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August 13, 1974

State of Washington
Department of Ecology

Memo to: Howard Bunten

From: Dan Glantz

Subject: Millwood STP Survey

A survey of the Millwood treatment plant was made on May 22, 1974. Samples were composited on the half hour commencing at 0830 and ending at 1500 hours.

This is a package type plant, a "Smith & Loveless Oxigest" to be exact. It is located on the bank of the Spokane River, under a covered shed, open on one side. The plant is designed for 300 families and serves 177 at the present time. There is no record of recent bypass being required.

The influent samples should not be considered reliable. The sludge from the sedimentation basin returns directly into the influent flow area as it emerges from the comminutor and the heavy concentration of solids was unavoidable. The effluent samples though, are realistic. Remaining solids are undoubtedly having an adverse effect on the chlorine treatment which is probably hampered further by limited detention. It is obvious, from the high coliform count, this plant is not performing satisfactorily.

Field and laboratory data are attached.

DG:jmh

STP Survey Report Form

Efficiency Study

City Millwood Plant Type Oxigester Pop. Served 177 Design Capacity 300

Receiving Water Spokane River Perennial X Intermittent _____

Date 5/22/74 Survey Period 0830 - 1600 hours Survey Personnel D. Glantz

Comp. Sampling Frequency 1/2 hour Sampling Alequot 800 ml.

Weather Conditions (24 hr) Sunny Are facilities provided for complete by-pass of raw sewage? X Yes ____ No/Frequency of bypass none

Reason for bypass _____ Is bypass chlorinated? ____ Yes ____ No

Was DOE Notified? _____ Discharge - Intermittent _____ Continuous _____

Plant Operation

Total flow 10,000 GPD How measured Weir

Maximum flow 12,000 GPD Time of Max. 0900

Minimum flow 8,000 GPD Time of Min. Noon

Pre Cl_2 _____ #/day Post Cl_2 2 1/2 #/day

Field Results

	Influent				Effluent			
8 Determinations	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	13.0	12.0		13.0	14.0	12.5		13.0
pH (Units)	7.3	6.9		7.2	7.4	7.0		7.2
Conductivity (µmhos/cm²)	675	425		600	650	600		610
Settleable Solids (mls/l)	400	350	388	400	23.0	5.5	13.25	13.0

Laboratory Results on Composites

	Influent	Effluent	% Reduction
Laboratory No.	74-1883	74-1884	
5-Day BOD ppm	1090	118	
COD ppm	2175	148	
T.S. ppm	2124	397	
T.N.V.S. ppm	547	225	
T.S.S. ppm	1895	123	
N.V.S.S. ppm	365	40	
pH (Units)	6.9	7.0	
Conductivity (µmhos/cm²)	570	560	
Turbidity (JTU's)	36	38	

Laboratory Bacteriological Results

Lab No.	Sampling Time	Colonies/100 ml (MF) Total Coliform	Fecal Coliform	Fecal Strep	Cl_2 Residual 15"	3 Min
74/1885	0900	25,000	Est. 330		.3	.5
86	1100	18,000	" 410		.3	.75
87	1200	Est.6,500	" 220		.4	.75
88	1300	2,800	" 70		.4	1.0
89	1400	21,000	" 300		.2	.5
90	1500	5,600	" 320		.3	.75

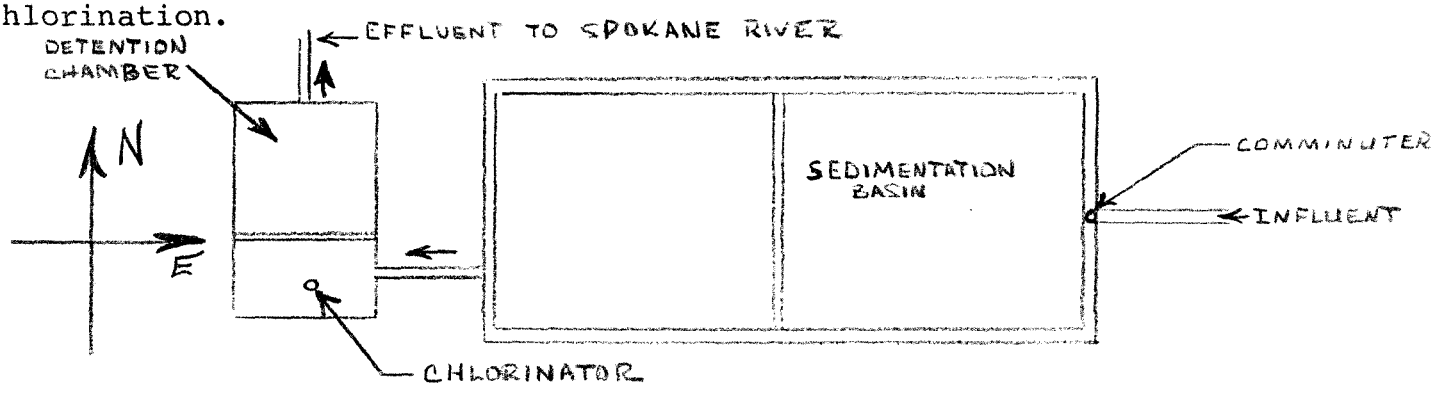
Additional Laboratory Results

NO_3-N ppm -	.02
NO_2-N ppm -	ND
NH_3-N ppm -	(1)
T. Kjeldahl-N ppm -	(1)
O-PO_4-P ppm -	.02
T-PO_4-P ppm -	13.0

(1) Sample held too long to analyze.

Operator's Name Bob Rapp (Al Dougherty) Phone No. 924-0960

Furnish a flow diagram with sequence and relative size and points of chlorination.



Type of Collection System

__ Combined _X_ 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: _____

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: D. GLANTZ

COPIES TO:

LAB FILES

DATA SUMMARY

Source Millwood STP — Collected By GLANTZ [redacted]

Date Collected 5-22-74 — Goal, Pro./Obj.

Log Number: 74-	1883	84	85	86	87	88	89	90			STORET
Station:	INF	EFF	0900	1100	1200	1300	1400	1500			
pH	6.9	7.0									00403
Turbidity (JTU)	36.	38.									00070
Conductivity (umhos/cm)@25C	570.	560.									00095
COD	2,175	148									00340
BOD (5 day)	1,090	118.									00310
Total Coliform (Col./100ml)	-	-	25000 EST	19000 EST	6500 EST	2800 EST	21,000 EST	5600 EST			31504
Fecal Coliform (Col./100ml)	-	-	330	410	220	70	300	320			31616
NO3-N (Filtered)		.02									00620
NO2-N (Filtered)		ND									00615
NH3-N (Unfiltered)		-*									00610
T. Kjeldahl-N (Unfiltered)		-*									00625
O-PO4-P (Filtered)		.02									00671
Total Phos.-P (Unfiltered)		13.0									00665
Total Solids	2124	397									00500
Total Non Vol. Solids	547	225									
Total Suspended Solids	1,895	123									00530
Total Sus. Non Vol. Solids	365	40									

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

* NOT ANALYZED DUE TO HEAVY LOADING IN