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M E M O R A N D U M

April 16, 1975

To: John Hodgson

From: Dan Glantz

Subject: Leavenworth STP Efficiency Study

This study was conducted on March 19, 1975. Sampling commenced at 0825 and ended at 1630, a total of 17 samples at one-half hour intervals with field testing each time.

The weather was pleasant with some sunshine but considerable snow in the area. Intermittent snow and rain storms had occurred for several days prior to the study and the plant was experiencing hydraulic overload through the system. The flow recorder showed in excess of 400,000 GPD for several previous days with one day near a million gallons. This day showed 500,000 plus. The plant is designed for approximately 350,000 GPD.

The operator has only been on this job a few months and I understand she has made many improvements. Maintenance and housekeeping are very good. There was heavy flocking over one side of the weir on the clarifier. It definitely appeared the weir should be leveled. Other than that, all operating procedures appeared proper.

The attached Data Summary and Survey Report Form show unsatisfactory performance at this plant. I believe this will continue to be the case until modifications take place to accommodate the heavy flow.

DG:ee
Attachment

STP Survey Report Form

Efficiency Study

City Leavenworth Plant Type Secondary Pop. Served 1500 Design Capacity 3000 (225,000 GPD)

Receiving Water Wenatchee River Perennial X Intermittent ____

Date 3/19/75 Survey Period 0825-1630 Survey Personnel Dan Glantz

Comp. Sampling Frequency 1/2 hour Sampling Alequot 1000 M/L (Proportioned)

Weather Conditions (24 hr) Intermittent Sunshine Above Freezing 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 540,000 GPD How measured Recorder

Maximum flow 640,000 Time of Max. 1300

Minimum flow 500,000 Time of Min. 1400

Pre Cl_2 ____ #/day Post Cl_2 ____ #/day

Field Results

17 Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp °C	9.5	8.0		9.0	8.0	7.0		8.0
pH (Units)	7.5	6.7		6.8	6.8	6.3		6.5
Conductivity (µmhos/cm²)	400	210		275	300	200		250
Settleable Solids (mls/l)	8.0	5.5	7.0	7.5	1.25	.2	.55	.2

Laboratory Results on Composites

	Influent	Effluent	% Reduction
Laboratory No.	75-991	75-992	
5-Day BOD ppm	95	42	55%
COD ppm	129	59	54%
T.S. ppm	269	201	25%
T.N.V.S. ppm	152	132	13%
T.S.S. ppm	76	49	36%
N.V.S.S. ppm	ND	9	Gain
pH (Units)	7.3	7.2	
Conductivity (µmhos/cm²)	280	230	
Turbidity (JTU's)	33	25	

Laboratory Bacteriological Results

Lab No.	Sampling Time	Colonies/100 ml (MF) Total Coliform	Fecal Coliform	Fecal Strep	Cl_2 Residual
75-993	0845	1200	110 (Est)		.75 & 1.0
75-994	0935	1200	40 (Est)		.20 & .50
75-995	1100	40 (Est)	<10		.20 & .75
75-996	1300	240 (Est)	30 (Est)		.75 & 1.00
75-997	1400	240 (Est)	20 (Est)		.75 & 1.00
75-998	1600	140 (Est)	20 (Est)		1.00 & 1.00

Additional Laboratory Results

NO_3-N ppm -	8.00
NO_2-N ppm -	0.02
NH_3-N ppm -	0.34
T. Kjeldahl-N ppm -	3.36
O-PO_4-P ppm -	1.91
T-PO_4-P ppm -	2.80

Operator's Name Vi Burlbach Phone No. 509-548-7722

Furnish a flow diagram with sequence and relative size and points of chlorination. See attached engineers drawings.

Type of Collection System

X Combined __ Separate __ Both

Estimate flow contributed by surface or ground water (infiltration)

_____ MGD

Plant Loading Information

Annual average daily flow rate(mgd)

