

M E M O R A N D U M

September 10, 1975

To: Gerry

From: Shirley Prescott

Subject: Battleground STP Efficiency Study

Scott Jeane and I conducted a routine efficiency study on the above referenced plant on 8/12/75.

Attached is the standard survey report form showing available plant information and results of the lab and field tests.

The plant flow meters were inoperable and flow was checked at a temporary 90° V-notch weir which was not accurate. However, since nothing else was available flow measurements were completed and an estimated average flow of .242 MGD was determined.

The lab tests indicate an 89% reduction in BOD and 82% reduction in TSS. Pounds per day discharged of BOD and TSS were respectively 52 and 44. Fecal coliform was < 10 and chlorine residual was .5 in 15 seconds and 1.0 in 3 minutes.

Nutrient analysis indicate that the plant discharged 45 mg/l NO₃ (10 lb/day); 1.2 mg/l of NO₂ (2.4 lb/day); 2.8 mg/l NH₃ (5.6 lb/day) 8.6 mg/l O-PO₄ (17 lb/day).

This is a new plant (May 5, 1975 initial operational date) in which plans did not include toilet facilities or lab area. The grounds are not fenced or landscaped. Auxiliary power was present.

There is a 7½ acre lagoon (existing prior to new plant) to which sludge is pumped. In the event of plant failure sewage can be bypassed to the lagoon and then recirculated through the plant when operational.

All field tests were run in the chlorine room which does have a small hand basin with running water. The operator runs settleable solids tests here and any other testing is done at his office in town. Using the chlorine storage room for a lab represents an extreme work hazard.

SP:ee

STP Survey Report Form

Efficiency Study

City Battleground Plant Type R.B.S. Pop. Served 2,116 Design 2 MGD
 Capacity
 Receiving Water Weaver Creek Perennial X Intermittent _____
 Date 8-12-75 Survey Period _____ Survey Personnel Jeane & Prescott
 Comp. Sampling Frequency each hour Sampling Alequot 1000 ml
 Weather Conditions (24 hr) dry & sunny Are facilities provided for complete by-
 pass of raw sewage? Yes X No/Frequency of bypass _____
 Reason for bypass _____ Is bypass chlorinated? Yes No
 Was DOE Notified? _____ Discharge - Intermittent _____ Continuous _____

Plant Operation

AD 8 2475
 Total flow 0.242 MGD How measured (See report) ✓ NORTH WING
 Maximum flow 0.286 Time of Max. _____
 Minimum flow 0.196 Time of Min. _____
 Pre Cl₂ _____ #/day Post Cl₂ 15 #/day

Field Results

Influent

Effluent

7 Determinations	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
temp °C	20	18		19	20.5	19		19
H (Units)	6.6	8		7	7.1	6.9		7
conductivity (µmhos/cm ²)	825	725		725	720	660		690
settling solids (mls/l)	9.5	2	6.4	6.7	.1	0	trace	trace

Laboratory Results on Composites

	Influent	Effluent	% Reduction	lbs/day
Laboratory No.	<u>75-3723</u>	<u>3724</u>		
5-Day BOD ppm	<u>232.0</u>	<u>26.0</u>	<u>89%</u>	<u>52</u>
BOD ppm	<u>365.0</u>	<u>74.0</u>		
T.S. ppm	<u>532.0</u>	<u>370.0</u>		
T.N.V.S. ppm	<u>281.0</u>	<u>248.0</u>		
P.S.S. ppm	<u>119.0</u>	<u>22.0</u>	<u>82%</u>	<u>44</u>
V.S.S. ppm	<u>6.0</u>	<u><1.0</u>		
H (Units)	<u>7.2</u>	<u>7.4</u>		
conductivity (µmhos/cm ²)	<u>600.0</u>	<u>540.0</u>		
turbidity (JTU's)	<u>70.0</u>	<u>14.0</u>		

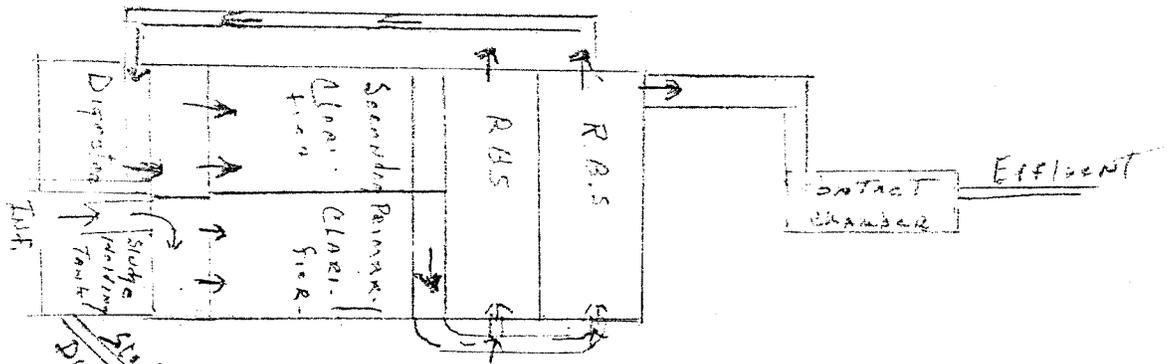
Lab No.	Sampling Time	Colonies/100 ml (MF)			Cl ₂ Residual	
		Total Coliform	Fecal Coliform	Fecal Strep	15 sec.	3 min.
3725	1030	440	< 10		.5	.75
3726	1530	Est. 40	< 10		.75	1.0
3727	Upstream	16,000	400			
3728	Downstream	Est. 8,500	240			

Additional Laboratory Results

		#/day		Upstream	Downstream
NO ₃ -N ppm	-	5.0	10	.33	2.0
NO ₂ -N ppm	-	1.2	2.4	.03	.10
NH ₃ -N ppm	-	2.8	5.6	< .02	.78
T. Kjeldahl-N ppm	-				
O-PO ₄ -P ppm	-	8.6	17.2	.04	1.8
T-PO ₄ -P ppm	-			.08	2.1

Operator's Name J. D. Kurth Phone No. 687-4971

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) Lagoon 7 1/2 Acres MGD

Plant Loading Information

Annual average daily flow rate (mgd) _____ Peak flow rate (mgd) _____
 Dry 0.25 MGD _____ Dry 1 MGD _____
 Wet _____ Wet _____

COMMENTS: _____

