

TO John Hodgson

FROM G. Scott Jeane

SUBJECT Stockdale Inc. STP @ Vantage

DATE July 12, 1973

State of
Washington
Department
of Ecology



The extended aeration package plant owned by Stockdale Inc. and located at the City of Vantage was evaluated on June 12, 1973. Department of Ecology personnel performing the efficiency study were Scott Jeane and Chris Meehan. The study took place between 0800 hours and 1600 hours on a week day after public schools had adjourned, in an attempt to measure increased loading due to summer travelers visiting the commercial installations (gas, food, and lodging) serviced by the STP.

The efficiency study revealed that the settling chamber is not functioning correctly. The original liquid chlorinator is inoperative due to CaCO_3 deposits and has been replaced by a plastic tube gravity feed tablet contraption. No flow device has been installed as was required by D.O.E. Waste Discharge Permit #T-4006 issued March 28, 1972. The permit also requires 0.5 mg/l Cl_2 residual, 85% reduction of BOD_5 and 80% reduction of suspended solids. The STP did not come near meeting these requirements.

I recommend the installation of a recording flow meter to evaluate the weekend loading before any plant changes are required.

Gsj:bjj

Attachments

(EFFICIENCY STUDY)

City Vantage Plant Type Aeration Package Commercial
 Population & Domestic Design 5,000 gal/day
 Served Capacity
 Owned by Stockdale Inc.
 Receiving Water Columbia River (Wanapum Pool) Engineer Smith & Lovless Company
 Date June 12, 1973 Survey Period 0800 to 1600 hrs. Survey Personnel Scott Jeane and
Chris Meehan
 Comp. Sampling Frequency Each 1/2 hour Weather Conditions Clear, sunny & windy
 (last 48 hours)
 Sampling Alequot 1200 ml

PLANT OPERATION

Total Flow No flow recording device How Measured _____
 Max. (Flow) _____ Time of Max. _____ Min. _____ Time of Min. _____
 Pre Cl₂ N/A #/day Post Cl₂ N/A #/day
 See comments

FIELD RESULTS

Influent

Effluent

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	24.5	24.0	24.5	24.5	24.5	24.0	24.5	24.5
pH	8.4	7.2		8.1	7.4	7.2		7.4
Conductivity (umhos/cm)	6400	600	1304		1300	1050	1213	
Settleable Solids	31	8	18		100	45	64	

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
5-Day BOD	316	196	38
COD	784	498	36
T.S.	1451	1041	28
T.N.V.S.	968	640	34
T.S.S.	368	346	6
N.V.S.S.	75	38	49
pH			
Conductivity			
Turbidity	100	100	

Stockwell STP @ Vantage

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample After min.

LAB #	SAMPLING TIME	Total Coliform COLONIES/100 MLS (MF)	Cl Residual	
			ppm	(after secs)
73-2156	0800	>160,000	N.D.	5 min.
73-2157	1000	>160,000	2.0	
73-2158	1200	>160,000	0.4	
73-2159	1300	>160,000	1.0	

Operator's Name Wane Stockdale Phone # 856-2236 Vantage

Comments: 1. Chlorinator inoperative due to despoits from highly mineralized mixing water.

Tablets dropped down a vertical 2" plastic tube now being utilized.

2. Intermittent loading observed visually.

3. No flow device present as required by permit.

Airation Chamber Grab Sample	Settleability (30 min.)	pH	Temp.	Conductivity
	250 ml	7.2	24.5	1115

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

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

Source STOCKDALE STP

Collected By S. Jeanne & C. McLean

Date Collected 6-12-72

Goal, Pro./Obj. _____

Log Number:	23-	2154	55	56	57	58	59						STORET
Station:	INF	EFF	0800	1000	1200	1300							
pH	7.7	7.6											00403
Turbidity (JTU)	100	100											00070
Conductivity (umhos/cm)@25C	2000	1500											00095
COD	784	498											00340
BOD (5 day)	316	196											00310
Total Coliform (Col./100ml)			>160,000	>160,000	>160,000	>160,000							31504
Fecal Coliform (Col./100ml)			>16,000	>16,000	>16,000	>16,000							31616
NO3-N (Filtered)													00620
NO2-N (Filtered)													00615
NH3-N (Unfiltered)													00610
T. Kjeldahl-N (Unfiltered)													00625
O-PO4-P (Filtered)													00671
Total Phos.-P (Unfiltered)													00665
Total Solids	1451	1041											00500
Total Non Vol. Solids	968	640											
Total Suspended Solids	368	346											00530
Total Sus. Non Vol. Solids	75	38											
FECAL STREP COLIF (Col./100ml)			>16,000	>16,000	>16,000	>16,000							

