

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

Publication No. 72-e43

City Anacortes Plant Type Primary Population 7500 Served
 WA-03-0020
 Feeding Water Guemes Channel Engineer John Arnquist
 Date July 11, 1972 Survey Period 0830-1630 Survey Personnel Gary Rothwell
 Comp. Sampling Frequency 1 sample/1/2 Hr. Weather Conditions Light rain
 (last 48 hours)
 Sampling Alequot 1000 mls per 1 mgd flow

PLANT OPERATION

Total Flow 365,000 gallons How Measured Totalizer
 Max. (Flow) 1.2 mgd Time of Max. 1400-1600 Min. .9 mgd Time of Min. 0900
 Pre Cl₂ None #/day Post Cl₂ * #/day
 * Chlorinator malfunctioning

FIELD RESULTS

Influent

Effluent

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	18.0	15.9	17.2	17.4	17.7	16.2	16.9	16.9
pH	7.2	6.6	6.9	7.0	7.0	6.8	6.9	7.0
Conductivity (umhos/cm)	----	----	----	----	----	----	----	----
Settleable Solids	8.0	4.0	6.3	7.0	.5	Nil.	.2	.1

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
5-Day BOD	330	209	37
COD	1310	487	63
T.S.	3900	3470	11
T.N.V.S.	3130	2840	9
T.S.S.	129	87	32
N.V.S.S.	20	3	85
pH	6.9	6.9	--
Conductivity	6320	5870	7
Turbidity	90	60	33

Anacortes

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample bottle After _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs)
7225-28	1000	400,000	1500	.1	15 sec
29	1100	>800,000	>16,000	0	
30	1200	>800,000	>16,000	0	
31	1300	>800,000	>16,000	0	
32	1400	>800,000	>16,000	0	
33	1500	>800,000	>16,000	0	

Operator's Name Chet Smith Phone # 293-5587

Comments: Plant appeared to be well maintained and operated. Chlorinator was not increasing feed rate as flow increased past 1000 hrs. Mr. Smith was not at the plant the whole day but when I informed him of the low Cl residual he increased the feed rate manually and arranged to have the machine fixed the next day. The plant is due for additional treatment facilities
new treatment facilities in the near future.

HWAQUERTES STP July 11, 1972

TIME	FLOW MGD	TEMP.	pH	S.S	INF	TEMP.	pH	S.S	15540	EFF
									CL ₂	
0900	.9	15.9 ¹	7.0	4.0		16.5 ²	6.8 ³	NIL	—	
1000	1.2	16.7 ²	7.2	—		16.2 ¹	7.0	—	.1	
1100	1.0	17.3 ⁴	7.0	8.0		16.7 ³	7.0	.1	.0	CHORINATOR INOP.
1200	1.0	17.7	6.9 ⁴	—		16.8 ⁴	6.9 ⁴	—	.0	RAIN.
1300	1.0	17.8	6.8 ³	7.0		17.7	7.0	.5	.0	
1400	1.2	16.9 ³	6.8	—		17.1	6.8	—	.0	
1500	1.2	18.0	6.8 ²	—		17.0	6.8 ²	—	.0	
1600	1.2	17.5	6.6	—		17.3	6.8	—	—	
		17.2	6.9	6.3		16.9	6.9	.2		

Sample = 1000 ml / MGD
 STARTED COMP at 0830 TOT = 163665000
365000

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

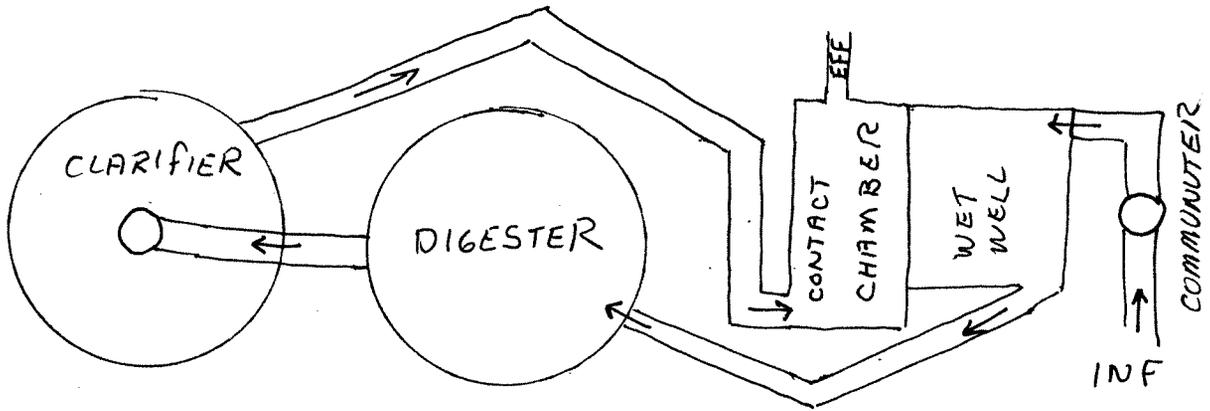
FORM APPROVED
 BUDGET BUREAU NO. 42-R1527

CHECK ONE <input type="checkbox"/> 1ST AUDIT <input type="checkbox"/> RE-AUDIT		DATE OF AUDIT JULY 11, 1972	PLANT DESCRIPTION CODE (For Official Use Only) PRIMARY
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A. GENERAL INFORMATION

