

December 18, 1973

State of
Washington
Department
of Ecology



Memo to: Howard Steeley, Garry Calkins, Ron Devitt,
Ron Pine and Files.

From: Darrel Anderson

Subject: Columbia River High STP Survey.

On November 13, 1973, I conducted an efficiency survey at the Columbia River High School, Clark County, near Vancouver, Washington.

General visual appearance of the plant is not good. The immediate area of the sewage treatment plant needs to be cleared of litter and general plastic materials found in sewage water. No receptacle is used for material skimmed off the pond and there is a small amount of lumber stacked near the plant. The security of the plant is very good but could be improved by installing a overhead fence over the plant due to articles being thrown into the aerator by the students.

Les Lenard, who is responsible for the plant, should be more familiar with the operation of the plant.

Total fecal coliform did not surpass 400/100 ml and total coliform was not greater than 200/100 ml. pH remained at about 7.3.

DA:jmh

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City Columbia R. High Plant Type Ext. Aeration Population 1,200 Design unknown
School nr. Vancouver, WA Served Capacity
 Receiving Water Cougar Creek Engineer unknown
 Date 11-13-73 Survey Period 0830-1630 hours Survey Personnel D.L. Anderson
 Comp. Sampling Frequency 1/2 hour Weather Conditions Cloudy-cold.
 (last 48 hours)
 Sampling Aliquot 800 ml.

PLANT OPERATION

Total Flow No flow meter or totalizer How Measured V notch weir available
available. approx. 10,000 GPD
 Max. (Flow) -- Time of Max. --- Min. --- Time of Min. ---
 Pre Cl₂ None #/day Post Cl₂ 20 gal. #/day

FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	14.9	13.9	14.2	14.0	15.0	13.6	13.6	14.0
pH	7.0	6.9	--	--	7.0	6.9	--	--
Conductivity (umhos/cm)	N.A.	-----	-----	-----	N.A.	-----	-----	-----
Settleable Solids	280	160			Trace	-----	-----	-----

(More data on reverse) LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	73-4194	4195	
5-Day BOD	545	30	
COD	3100	46	
T.S.	3410	416	
T.N.V.S.	1248	288	
T.S.S.	3262	24	
N.V.S.S.	1100	11	
pH	7.3	7.3	
Conductivity	570	880	
Turbidity	820	5	

Note: High numbers indicated in solids are due to sampling error. Influent composite included returning sludge, no other sampling point was available.

Columbia River High
 School nr. Vancouver

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample Before sample after _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		15" C1 Residual 13 min	
		Total	Fecal	ppm	(%)
73-4196	0830	<100	<100	.50	2.0
97	1000	<100	<100	.35	2.0
98	1130	<100	<100	.35	2.0
99	1230	<400	<200	.35	.75
4200	1430	<400	<200	.35	.35
01	1530	<400	<200	.35	.75

Operator's Name Les Lenard Phone # _____

Comments: Operator did not understand operation of plant, also did not
keep plant clean.

Log #	73	4194	4195
		Influent	Effluent
NO ₃ -N		--	15.5
NO ₂ -N		--	.01
NH ₃ -N		--	8.0
T-Kjeldahl-N		--	7.8
O-PO ₄ -P		--	2.05
T-PO ₄ -P		--	6.10
Color		51	49
Chlorides		61	51

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

ORIGINAL TO:
..P.Lee.....
COPIES TO:
.....
.....
LAB FILES.....

Source COLUMBIA R. High School

Collected By P.Lee

Date Collected 11/13/73

Goal, Pro./Obj. _____

Log Number:	73-	4194	95	96	97	98	99	4200	01	STORET
Station:	1WF	EFF	0830	1000	1130	1230	1430	1530		
pH	7.3	7.3								00403
Turbidity (JTU)	820.	6.								00070
Conductivity (umhos/cm)@25°C	670.	650.								00095
COD	3100	46								00340
BOD (5 day)	545	30								00310
Total Coliform (Col./100ml)	-	-	<100	<100	<100	<400	<400	<400		31504
Fecal Coliform (Col./100ml)	-	-	<100	<100	<100	<200	<200	<200		31616
NO3-N (Filtered)	-	15.5								00620
NO2-N (Filtered)	-	.01								00615
NH3-N (Unfiltered)	-	8.0								00610
T. Kjeldahl-N (Unfiltered)	-	7.8								00625
O-PO4-P (Filtered)	-	2.05								00671
Total Phos.-P (Unfiltered)	-	6.10								00665
Total Solids	3410	416								00500
Total Non Vol. Solids	1248	288								
Total Suspended Solids	3262	24								00530
Total Sus. Non Vol. Solids	1100	11								
COLOR	51	49								
Chlorides	61	51								

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 Stephen P. Roll Date 12-14-73

Submitted

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

FORM APPROVED
BUDGET BUREAU NO. 42-11527

CHECK ONE: 1ST AUDIT RE-AUDIT
DATE OF AUDIT: **11-13-1973**
PLANT DESCRIPTION CODE: (For Official Use Only)

A. GENERAL INFORMATION
1. PROJECT (State, Number):
2. PLANT LOCATION (City, County): **Vancouver, Wn. Clark County**
SCOPE OF PROJECT (new plant, additions, etc.):
IDENTIFICATION OF AREAS SERVED: **Columbia River High School**

