Publication No. 73-e07
WA-22-4045

TO: Ron Robinson, Mike Price

FROM: Darrel Anderson

SUBJECT: McCleary STP

DATE: August 30, 1973

State of Washington Department of Ecology

On June 24, 1973, I conducted an efficiency study on McCleary sewage treatment plant. The facility has good security but is not as clean as it should be. There is no trained operator for the plant and several city employees share maintenance and lab work.

The 5-day BOD reduction is 66 percent, COD reduction is 59 percent. Fecal coliform did not surpass 200/100 mls and fecal strep was less than 20/100 mls. Total solids reduction was 31 percent.

DA:bjj

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City McCleary Plant Type T. Filter Population Served 1300 Design Capacity ?

Receiving Water Wildcat Creek via Ditch Engineer Chuck Melville

Date 7-24-73 Survey Period 0830-1630 Survey Personnel Darrel Anderson

Comp. Sampling Frequency 1/2 hour Weather Conditions (last 48 hours) Clear

Sampling Alequot 1,000 ml

PLANT OPERATION

Total Flow 451,000 gpd How Measured flow meter

Max. (Flow) 32,000 Time of Max. 1530 Min. 28,000 Time of Min. 1200-1300

Pre Cl_2 -- #/day Post Cl_2 4-6 #/day

FIELD RESULTS

Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp. °C	20.0	17.0	17.4	17.0	19.0	17.0	17.7	18.0
pH	7.4	6.9	7.0	7.1	7.0	7.0	7.0	7.0
Conductivity (umhos/cm)	500	400	453	450	450	375	420	450
Settleable Solids	6.2	3.5	5.0	5.0		Trace		

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent 73-2705	Effluent 73-2706	% Reduction
5-Day BOD	90	31	66
COD	270	111	59
T.S.	382	267	31
T.N.V.S.	202	159	22
T.S.S.	142	27	81
N.V.S.S.	10	12	--
pH	7.4	7.6	--
Conductivity	640	550	--
Turbidity	55	17	--

McCleary STP

BACTERIOLOGICAL RESULTS

$Na_2S_2O_3$ added to sample before sample ~~After~~ was taken, _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)	Cl Residual	
			ppm	(after secs)
73-2707	0945	<100	0.2	0.2
73-2708	1030	<100	0.2	0.2
73-2709	1200	<200	0.15	0.3
73-2710	1330	<200	0.15	0.2
73-2711	1430	<200	0.2	0.4
73-2712	1600	<20	0.3	0.5

=tor's Name No trained operator Phone # _____

=nts:

MBAS - Average 12.4

Chlorides - Inf. 41

Eff. 44

Fecal Strep <20 all samples

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO: D. Anderson
COPIES TO:
LAB FILES

Source: Mc Cleary STP — Collected By: D. A.

Date Collected: 7-24-73 — Goal, Pro./Obj.:

LOG Number: 73-	2205	06	07	08	09	10	11	12			STORET
Station:	INF	EFF	0945	1030	1200	1330	1430	1600			
pH	7.4	7.6									00403
Turbidity (JTU)	55	17									00070
Conductivity (umhos/cm)@25C	640	550									00095
COD	270	111									00340
BOD (5 day)	90	31									00310
Total Coliform (Col./100ml)			<100	<100	EST 200	<100	EST 20	EST 20			31504
Fecal Coliform (Col./100ml)			<100	<100	<200	<200	<200	<20			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	392	267									00500
Total Non Vol. Solids	202	159									
Total Suspended Solids	142	27									00530
Total Sus. Non Vol. Solids	10	12									
MBAS	<.05	<.05	0.80	0.35	34	2.8					
Fecal Strep (enfom.)			EST 100	<20	<20	<20	<20	<20			
Chlorides	41	44									

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: /Tyler D. Roth/ Date: 8-22-73

Exhibit P

U.S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

FORM APPROVED
BUDGET BUREAU NO. 40-R1327

SEWAGE TREATMENT PLANT OPERATION AND MAINTENANCE PRACTICES QUESTIONNAIRE

CHECK ONE: ☐ 1ST AUDIT ☒ 2ND AUDIT

DATE OF AUDIT: 7-24-73

PLANT DESCRIPTION CODE (For Official Use Only)

A. GENERAL INFORMATION

1. PROJECT (State, Number)

SCOPE OF PROJECT (new plant, additions, etc.)