1. PROJECT (State, Number)		SCOPE OF PROJECT (new plant, additions, etc.)	
2. PLANT LOCATION (City, county) ANACHORTES		IDENTIFICATION OF AREAS SERVED	
3. POPULATION			
3A. FRACTION OF AREA POPULATION SERVED (%) 95%	3B. PLANT DESIGN (population equivalent) DIDN'T KNOW	3C. SERVED BY PLANT (domestic) 7500 +	
4. TYPE OF COLLECTION SYSTEM			
4A. <input type="checkbox"/> COMBINED <input type="checkbox"/> SEPARATE <input checked="" type="checkbox"/> BOTH		4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd) 850,000	
5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT 1963		6. YEAR PRESENT SYSTEM PLACED IN OPERATION	
		6A. SEWER PRE 1920	6B. PLANT 1963
		6C. ANCILLARY WORKS 1963	
7A. SIZE OF PLANT SITE (acres) 1/2 ACRE		7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres) NONE	

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
GUEMES CHANNEL

9B. STREAM FLOW IS

<input type="checkbox"/> PERENNIAL	<input type="checkbox"/> INTERMITTENT	<input type="checkbox"/> NATURAL	<input type="checkbox"/> REGULATED	<input type="checkbox"/> INTERSTATE	<input type="checkbox"/> INTRASTATE
				<input type="checkbox"/> 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. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm)	3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (MHOF Cons) (ml/l)		
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l)	5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (mpn 100 ml)		
6. ANNUAL AVERAGE PLANT REDUCTION %			
6A. BOD (%)	6B. SETTLEABLE SOLIDS (%)	6C. SUSPENDED SOLIDS (%)	6D. COLIFORM DENSITY (%)

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

V-NOTCH

8A. PURPOSE OF CHLORINATION

DISINFECTION

8B. TYPE OF CHLORINATOR

WALLACE-TIERNAN

8C. POINT OF APPLICATION OF CHLORINE

AFTER CLARIFIER

8D. CAN BYPASSED SEWAGE BE CHLORINATED?

YES NO

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

40

8F. CHLORINE RESIDUAL IN EFFLUENT

.5 PPM AT END OF 3 MINUTES

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

1500

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 PER MO. IN WINTER

9B. AVERAGE DURATION (hours)

VARIES GREATLY

9C. REASON FOR BYPASSING

HEAVY RAIN.

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

VALVE

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

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

RECREATION.

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

YES NO

HOUSE ACROSS STREET COMPLAINED. OPERATOR OBTAINED ODOOR CONTROLL MATERIAL.

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

EFFLUENT APPEARED QUITE CLOUDY.

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

REPORTED? YES NO
 TO WHOM?

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)*

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

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?
NO ONE

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE? YES NO
 IF YES, WHO WROTE AND PROVIDED IT?
WATER POLLUTION CONT.

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</i>	<i>20</i>	<i>1</i>	<i>7</i>	<i>7</i>
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS					
6. TOTAL					

13. STABILIZATION PONDS

A. WEEDS CUT AND VEGETATIVE GROWTH IN PONDS ELIMINATED? <input type="checkbox"/> YES <input type="checkbox"/> NO		B. BANKS AND DIKES MAINTAINED (erosion etc.)? <input type="checkbox"/> YES <input type="checkbox"/> NO	
C. FENCING AND "WARNING - POLLUTED WATER" SIGNS PRESENT AND IN GOOD REPAIR? <input type="checkbox"/> YES <input type="checkbox"/> NO		D. FREQUENCY OF INSPECTION BY OPERATOR	
E. WATER DEPTH (feet) _____ HIGH _____ LOW _____ MEDIUM			
F. ADEQUATE CONTROL OF DEPTH? <input 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 type="checkbox"/> NO			

I. MOSQUITO BREEDING PROBLEM? <input type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, NAME OF SPECIES IF KNOWN	J. CAN SURFACE RUN-OFF ENTER POND? <input type="checkbox"/> YES <input 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

EPA & DOE MICROBIOLOGY SHORT 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)

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?

No Comment

G. NOTATIONS BY EVALUATOR

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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

PLANT WAS NEAT, WELL MAINTAINED, & LAB APPEARANCE AND EQUIPMENT WAS ABOVE 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

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO:
C. B. Rothwell
COPIES TO:
.....
.....
LAB FILES

DATA SUMMARY

Source ANACORTES STP

Collected By G.R.

Date Collected 7-12-72

Goal, Pro./Obj. 3.2.23

Log Number:	26	27	28	29	30	31	32	33	STORET
	EFF. COMP	INF. COMP	EFF. 1000	1100	1200	1300	1400	1500	
Station:									
pH	6.9	6.9							00403
Turbidity (JTU)	60.	90.							00070
Conductivity (umhos/cm) @ 25°C	5,870	6,320							00095
COD	487.	1310.							00340
BOD (5 day)	209.	330.							00310
Total Coliform (Col./100ml)	4.1x10⁵		4.1x10 ⁵	>8x10 ⁵	31504				
Fecal Coliform (Col./100ml)			1500	>16000	>16000	>16000	>1600	>16000	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	3470.	3900.							00500
Total Non Vol. Solids	2840.	3130.							
Total Suspended Solids	87.	129.							00530
Total Sus. Non Vol. Solids	3.	20.							
K	.16/day	.15/day							
L	246.	405.							

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 8-2-72