

M E M O R A N D U M

February 28, 1975

State of
Washington
Department
of Ecology



TO: JOHN GLYNN

FROM: HANS CREGG *HJC*

SUBJECT: Kingston STP

On January 7, 1975, an efficiency study was conducted at the Kingston wastewater treatment plant.

The plant was just recently constructed and put into operation. In light of the recent startup and still ongoing familiarization of plant and equipment, it is doubtful that the lab results obtained at this time are representative of the plant's treatment capabilities once the system has aged. The lab results obtained indicate that the plant does not meet secondary treatment standards. BOD and suspended solids are 35 ppm and 68 ppm, respectively. Coliform levels are generally low, estimated at no more than 60 colonies/100 ml (with one exception) for totals and less than 10 colonies/100 ml for fecals.

The overall impression was that the plant was well run and good housekeeping practices were being followed.

HJC:bj

STP Survey Report Form

Efficiency Study

City Kingston Plant Type Secondary Pop. Served 600 Design Capacity _____
 Receiving Water Puget Sound Perennial _____ Intermittent _____
 Date 1/28/75 Survey Period 8 hours Survey Personnel H. J. Cregg
 Comp. Sampling Frequency hourly Sampling Alequot 1,000 mls
 Weather Conditions (24 hr) _____ Are facilities provided for complete by-pass of raw sewage? _____ Yes _____ No/Frequency of bypass _____
 Reason for bypass _____ Is bypass chlorinated? _____ Yes _____ No
 Was DOE Notified? _____ Discharge - Intermittent _____ Continuous _____

Plant Operation

Total flow 25,000 How measured Totalizer
 Maximum flow _____ Time of Max. _____
 Minimum flow _____ Time of Min. _____
 Pre Cl₂ _____ #/day Post Cl₂ 2 #/day

Field Results

Influent

Effluent

___ Determinations	<u>Influent</u>				<u>Effluent</u>			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	10.5	10.0		10.3	10.5	10.0		10.0
pH (Units)	8.6	8.5		8.5	6.3	6.2		6.2
Conductivity (µmhos/cm ²)	--	--		--	--	--		--
Settleable Solids (mls/l)	5	5	5	5	NEG	NEG	NEG	NEG

Laboratory Results on Composites

	<u>Influent</u>	<u>Effluent</u>	<u>% Reduction</u>
Laboratory No.	<u>75-0036</u>	<u>75-0037</u>	
5-Day BOD ppm	<u>263</u>	<u>35</u>	<u>87</u>
COD ppm	<u>497</u>	<u>118</u>	<u>76</u>
T.S. ppm	<u>706</u>	<u>548</u>	<u>23</u>
T.N.V.S. ppm	<u>363</u>	<u>320</u>	<u>12</u>
T.S.S. ppm	<u>214</u>	<u>68</u>	<u>69</u>
N.V.S.S. ppm	<u>15</u>	<u>5</u>	<u>66</u>
pH (Units)	<u>8.3</u>	<u>6.6</u>	
Conductivity (µmhos/cm ²)	<u>950</u>	<u>720</u>	
Turbidity (JTU's)	<u>96</u>	<u>24</u>	

Laboratory Bacteriological Results

Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual	
		Total Coliform	Fecal Coliform	Fecal Strep	15-sec flash	3 min.
75-0038	1000	Est 40	<10		.15	.5
75-0039	1100	20,000	<10		.15	.5
75-0040	1200	Est 20	<10		.15	.5
75-0041	1300	Est 60	<10		.15	.5

Additional Laboratory Results

NO ₃ -N ppm	-
NO ₂ -N ppm	-
NH ₃ -N ppm	-
T. Kjeldahl-N ppm	-
O-PO ₄ -P ppm	-
T-PO ₄ -P ppm	-

Operator's Name _____ Phone No. 297-2685

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 _____ Unknown _____

Dry _____ Unknown _____

Wet _____ Unknown _____

Wet _____ Unknown _____

COMMENTS: The plant is brand new, consequently no loading information is available.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO:
H.J. CREGG...
COPIES TO:
.....
.....
LAB FILES.....

Source KINGSTON STP

Collected By H.J. CREGG

Date Collected 1-7-75

Goal, Pro./Obj. _____

Log Number:	75-0036	37	38	39	40	41					STORET
Station:	INF	EFF	1000	1100	1200	1300					
pH	8.3	6.6									00403
Turbidity (JTU)	96.	24.									00070
Conductivity (umhos/cm)@25°C	950.	720									00095
COD	497	118									00340
BOD (5 day)	263.	35									00310
Total Coliform (Col./100ml)	-	-	EST 40	2.7x10 ⁴	EST 20	EST 60					31504
Fecal Coliform (Col./100ml)	-	-	<10	<10	<10	<10					31616
NO3-N (Filtered)	-	12.3									00620
NO2-N (Filtered)	-	.06									00615
NH3-N (Unfiltered)	-	.26									00610
T. Kjeldahl-N (Unfiltered)	-	4.20									00625
O-PO4-P (Filtered)	-	10.4									00671
Total Phos.-P (Unfiltered)	-	10.6									00665
Total Solids	706	548									00500
Total Non Vol. Solids	363	320									
Total Suspended Solids	214	68									00530
Total Sus. Non Vol. Solids	15	5									

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 P. Robb Date 1-27-75