MEMORANDUM

HECK
IFORMATON
)R ACTION
ERMIT
THER

Publication No. 74-e53

WA-07-1160

TO: John Glynn

FROM: Pat Lee

SUBJECT: Survey @ Monroe Reformatory

DATE: April 25, 1974

State of Washington Department of Ecology

An efficiency study was conducted at the Monroe Reformatory on March 5, 1974. The influent and effluent were composited proportionate to flow for seven hours. The Laboratory and field results are summarized on the accompanying STP survey report form. The operator, Wilbur (not Orville) Weir was very knowledgeable of how his plant should work but wasn't, due to a faulty design. The plant was designed to have 2 cells in series, one anaerobic, the other aerobic. Unfortunately, the effluent from the anaerobic cell operates on an overflow basis thereby allowing scum to escape to the 2nd cell and not building up in the first cell. With no scum blanket, it is very hard to achieve anaerobic conditions. Mr. Weir said they were even aerating the first cell before he started work there. Mr. Weir also stated he was having problems with the large amounts of undigested food coming through the lagoon system.

PL:bjj

Attachment

STP Survey Report Form

Efficiency Study

City Monroe Reformatory Plant Type 2-cell lagoon Pop. Served 1,000 Design Capacity --

Receiving Water Skykomish River Perennial X Intermittent ____

Date 3-5-74 Survey Period 0900-1600 Survey Personnel Pat Lee

Comp. Sampling Frequency half hour Sampling Alequot (flow in gpm) (5)

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

Reason for bypass ____ -- Is bypass chlorinated? ____ Yes X No

Was DOE Notified? -- Discharge - Intermittent ____ Continuous X

Plant Operation

Total flow 68,200 gallons/7 hrs How measured Totalizer

Maximum flow .29 mgd Time of Max. 1300 (right after lunch)

Minimum flow .09 mgd Time of Min. 1500

Pre Cl_2 0 #/day Post Cl_2 7 #/day

Field Results

	Influent				Effluent			
8 Determinations	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp °C	24.6	19.6		21.5	6.2	4.1		5.2
pH (Units)	10.0	7.0		7.4	7.2	6.9		6.9
Conductivity (μmhos/cm^2)	1000	250		360	400	250		300
Settleable Solids (mls/l)	16	4	7.1	7.0	Tr.	Tr.	Tr.	Tr.

Laboratory Results on Composites

	Influent	Effluent	% Reduction
Laboratory No.	74-693	74-694	
5-Day BOD ppm	300	36	--
COD ppm	530	89	83
T.S. ppm	696	202	71
T.N.V.S. ppm	212	94	56
T.S.S. ppm	248	58	77
N.V.S.S. ppm	16	Tr.	100
pH (Units)	8.8	7.1	
Conductivity (μmhos/cm^2)	410	310	
Turbidity (JTU's)	85	30	

