

February 6, 1974

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WA-22-0020

Memo to: Mike Price, Ron Robinson, Files.
From: Jim Armstrong
Subject: Ocean Shores Sewage Treatment Plant.



On January 15, 1974, an efficiency study was conducted at the Ocean Shores Sewage Treatment Plant. The survey lasted from 0830 hours to 1700 hours. Due to intermittent flow at the influent, 2 liter samples were taken when ever it came on. The effluent was sampled every hour.

The plant is well fenced and the grounds are well taken care of.

All the recommended tests are run at the plant with the exception of coliforms which are run by the State Department of Health.

The BOD and suspended solids composite samples were split with the operator and were as follows:

<u>Test</u>	<u>Influent(ppm)</u>		<u>Effluent(ppm)</u>		<u>DOE % Reduction</u>
	DOE	Ocean Shores	DOE	Ocean Shores	
BOD	155	220	6	7.2	96%
Suspended Solids	106	84.3	18	2.0	80%

The fecal coliforms were all less than 200 colonies per 100 ml.

One of the operator's said he has seen evidence of septic tanks leaking into nearby Duck Lake.

JA:jmh

(EFFICIENCY STUDY)

City Ocean Shores Plant Type Lagoon Population 950 Design 101,000 Plus Tourists
 Served Capacity
 Receiving Water Bay of Grays Harbor Engineer Mike Price
 Date 1/15/74 Survey Period 0830-1700 hrs. Survey Personnel J.C. Armstrong
 Comp. Sampling Frequency half hour Weather Conditions Rain, Wind
 (last 48 hours)
 Sampling Alequot _____

PLANT OPERATION

Total Flow .053 MGD How Measured Totalizer
 Max. (Flow) .16 Time of Max. 0830-1000 + Min. .15 Time of Min. Rest of
1100 day
 Pre Cl₂ _____ #/day Post Cl₂ 1.8 #/day

FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	7.8	7.4	7.6	7.8	8.2	6.8	7.7	7.6
pH	7.6	6.8	---	7.2	8.4	8.0	---	8.4
Conductivity (umhos/cm)	2000	1200	---	1900	850	750	---	800
Settleable Solids	5	.6	3	3.5	<.1	<.1	<.1	<.1

LABORATORY RESULTS ON COMPOSITE IN PPM

	Influent	Effluent	% Reduction
Laboratory Number	74-0103	74-0104	
5-Day BOD	155	6	96%
COD	250	39	83%
T.S.	766	364	52%
T.N.V.S.	522	259	50%
T.S.S.	106	18	80%
N.V.S.S.	19	15	20%
pH	7.7	8.2	--
Conductivity	1300	640	--
Turbidity	90	7	92%
Chlorides	170	51	--

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample before sampling after _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs.)
74-0106	1014	2000	est. 110	>.5	3 min.
0107	1510	1560	<10	.6	3 min.
0108	1750	1340	<10	.75	3 min.
0109	1805	est. 20	<10	--	-----

Operator's Name Bob Martin Phone # 289-2388

Comments: Nutrients

Test	Results
NO ₃ -N (filt)	.75
NO ₂ -N (filt)	.10
NH ₃ -N (unfilt)	9.20
T-Kjeldahl-N (unfilt)	10.00
O-PO ₄ -P (filt)	4.48
T-PO ₄ -P (unfilt)	6.00

Polishing Pond (Grab Sample-Lab No. 74-0105)

5-Day BOD	10
COD	43
T.S.	367
T.N.V.S.	263
T.S.S.	18
N.V.S.S.	10
pH	8.1
Conductivity	620
Turbidity	15
Chlorides	59

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO:
J. ARMSTRONG
COPIES TO:
.....
.....
LAB FILES

DATA SUMMARY

Source Ocean Shores STP

Collected By J. A.

Date Collected 1/15/74

Goal, Pro./Obj. _____

Log Number:	74-0103	104	105	106	107	108	109				STORET
Station:	INF	EFF	POLISH POND (GRAB)	1014	1510	1750	1805				
pH	7.7	8.2	8.1								00403
Turbidity (JTU)	90.	7.	15.								00070
Conductivity (umhos/cm)@25°C	1300	640	620								00095
COD	250.	39.	43.								00340
BOD (5 day)	155.	6.	10.								00310
Total Coliform (Col./100ml)	-	-	-	2000	1560	1340	EST 20				31504
Fecal Coliform (Col./100ml)	-	-	-	EST 110	<10	<10	<10				31616
NO3-N (Filtered)	-	.75									00620
NO2-N (Filtered)	-	.10									00615
NH3-N (Unfiltered)	-	9.2									00610
T. Kjeldahl-N (Unfiltered)	-	10.									00625
O-PO4-P (Filtered)	-	4.48									00671
Total Phos.-P (Unfiltered)	-	6.00									00665
Total Solids	766	364	367								00500
Total Non Vol. Solids	522	259	263								
Total Suspended Solids	106	18	18								00530
Total Sus. Non Vol. Solids	19	15	10								
Chlorides	170.	51.	59.								

