


M E M O R A N D U M

September 25, 1975

To: Ron Robinson

From: Darrel Anderson 

Subject: Efficiency Study of Port Angeles STP

An efficiency study was conducted at the Port Angeles STP on July 30, 1975. Influent and effluent samples were composited for eight hours while a series of coliform samples were taken from a manhole about 140 yards down the effluent pipe. Coliform values are high at this point due to the short contact time in the line but the total length on the line, 3,500 ft. with diffusers in 50 feet of water assures complete disinfection at the discharge point. The grounds and plant are in excellent condition.

DA:ee

Attachment

STP Survey Report Form

Efficiency Study

City Pt. Angeles Plant Type Primary Pop. Served 16,000 + Design 74,500  
 Receiving Water Port Angeles Harbor Perennial X Intermittent \_\_\_\_\_  
 Capacity \_\_\_\_\_  
 Date 7/30/75 Survey Period 0830 - 1630 Survey Personnel D. Anderson  
 Comp. Sampling Frequency 100 ml/MGD Sampling Alequot Every 1/2 hour  
 Weather Conditions (24 hr) Clear Are facilities provided for complete by-  
 pass of raw sewage? X Yes \_\_\_\_\_ No/Frequency of bypass None  
 Reason for bypass \_\_\_\_\_ Is bypass chlorinated? X Yes \_\_\_\_\_ No  
 Was DOE Notified? \_\_\_\_\_ Discharge - Intermittent \_\_\_\_\_ Continuous X

Plant Operation

Total flow 990,000 How measured Totalizer  
 Maximum flow 1.0 MGD Time of Max. 0900  
 Minimum flow 3.7 MGD Time of Min. 0930  
 Pre Cl<sub>2</sub> 25 #/day Post Cl<sub>2</sub> 100 #/day

Field Results

Influent

Effluent

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	19.0	16.5		18.0	18.5	16.0		18.0
pH (Units)	8.6	7.0		7.4	7.6	7.0		7.4
Conductivity (µmhos/cm <sup>2</sup> )	650	400		500	550	450		500
Settleable Solids (mls/l)	25.0	5.0	11.1	7.0	2.0	.5	1.5	--

Laboratory Results on Composites

Laboratory No.	Influent	Effluent	% Reduction	lbs/day
	75-3471	75-3472		
5-Day BOD ppm	175	110	37	
COD ppm	375	175	54	
T.S. ppm	461	293	37	
T.N.V.S. ppm	236	187	21	
T.S.S. ppm	284	75	74	
N.V.S.S. ppm	34	26	24	
pH (Units)	7.1	7.3		
Conductivity (µmhos/cm <sup>2</sup> )	450	410		
Turbidity (JTU's)	73	38		

Laboratory Bacteriological Results

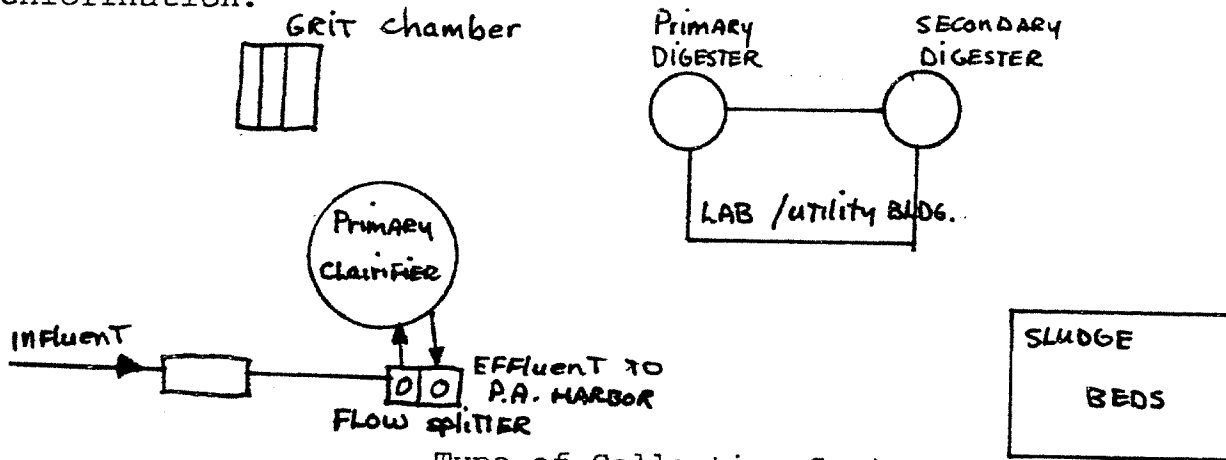
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl <sub>2</sub> Residual
		Total Coliform	Fecal Coliform	Fecal Strep	
75-3473	1000	> 4 x 10 <sup>4</sup>	Est 30		> 2.0
3474	1235	> 4 x 10 <sup>4</sup>	1500		> 1.0
3475	1500	> 4 x 10 <sup>4</sup>	2400		> 1.0
3476	1600	> 4 x 10 <sup>4</sup>	1300		> 2.0

Additional Laboratory Results

NO <sub>3</sub> -N ppm	-	.02	
NO <sub>2</sub> -N ppm	-	N.D.	
NH <sub>3</sub> -N ppm	-	12.0	
T. Kjeldahl-N ppm	-	18.1	
O-PO <sub>4</sub> -P ppm	-	3.8	
T-PO <sub>4</sub> -P ppm	-	5.4	

Operator's Name Ken Rodocker Phone No. 457-0411 Ext. 247

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 5.0

Wet \_\_\_\_\_

Wet 9.7

COMMENTS: Detention time - 30 days

BOD loading 3,100 lbs/day

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

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

Source PORT ANGELES STP

Collected By A. Moore

Date Collected 7-30-75

Goal, Pro./Obj. \_\_\_\_\_

Log Number:	75- 3471	72	73	74	75	76						STORET
Station:	INF	EFF	1000	1235	1500	1600						
pH	7.1	7.3										00403
Turbidity (JTU)	73.	38.										00070
Conductivity (umhos/cm)@25°C	450.	410.										00095
COD	375.	175.										00340
BOD (5 day)	175.	110.										00310
Total Coliform (Col./100ml)	-	-	>4x10 <sup>4</sup>	>4x10 <sup>4</sup>	>4x10 <sup>4</sup>	>4x10 <sup>4</sup>						31504
Fecal Coliform (Col./100ml)	-	-	EST 30	1500	2400	1300						31616
NO3-N (Filtered)		.02										00620
NO2-N (Filtered)		N.D.										00615
NH3-N (Unfiltered)		12.0										00610
T. Kjeldahl-N (Unfiltered)		18.1										00625
O-PO4-P (Filtered)		3.8										00671
Total Phos.-P (Unfiltered)		5.4										00665
Total Solids	461.	293										00500
Total Non Vol. Solids	236.	187.										
Total Suspended Solids	284.	75.										00530
Total Sus. Non Vol. Solids	34.	26.										

Note: All results are in PPM unless otherwise specified. ND is "None Detected"  
Convert those marked with a \* to PPB (PPM X 10<sup>3</sup>) prior to entry into STORET

Summary By Stephen P. Roll Date 8-12-75