

TYPE OF INFORMATION OR ACTION PERMITTED BY OTHER

State of Washington Department of Ecology



TO: John Hodgson, Ron Pine, Ron Devitt
FROM: Hans Cregg
SUBJECT: Moxee City STP
DATE: July 2, 1973

On February 2, 1973, an efficiency study was conducted on the Moxee City sewage treatment plant. The plant gave the appearance of general disarray: lumber, spare parts and empty oil drums were carelessly strewn about. The laboratory facilities of the treatment plant reinforced the overall plant appearance. The few beakers and flasks that were available, were crusted with residue and dirt.

In addition, the validity of the responses given to the Federal Questionnaire (FWPCA-12) are of dubious value. The operator, Arne Lodahl, claimed to have performed tests for which he obviously did not possess the necessary equipment. When this was pointed out to him, he stated that Yakima STP runs the more difficult tests for him, When I contacted the Yakima treatment plant for verification, I was told that Yakima STP never has performed any analysis for the Moxee City treatment plant.

Our laboratory results indicate that BOD, COD and solid reduction do not meet DOE standards.

HC:bjj

Attachments

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City Moxee City Plant Type Intermediate Population 600 Design 600 (est.)
 Served Capacity
 Receiving Water Yakima River Engineer _____
 Date 2-1-73 Survey Period 0830-1630 Survey Personnel Hans Cregg
 Comp. Sampling Frequency every 1/2 hour Weather Conditions cold and clear
 (last 48 hours)
 Sampling Alequot 1000 mls

PLANT OPERATION

Total Flow Estimated at 50,000 gal/day How Measured Estimated
 Max. (Flow) _____ Time of Max. _____ Min. _____ Time of Min. _____
 Pre Cl₂ _____ #/day Post Cl₂ 12 #/day

FIELD RESULTS

Influent

Effluent

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C								
pH	8.2	7.0	7.4	7.5	7.5	6.7	7.0	7.2
Conductivity (umhos/cm)								
Settleable Solids	7	5			.3	.1		

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	73-623	73-622	
5-Day BOD	125	55	56
COD	346	215	38
T.S.	570	361	37
T.N.V.S.	360	325	
T.S.S.	217	69	68
N.V.S.S.	52	15	71
pH	7.8	7.4	
Conductivity	550	645	
Turbidity	75	45	40

Moxee City

BACTERIOLOGICAL RESULTS

$\text{Na}_2\text{S}_2\text{O}_3$ added to sample before sample ~~XXXXX~~ was taken. ~~XXXX~~.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs)
73-620	1000	4000	200	.2	15
73-621	1400	400	80	.2	15

Operator's Name Arne Lodahl Phone # _____

Comments: _____

U.S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
SEWAGE TREATMENT PLANT OPERATION AND MAINTENANCE
PRACTICES QUESTIONNAIRE

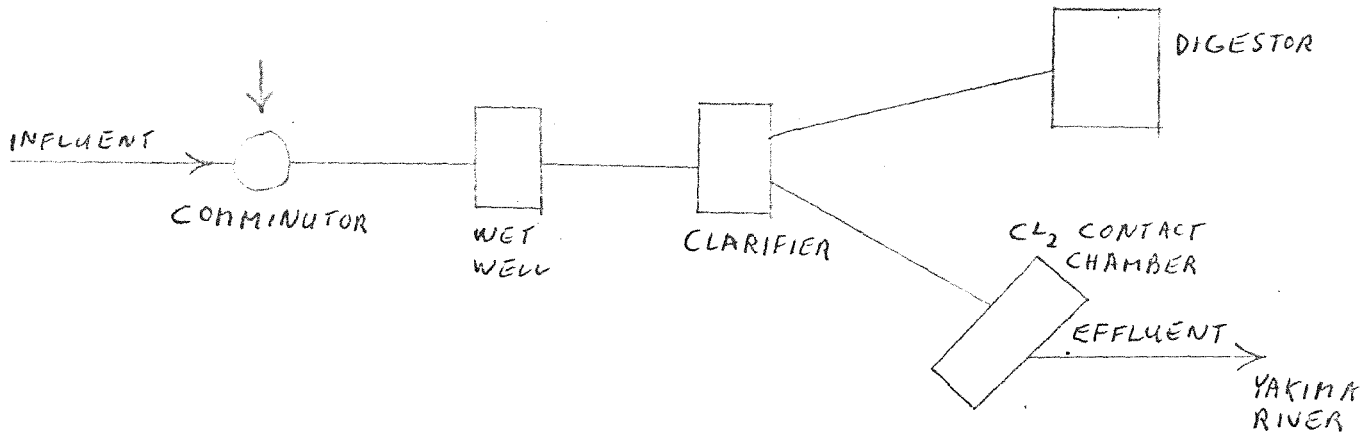
FORM APPROVED
BUDGET BUREAU NO. 42-81527

