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August 12, 1974

Memo to: John Glynn

From: Hans Cregg

Subject: Efficiency Survey Conducted on Langley STP.

State of
Washington
Department
of Ecology



During April of 1974 an efficiency study was conducted at the Langley Sewage Treatment Plant. The plant supposedly provides primary treatment to the incoming wastewater. Total solids reduction is only 26%. There are, however, a number of areas where the operation could and should be substantially improved. These are as follows:

- 1) Chlorination of the effluent would greatly reduce the high coliform count. Presently only the influent is being chlorinated.*
- 2) The clarigester needs to be either pumped or cleaned in order to eliminate the apparent septicity.
- 3) The operator, judging by his responses, has had very little training in the operation and theory of his plant. Even a basic set of instructions in this area would probably do wonders in the operation of the plant.

*At the time of the survey, the chlorinator was completely inoperative. It had been in this condition for several weeks.

HC:jmh

STP Survey Report Form

Efficiency Study

City Langley Plant Type Primary Pop. Served 100 Design 500 Spirogestor Capacity
 Receiving Water Saratoga Passage Perennial Intermittent
 Date Survey Period Survey Personnel
 Comp. Sampling Frequency Sampling Alequot
 Weather Conditions (24 hr) Showers Are facilities provided for complete by-pass of raw sewage? x Yes No/Frequency of bypass Once in 2 years
 Reason for bypass rejuvenated system Is bypass chlorinated? X Yes No
 Was DOE Notified? Yes Discharge - Intermittent Continuous X

Plant Operation

Total flow 00226104 How measured Flow meter
 Maximum flow 40.500 Time of Max. Noon
 Minimum flow 26.019 Time of Min. Midnight
 Pre Cl₂ 9 #/day Post Cl₂ 0 #/day

Field Results

Influent

Effluent

<u>Determinations</u>	<u>Influent</u>			<u>Effluent</u>		
	Max.	Min.	Mean	Max.	Min.	Mean
Temp °C	13	13		13	13	
pH (Units)	7.6	7.4		7.2	6.6	
Conductivity (µmhos/cm ²)	800	450		600	425	
Settleable Solids (mls/l)	10	8	9.3	10	Neg	Neg

Laboratory Results on Composites

	<u>Influent</u>	<u>Effluent</u>	<u>% Reduction</u>
Laboratory No.	<u>74-1363</u>	<u>74-1364</u>	
5-Day BOD ppm	<u>148</u>	<u>83</u>	<u>44</u>
COD ppm	<u>190</u>	<u>119</u>	<u>38</u>
T.S. ppm	<u>410</u>	<u>306</u>	<u>26</u>
T.N.V.S. ppm	<u>206</u>	<u>161</u>	<u>22</u>
T.S.S. ppm	<u>88</u>	<u>48</u>	<u>46</u>
N.V.S.S. ppm	<u>11</u>	<u>4</u>	<u>64</u>
pH (Units)	<u>7.9</u>	<u>7.4</u>	
Conductivity (µmhos/cm ²)	<u>640</u>	<u>520</u>	
Turbidity (JTU's)	<u>50</u>	<u>36</u>	

Laboratory Bacteriological Results

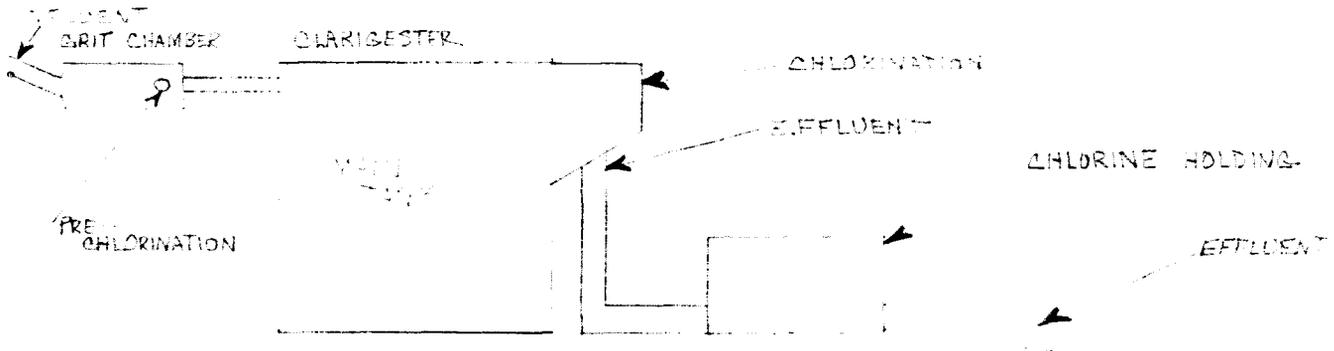
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual
		Total Coliform	Fecal Coliform	Fecal Strep	
74-1365	1000	> 4 x 10 ⁴	> 4000		
1366	1100	"	"		No Residual
1367	1200	"	"		Found
1368	1300	"	"		
1369	1500	"	"		
1370	1600	"	"		

Additional Laboratory Results

NO ₃ -N ppm	-	.30	
NO ₂ -N ppm	-	N.D.	
NH ₃ -N ppm	-	15.5	
T. Kjeldahl-N ppm	-	16.2	
O-PO ₄ -P ppm	-	2.14	
T-PO ₄ -P ppm	-	5.80	

Operator's Name Ernie Walters Phone No. 321-6389 Home
321-4246 Office

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 30.000

Dry 31.970

Wet 39.800

Wet 40.500

COMMENTS: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO:
H.J.C. (Recd).....
COPIES TO:
.....
.....
LAB FILES.....

DATA SUMMARY

Source LANGLEY STP

Collected By H.J.C.

Date Collected 4-24-74

Goal, Pro./Obj. _____

Log Number:	74-1363	64	65	66	67	68	69	70			STORET
Station:	1NF	EFF	1000	1100	1200	1300	1500	1600			
pH	7.9	7.4									00403
Turbidity (JTU)	50.	36.									00070
Conductivity (umhos/cm)@25°C	640.	520.									00095
COD	190	119									00340
BOD (5 day)	148	83									00310
Total Coliform (Col./100ml)	-	-	>4x10 ⁴			31504					
Fecal Coliform (Col./100ml)	-	-	>4000	>4000	>4000	>4000	>4000	>4000			31616
NO3-N (Filtered)		.30									00620
NO2-N (Filtered)		ND									00615
NH3-N (Unfiltered)		15.5									00610
T. Kjeldahl-N (Unfiltered)		16.2									00625
O-PO4-P (Filtered)		2.14									00671
Total Phos.-P (Unfiltered)		5.80									00665
Total Solids	410	306									00500
Total Non Vol. Solids	206	161									
Total Suspended Solids	88	48									00530
Total Sus. Non Vol. Solids	11	4									

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. Roll Date 5-13-74