

MEMORANDUM

January 14, 1976

To: John Glynn
From: Allen Moore
Subject: Mukilteo STP Survey

An efficiency survey was conducted at the Mukilteo STP on December 8, 1975. The plant is highly overloaded due to infiltration even though only a light rain was occurring. The plant looks fairly well maintained. A totalizer is needed to accurately record the flow since the instant readoff from the gage in the Parshall flume is somewhat inconclusive. The flow constantly varies from about .225 MGD to .7 MGD due to the intermittent operation of an upstream pump station. The hydraulic overloading is reflected by the low (31%) BOD reduction. Disinfection appears adequate. The chloride values indicate no salt water invasion during the survey. At least one large rat was seen within the fence prompting a recommendation for a rat extermination program.

AWM:ee

STP Survey Report Form

Efficiency Study

City Mukilteo Plant Type Primary Pop. Served 1320 Design 1700 to 2200
 Capacity
 Receiving Water Possession Sound Perennial X Intermittent
 Date 8 Dec. 75 Survey Period 0900 - 1600 Survey Personnel Allen Moore
 Comp. Sampling Frequency Hourly Sampling Alequot Flow Max. Flow x 1000 ml
 Weather Conditions (24 hr) Rain, mild Are facilities provided for complete by-
 pass of raw sewage? X Yes No/Frequency of bypass Once in 2 years
 Reason for bypass Clarifier repairs Is bypass chlorinated? Yes X No
 Was DOE Notified? Discharge - Intermittent Continuous

Plant Operation

Total flow 120,312 gal. or .4125 MGD How measured Parshall flume
 Maximum flow .75 MGD Time of Max. Not conclusive. Flow varies
 Minimum flow .225 MGD Time of Min. According to intermittent pumping
 Pre Cl₂ None #/day Post Cl₂ 11 #/day

Field Results

Influent

Effluent

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	14.0	13.5		14.0	14.0	14.0		14.0
pH (Units)	7.3	6.9		7.1	7.0	6.8		6.9
Conductivity (µmhos/cm ²)	1575	375		1225	1300	1100		1175
Settleable Solids (mls/l)	5.0	2.5	3.8	3.0	.3	.3	.3	.3

Laboratory Results on Composites

Laboratory No.	Influent	Effluent	% Reduction	lbs/day
	75-5599	75-5600		
5-Day BOD ppm	160	110	31.2%	378.4
COD ppm	380	230		
T.S. ppm	556	552		
N.V.S. ppm	372	390		
V.S. ppm	100	70	30%	240.8
V.S.S. ppm	20	14		
pH (Units)	7.5	7.3		
Conductivity (µmhos/cm ²)	790	940		
Turbidity (JTU's)	46	40		
Chlorides	130	150		

Laboratory Bacteriological Results

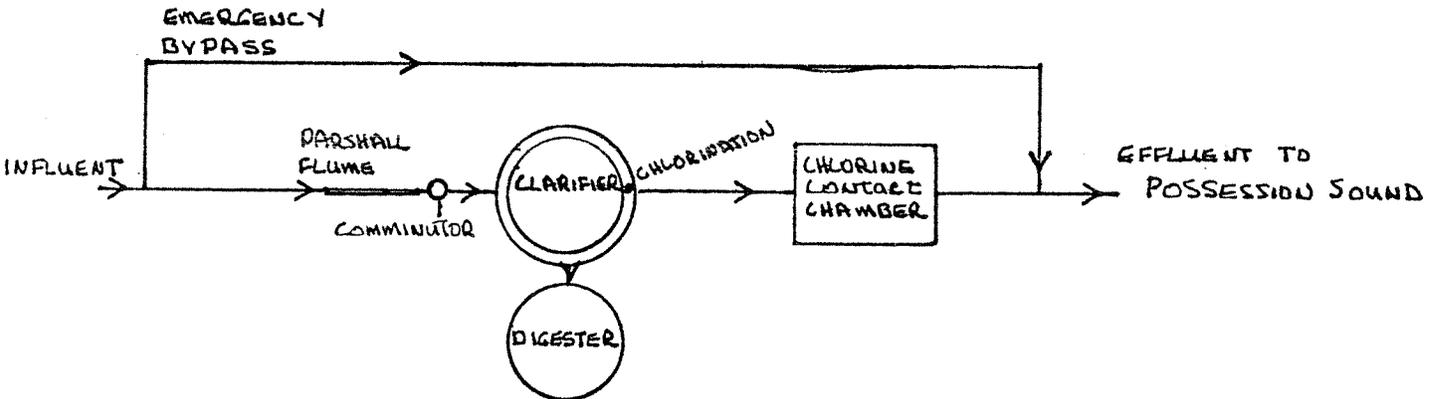
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual
		Total Coliform	Fecal Coliform	Fecal Strep	
75-5601	0900	1500	< 10	---	.75
75-5602	1000	460	10 Est.		1.0
75-5603	1200	Sample bottle broken in transit			> 1.0
75-5604	1600	40	< 10		> 1.0

Additional Laboratory Results

NO ₃ -N ppm	-	<.02	
NO ₂ -N ppm	-	<.02	
NH ₃ -N ppm	-	15.	
T. Kjeldahl-N ppm	-	24.	
O-PO ₄ -P ppm	-	4.0	
T-PO ₄ -P ppm	-	6.8	

Operator's Name Ed Ellis 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: No totalizer. Accurate total flow impossible due to fluctuations caused by pump station.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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OLYMPIA LABORATORY

DATA SUMMARY

Source MUKILTEO STP

Collected By AW Moore

Date Collected 12-9-75

Log Number: 75-5599 5600 5601 5602 5603 5604

Station:	INF	eff	0900	1000	1200	1600				
✓ pH	7.5	7.3								
✓ Turbidity (NTU)	46.	40.								
✓ Sp. Conductivity (umhos/cm)	790.	940.								
✓ COD	380.	230.								
✓ BOD (5 day)	160	110.								
✓ Total Coliform (Col./100ml)			1500	460	—*	EST 40				
✓ Fecal Coliform (Col./100ml)			<10	EST 10	—*	<10				
✓ NO3-N (Filtered)		6.02								
✓ NO2-N (Filtered)		6.02								
✓ NH3-N (Unfiltered)		15.								
✓ T. Kjeldahl-N (Unfiltered)		24.								
✓ O-PO4-P (Filtered)		4.0								
✓ Total Phos.-P (Unfiltered)		6.8								
✓ Total Solids	556	552								
✓ Total Non. Vol. Solids	372	390								
✓ Total Suspended Solids	100	70								
✓ Total Sus. Non Vol. Solids	20	14								
✓ Chlorides	130.	150.								

Note: All results are in PPM (mg/L) unless otherwise specified. ND is "None Detected"

"<" is "Less Than" and ">" is "Greater Than"
 * some Rec'd. broken