CHECK ONE: <input checked="" type="checkbox"/> 1ST AUDIT <input type="checkbox"/> RE-AUDIT	DATE OF AUDIT 1 FEB '73	PLANT DESCRIPTION CODE (For Official Use Only)
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A. GENERAL INFORMATION

1. PROJECT (State, Number)		SCOPE OF PROJECT (new plant, additions, etc.)	
2. PLANT LOCATION (City, county) MOXEE, YAKIMA		IDENTIFICATION OF AREAS SERVED MOXEE CITY	
3. POPULATION			
3A. FRACTION OF AREA POPULATION SERVED (%) 100%	3B. PLANT DESIGN (population equivalent) 600	3C. SERVED BY PLANT (domestic) 600	
4. TYPE OF COLLECTION SYSTEM			
4A. <input type="checkbox"/> COMBINED <input type="checkbox"/> SEPARATE <input type="checkbox"/> BOTH		4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd)	
5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT 1954		6. YEAR PRESENT SYSTEM PLACED IN OPERATION	
		6A. SEWER 1954	6B. PLANT 1954
		6C. ANCILLARY WORKS	
7A. SIZE OF PLANT SITE (acres) 2 ACRES		7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres) 1 ACRE	

8A. IN THE SPACE PROVIDED BELOW FURNISH A SIMPLIFIED FLOW DIAGRAM OR A WRITTEN DESCRIPTION OF THE PLANT UNITS IN FLOW SEQUENCE. INCLUDE THE METHOD OF ULTIMATE SLUDGE DISPOSAL. SHOW APPROXIMATE SURFACE AREA OF STABILIZATION PONDS AND NUMBER OF CELLS. INDICATE WHETHER FLOW TO AND FROM PLANT IS BY PUMPING OR GRAVITY.



8B. NOTE ANY SIGNIFICANT OR UNIQUE PROCESSING CONDITIONS.

9. RECEIVING STREAM

9A. NAME OF STREAM YAKIMA RIVER				
9B. STREAM FLOW IS <input checked="" type="checkbox"/> PERENNIAL <input type="checkbox"/> INTERMITTENT		<input checked="" type="checkbox"/> NATURAL <input type="checkbox"/> REGULATED		<input checked="" type="checkbox"/> INTERSTATE <input type="checkbox"/> INTRASTATE
				<input type="checkbox"/> COASTAL
B. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION				
1A. ANNUAL AVERAGE DAILY FLOW RATE (mgd) 52000	1B. PEAK FLOW RATE (mgd)		1C. MINIMUM FLOW RATE (mgd)	
	DRY WEATHER 38000	WET WEATHER 52000		
2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (mg/l)		3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (mg/l)		
		3.5		
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l)		5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (mpn/100 ml)		
5. ANNUAL AVERAGE PLANT REDUCTION				
6A. BOD (%)	6B. SETTLEABLE SOLIDS (%)	6C. SUSPENDED SOLIDS (%)	6D. COLIFORM DENSITY (%)	

7A. DOES PLANT HAVE STANDBY POWER GENERATOR FOR MAJOR PUMPING FACILITIES? YES NO

7B. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES? YES NO

8. ARE CHLORINATION FACILITIES PROVIDED? YES NO
IF YES, ANSWER 8A THRU G

IF YES, IS CHLORINATION CONTINUOUS? YES NO
IF NO, EXPLAIN REASON FOR INTERMITTENT CHLORINATION

8A. PURPOSE OF CHLORINATION

DISINFECTION

8D. TYPE OF CHLORINATOR
FISHER & PORTER (GAS)

