STP SURVEY REPORT FORM
(EFFICIENCY STUDY)

Publication No. 72-e46

WA-23-1020

City Centralia Rcd Plant Type T. Filter Population Served 10,000 Design Capacity 10,000

Receiving Water Chehalis River Engineer Nelson Graham

Date 9-18-72 Survey Period 0800-1600 hrs. Survey Personnel Pat Lee

Comp. Sampling Frequency 1/2 hr. Weather Conditions (last 48 hours) Overcast

Sampling Alequot 1000 ml/MGD

PLANT OPERATION

Total Flow .3 MG/8 hrs. How Measured Totalizer

Max. (Flow) 1.0 MGD Time of Max. 0800-1000 Hr. Min. .6 MGD Time of Min. 1500-1600 H

Pre Cl_2 ---- #/day Post Cl_2 70 #/day

FIELD RESULTS

9 Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Final Effluent Max.	Final Effluent Min.	Final Effluent Mean	Final Effluent Median
T. °C	17.8	17.0	17.3	17.3	17.0	16.5	16.7	16.8
pH	7.3	7.2	7.2	7.2	7.3	7.0	7.2	7.2
Conductivity (umhos/cm)	----	----	----	----	----	----	----	----
Settleable Solids	12.0	7.0	10.2	11.0	.1	Nil	:05	.05

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent 72-3513	Effluent Primary 72-3514	Effluent Final 72-3515	% Reduction Total
5-Day BOD	153	86	21	86
COD	420	270	115	73
T.S.	441	311	228	48
T.N.V.S.	204	107	146	28
T.S.S.	197	80	30	84
N.V.S.S.	32	5	5	16
pH	7.4	7.4	7.2	--
Conductivity	440	406	402	--
Turbidity	70	42	18	--

Centralia

BACTERIOLOGICAL RESULTS

$Na_2S_2O_3$ added to sample in bottle after _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)	Cl Residual 15 sec. ppm	Cl Residual 360 sec. (after secs.)
72-3516	1000	250	.10	.35
72-3517	1100	400	.15	.35
72-3518	1400	1000	.15	.20
72-3519	Creek	14,000		

Operator's Name William Keto Phone # _____

Comments: _____

Primary Clarifier Effluent

	Max.	Min.	Mean	Median
Temp. ^{o}C	17.4	17.0	17.2	17.2
pH	7.3	7.0	7.2	7.2
Settleable Solids	.4	.1	.25	.25

Exhibit F

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-R1527

CHECK ONE: [X] 1ST AUDIT [ ] RE-AUDIT

DATE OF AUDIT: 9-18-72

PLANT DESCRIPTION CODE (For Official Use Only):

A. GENERAL INFORMATION

1. PROJECT (State, Number): Washington

SCOPE OF PROJECT (new plant, additions, etc.): complete system except LINES

2. PLANT LOCATION (City, county): centralia Lewis

IDENTIFICATION OF AREAS SERVED: Centralia

3. POPULATION

3A. FRACTION OF AREA POPULATION SERVED (%): 95

3B. PLANT DESIGN (population equivalent): 18,000

3C. SERVED BY PLANT (domestic): 10,000

4. TYPE OF COLLECTION SYSTEM

4A. [ ] COMBINED [X] SEPARATE [ ] BOTH

4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd): small infl

5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT: 1951

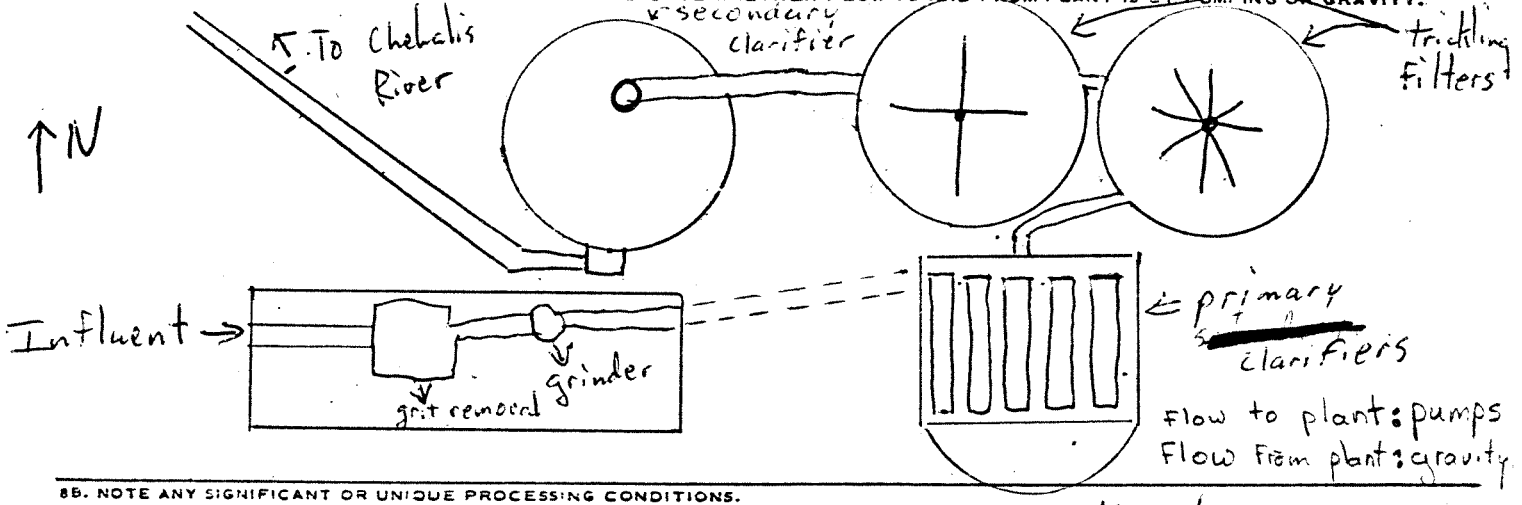
6. YEAR PRESENT SYSTEM PLACED IN OPERATION

