

M E M O R A N D U M

January 14, 1976

To: John Glynn

From: Darrel Anderson *DLA*

Subject: Marysville Sewage Lagoon Efficiency Survey

On December 9, 1975 Allen Moore and myself performed an efficiency survey at the city of Marysville sewage lagoon. Since there are two influent lines to the lagoon, flows were taken at a 6" Parshall flume (main line) and the other at the 48" trunk line at the northeast corner of the lagoon. No flows were possible at the effluent line so total flow is an average of both influent lines for a 3 hour period. Since there is no chlorination, fecal coliform is high. Five day BOD is 75% and T.S.S. is 70% reduction. The effluent discharges, at mid-channel, into Steamboat slough (Snohomish River) on outgoing tides only.

The overall condition of the dikes are stable with no visible erosion. Lab condition is good, the city is buying new equipment and is in the process of setting it up.

AWM:ee

STP Survey Report Form

Efficiency Study

City Marysville Plant Type Lagoon Pop. Served _____ Design _____
 Receiving Water Snohomish River Capacity _____
(Steamboat Slough) Perennial X Intermittent _____
 Date 9 Dec. 75 Survey Period 1100 - 1630 Survey Personnel D. Anderson & Allen Moore
 Sample Sampling Frequency 1/2 hr. Sampling Aliquot 1000 ml
 Weather Conditions (24 hr) rainy Are facilities provided for complete by-
 pass of raw sewage? Yes X No/Frequency of bypass None
 Reason for bypass _____ Is bypass chlorinated? Yes _____ No X
 Was DOE Notified? _____ Discharge - Intermittent X Continuous _____

Plant Operation

Total flow Avg. = 1.33 MGD - both pipes How measured main line/6" Parshall - 48" trunk/depth
 Maximum flow _____ Time of Max. _____ (inches)
 Minimum flow _____ Time of Min. _____
 Pre Cl₂ No chlorination #/day _____ Post Cl₂ No chlorination #/day _____

Marysville Sewage Lagoons

Main Line (6" Flume)

Field Results

Effluent (1300-1630 hrs)

Determinations	Influent		Mean	Median	Mean	Median
	Max.	Min.				
Temp °C	14.0	13.0		14.0		9.0
pH (Units)	7.7	6.4		6.9		6.8
Conductivity (µmhos/cm ²)	1300	450		600		550
Settleable Solids (mls/l)	3.5	2.5	3.0	3.0	---	---

	Influent	Effluent	% Reduction	lbs/day
Laboratory No.	<u>75-5611</u>	<u>75-5612</u>		
5-Day BOD ppm	<u>84</u>	<u>23</u>	<u>73</u>	<u>255.12</u>
BOD ppm	<u>225</u>	<u>125</u>	<u>45</u>	
T.S. ppm	<u>406</u>	<u>309</u>	<u>24</u>	
V.S. ppm	<u>252</u>	<u>213</u>	<u>16</u>	
S.S. ppm	<u>126</u>	<u>38</u>	<u>70</u>	<u>421.50</u>
V.S.S. ppm	<u>30</u>	<u>12</u>	<u>96</u>	
pH (Units)	<u>7.4</u>	<u>7.2</u>		
Conductivity (µmhos/cm ²)	<u>490</u>	<u>510</u>		
Alkalinity (JTU's)	<u>42</u>	<u>17</u>		