8C. POINT OF APPLICATION OF CHLORINE
BEFORE DISCHARGE INTO YAKIMA RIVER

8D. CAN BYPASSED SEWAGE BE CHLORINATED? YES NO

8E. AVERAGE FEED RATE OF CHLORINE (lb/day)
12 lbs

8F. CHLORINE RESIDUAL IN EFFLUENT
PPM AT END OF _____ MINUTES

8G. MINIMUM SUPPLY OF CHLORINE STORED ON PREMISES (lb)
150 lbs

9. ARE FACILITIES PROVIDED FOR COMPLETE BYPASS OF RAW SEWAGE? YES NO
IF YES, ANSWER A THRU G BELOW, ANSWER H IN EITHER CASE.

9A. FREQUENCY (times monthly)
3 TIMES PER YEAR

9B. AVERAGE DURATION (hours)
3 HOURS

9C. REASON FOR BYPASSING
EQUIPMENT FAILURE

9D. ESTIMATED FLOW RATE DURING BYPASS IS
 WITHIN HYDRAULIC CAPACITY OF PLANT
 BEYOND HYDRAULIC CAPACITY OF PLANT BY _____

9E. DOES SEWAGE OVERFLOW IN DRY WEATHER? YES NO

9F. TYPE OF DIVERSION STRUCTURE
BYPASS WETWELL TO CL₂ CONTACT TANK

9G. AGENCIES NOTIFIED OF BYPASS ACTION
YAKIMA STP

9H. DO OPERATORS HAVE OPTION TO BYPASS INDIVIDUAL PLANT UNITS? (If no, has this caused any operational problems?)
 YES NO
NO

10A. ARE BACK FLOW DEVICES PROVIDED AT ALL CONNECTIONS TO CITY WATER SUPPLY? (If no, explain)
 YES NO

10B. CHECK TYPE OF BACK FLOW PREVENTION DEVICE
 DOUBLE CHECK VALVE PRESSURE OPERATED PHYSICAL DISCONNECT OTHER(specify)

11. USES OF TREATMENT PLANT EFFLUENT
NONE

12. USES OF RECEIVING STREAM WITHIN 10 MILES OF OUTFALL
FISHING AND IRRIGATION
12. HAVE THERE BEEN ANY ODOR COMPLAINTS BEYOND THE PLANT PROPERTY? (If yes, explain)
 YES NO

14. OBSERVED APPEARANCE AND CONDITION OF EFFLUENT, RECEIVING STREAM, OR DRAINAGE WAY

15. STABILIZATION POND

A. WEEDS CUT AND VEGETATIVE GROWTH IN PONDS ELIMINATED?
 YES NO

D. BANKS AND DIKES MAINTAINED (erosion etc.)?
 YES NO

C. FENCING AND TRAINING - POLLUTED WATER? SIGNS PRESENT AND IN GOOD REPAIR?
 YES NO

D. FREQUENCY OF INSPECTION BY OPERATOR

E. WATER DEPTH (feet)

_____ HIGH _____ LOW _____ MEDIUM

F. ADEQUATE CONTROL OF DEPTH?
 YES NO

G. SEEPAGE REPORTED?
 YES NO

H. ANY REPORTS OF GROUND WATER CONTAMINATION FROM POND (if yes, give details)?
 YES NO

I. MOSQUITO BREEDING PROBLEM?
 YES NO

IF YES, NAME OF SPECIES IF KNOWN

J. CAN SURFACE RUN-OFF ENTER POND?
 YES NO

C. SUPERVISORY SERVICES

1. IS A CONSULTING ENGINEER RETAINED OR AVAILABLE FOR CONSULTATION ON OPERATING AND MAINTENANCE PROBLEMS?

YES NO IF YES IS IT ON: CONTINUING BASIS OR UPON REQUEST BASIS

IF CONTINUING BASIS, WHAT IS THE FREQUENCY OF VISITS: ONCE A MONTH

2. DO OPERATORS AND OTHER PERSONNEL ROUTINELY ATTEND SHORT COURSES, SCHOOLS OR OTHER TRAINING ACTIVITIES?

YES NO

IF YES, CITE COURSE SPONSOR AND DATE OF LAST COURSE ATTENDED

1969 AT PULLMAN - WATER PLANT OPERATORS COURSE

IF NO, DO YOU KNOW OF ANY COURSES AVAILABLE TO SERVE THIS AREA?