6A. SEWER	6B. PLANT	6C. ANCILLARY WORKS
1913-1925	1951	1971

7A. SIZE OF PLANT SITE (acres): 5

7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres): 0

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.



Flow to plant: pumps
Flow from plant: gravity

8B. NOTE ANY SIGNIFICANT OR UNIQUE PROCESSING CONDITIONS.

9. RECEIVING STREAM

9A. NAME OF STREAM: Chehalis River

9B. STREAM FLOW IS: [ ] PERENNIAL [ ] INTERMITTENT [X] NATURAL [ ] REGULATED

[ ] INTERSTATE [X] INTRASTATE [ ] COASTAL

B. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION

1A. ANNUAL AVERAGE DAILY FLOW RATE (mgd)	1B. PEAK FLOW RATE (mgd)		1C. MINIMUM FLOW RATE (mgd)
	DRY WEATHER	WET WEATHER	
2	1	5	.67 mgd

2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm)	3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (IMHOFF Cone) (ml/l)
250	4
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l)	**5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (mpn 100 ml)**
150	

6. ANNUAL AVERAGE PLANT REDUCTION %

6A. BOD (%)	6B. SETTLEABLE SOLIDS (%)	6C. SUSPENDED SOLIDS (%)	6D. COLIFORM DENSITY (%)
85 %	100 %	85 %	

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

8B. TYPE OF CHLORINATOR
Wallace + Tiernan V-Notch Automatic Flow

8C. POINT OF APPLICATION OF CHLORINE
Filter Effluent

8D. CAN BYPASSED SEWAGE BE CHLORINATED?
☒ YES ☐ NO

8E. AVERAGE FEED RATE OF CHLORINE (lb/day)
70

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

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

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)
1/year

9B. AVERAGE DURATION (hours)
10 hrs

9C. REASON FOR BYPASSING
Flood

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
Overflow Weir

9G. AGENCIES NOTIFIED OF BYPASS ACTION
Dept of Ecology

9H. DO OPERATORS HAVE OPTION TO BYPASS INDIVIDUAL PLANT UNITS? (If no; has this caused any operational problems?)
☒ YES ☐ NO
↳ chief operator

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, boating, irrigation

13. 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
Murky outfall

15. STABILIZATION PONDS N/A

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

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

C. FENCING AND "WARNING – 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:

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

Dept. of Ecology

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)

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

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

none

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 RAW	SLUDGE SUPER-NATANT	DIGESTOR	RECEIVING STREAM
1. BOD	6	6		6				
2. SUSPENDED SOLIDS	6	6		6				
3. SETTLEABLE SOLIDS	1	1		1				
4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN	1	1		1				
6. TOTAL SOLIDS	7	7		7				
7. VOLATILE SOLIDS								
8. pH	1	1		1				
9. TEMPERATURE	1	1		1				
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE	1	1		1				
12. VOLATILE ACIDS	3	3		3				
13. M. B. STABILITY								
14. ALKALINITY	3	3		3				
15. CO_2 content	~~3~~	3		~~3~~				
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
Patrick M. Lee	WQMT I	Wash. St. Dept. of Ecology

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
William Keto	Chief Operater	Centralia City	9/18/72

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

REPORTED? ☒ YES ☐ NO TO WHOM? Dept of Ecology

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?

pH meter

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 SYSTEMS: Small

B. POPULATION EQUIVALENT (BOD) OF INDUSTRIAL WASTES (pe)

C. POPULATION EQUIVALENT (SS) 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)

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?

Engineer

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE? ☒ YES ☐ NO

IF YES, WHO WROTE AND PROVIDED IT? CH2M

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

14

D. PLANT PERSONNEL (Annual Average Staff for 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 TREATMENT
1. SUPERINTENDENT	1	1	1	21	21
2. OPERATORS	1	40	1	15	15
3. LABORATORY TECHNICIANS	2	80	2	15	23
4. LABORERS			---		
5. PART-TIME LABORERS					
6. TOTAL					

G. NOTATIONS BY EVALUATOR

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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

average

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