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 D. Roll Date 6-21-72

MEMORANDUM

Department of Ecology
Yakima District Office
504 N. Naches Avenue - Suite 10
Yakima, WA 98901
Phone No. 248-0981
Scan Phone No. 372-1213

Information
For Action
Permit
Other

Check

TO: Ron Pine, John Arnquist & Files DATE: May 18, 1973

FROM: John W. Hodgson

SUBJECT: S.T.P. Efficiency Survey - Stockdale Inc. - Vantage

The subject S.T.P. is owned and operated by a private entity, Stockdale Inc., and serves a major portion of the commercial and residential area of Vantage.

This S.T.P. is a package aeration plant with a hydraulic capacity of 5,000 gallons per day. In the last couple of years a substantial number of connections have been made to this system and it is assumed that these new services have increased the flow to something over 5,000 gpd. For this reason in particular and as our most recent Industrial Waste Discharge Permit #T-4006 expired on March 31, 1973 we request that the subject efficiency survey be scheduled as soon as possible. This survey should enable us to take whatever action is appropriate with regard to plant expansion and/or improvements in operation and maintenance.

Please find attached copies of:

1. Industrial Waste Discharge Permit #T-4006
2. Permit Application dated January 1972.
3. "A Report on Sewage Flow Volumes of the Existing Treatment Plant for Stockdale Inc." by Howard R. Anderson & Associates dated 1970.

This should be an 8 hour survey and would involve composite samples of the influent and effluent only. At least one sample should be collected from the aeration chamber, for solids settleability test, during this survey.

Information on the plant and who to contact is included in the attached.

JWH:bem

5-18-73

Enclosure

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
OLYMPIA, WASHINGTON

Permit No. T-4006

In accordance with Chapter 90.48 RCW,
and Chapter 372-24 W.A.C.
A WASTE DISCHARGE PERMIT is issued to:

Date of Issue March 28, 1972

Date of Expiration March 31, 1973

Stockdale Inc. (10950)
Box 135
Vantage, Washington 98950

Waste from the permittee's industrial operation located at Vantage, Washington, not exceeding 5,000 gallons per day, may be discharged to the Columbia River at the following point of discharge: River Mile 420.1 Sec. 19, T. 17 N, R 23 E.W.M., Kittitas County.

Said discharge is authorized subject to the following conditions:

1. The word "waste" refers to the total volume of treated domestic waste waters to be discharged.
2. The existing sewage treatment facility shall be continuously and efficiently maintained to provide maximum efficiency at all times.
 - a. Maximum efficiency shall be at least: 85% reduction of biochemical oxygen demand (BOD) and 90% reduction of suspended solids (SS).
3. Routine maintenance and operation of the existing treatment plant shall include but shall not be limited to:
 - a. Daily checks of all mechanical equipment associated with the treatment facility
 - b. Recording time and date checked
 - c. Recording all equipment failure and necessary repairs
 - d. All periods of untreated or undertreated discharges shall be recorded along with the volume and duration of that discharge
 - e. Routine testing shall be accomplished as specified in Condition 4 below. All records specified above shall be available to the State Department of Ecology on demand.

Date of Issue March 28, 1972Stockdale Inc.
Vantage, WashingtonDate of Expiration March 31, 1973

- f. The disinfection system shall be continuously operated and a chlorine residue of at least 0.5 mg/l in the final effluent shall be maintained at all times. The chlorine residue is based on 15 minutes of chlorine contact time at peak hourly flow or a maximum rate of pumping in the chlorine contact chamber.
4. The existing treatment facility shall be sampled and tested and the results recorded daily. The analysis to be performed shall include but shall not be limited to the following:
- a. Flow in gallons per day
 - b. Chlorine residue of the final effluent in milligrams per liter (mg/l)
 - c. pH of the influent and effluent
 - d. Temperature of the influent and effluent (degrees Fahrenheit)
 - e. Settleable Solids, as measured in a Standard Imhoff Cone, of the influent and effluent
 - f. Visual color determination of the contents of the aeration chamber

The following analysis shall be performed weekly:

- g. Dissolved oxygen (DO) of the influent and effluent in mg/l
- h. Thirty minute settleability test in mg/l
- i. Relative stability in percent

The results of the tests specified above shall be recorded daily and submitted monthly to the State Department of Social and Health Services and the State Department of Ecology.

