

M E M O R A N D U M

January 13, 1976

To: John Glynn

From: Allen Moore

Subject: Arlington STP Efficiency Survey

An efficiency survey was done on the Arlington oxidation ditch plant on August 11, 1975. The plant is very well run and neat. According to the operator the effluent is normally much clearer than encountered that day although BOD reduction was 92%. Chlorination-disinfection was very good. A sudden 10.0 pH reading at 1445 was probably a laundromat or car wash. Also the very high phosphate value in the effluent may have been associated with the source of the high pH. The effluent pH was low while the nitrate was very high.

The totalizer reading is also suspiciously low after comparing totalizer values with an average of instantaneous flow readings.

AWM:ee

STP Survey Report Form

Efficiency Study

City Arlington Plant Type Oxidation Pop. Served 2250 Design IMGD
/ditch Capacity
 Receiving Water Stillaguamish River Perennial X Intermittent _____
 Date 11 Aug. 75 Survey Period 1400-1800 Survey Personnel Allen Moore
 Comp. Sampling Frequency 30 to 45 min. Sampling Alequot Flow x 1000 ml
Max. flow
 Weather Conditions (24 hr) warm, clear Are facilities provided for complete by-
 pass of raw sewage? _____ Yes X No/Frequency of bypass _____
 Reason for bypass _____ Is bypass chlorinated? X Yes _____ No
 Was DOE Notified? _____ Discharge - Intermittent _____ Continuous _____

Plant Operation

Total flow 58,400 gal-4 hours or .35 MGD How measured Parshall flume
 Maximum flow .40 MGD Time of Max. 1400
 Minimum flow .22 MGD Time of Min. 1600
 Pre Cl₂ _____ #/day Post Cl₂ 7 #/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	21.0	19.0		19.5	20.0	18.5		19.0
pH (Units)	10.0	6.8		7.35	6.2	6.1		6.2
Conductivity (µmhos/cm ²)	700	350		400	375	325		350
Settleable Solids (mls/l)	10.0	9.0	9.5	9.5	0.0	0.0	0.0	0.0

Laboratory Results on Composites

<u>Laboratory No.</u>	<u>Influent</u> <u>75-3716</u>	<u>Effluent</u> <u>75-3717</u>	<u>% Reduction</u>	<u>Pounds per day</u>
5-Day BOD ppm	135	11	92	32.1
COD ppm	280	56	80	
T.S. ppm	409	249	39	
T.N.V.S. ppm	178	150	16	
T.S.S. ppm	135	31	77	90.5
N.V.S.S. ppm	7	< 1	> 86	
pH (Units)	7.2	6.3		
Conductivity (µmhos/cm ²)	440	320		
Turbidity (JTU's)	100	9		

Laboratory Bacteriological Results

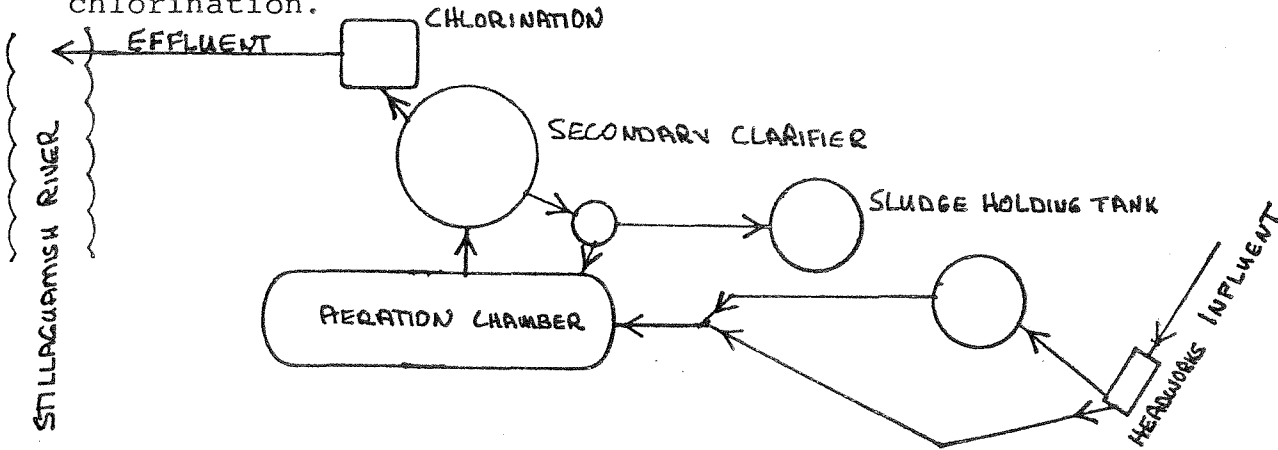
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual
		Total Coliform	Fecal Coliform	Fecal Strep	
75-3718	1400	40 est	< 10		
75-3719	1615	660	30 est		
75-3720	1715	220 est	< 10		
75-3721	1800	20 est	10 est		

Additional Laboratory Results

NO ₃ -N ppm	-	14.6	
NO ₂ -N ppm	-	ND	
NH ₃ -N ppm	-	.50	
T. Kjeldahl-N ppm	-	2.6	
O-PO ₄ -P ppm	-	7.2	
T-PO ₄ -P ppm	-	8.2	

Operator's Name _____ 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)

Average .2 MGD MGD

Plant Loading Information

Annual average daily flow rate (mgd)

Peak flow rate (mgd)

Dry .5 MGD

Dry _____

Wet _____

Wet _____

COMMENTS: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

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

Source ARLINGTON STP

Collected By A. Moore

Date Collected 8-11-75

Goal, Pro./Obj. _____

Log Number:	75-3716	17	18	19	20	21	22	STORET
Station:	INF	EFF	1400	1615	1715	1800	9714. R. (2 hours)	
pH	7.2	6.3						00403
Turbidity (JTU)	100.	9.						00070
Conductivity (umhos/cm)@25°C	440.	320.						00095
COD	280.	56.						00340
BOD (5 day)	135.	11.						00310
Total Coliform (Col./100ml)			EST 40	660	EST 220	EST 20	270	31504
Fecal Coliform (Col./100ml)			<10	EST 30	<10	EST 10	EST 80	31616
NO3-N (Filtered)		14.6					0.36	00620
NO2-N (Filtered)		N.D.					N.D.	00615
NH3-N (Unfiltered)		.50					.06	00610
T. Kjeldahl-N (Unfiltered)		2.6					.10	00625
O-PO4-P (Filtered)		7.2					.06	00671
Total Phos.-P (Unfiltered)		8.2					.08	00665
Total Solids	409	249						00500
Total Non Vol. Solids	178	150						
Total Suspended Solids	135	31						00530
Total Sus. Non Vol. Solids	7	<1.						

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 J. Taylor D. Roll Date 8-28-75