3A. ARE ALL EQUIPMENT AND PARTS OF THE PRESENT PLANT STILL IN OPERATION? YES NO (If no, explain)

B. ARE PROCESSING UNITS OPERATING AT DESIGN EFFICIENCY? YES NO (If no, explain)

4. HAVE THERE BEEN ANY DIFFICULTIES WITH THE SEWAGE TREATMENT PLANT?

A. STRUCTURAL YES NO (If yes explain)

B. MECHANICAL YES NO (If yes, explain)

PUMPS PLUG UP

C. OPERATIONAL YES NO (If yes, explain)

TOO MANY OTHER DUTIES

D. BASED ON OPERATING EXPERIENCE TO DATE WHAT IF ANY CHANGES WOULD YOU RECOMMEND TO IMPROVE OPERATION OF THE PLANT?

- 1) ADDITIONAL HELP
- 2) ADD SECONDARY FILTER
- 3) ADD ONE SEWAGE PUMP

5. ARE OPERATING RECORDS MAINTAINED? YES NO
 (If maintained, check general items included)

REPORTED TO WHOM? YES NO
 CITY HALL

FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	DIGESTER	GRIT HANDLED	ELEC. USED	COST DATA	AIR USED	MAINTENANCE	OTHER
DAILY	X		X								
WEEKLY				X	X	X					
MONTHLY							X	X	X	X	
ANNUALLY											

6. ARE LABORATORY RECORDS MAINTAINED? (check appropriate box)
 NOT AT ALL DAILY WEEKLY MONTHLY ANNUALLY

IF MAINTAINED CHECK FORM OF RECORD BELOW:

LOG BOOK TABULAR SHEET SEPARATE BY OPERATION CONTROL CHARTS GRAPHS
 WHAT PLANT AND/OR LABORATORY EQUIPMENT, GAGES AND METERS ARE CALIBRATED PERIODICALLY?

7. IS LABORATORY TESTING ADEQUATE FOR THE CONTROL REQUIRED FOR THIS SIZE AND TYPE OF PLANT?

YES NO (If no, explain)

B. INDUSTRIAL WASTES DISCHARGED TO MUNICIPAL SYSTEM:	A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEMS: NONE
B. POPULATION EQUIVALENT (BOD) OF INDUSTRIAL WASTES (pc) NONE	C. POPULATION EQUIVALENT (SS) OF INDUSTRIAL WASTES (pc) NONE
D. VOLUME OF INDUSTRIAL WASTES (mgd) NONE	E. COMPOSITION AND CHARACTERISTICS OF INDUSTRIAL WASTES NONE
F. MAIN DIFFICULTY EXPERIENCED WITH INDUSTRIAL WASTE (explain) NONE	

8. HAVE INDUSTRIAL EFFLUENT PROBLEMS BEEN SOLVED? YES NO (If yes, how?)

NONE

9A. METHOD OR METHODS USED TO ASSESS INDUSTRIAL WASTE TREATMENT COST (check appropriate box)

NO CHARGE BY CITY PROPERTY TAX WATER USE ASSESSMENT CHARGE BASED ON FLOW
 CHARGED BASED ON BOD CHARGE BASED ON SS OTHER METHODS (describe)

COMMENT ON HOW CHARGE IS COLLECTED (fixed charge, sliding scale, etc.)

FIXED

9B. IS INDUSTRIAL WASTE ORDINANCE IN EFFECT AND ENFORCED? YES NO

10. WHO PROVIDED INITIAL INSTRUCTION IN THE OPERATION OF THE PLANT?

GRAY & OSBURN

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE? IF YES, WHO WROTE AND PROVIDED IT?