2. PLANT LOCATION (City, county)
McCleary

IDENTIFICATION OF AREA SERVED
City of

3. POPULATION

3A. FRACTION OF AREA POPULATION SERVED (%)
Nearly 100%

3B. PLANT DESIGN (population equivalent)
?

3C. SERVED BY PLANT (domestic)
1300

4. TYPE OF COLLECTION SYSTEM

4A.
☐ COMBINED ☒ SEPARATE ☐ BOTH

4B. EXTRANEOUS FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, inflow)
DOUBLES During rain

5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT

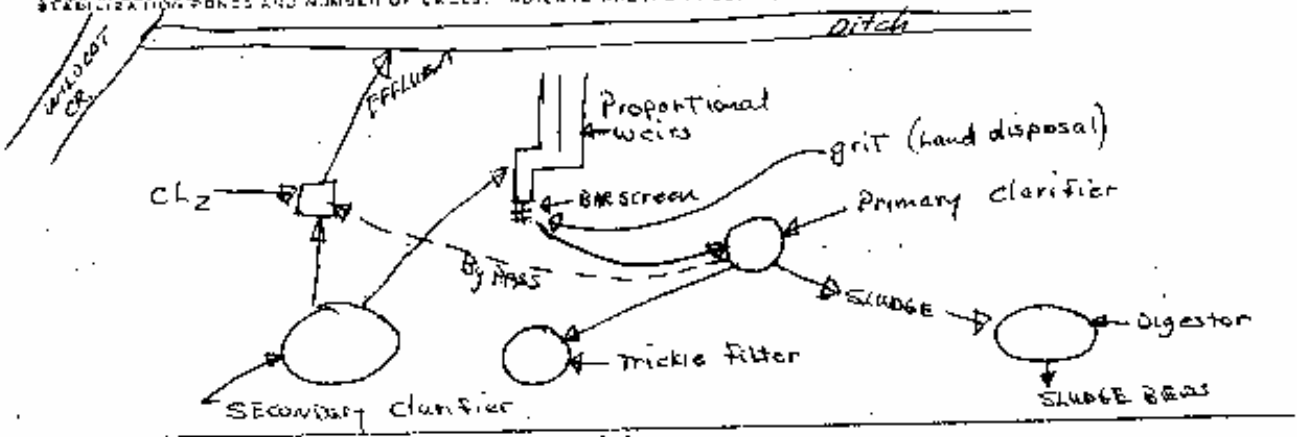
6. YEAR PRESENT SYSTEM PLACED IN OPERATION

6A. SEWER | 6B. PLANT | 6C. ANCILLARY WORKS

7A. SIZE OF PLANT SITE (acres)

7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres)

8A. IN THE SPACE PROVIDED BELOW PLEASE DRAW 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 AERATION ZONES AND NUMBER OF CELLS. INDICATE WHETHER FLOW TO AND FROM PLANT IS BY PUMPING OR GRAVITY.



8B. NOTE ANY SIGNIFICANT OR UNIQUE PROCESSING CONDITIONS.

aeration units on Primary & Secondary

B. RECEIVING STREAM

9A. NAME OF STREAM
ditch to Mud Cat Creek

9B. STREAM FLOW IS
☒ PERENNIAL ☐ INTERMITTENT ☒ NATURAL ☐ REGULATED

☒ INTERSTATE ☐ INTRASTATE ☐ COASTAL

C. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION

10A. ANNUAL AVERAGE DAILY FLOW RATE (mgd)
?

10B. PEAK FLOW RATE (mgd): DRY WEATHER | WET WEATHER

10C. MINIMUM FLOW RATE (mgd)

11. AVERAGE BOD OF RAW SEWAGE 5 DAY 20°C (ppm)

12. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (ml/l)

13. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l)

14. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (MPN)

15. ANNUAL AVERAGE PLANT REMOVALS

15A. BOD %

15B. SETTLEABLE SOLIDS %

15C. SUSPENDED SOLIDS %

15D. COLIFORM DENSITY %

FWPCA-12 (Rev. 4-68)

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

8B. TYPE OF CHLORINATOR

Wallace & Tiernan

8C. POINT OF APPLICATION OF CHLORINE

After 2nd Clarifier

8D. CAN BYPASSED SEWAGE BE CHLORINATED?