Laboratory Bacteriological Results

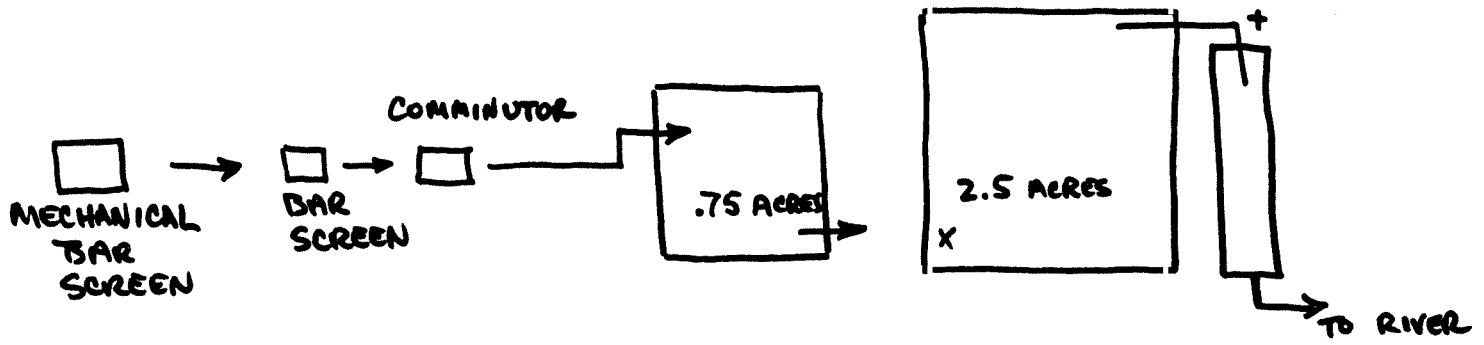
Lab No.	Sampling Time	Colonies/100 ml (MF) Total Coliform	Fecal Coliform	Fecal Strep	Cl_2 Residual
74-695	0930	240	< 10	Not Reported	>1.0
74-696	1030	220	< 10	Not Reported	>1.0
74-697	1130	620	< 10	Not Reported	>1.0
74-698	1330	550	< 10	Not Reported	1.0
74-699	1430	820	< 10	Not Reported	1.0
74-700	1530	680	< 10	Not Reported	1.0

Additional Laboratory Results

NO_3-N ppm - Not Reported	
NO_2-N ppm - Not Reported	
NH_3-N ppm - 10.8	
T. Kjeldahl-N ppm - 14.3	
O-PO_4-P ppm - Not Reported	
T-PO_4-P ppm -	

Operator's Name Wilbur Weir Phone No. 794-8077 Ext. 246

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



Type of Collection System

__ Combined __ Separate X Both

Estimate flow contributed by surface or ground water (infiltration)

Nil MGD

Plant Loading Information

Annual average daily flow rate(mgd)		Peak flow rate(mgd)	
Dry	110,000	Dry	190,000
Wet	190,000	Wet	380,000

COMMENTS:

STP Survey Report Form

Efficiency Study

City Monroe Plant Type Primary Pop. Served 2700 Design Capacity .6 MGD

Receiving Water Skykomish River Perennial X Intermittent _____

Date 17 Nov. 75 Survey Period 0930 - 1600 Survey Personnel Allen Moore

Comp. Sampling Frequency Hourly Sampling Alequot 1000 ml x $\frac{\text{flow}}{\text{peak flow}}$

Weather Conditions (24 hr) frost-little snow Are facilities provided for complete by-pass of raw sewage? X Yes ____ No/Frequency of bypass Every normal rainfall

Reason for bypass rain-storm sewers Is bypass chlorinated? X Yes ____ No

Was DOE Notified? _____ Discharge - Intermittent _____ Continuous _____

Plant Operation

Total flow 95,667 gal How measured 90° V-notch - manual

Maximum flow .419 MGD Time of Max. 1110

Minimum flow .286 MGD Time of Min. 1400 - 1600

Pre Cl_2 ------ #/day Post Cl_2 14 #/day

Field Results

Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp °C	15.0	13.5		14.0	13.5	13.0		13.5
pH (Units)	6.9	6.6		6.7	6.7	6.5		6.6
Conductivity (µmhos/cm²)	625	400		537	475	350		450
Settleable Solids (mls/l)	14.0	5.0	8.3	6.0	1	.3	.8	1

Laboratory Results on Composites

	Influent	Effluent	% Reduction	lbs/day
Laboratory No.	75-5329	75-5330		
5-Day BOD ppm	180	120	33%	328
COD ppm	380	260	31%	
T.S. ppm	380	290	24%	
T.N.V.S. ppm	160	130	19%	
T.S.S. ppm	100	72	28%	197
N.V.S.S. ppm	18	24		
pH (Units)	7.3	7.1		
Conductivity (µmhos/cm²)	410	360		
Turbidity (JTU's)	52	41		