Laboratory Bacteriological Results

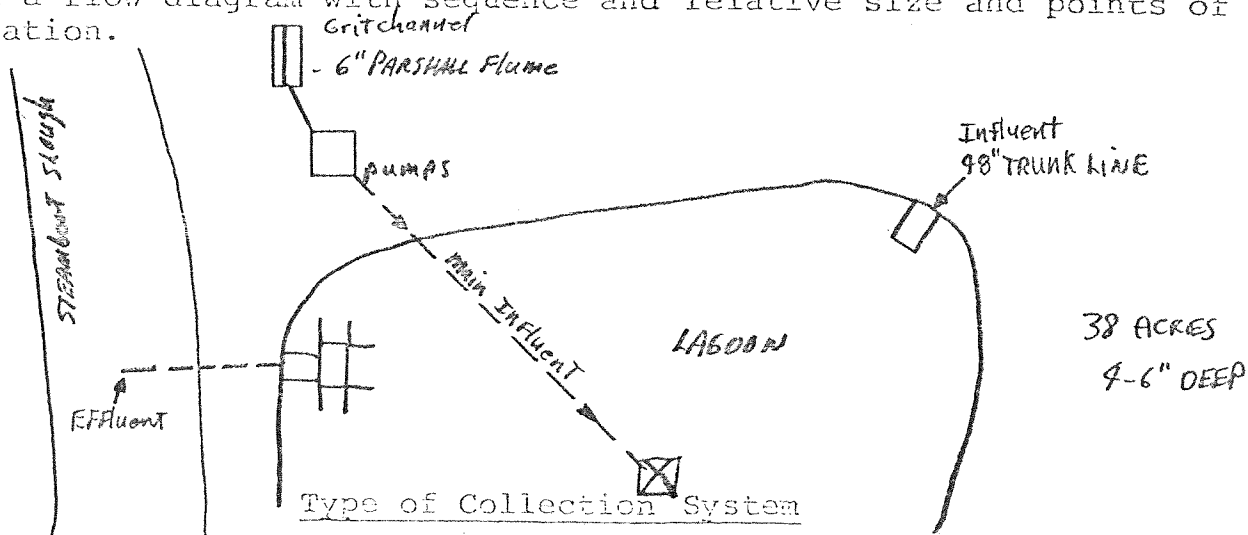
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual
		Total Coliform	Fecal Coliform	Fecal Strep	
75-5613	1325	Est 1.9 X 10 ⁵	11,000		None
5614	1430	1.6 X 10 ⁵	7,600		None
5615	1530	50,000 Est	7,200		None
5616	1630	1.6 X 10 ⁵	9,800		None

Additional Laboratory Results

NO ₃ -N ppm	-	0.20
NO ₂ -N ppm	-	<.02
NH ₃ -N ppm	-	9.6
T. Kjeldahl-N ppm	-	17.
O-PO ₄ -P ppm	-	3.6
T-PO ₄ -P ppm	-	4.6

Operator's Name Bob Kissinger Phone No. 659-7643

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



Combined Separate Both

Estimate flow contributed by surface or ground water (infiltration)

Unk. _____ MGD

Plant Loading Information

Annual average daily flow rate (mgd)

Peak flow rate (mgd)

Dry _____ Unk. _____

Dry _____ Unk. _____

Wet _____ Unk. _____

Wet _____ Unk. _____

COMMENTS: Discharge from lagoon on outgoing tide only. Controlled

by tidal gate. Effluent sampling began at 1300 hrs.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

OLYMPIA LABORATORY

DATA SUMMARY

ORIGINAL TO: A.M.M.
COPIES TO:
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.....
.....
LAB FILES.....

Source MARYSVILLE STP

Collected By A. Moore

Date Collected 12-9-75

Log Number: 75 - 5611 12 13 14 15 16

Station:	INF	eff	1325	1430	1530	1630			
pH	7.4	7.2							
Turbidity (NTU)	42.	17.							
Sp. Conductivity (umhos/cm)	490.	510.							
COD	225.	125.							
BOD (5 day)	84.	23.							
Total Coliform (Col./100ml)			EST 1.9x10 ⁵	1.6x10 ⁵	EST 50,000	1.6x10 ⁵			
Fecal Coliform (Col./100ml)			11,000	7,600	7,200	8,800			
NO3-N (Filtered)		0.20							
NO2-N (Filtered)		<.02							
NH3-N (Unfiltered)		9.6							
T. Kjeldahl-N (Unfiltered)		17.							
O-PO4-P (Filtered)		3.6							
Total Phos.-P (Unfiltered)		4.6							
Total Solids	406	309							
Total Non. Vol. Solids	252	213							
Total Suspended Solids	126	38							
Total Sus. Non Vol. Solids	30	12							
T- Chromium		<.05							
Chlorides	35	46							

Note: All results are in PPM (mg/L) unless otherwise specified. ND is "None Detected"
" < " is "Less Than" and " > " is "Greater Than"