

December 10, 1973

State of
Washington
Department
of Ecology



Memo to: Gerry Calkins

From: Ron Devitt

Subject: Longview Primary Efficiency Survey.

On October 24, 1973, an efficiency survey was conducted on the primary sewage treatment plant at Longview, WA. Chlorine and coliform samples were taken from the spigot in the effluent line. The chlorine contact time depends on the pumping cycle and varies considerably. In general, the disinfection was poor. The data reported for the sample taken at 1600 hours is unusual in that higher fecal and fecal streptococci numbers would be expected. The reason for the low numbers is not known.

Plans are pending to build a new treatment plant that will also treat the sewage from Kelso.

Housekeeping was good.

RCD:jmh

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City Longview Plant Type Primary Population 35,000 Design 4.5 MGD
 Served Capacity
 Receiving Water Columbia River Engineer H. Steeley
 Date October 24, 1973 Survey Period 0830-1630 hours Survey Personnel R.Devitt
 Comp. Sampling Frequency 1/2 hour Weather Conditions Rain-wind
 (last 48 hours)
 Sampling Alequot MGD ÷ 4 mls.

PLANT OPERATION

Total Flow .515 MG in 8 hours. How Measured Recorder
 Max. (Flow) 4.5 MGD Time of Max. 1130-1200 hours Min. 2.4 MGD Time of Min. 0830-0900 hrs.
 Pre Cl₂ NA #/day Post Cl₂ 340 #/day

FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	19.1	16.9	18.4	18.6	19.1	16.6	18.0	18.3
pH	8.3	6.8	7.3	7.1	7.3	6.6	7.0	7.1
Conductivity (umhos/cm)	520	320	470	490	500	380	440	450
Settleable Solids	10	3	7.5	8.5	Nil	Nil	Nil	Nil

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	73-3941	73-3942	
5-Day BOD	258	125	52%
COD	370	180	51%
T.S.	546	392	28%
T.N.V.S.	248	203	18%
T.S.S.	229	97	58%
N.V.S.S.	47	31	34%
pH	7.3	7.2	
Conductivity	560	520	
Turbidity	96	55	
Color	530	414	

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample in bottle After _____ min.

LAB #	SAMPLING TIME		COLONIES/100 MLS (MF)		15 sec.	3 min.
					Ci Residual	Ci Residual
	Total		Fecal	Fecal Strep	ppm	
73-3943	0930	>8 X 10 ³	> 800	> 800	.2	>2.0
3944	1030	>8 X 10 ³	490	> 5000	.4	>2.0
3945	1130	>1.6X 10 ⁴	> 1600	> 1600	.15	1.0
3946	1400	>4 X 10 ⁴	> 4000	> 4000	.1	.75
3947	1500	>8 X 10 ⁴	> 8000	> 8000	>.1	.2
3948	1600	>4 X 10 ⁴	< 200	< 200	.15	1.0

Operator's Name Jim Thom Phone # _____

Comments:	Nutrients	Effluent
	NO ₃ -N (Filtered)	.15
	NO ₂ -N (Filtered)	ND
	NH ₃ -N (Unfiltered)	19.4
	T.Kjeldahl-N (Unfiltered)	27.2
	O-PO ₄ -P (Filtered)	.55
	Total Phos-P (Unfiltered)	7.60

Exhibit K

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

FORM APPROVED
BUDGET BUREAU NO. 42-111527

CHECK ONE: 1ST AUDIT RE-AUDIT
DATE OF AUDIT: 10-24-73
PLANT DESCRIPTION CODE (For Official Use Only)

A. GENERAL INFORMATION

1. PROJECT (State, Number)
2. PLANT LOCATION (City, County): LONGVIEW - PRIMARY - Cowlitz
SCOPE OF PROJECT (new plant, additions, etc.)
IDENTIFICATION OF AREAS SERVED: Majority of city

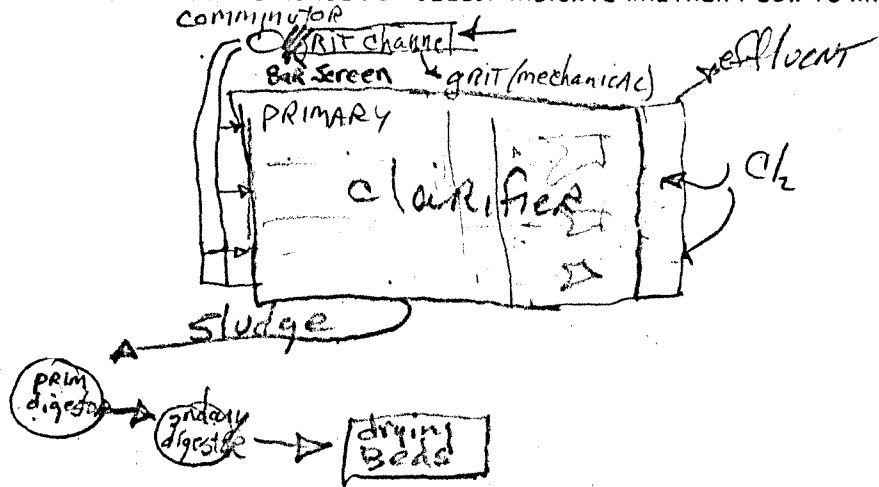
3. POPULATION
3A. FRACTION OF AREA POPULATION SERVED (%): 95
3B. PLANT DESIGN (population equivalent): 4.5 MGD
3C. SERVED BY PLANT (domestic): 35,000