YES NO

GRAY & OSBURN

12. ESTIMATE OF MAN-HOURS PER WEEK DEVOTED TO LABORATORY WORK AND MAINTENANCE OF RECORDS AND REPORTS

8 Hours

D. PLANT PERSONNEL (Annual Average Staff for Most Recent Year Reported in Section "E")

JOB CATEGORY	NUMBER	TOTAL MAN-HOURS PER WEEK	TOTAL NUMBER CERTIFIED OR LICENSED	RANGE IN YEARS EMPLOYED AT PRESENT PLANT	RANGE IN YEARS OF EXPERIENCE IN TREATMENT
1. SUPERINTENDENT					
2. OPERATORS	1	22	1	11	11
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS	1	16		1	1
6. TOTAL					

E. LABORATORY CONTROL

Enter test codes opposite appropriate items. If any of the below tests are used to monitor industrial wastes place an "X" in addition to the test code.

CODES

1 - 7 or more per week 3 - 1, 2, or 3 per week 5 - 2 or 3 per month 7 - Quarterly 9 - Annually
 2 - 4, 5 or 6 per week 4 - as required 6 - 1 per month 8 - Semi-Annually

ITEM	RAW	PRIMARY EFFLUENT	MIXED LIQUOR	FINAL	SLUDGE		DIGESTOR	RECEIVING STREAM
					RAW	SUPER-NATANT		
1. BOD	6			6	6		6	
2. SUSPENDED SOLIDS	3			3	3			
3. SETTLEABLE SOLIDS	2			2	2			
4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN								
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	2			2			5	
9. TEMPERATURE	3			3	2		3	
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE				2				
12. VOLATILE ACIDS								
13. M. B. STABILITY								
14. ALKALINITY								
15.								
16.								
17.								
18.								
19.								

F. OPERATION AND MAINTENANCE COST FOR PLANT

YEAR OF OPERATION	SALARIES/WAGES	ELECTRICITY	CHEMICALS	MAINTENANCE	OTHER ITEMS	TOTAL
MOST CURRENT YEAR 1972	4800	600	1200	1500		
PRIOR YEAR 1971	3800	600	1200	1500		
PRIOR YEAR 1970	3800	600	1200	1000		
PRIOR YEAR 1969	3800	600	1200	1000		

EVALUATION PERFORMED BY	TITLE	ORGANIZATION
HANS CREGG	INST. TECH	P.O.E.

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
ARNE S. LODAHL	CITY SUPERINTENDENT	MOXEE CITY	1/10/72

G. NOTATIONS BY EVALUATOR

1. ADDITIONAL REMARKS (If remarks refer to a particular item, identify by number)

I QUESTION THE VALIDITY OF ANSWERS GIVEN, PARTICULARLY THOSE OF ITEM "E" - LABORATORY CONTROL

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

HOUSEKEEPING WAS EXTREMELY POOR

3. REQUIREMENTS OF HIGHER AUTHORITY

3A. DOES THE PLANT PROVIDE THE DEGREE OF TREATMENT PRESENTLY REQUIRED BY THE STATE? (If no, explain)

YES NO SEE ATTACHED REPORT

3B. ARE THERE ANY PENDING ACTIONS (enforcement conferences, change in water quality standards, etc.) THAT WOULD REQUIRE UPGRADING OF TREATMENT BY THIS PLANT?

YES NO (If yes, explain)

3C. NUMBER OF STATE INSPECTIONS OF PRESENT PLANT TO DATE. ONE

4. IS ANY FOLLOW-THRU ACTION REQUIRED TO (1) CORRECT DEFICIENCIES IN THE PLANT OR ITS OPERATION OR (2) RESOLVE INDUSTRIAL WASTE PROBLEMS? (If yes, describe required corrective action) YES NO

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: HANS CRAIG...
COPIES TO:
.....
.....
LAB FILES

DATA SUMMARY

Source Moxee City STP

Collected By HANS CRAIG

Date Collected 2/1/73

Goal, Pro./Obj. 3.2.23

Log Number: 73-622-623-620-621

Station:	EFF	INF.	STATIONS NOT IDENTIFIED					STORET
pH	7.4	7.8						00403
Turbidity (JTU)	45	75						00070
Conductivity (umhos/cm)@25°C	645	550						00095
COD	215	346						00340
BOD (5 day)	55	125						00310
Total Coliform (Col./100ml)			4000	2400				31504
Fecal Coliform (Col./100ml)			<200	<80				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	361	570						00500
Total Non Vol. Solids	325	360						
Total Suspended Solids	69	217						00530
Total Sus. Non Vol. Solids	15	52						

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 Mary Wolcomb Date 2/9/73