5. Within the effective term of this permit, the following requirements shall be accomplished within the allotted time.
- a. The permittee shall have formed a public entity to own, operate and maintain the sewage treatment facility and collection system prior to November 31, 1972.
 - b. The individual responsible for the operation and maintenance of the existing sewage treatment facility shall obtain a "Certificate of Competency" under the State of Washington's Voluntary Certification Program prior to March 31, 1973. It is recommended that the individual specified above successfully complete a waste treatment plant operator's training course prior to applying for the "Certificate of Competency" examination.

Stockdale Inc.
Vantage, Washington

- 6. A comprehensive engineering report must be prepared by a professional engineer (licensed in accordance with RCW 18.43) and submitted to this department for review and approval prior to any further sewer system or treatment plant expansion.
- 7. All requirements and ordinances of the State of Washington and Kittitas County pertaining to the discharge of wastes into the sewer system and the effluent discharge to the Columbia River are hereby made a condition of this permit.
- 8. In the event the permittee is temporarily unable to comply with any of the above conditions of this permit, due to breakdown of equipment or other cause, the permittee is to immediately notify this department. This report is to include pertinent information as to the cause and what steps are being taken to correct the problem and prevent its recurrence.

This permit does not allow the discharge of wastes other than those mentioned herein. A new application shall be submitted whenever a change in the waste to be discharged is anticipated.

This permit is subject to termination if the department finds: (1) That it was procured by misrepresentation of any material fact or by lack of full disclosure in the application; (2) That there has been a violation of the conditions thereof; (3) That a material change in quantity or type of waste disposal exists.

In the event that a material change in the conditions of the state waters utilized creates a dangerous degree of pollution, the department may specify additional conditions to this permit.

Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations including those administered by local agencies under the Shoreline Management Act of 1971.

Signed *R. Jerry Bolles*
Assistant Director
Department of Ecology

Pages 9 and 10 of this publication are too illegible to be viewed online. To request a printed copy of this publication, please contact the Environmental Assessment Program at the Washington State Department of Ecology.

PRESENT SEWAGE FLOW:

The present daily sewage flow as measured on January 10, 1970 was computed at 1500 GPD. (see plate No. 1) At the present time there is no measuring device at the inlet or outlet to accurately measure the volume of sewage flow.

Depth measurements were taken at the outlet of the treatment plant by measuring the depth of effluent in the outlet pipe at various time intervals.

The pipe was treated as an open channel in computing flow volumes.

PRESENT SEWAGE FLOW (MEASURED) PLATE #1

<u>Depth in 6"</u> <u>Outlet Pipe</u>	<u>Q</u> <u>CFS</u>	<u>Q</u> <u>Per. Hr.</u>	<u>GPH</u>
1/4	.0012	4.32	32.3
1/2	.004	14.4	107.7
3/4	.019	68.4	511.7
1"	.039	140.4	1050

SATURDAY

<u>TIME</u>				
Times:	8:00 A.M.	12:00 A.M.	5:00 P.M.	10:00 P.M.
Depth:	3/4	1/2	1/2	3/4
	32 gph	108 gph	108 gph	32 gph
Time Int. (HRS)	10	5	5	5
Gal.	320	<u>540</u>	<u>540</u>	<u>128</u>
TOTAL (GPD)				1528

CORRELATING PRESENT FLOW:

Because of the probable inaccuracies in measuring the present effluent, it was determined that a check should be made of the present sewage generating facilities to correlate present measured flow with present estimated flow.

Monthly gas consumption volumes were available for the service stations and monthly water consumption volumes were also available for all sewage generated facilities.

These results are tabulated on Plate #2.