Dry _____

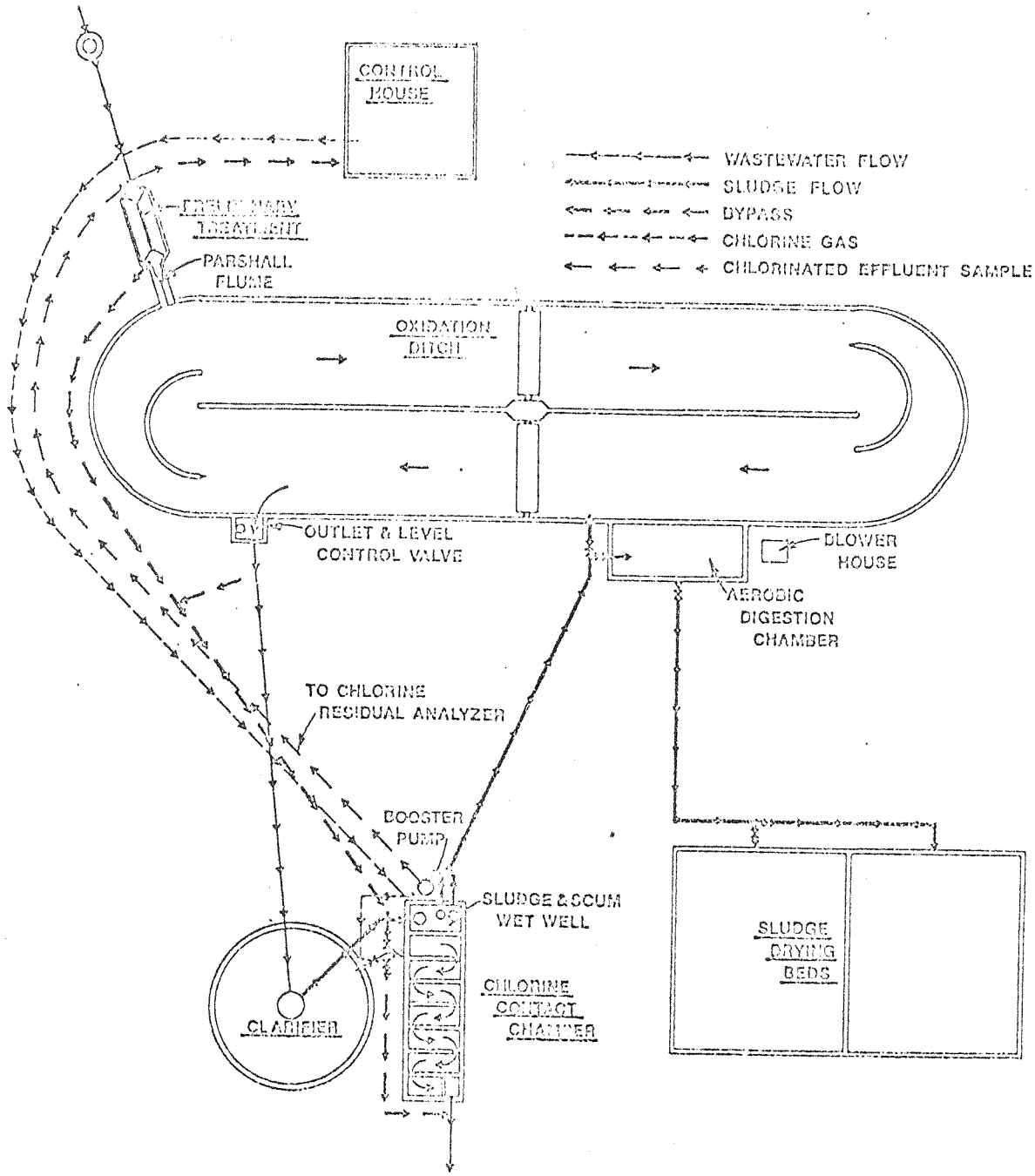
Wet _____

Peak flow rate(mgd)

Dry _____

Wet _____

COMMENTS: _____



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ENUE | SPOKANE, WASHINGTON

FLOW DIAGRAM

FIG. NO. 1

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: P. Lee

COPIES TO: D. Glantz

LAB FILES

DATA SUMMARY

Source Leavenworth STP — Collected By D. Glantz

Date Collected 3-19-75 — Goal, Pro./Obj.

Log Number: 75-	991	92	93	94	95	96	97	98	99	1000	STORET
Station:	INF.	eff.	0845	0935	1100	1300	1400	1600	WENAT. R. above LEAVEN.	→ (below)	
pH	7.3	7.2							7.5	7.5	00403
Turbidity (JTU)	33.	25.							2.	2.	00070
Conductivity (umhos/cm)@25°C	280.	230.							56.	53.	00095
COD	129.	59.	54%								00340
BOD (5 day) X	95.	42.	55%								00310
Total Coliform (Col./100ml)	-	-	1200	EST 1200	EST 40	EST 240	EST 240	EST 140	EST 80	EST 40	31504
Fecal Coliform (Col./100ml)	-	-	EST 110	EST 40	<10	EST 30	EST 20	EST 20	EST 30	EST 20	31616
NO3-N (Filtered)		8.0							0.10	0.07	00620
NO2-N (Filtered)		0.02							ND	ND	00615
NH3-N (Unfiltered)		0.34							0.03	0.02	00610
T. Kjeldahl-N (Unfiltered)		3.36							0.06	0.04	00625
O-PO4-P (Filtered)		1.91							0.04	0.01	00671
Total Phos.-P (Unfiltered)		2.8							0.15	0.09	00665
Total Solids	269.	201.									00500
Total Non Vol. Solids	152.	132.									
Total Suspended Solids X	76.	49.									00530
Total Sus. Non Vol. Solids	ND	9.									

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 D. Reed Date 4-4-75