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M E M O R A N D U M

October 24, 1975

To: Gerry Calkins

From: Shirley Prescott

Subject: Stevenson STP Efficiency Study

Scott Jeane and I conducted a routine efficiency study on the above-referenced plant on August 23, 1975.

It is a clean, well run plant (Model R.D. Oxigent). The grounds are fenced, grass mowed, buildings clean and painted, lab and office area large enough to be functional and all very well maintained.

Attached is the standard survey report form showing results of our field and lab tests. The BOD reduction measured 94% while T.S.S. was reduced 98%. Effluent loading for BOD and T.S.S. was respectively 13 lbs/day and 2 lbs/day. Chlorine residuals varied from .05 in fifteen seconds to 1.0 ppm in three minutes. Fecal coliform values ranged from 20 to 230 colonies/100 mls. At the time of the highest fecal coliform count the three minute Cl_2 residual had dropped to .1 mg/L. Apparently they had had a problem with the chlorine feed which they were just working out. The Cl_2 residuals improved before the end of the survey period.

The operator is running daily checks on temperature, pH, flow, DO, and settleable solids. The local health department is running BOD and coliform tests monthly.

There is auxiliary power in case of power failure.

Nutrient analyses indicate the following:

	ppm	#/day	downstream
NO_3-N	.01	.22	.04
NO_2-N	<.02	.03	<.02
NH_3-N	10.0	13.76	.03
T. Kjeldahl-N	7.2	9.9	.04
O-PO_4-P	7.2	9.9	.02

Flows were measured at the plant's 60° v-notch weir and averaged 0.165 MGD. The meter is registering approximately 4.3% low, which is within the generally acceptable ±5% limit.

Survey results indicate that at the time of this survey the plant was running well within permit limitations.

The STP and its outfall are located immediatly adjacent to a large new fairground development. Extention of the outfall downstream below this new complex would aleviate possible potential health problems. Extension of the outfall would also improve dilution of the STP's effluent into the receiving water.

SP:ee
Attachment

STP Survey Report Form

Efficiency Study

City Stevenson Plant Type Package Plant Contact Stab. Pop. Served App. 900 Design Capacity 175,000 gpd

Receiving Water Rock Creek Perennial _____ Intermittent _____

Date 9-23-75 Survey Period 8 A.M. - 4 P.M. 9-23-75 Survey Personnel Scott Jeane Shirley Prescott

Comp. Sampling Frequency hourly Sampling Alequot 1000 ml

Weather Conditions (24 hr) clear Are facilities provided for complete by-pass of raw sewage? X Yes _____ No/Frequency of bypass Very seldom

Reason for bypass Electricity failure Is bypass chlorinated? _____ Yes X No

Was DOE Notified? No Discharge Intermittent _____ Continuous Yes

Plant Operation

Total flow Avg. .165 How measured 60° v-notch weir

Maximum flow .191 Time of Max. 1100 hours

Minimum flow .127 Time of Min. 0900 hours

Pre Cl_2 _____ #/day Post Cl_2 1.2 #/day

Field Results

Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp °C	22	19		21	21	19		20.5
pH (Units)	7.7	7.4		7.5	7.1	7.0		7.05
Conductivity (μmhos/cm²)	760	450		535	560	500		540
Settleable Solids (mls/l)	6.5	3.5	4.5	3.5	0	0	0	0

Laboratory Results on Composites

	Influent	Effluent	% Reduction	lbs/day
Laboratory No.	75-4444	4445		
5-Day BOD ppm	170	10	94%	13.
COD ppm	300	29		
T.S. ppm	440	263		
T.N.V.S. ppm	226	194		
T.S.S. ppm	127	2	98%	2.
T.V.S.S. ppm	27	1		
pH (Units)	7.7	7.3		
Conductivity (μmhos/cm²)	510	460		
Turbidity (JTU's)	75	5		
Chlorides	3.	3.		

Laboratory Bacteriological Results

Lab No.	Sampling Time	Colonies/100 ml (MF) Total Coliform	Fecal Coliform	Fecal Strep	Cl_2 Residual 15 sec.	3 min.
74-4446	0900	26,000	20		.4	1.0
74-4447	1300	40,000	230		.05	.1
Upstream 48	1630	380	< 10			
Downstream 49	1635	40	< 10.			

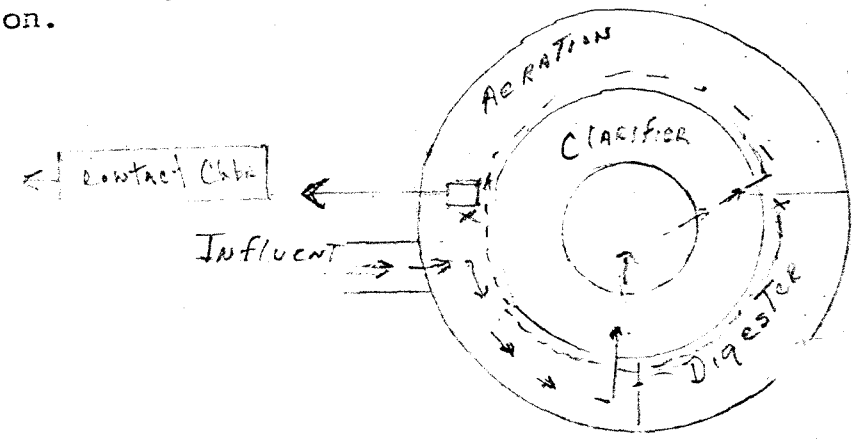
Additional Laboratory Results

	75-4445	#/day	75-4449 (Rec. Water downstream)
NO_3-N ppm -	.01	.22	.04
NO_2-N ppm -	< .02	.03	<.02
NH_3-N ppm -	10.0	13.76	.03
T. Kjeldahl-N ppm	7.2	9.9	.04
O-PO_4-P ppm -	7.2	9.9	.02
T-PO_4-P ppm			

Upstream sample Lost in lab.

Operator's Name Don Marquis Phone No. [illegible]

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)

150,000 gpd MGD

Plant Loading Information

Annual average daily flow rate (mgd)

Dry

Wet

Peak flow rate (mgd)

Dry

Wet

COMMENTS:

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: G.S. JEANE
COPIES TO:
LAB FILES

DATA SUMMARY

Source Stevenson STP — Collected By G.S. Jeane

Date Collected 9-23-75 — Goal, Pro./Obj.

Log Number: 75-	4444	45	46	47	48	49					STORET
Station:	INF	EFF	0930	1300	1630	1635					
pH	7.7	7.3									00403
Turbidity (JTU)	75.	5.									00070
Conductivity (umhos/cm)@25°C	510.	460.									00095
COD	300.	29.									00340
BOD (5 day)	170.	10.	.4/10	.05/1							00310
Total Coliform (Col./100ml)			26,000	>40,000	380	>40*					31504
Fecal Coliform (Col./100ml)			EST 20	230.	<10.	<10.					31616
NO3-N (Filtered)		.01				.04					00620
NO2-N (Filtered)		<.02				<.02					00615
NH3-N (Unfiltered)		100				.03					00610
T. Kjeldahl-N (Unfiltered)		7.2				.04					00625
O-PO4-P (Filtered)		7.2				.02					00671
Total Phos.-P (Unfiltered)											00665
Total Solids	440	263									00500
Total Non Vol. Solids	226	194									
Total Suspended Solids	127	2									00530
Total Sus. Non Vol. Solids	27	1									
Chlorides	3.	3.									

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

*And <100

Summary By Stephen D. Roll Date 10-1-75