Please note a close correlation is obtained to substantiate the measured flow.

Plate #2

	<u>PRESENT SEWAGE FLOW (G.P.D.)</u>	
	<u>JULY</u>	<u>JAN.</u>
1. CAFE	2000 GPD	1000 GPD
2. STATIONS (Water) See plate #3	1900 "	800 "
3. STATIONS (Gas) See plate #4	3500 "	750 "
4. OTHER (Misc.)	300 "	300 "
TOTAL:		
A (1+2+4)	4200 "	2100 "
B (1+3+4)	<u>5800 "</u>	<u>2080 "</u>
TOTAL (ave.)	<u>5000 GPD</u>	<u>2100 GPD</u>
MEASURED FLOW (Calc. from plat #1)		<u>1528 GPD</u>
+ 1/8" error in measurement will yield		2580 GPD

ESTIMATING SEWAGE FLOW
FROM WATER CONSUMPTION

<u>USER</u>	<u>JULY</u> 2 months	<u>JANUARY</u> 2 months
UNION	51,000	13,500
STANDARD	146,000	42,000
AMERICAN	<u>86,000</u>	<u>40,000</u>
TOTAL (2 months)	283,000	95,500
PER DAY (GPD)	4,720	1,500
ASSUME 50% to Sewage in Fall & 40% in Summer	<u>1,900 GPD</u>	<u>800 GPD</u>

Plate #4

ESTIMATING SEWAGE CONSUMPTION:

FROM GASOLINE CONSUMPTION OF SERVICE STATION:

<u>GAS STATION</u>	<u>JULY</u>	MONTH	<u>JANUARY</u>
AMERICAN	50,000		12,300
UNION	48,000		8,000
STANDARD	<u>60,000</u>		<u>15,000</u>
TOTAL	158,000 Gallons		35,300 Gallons
15 Gal. Gas Per Car:			
No. of Cars:	10,530 Cars		2,353 Cars
10 Gal./ sewage/ car	105,300		23,530
Sewage/day	<u>3,500</u>		<u>784</u> Gal/day
GPD			

ESTIMATED FUTURE FLOW: (NEW FACILITIES)

The estimated future flows of the drive-inn restaurant and service station are computed as follows.

<u>SERVICE STATION:</u>	<u>Gas Volume</u>	<u>Gals/veh</u>	<u>Veh/no.</u>	<u>Vehicles per day</u>	<u>Sewage day</u>
Jan.	15,000	15	1000	33 x 10 ³	330
July.	50,000	15	3300	110 x 10 ³	1100

* Table 7 - Public Health Service Publication No. 526 - Manual of "Septic Tank Practice".

DRIVE-INN RESTAURANT:

Capacity: 30 inside seats
30 outside parking

Volume: 100 customers - inside
100 customers - outside

100 x 3 = 300 GPD
100 x 10 = 1000 GPD
TOTAL 1300 GPD (Summer use)
650 GPD (Winter use)

ESTIMATED FUTURE FLOW:

(Existing plus new facilities)

The following tabulations outline the existing flow and the proposed flow from the new facilities.

<u>ITEM</u>	<u>JULY</u>	<u>JANUARY</u>
PRESENT FLOW (DAIY) (From Plate #2)	5000 GPD	3100 GPD
FUTURE FLOW		
Service Station	1100 "	330 "
Drive-Inn Rest.	<u>1300 "</u>	<u>650 "</u>
TOTAL ESTIMATED FUTURE FLOW	<u>7100 GPD</u>	<u>3080 GPD</u>

LITERATURE CITED

- 1) O'Neal, G. and J. Sceva, "The Effects of Dredging on Water Quality in the Northwest." EPA, Region X, (July 1971).

- 2) Ziebell, C. D., R. E. Pine, A. D. Mills, and R. K. Cunningham, "Field Toxicity Studies and Juvenile Salmon Distribution in Port Angeles Harbor, Washington." Jour. Water Pollution Control Federation, Part 1, page 229, 1970.

- 3) Servizi, J. A., R. W. Gordon, and D. W. Martens, "Marine Disposal of Sediments from Bellingham Harbor as Related to Sockeye and Pink Salmon Fisheries." International Pacific Salmon Fisheries Commission, Progress Report No. 23, 1969.