

STATE OF WA
DEPARTMENT
DANIEL J. EVANS
GOVERNOR

Publication No. 72-e24

September

MEMORANDUM

TO: Tom Haggarty
FROM: Ron Devitt
SUBJECT: Chelan STP

On July 26, 1972, a standard efficiency survey was conducted on Chelan STP. Composite samples were taken on the influent, primary clarifier effluent, and final effluent.

The structures, grounds, and ancillary works were clean and well kept. There were operational problems which resulted in surfacing and sloughing of anaerobic sludge in the chlorine chamber and final clarifier. This is partially due to a large volume of septic tank and trailer tank pumpings discharged to the treatment plant over a three day period by the Parks Department.

The effluent discharged at the river's edge under some brush. Mixing was incomplete and the sewage was visible downstream. Some floatables were observed near the outfall.

Both grit channels were used concurrently and it is questionable if this practice maintains the proper velocity through the channels for grit sedimentation.

Total coliform values exceed water quality standards, but fecal values are low. The reason for this unusual ratio is not known.

RD:bj

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

Activated

City Chelan Plant Type Sludge Population 2700 Design 1 MGD
 Served Capacity
 Receiving Water Chelan River Engineer Dan Neal
 Date 7/26/72 Survey Period 0800-1600 Survey Personnel Ron Devitt
 Comp. Sampling Frequency 1/2 hour Weather Conditions Sunny - hot
 (last 48 hours)
 Sampling Alequot MGD x 2,000 ml/sample

PLANT OPERATION

Total Flow 192,000 gallons/8 hours How Measured Flow meter
 Max. (Flow) .70 MGD Time of Max. 1030 hours Min. .50 MGD Time of Min. 0800-0830;
1600 hours
 Pre Cl₂ -- #/day Post Cl₂ 35 #/day

FIELD RESULTS

Influent

Final Effluent

15 Determinations

	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	23	21	22	23	23	21	22	22
pH	7.7	7.1	7.3	7.3	7.2	7.1	7.1	7.1
Conductivity (umhos/cm)	--	--	--	--	--	--	--	--
Settleable Solids	19	10	10	11	.05	Nil	Nil	Nil

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent		% Reduction
	72-2690	Primary 72-2691	Final 72-2692	Total
5-Day BOD	100	75	56	44
COD	327	204	82	75
T.S.	228	208	158	31
T.N.V.S.	123	118	101	18
T.S.S.	158	59	42	73
N.V.S.S.	24	14	20	17
pH	7.2	7.2	7.2	--
Conductivity	390	362	351	--
Turbidity	48	37	14	--

Chelan

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample in bottle After _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs)
72-2695	0900 hours	6500	< 20	.5	15
72-2696	1000 hours	4500	< 20	.4	15
72-2697	1300 hours	3500	< 20	.5	15

Operator's Name _____ on vacation _____ Phone # _____

Comments: _____ Representative - Ken Guffey _____

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

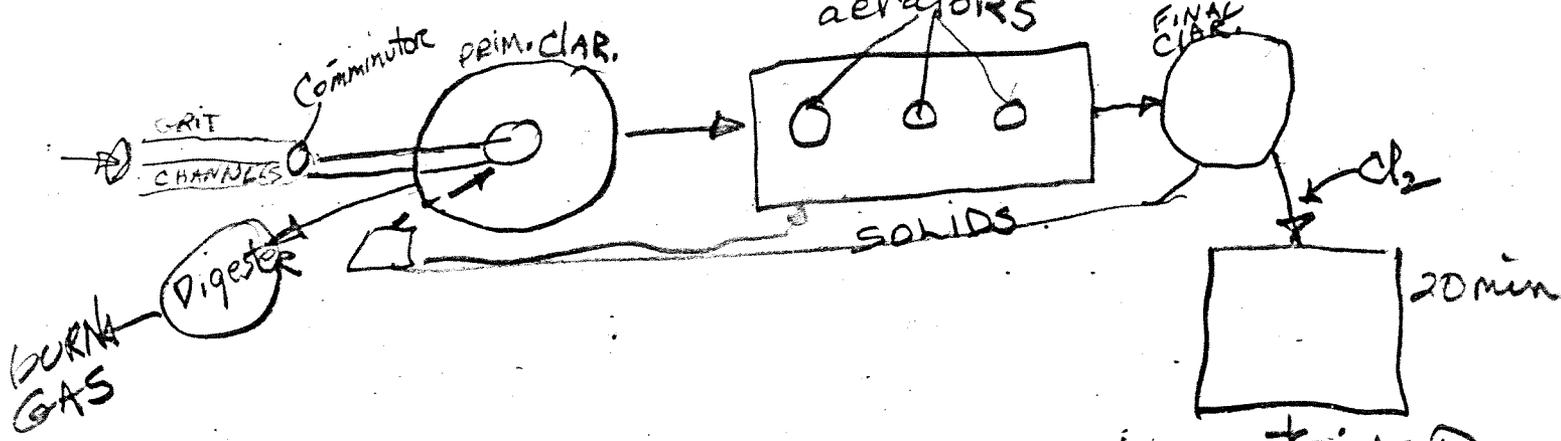
FORM APPROVED
 BUDGET BUREAU NO. 42-R1527