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 1-31-74

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: 1/15/74

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) Ocean Shores, San Diego County IDENTIFICATION OF AREAS SERVED Town of Ocean Shores

3. POPULATION

3A. FRACTION OF AREA POPULATION SERVED (%) 2%

3B. PLANT DESIGN (population equivalent) 12,000

3C. SERVED BY PLANT (Domestic) _____

4. TYPE OF COLLECTION SYSTEM

4A. COMBINED SEPARATE BOTH

4B. ESTIMATE FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd) .010

5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT Oct 72

6. YEAR PRESENT SYSTEM PLACED IN OPERATION

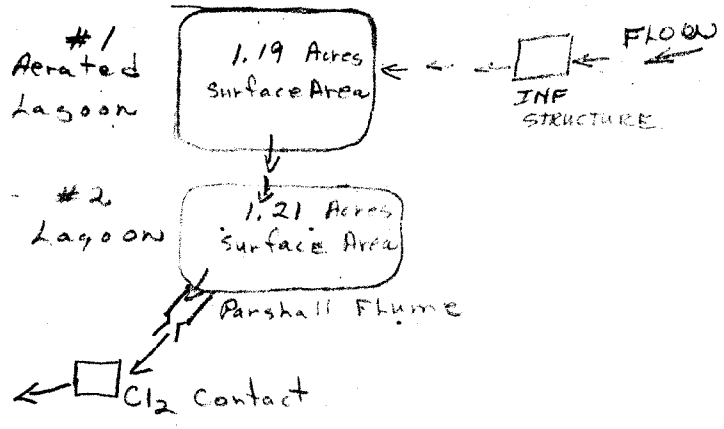
6A. SEWER Oct 72 6B. PLANT Oct 72 6C. ANCILLARY WORKS _____

7A. SIZE OF PLANT SITE (acres) Approx 10

7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres) 6 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.

Flow pumped to plant.
Flow from plant Gravity.



8B. NOTE ANY SIGNIFICANT OR UNIQUE PROCESSING CONDITIONS.

9. RECEIVING STREAM

9A. NAME OF STREAM _____

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) .0819

1B. PEAK FLOW RATE (mgd)

DRY WEATHER .150 WET WEATHER .2187

1C. MINIMUM FLOW RATE (mgd) .035

2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm) 144.6 ppm Aver.

3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (100 ml, 1 hr) (ml, l) 4.0 yr average

4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l) 48.98 ppm average on 12 month period

5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (ppm, 100 ml) _____

5. ANNUAL AVERAGE PLANT PERFORMANCE

6A. BOD (%) 95.2% 6B. SETTLEABLE SOLIDS (%) 98.5% 6C. SUSPENDED SOLIDS (%) 82.6% 6D. COLIFORM DENSITY (%) _____

7A. DOES PLANT HAVE STANDBY POWER GENERATOR FOR MAJOR PUMPING FACILITIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	7D. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
8A. ARE CHLORINATION FACILITIES PROVIDED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, ANSWER 8A THRU G	IF YES, IS CHLORINATION CONTINUOUS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF NO, EXPLAIN REASON FOR INTERMITTENT CHLORINATION

8A. PURPOSE OF CHLORINATION
Disinfection of Eff.

8D. TYPE OF CHLORINATOR
Fischer + Porter

8C. POINT OF APPLICATION OF CHLORINE
Prior to discharge of EFF to Holding Basin

8D. CAN BYPASSED SEWAGE BE CHLORINATED? YES NO

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

8F. CHLORINE RESIDUAL IN EFFLUENT
0.8-1.0 PPM AT END OF 60 MINUTES

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

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)
None

9B. AVERAGE DURATION (hours)
None

9C. REASON FOR BYPASSING
N/A

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

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

9F. TYPE OF DIVERSION STRUCTURE
Piping

9G. AGENCIES NOTIFIED OF BYPASS ACTION
D.O.E., EPA, HS, GH County PWD etc

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
Shipping, Recreation, clam digging, Comfishing etc

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
Normal

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 WEARING - POLLUTED WATER - SIGNS PRESENT AND IN GOOD REPAIR?
 YES NO

D. FREQUENCY OF INSPECTION BY OPERATOR
 Daily

E. WATER DEPTH (feet)

12.7' HIGH

10.0' LOW

11.0' MEDIUM

in Lagoons

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: Monthly

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 Sacramento Calif. EPA Correspondence 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)

Leaking pontoons on aerators - Plugged Cl₂ sol. lines - Air scrubber malfunction
 - Pump station pump malfunction etc

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?

Lab set up for Bact testing - Cl₂ sol. line redesign

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

B. INDUSTRIAL WASTES DISCHARGED TO MUNICIPAL SYSTEM: <i>NONE</i>	A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEMS
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)	

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?

Austin Const Co. Reprs

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE?

- YES NO

IF YES, WHO WROTE AND PROVIDED IT?

Ruskin + Fisher + Assoc.

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

20 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	<i>1</i>	<i>40+</i>	<i>1</i>	<i>1 1/2</i>	<i>1 1/2</i>
2. OPERATORS	<i>1</i>	<i>40</i>		<i>5 mos</i>	<i>5 mos</i>
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS					
6. TOTAL	<i>2</i>	<i>80</i>	<i>1</i>	<i>6 1/2</i>	<i>6 1/2</i>

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	2		2				
2. SUSPENDED SOLIDS	2	2		2				
3. SETTLEABLE SOLIDS	2	2		2				
4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN	2	2		2				
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	2	2		2				
9. TEMPERATURE	2	2		2				
10. COLIFORM DENSITY	3	3		3				
11. RESIDUAL CHLORINE				2				
12. VOLATILE ACIDS								
13. M. D. 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

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE