</u>	<u>7.2</u>	
Conductivity (µmhos/cm ²)	<u>290</u>	<u>250</u>	
Turbidity (JTU's)	<u>34</u>	<u>27</u>	

Laboratory Bacteriological Results

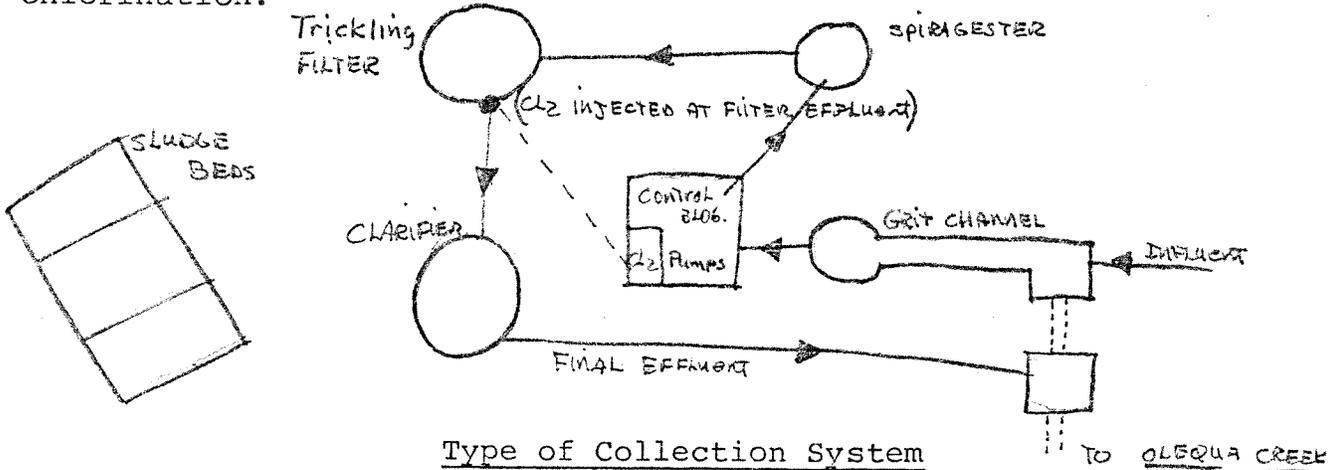
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual
		Total Coliform	Fecal Coliform	Fecal Strep	
74-4323	1100	36,000	Est. 10	ND	0.3
74-4324	1500	42,000	Est. 30	ND	0.2

Additional Laboratory Results

NO ₃ -N ppm -	7.90
NO ₂ -N ppm -	ND
NH ₃ -N ppm -	2.06
T. Kjeldahl-N ppm -	4.0
O-PO ₄ -P ppm -	2.30
T-PO ₄ -P ppm -	4.8

Operator's Name Fred Aust Phone No. _____

Furnish a flow diagram with sequence and relative size and points of chlorination.



Type of Collection System

Combined Separate Both

Estimate flow contributed by surface or ground water (infiltration)

_____ MGD

Plant Loading Information

Annual average daily flow rate (mgd)

Peak flow rate (mgd)

Dry _____

Dry _____

Wet _____

Wet _____

COMMENTS: Severe infiltration problems during rainy months. Frequent bypassing.