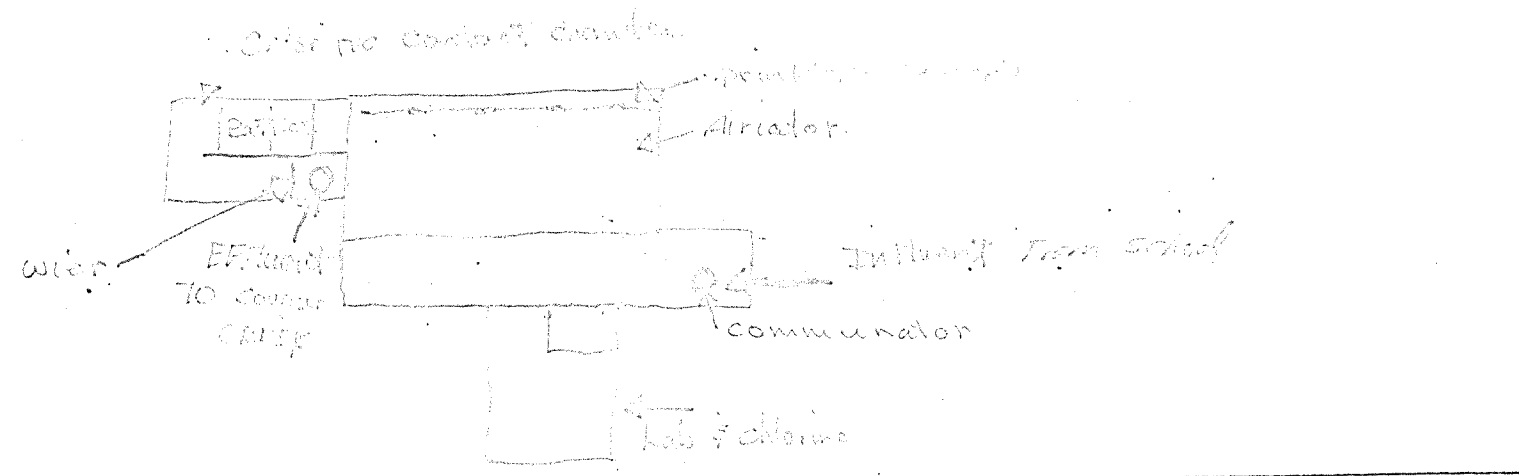
3. FRACTION OF AREA POPULATION SERVED (%): **whole school only**
30. PLANT DESIGN (population equivalent):
31. SERVED BY PLANT (domestic): **1200**

4. TYPE OF COLLECTION SYSTEM
4A. COMBINED SEPARATE BOTH
4B. ESTIMATE FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, m³/d): **None**

5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT: **1962**
6. YEAR PRESENT SYSTEM PLACED IN OPERATION
6A. SEWER
6B. PLANT
6C. ANCILLARY WORKS

7A. SIZE OF PLANT SITE (acres): **1/8 acre**
7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres)

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

B. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION
1A. ANNUAL AVERAGE DAILY FLOW RATE (m³/d): **unknown; no records kept**
1B. PEAK FLOW RATE (m³/d):
1C. MINIMUM FLOW RATE (m³/d)

2. AVERAGE BOD₅ OF RAW SEWAGE (5 DAY 20°C) (ppm): **unknown**
3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (100 ml) (mg/l): **unknown**
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l): **unknown**
5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (200 ml) (cfu/ml): **unknown**

6. ANNUAL AVERAGE PLANT REDUCTION
6A. BOD (%) **unknown**
6B. SETTLEABLE SOLIDS (%) **unknown**
6C. SUSPENDED SOLIDS (%) **unknown**
6D. COLIFORM DENSITY (%) **unknown**

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 NO, EXPLAIN REASON FOR INTERMITTENT CHLORINATION YES NO

8A. PURPOSE OF CHLORINATION

CHLORINET

8B. TYPE OF CHLORINATOR
Wallace-Tiernan

8C. POINT OF APPLICATION OF CHLORINE
8 FCL

8D. CAN BYPASSED SEWAGE BE CHLORINATED? YES NO

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

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

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

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)

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

9G. AGENCIES NOTIFIED OF BYPASS ACTION

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

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

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

Operator not familiar enough with plant operations

8. INDUSTRIAL WASTES DISCHARGED TO MUNICIPAL SYSTEM:	A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEMS
9. 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 <i>(explain)</i>	

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.)*

10. 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? *WALLACE & TIERNAN INC.*

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

2 1/2 HRS

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. ASSISTANTS					
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS					
6. TOTAL					

15. STABILIZATION PONDS

A. WEEDS CUT AND VEGETATIVE GROWTH IN PONDS ELIMINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO		D. BANKS AND DIKES MAINTAINED (erosion etc.)? <input type="checkbox"/> YES <input type="checkbox"/> NO	
C. FENCING AND WEARING - POLLUTED WATER? SIGNS PRESENT AND IN GOOD REPAIR? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		E. FREQUENCY OF INSPECTION BY OPERATOR	
E. WATER DEPTH (ft) _____ HIGH _____ LOW _____ MEDIUM			
F. AGE AND CONTROL OF DEPTH <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		G. SEEPAGE REPORTED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
H. ANY REPORTS OF GROUND WATER CONTAMINATION FROM POND (if yes, give details)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			

I. MOSQUITO BREEDING PROBLEM? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	J. CAN SURFACE RUN-OFF ENTER POND? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
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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
 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)
one air pump not working

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

No

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

A. STRUCTURAL YES NO (If yes explain) **unknown**

B. MECHANICAL YES NO (If yes, explain) **unknown**

C. OPERATIONAL YES NO (If yes, explain) **unknown**

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

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								
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
D.L. Anderson	Enviro. Tech II	D.O.E.

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
Les Elnard	Custodian	Columbia River High School	11-13-1973

C. NOTATIONS BY EVALUATOR

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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

Chicago pump
sewer & waste treatment eq

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