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

1. PROJECT (State, Number) CHELAN		SCOPE OF PROJECT (new plant, additions, etc.)	
2. PLANT LOCATION (City, county) CHELAN - CHELAN		IDENTIFICATION OF AREAS SERVED CITY	
3. POPULATION			
3A. FRACTION OF AREA POPULATION SERVED (%) 100%	3B. PLANT DESIGN (population equivalent) 1,000	3C. SERVED BY PLANT (domestic) 2700	
4. TYPE OF COLLECTION SYSTEM			
4A. <input type="checkbox"/> COMBINED <input checked="" type="checkbox"/> SEPARATE <input type="checkbox"/> BOTH		4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd) 0	
5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT 42		6. YEAR PRESENT SYSTEM PLACED IN OPERATION	
		6A. SEWER 7	6B. PLANT 66
		6C. ANCILLARY WORKS	
7A. SIZE OF PLANT SITE (acres) 1-2		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. *using both grit channels; No O2 chamber sludge return line*

9. RECEIVING STREAM

9A. NAME OF STREAM CHELAN R	9B. STREAM FLOW IS <input checked="" type="checkbox"/> PERENNIAL <input type="checkbox"/> INTERMITTENT <input type="checkbox"/> NATURAL <input checked="" type="checkbox"/> REGULATED	<input checked="" type="checkbox"/> INTERSTATE <input type="checkbox"/> INTRASTATE <input type="checkbox"/> COASTAL
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B. CURRENT PERFORMANCE AND PLANT LOADING INFORMATION

1A. ANNUAL AVERAGE DAILY FLOW RATE (mgd)	1B. PEAK FLOW RATE (mgd) DRY WEATHER / WET WEATHER	1C. MINIMUM FLOW RATE (mgd)
2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm)	3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (1:1 HOFF Cone) (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, IS CHLORINATION CONTINUOUS? YES NO IF NO, EXPLAIN REASON FOR INTERMITTENT CHLORINATION

8A. PURPOSE OF CHLORINATION
disinfection

8B. TYPE OF CHLORINATOR
WALLACE & TIERNAN - "V" Notch

8C. POINT OF APPLICATION OF CHLORINE
after 2nd clarifier

8D. CAN BYPASSED SEWAGE BE CHLORINATED? YES NO

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

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

8G. MINIMUM SUPPLY OF CHLORINE STORED ON PREMISES (lb)
1 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)
NONE

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
valve

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 *2 types*
 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
Flood control

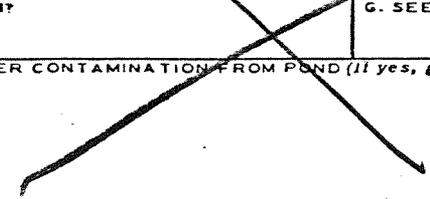
13. HAVE THERE BEEN ANY ODOR COMPLAINTS BEYOND THE PLANT PROPERTY? (If yes, explain)
 YES NO

14. OBSERVED APPEARANCE AND CONDITION OF EFFLUENT, RECEIVING STREAM, OR DRAINAGE WAY
*Some solids floating in 2nd Clar. & a₂ chambers
 River extremely clear-blue*

15. STABILIZATION PONDS

NA

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 **Dec '71**
 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)
PARKS Dept dumping TRAILER TANK SEWAGE caused septic condition in 2nd clar.

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	1			1				
2. SUSPENDED SOLIDS			2	-				
3. SETTLEABLE SOLIDS	2	2	2	2				
4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN								
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	2	2	2	2			2	
9. TEMPERATURE	2			2			2	
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE				2				
12. VOLATILE ACIDS								
13. M. B. STABILITY								
14. ALKALINITY								
15. P O		2	2	2				
16. SVI			2					
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
PAN DEVITT	BIOLOGIST	D of E

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
KEN GUFFEY	Equip. OPERATOR	CITY OF OREGON	7-26-6

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

REPORTED? YES NO **D O F E**
 TO WHOM?

FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	DIGESTER	GRIT HANDLED	ELEC. USED	COST DATA	AIR USED	MAIN-TENANCE	OTHER
DAILY		X	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)

8. INDUSTRIAL WASTES, DISCHARGED TO MUNICIPAL SYSTEM:

A. NUMBER AND TYPES OF INDUSTRIES DISCHARGING TO SYSTEM: **APPLE PACKING (1)**

B. POPULATION EQUIVALENT (BOD) OF INDUSTRIAL WASTES (pe): **also have 3 trailers dumping STAT.**

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)

NONE

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?
GREY & OSBOURN

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

IF YES, WHO WROTE AND PROVIDED IT?
NY. ; STANDARD Methods

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

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	1	40	2	2	2
3. LABORATORY TECHNICIANS					
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)

3C - FLOATING digester frothing, Parks told city there were no harmful chemicals in sewage, pumped their holding tank empty (hauled sewage w/ 1 truck 3 days volume unknown to operator)

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

Clean, well kept. Lack of catwalk on prim. clarifier presents safety problem for cleaning

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