Laboratory Bacteriological Results

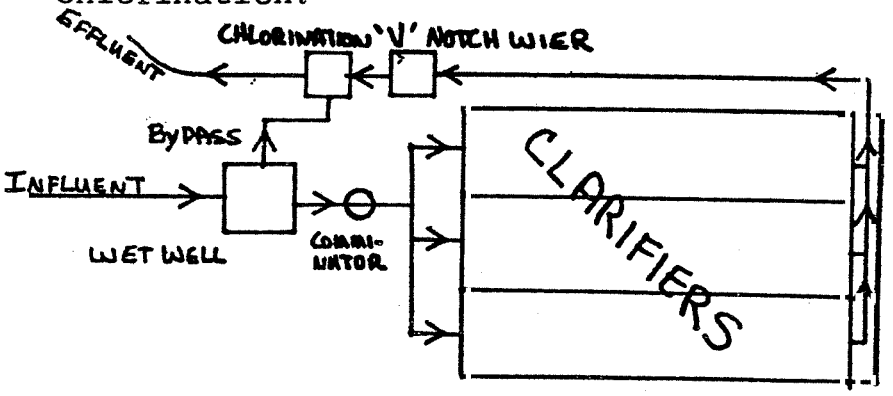
Lab No.	Sampling Time	Colonies/100 ml (MF) Total Coliform	Fecal Coliform	Fecal Strep	Cl_2 Residual
75-160	0938		< 100		0.3
75-166	1200		< 50		0.3
75-159	1600		< 100		.75

Additional Laboratory Results

NO_3-N ppm -	0.2
NO_2-N ppm -	ND
NH_3-N ppm -	13.
T. Kjeldahl-N ppm -	27.
O-PO_4-P ppm -	3.8
T-PO_4-P ppm -	6.4

Operator's Name Mel Morse Phone No. 794-6558

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



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 .328 (for 17 Nov. 1975 only)

Peak flow rate(mgd)

Dry _____

Wet _____

COMMENTS: ~~Sewage bypasses everytime it rains. The pumps will handle up to about .55 to~~ .60 MGD before bypassing starts. Bypassed sewage flows to chlorination chamber then to outfall

MEMORANDUM

January 13, 1976

To: John Glynn

From: Allen Moore

Subject: Monroe STP Efficiency Survey

An efficiency survey was conducted at the Monroe STP on November 17, 1975. The plant was fairly clean although the office area was disorderly. The plant becomes hydraulically overloaded at every rainfall. The flow meter and totalizer appear to read about 43% too low according to numerous checks. For example, the flow meter would indicate .18 MGD while it should be .33 MGD. Mel Morse, the plant operator said that the flow meter had been calibrated recently by a local person although he could not remember the person's name.

The lab data shows poor reductions. Low coliform counts show good disinfection. The amount of time from point of chlorination until effluent discharge to the Skykomish River is thirty minutes. The operator also said that the sludge is never pumped from the clarifier chambers.

AWM:ee

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: AWM

COPIES TO:

LAB FILES

DATA SUMMARY

Source Monroe STP Collected By A. Moore

Date Collected 11-18-75

Log Number: 75-	5329	30	31	32	33
Station:	INF	EFF	Woods Creek	Above STP	below STP
pH	7.3	7.1			
Turbidity (JTU)	52.	41.			
Conductivity (umhos/cm)@25°C	410.	360.			
COD	380.	260.			
BOD (5 day)	180.	120.			
Total Coliform (Col./100ml)					
Fecal Coliform (Col./100ml)					
NO3-N (Filtered)		.02	1.3	.24	.37
NO2-N (Filtered)		ND	ND	ND	ND
NH3-N (Unfiltered)		13.	.03	ND	ND
T. Kjeldahl-N (Unfiltered)		27.	.28	.06	.08
O-PO4-P (Filtered)		3.8	.04	.02	.01
Total Phos.-P (Unfiltered)		6.4	.07	.03	.04
Total Solids	380.	290.			
Total Non Vol. Solids	160.	130.			
Total Suspended Solids	100.	72.			
Total Sus. Non Vol. Solids	18.	24.			

Note: All results are in PPM unless otherwise specified. ND is "None Detected"

Summary By _____ Date _____