4. TYPE OF COLLECTION SYSTEM
4A. COMBINED SEPARATE BOTH
4B. ESTIMATE FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd): 50%

5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT: 1955
6. YEAR PRESENT SYSTEM PLACED IN OPERATION
6A. SEWER: 1970's
6B. PLANT: 1955
6C. ANCILLARY WORKS: -

7A. SIZE OF PLANT SITE (acres): 10
7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres): 5

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:
clarifier appears to be divided into 6 units
effluent is pumped to river

9. RECEIVING STREAM

9A. NAME OF STREAM: Columbia River

9B. STREAM FLOW IS: PERENNIAL INTERMITTENT NATURAL REGULATED
 INTERSTATE INTRASTATE
 COASTAL

B. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION

1A. ANNUAL AVERAGE DAILY FLOW RATE (mgd): 3
1B. PEAK FLOW RATE (mgd):
DRY WEATHER: 3.7
WET WEATHER: 6.1
1C. MINIMUM FLOW RATE (mgd): 1.3
2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm): 240
3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (mg/l): estimate -
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l): 170
5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (ppm): 4-5

6. ANNUAL AVERAGE PLANT PERFORMANCE
6A. BOD (mg/l): 37
6B. SETTLEABLE SOLIDS (mg/l):
6C. SUSPENDED SOLIDS (mg/l): 53
6D. COLIFORM DENSITY (ppm):

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 *V notch - STANDARD rate - MANUAL - GAS*

8C. POINT OF APPLICATION OF CHLORINE
end of 2nd clarifier

8D. CAN BYPASSED SEWAGE BE CHLORINATED?
 YES NO

8E. AVERAGE FEED RATE OF CHLORINE (lb/day)
340

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

8G. MINIMUM SUPPLY OF CHLORINE STORED ON PREMISES (lb)
4,000

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

9B. AVERAGE DURATION (hours)
1 day

9C. REASON FOR BYPASSING
MECHANICAL & high H₂O

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

both complete
 YES NO

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

9F. TYPE OF DIVERSION STRUCTURE
gate valve for bypass

9G. AGENCIES NOTIFIED OF BYPASS ACTION

gate for port

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

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
NAVIGATION - RECREATION, COMMERCIAL FISHING

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

15. STABILIZATION PONDS *NA*

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

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

C. FENCING AND "LEAKING" - 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 *presently*
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)

Routine

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?

*mechanic overhaul
increase digester capacity*

5. ARE OPERATING RECORDS MAINTAINED? (If maintained, check general items included) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO						REPORTED TO WHOM? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <i>DOE</i>					
FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	DIGESTER	GRIT HANDLED	ELEC. USED	COST DATA	AIR USED	MAINTENANCE	OTHER
DAILY		X	X	<i>Cl₂</i>	X					X	
WEEKLY											
MONTHLY						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)

8. INDUSTRIAL WASTES DISCHARGED TO MUNICIPAL SYSTEM:	A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEMS <i>NA</i>
B. POPULATION EQUIVALENT (BOD) OF INDUSTRIAL WASTES (pc)	C. POPULATION EQUIVALENT (SS) OF INDUSTRIAL WASTES (pc)
D. VOLUME OF INDUSTRIAL WASTES (mgd)	E. COMPOSITION AND CHARACTERISTICS OF INDUSTRIAL WASTES
F. MAIN DIFFICULTY EXPERIENCED WITH INDUSTRIAL WASTE (explain)	

9. 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?

12. ESTIMATE OF MAN-HOURS PER WEEK DEVOTED TO LABORATORY WORK AND MAINTENANCE OF RECORDS AND REPORTS
20

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					
2. OPERATORS	<i>1 chief / 3</i>	<i>40 + 150</i>	<i>4</i>	<i>22-5</i>	
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS					
TOTAL					

E. LABORATORY CONTROL

Place 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 AREA
					RAW	SUPER-NATANT		
1. BOD	6			6				
2. SUSPENDED SOLIDS	6			6				
3. SETTLEABLE SOLIDS	1			1				
4. SUSPENDED VOLATILE	-			-				
5. DISSOLVED OXYGEN	1			1				
6. TOTAL SOLIDS	-			-				
7. VOLATILE SOLIDS	-			-				
8. pH	1			1			1	
9. TEMPERATURE	1			1			1	
10. COLIFORM DENSITY	3			3				
11. RESIDUAL CHLORINE				1 day				
12. VOLATILE ACIDS							4	
13. M. B. STABILITY								
14. ALKALINITY							4	
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
Row DeWitt	ENVIRONMENTALIST	DOE

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
Jim Thom	Chief operator	City	10-29

G. NOTATIONS BY EVALUATOR

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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

clean - well kept

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) PLANS ARE TO BUILD NEW PLANT TO INCLUDE KELSO

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