

MEMORANDUM

April 8, 1975

To: John Hodgson

From: Dan Glantz *DG*

Subject: Kittitas SD#1 (Hyak) Sewer District

On December 10, 1975 a four-hour efficiency study was conducted by the writer at the subject STP.

The temperature was at freezing, weather overcast with occasional snowfall and two to three feet of snow in the area. The flow was light, about 75,000 GPD.

The attached survey sheet shows some erratic results. This may be due to a high proportion of infiltration and light sewage flow. A survey for a longer period of time and over a busy weekend would provide us with more representative results.

DG:ee
Attachment

STP Survey Report Form

Efficiency Study

City Hyak (Kittitas SD#1) Plant Type Secondary Pop. Served Seasonal Design Capacity _____
 Receiving Water Keechelus Lake via Coal Creek Perennial X Intermittent _____
 Date 12/10/74 Survey Period 1100-1500 Survey Personnel Dan Glantz
 Comp. Sampling Frequency 1/2 hour Sampling Alequot 1000 MIL
 Weather Conditions (24 hr) Snowy Are facilities provided for complete by-pass of raw sewage? X Yes _____ No/Frequency of bypass _____
 Reason for bypass _____ Is bypass chlorinated? _____ Yes _____ No _____
 Was DOE Notified? _____ Discharge - Intermittent _____ Continuous _____

Plant Operation

Total flow 74,360 GPD How measured Recording flow meter
 Maximum flow 87,230 GPD Time of Max. 1100
 Minimum flow 61,490 GPD Time of Min. 0400
 Pre Cl₂ - - #/day Post Cl₂ _____ #/day

Field Results

Influent

Effluent

3 Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	6°	6°		6°	2°	2°		2°
pH (Units)	7.4	7.3		7.3	7.5	7.2		7.3
Conductivity (µmhos/cm ²)	250	175		225	400	400		400
Settleable Solids (mls/l)	3.0	3.0	3.0	3.0	.0	.0	.0	.0

Laboratory Results on Composites

	Influent	Effluent	% Reduction
Laboratory No.	<u>4822</u>	<u>4823-27</u>	
5-Day BOD ppm	<u>< 40</u>	<u>< 40</u>	<u>--</u>
COD ppm	<u>26</u>	<u>67</u>	<u>Gain</u>
T.S. ppm	<u>135</u>	<u>174</u>	<u>Gain</u>
T.N.V.S. ppm	<u>65</u>	<u>96</u>	<u>Gain</u>
T.S.S. ppm	<u>25</u>	<u>21</u>	<u>16%</u>
N.V.S.S. ppm	<u>ND</u>	<u>ND</u>	<u>--</u>
pH (Units)	<u>7.3</u>	<u>7.8</u>	
Conductivity (µmhos/cm ²)	<u>170</u>	<u>330</u>	
Turbidity (JTU's)	<u>12</u>	<u>12</u>	

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

.N.L.C.E.
 COPIES TO:
 G. LANTZ

 LAB FILES

DATA SUMMARY

Source KITITAS S.D. #1-HYAK

Collected By G. LANTZ

Date Collected 12-10-74

Goal, Pro./Obj. _____

Log Number:	74-4822	23	24	25	26	27				STORET
Station:	1WF	eff	1100	1200	1300	1415				
pH	7.3	7.8								00403
Turbidity (JTU)	12.	12.								00070
Conductivity (umhos/cm)@25°C	170.	330. ✓								00095
COD	26.	67.								00340
BOD (5 day)	<40	<40								00310
Total Coliform (Col./100ml)			EST 140	<20	<20	<20				31504
Fecal Coliform (Col./100ml)			<2	<10	<10	<10				31616
NO3-N (Filtered)		0.25								00620
NO2-N (Filtered)		0.01								00615
NH3-N (Unfiltered)		13.8								00610
T. Kjeldahl-N (Unfiltered)		16.2								00625
O-PO4-P (Filtered)		0.90								00671
Total Phos.-P (Unfiltered)		1.30								00665
Total Solids	135	174 ✓								00500
Total Non Vol. Solids	65	96 ✓								
Total Suspended Solids	25	21								00530
Total Sus. Non Vol. Solids	ND	ND								

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. Roll Date 1-9-75

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City Kittatas S.D. #1 Plant Type Lagoon Population --- Design ---
 Served --- Capacity ---
 Receiving Water Kachess Lake Engineer Dan Neal
 Date June 14, 1972 Survey Period 0830 - 1600 Survey Personnel Gary Rothwell
 Comp. Sampling Frequency 1/2 Hour Weather Conditions Overcast - light rain
 (last 48 hours)
 Sampling Alequot Inf. = 100 ml/.01 MGD Eff. = 100 ml/.001 MGD

PLANT OPERATION

Total Flow Inf. = 20,600 gal., Eff = 2,340 gal. How Measured Totalizer
 Max. (Flow) .118 MGD Time of Max. 1300 (Inf.) Min. .039 MGD Time of Min. 1100 (Inf.)
 Constant .004 MGD of Eff.
 Pre Cl₂ --- #/day Post Cl₂ .7 #/day

FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	7.9	7.0	7.4	7.4	13.1	12.2	12.7	12.7
Conductivity (umhos/cm)	7.0	6.8	6.8	6.9	6.0	6.0	6.0	6.0
Settleable Solids	170	100	130	128	110	70	80	86
	9	Nil	4	4	Nil	Nil	Nil	Nil

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
5-Day BOD	47	18	62
COD	161	47	71
T.S.	238	119	50
T.N.V.S.	61	28	54
T.S.S.	89	28	68
N.V.S.S.	16	1	94
pH	7.0	6.7	--
Conductivity	157	99	37
Turbidity	29	13	55

Kittitas S.D. #1

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample bottle after min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)	Cl Residual	
			dpm	(after secs.)
722149-51	1000	< 40	.35	15
52	1100	< 40	.35	15
53	1200	< 40	.20	15
54	1300	< 40	.35	15
55	1400	< 40	.20	15
56	1500	< 40	.20	15

Operator's Name Jerry Moses Phone # 434-6691

Comments: The appearance of the plant and test equipment was very good and the operator was very conscientious in his testing and recording of data.

The great difference in influent and effluent flows was not explained and any explanation I could make would be purely guesswork.

Although the coliform results show less than 40 colonies per 100 ml sample, the actual coliform samples showed no colonies at all.

The quality of influent varied a great deal throughout the day. Sometimes the water appeared very clear and sometimes it was unusually dark. The operator explained the latter was due to the dumping of septic tank wastes from a pumping truck.

Other than these few points, it was an ordinary survey and no problems were encountered.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO: .G. Roberts 14...
COPIES TO:
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LAB FILES

Source HYAK STP

Collected By GR

Date Collected 6-14-72

Goal, Pro./Obj. 3 2.23

Log Number:	222149	50	51	52	53	54	55	56	STORET
Station:	KOMP) (comp)	(comp) EFF	1000	1100	1200	1300	1400	1500	
pH	7.0	6.7							00193
Turbidity (JTU)	29.	13.							00070
Conductivity (umhos/cm) @ 25°C	157.	99.							00095
COD	161.	47.							00340
BOD (5 day)	47	18							00310
Total Coliform (Col./100ml)	-	-	<40	<40	<40	<40	<40	<40	31504
Fecal Coliform (Col./100ml)									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	238.	119.							00500
Total Non Vol. Solids	61.	28							
Total Suspended Solids	89.	28							00530
Total Sus. Non Vol. Solids	16	1							

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

Summary By Stephen G. Hall Date 7-7-72