☐ YES ☒ NO

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

4-6 185

8F. CHLORINE RESIDUAL IN EFFLUENT

_____ PPM AT END OF _____ MINUTES

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

280 185

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)

9B. AVERAGE DURATION (hours)

Frequently During WET weather

9C. REASON FOR BYPASSING

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

Head Wall

9G. AGENCIES NOTIFIED OF BYPASS ACTION

Recorded on Tabular Sheet

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

☒ YES ☐ NO

Trickle Filter & 2nd Clarifier

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 NONE

☐ 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 Recreation

13. HAVE THERE BEEN ANY ODOR COMPLAINTS BEYOND THE PLANT PROPERTY? *(If yes, explain)*

☒ YES ☐ NO

In Summer

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

Slightly turbid

15. STABILIZATION PONDS

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

B. BANKS AND DIKES MAINTAINED (Erosion etc.)? ☐ YES ☐ NO

C. FENCING AND "CAUTION – POLLUTED WATER" SIGNS PRESENT AND IN GOOD REPAIR? ☐ YES ☐ NO

D. FREQUENCY OF INSPECTION BY OPERATOR

E. WATER DEPTH (Est)

_____ 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: City Engineer

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

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)

PH meter - probe - not working

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)

Frequent By pass during wet weather

B. MECHANICAL ☐ YES ☒ NO (If yes, explain)

C. OPERATIONAL ☐ YES ☐ NO (If yes, explain)

no trained personnel operating plant at this time. - awaiting schedule for classes.

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

more time for maintenance & TESTing and time for education.

5. ARE OPERATING RECORDS MAINTAINED? ☑ YES ☐ NO — REPORTED? ☒ YES ☐ NO

If maintained, check general items included — TO WHOM? Health Dept

FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	DIGESTER	GRIT HANDLED	ELEC. USED	COST DATA	AIR USED	MAIN-TENANCE	OTHER
DAILY		✓									
WEEKLY								✓			
MONTHLY											
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)*

8. INDUSTRIAL WASTES DISCHARGED TO MUNICIPAL SYSTEM:

A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEM: Hospital & School - Simpson Timber

B. POPULATION EQUIVALENT *(BOD)* OF INDUSTRIAL WASTES *(pe)*: ?

C. POPULATION EQUIVALENT ($S) OF INDUSTRIAL WASTES *(pe)*: ?

D. VOLUME OF INDUSTRIAL WASTES *(mgd)*: ?

E. COMPOSITION AND CHARACTERISTICS OF INDUSTRIAL WASTES: ?

F. MAIN DIFFICULTY EXPERIENCED WITH INDUSTRIAL WASTE *(explain)*

none

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

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.)*

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

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

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE? ☒ YES ☐ NO — IF YES, WHO WROTE AND PROVIDED IT? DEPT OF ECOLOGY

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

D. PLANT PERSONNEL *(Annual Average Shall Be Most Recent Year Reported in Section "F")*

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 THIS FIELD
1. SUPERINTENDENT					
2. OPERATORS					
3. LABORATORY TECHNICIAN					
4. LABORERS					
5. PART-TIME LABORERS	1	12	NONE	—	—
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								
2. SUSPENDED SOLIDS								
3. SETTLEABLE SOLIDS								
4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN							/	
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	BROKE	DOWN						
9. TEMPERATURE								
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE				/				
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 19						
PRIOR YEAR 19						
PRIOR YEAR 19						
PRIOR YEAR 19						

EVALUATION PERFORMED BY	TITLE	ORGANIZATION
DARREL ANDERSON	EURO. TECH II	D.O.E.

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
ED Biers	City of McCleary SUPERINTENDANT	McCleary	2-24-83

C. NOTATIONS BY EVALUATOR

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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

Housekeeping is Fair

Maintenance Fair

3. REQUIREMENTS OF HIGHER AUTHORITY

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

☐ YES ☐ NO

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.

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

Should be at least TWO trained operators ~~on shift~~ available at all times. Also more time scheduled for tests and maintenance.