

TO: John Arnquist
FROM: Darrel Anderson
SUBJECT: Colfax STP
DATE: April 6, 1973

State of
Washington
Department of
Ecology



On March 22, 1973, an efficiency survey was conducted at Colfax STP. The survey period was from 0830 to 1600 hours, composite samples were taken every 1/2 hour. The plant was well kept with excellent security.

The Colfax city sewer has rain water infiltration during wet periods as indicated by the operator. Also, the holding pond has a dirt bottom which could be seeping into the Palouse River.

Coliform counts, taken from the effluent, ran a high of 160,000/100 mls and a low of 40,000/100 mls. BOD reduction is 79%, COD 58%, and total non-volatile solids is 21%.

DA:bj

(EFFICIENCY STUDY)

City Colfax STP Plant Type Primary Population 2,860 Design 10,800
Served Capacity
Receiving Water Palouse River Engineer Unknown
Date 3-22-73 Survey Period 0830-1600 Survey Personnel Darrel Anderson
Comp. Sampling Frequency every 1/2 hour Weather Conditions Clear and warm
(last 48 hours)
Sampling Alequot 1200 ml/1/2 hour

PLANT OPERATION

Total Flow 398,000 mgd How Measured 60° "V" notched weir
Max. (Flow) 165 g/min Time of Max. 1330 Min. 90 g/min. Time of Min. 0900
Pre Cl₂ -- #/day Post Cl₂ 12 #/day

FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	14	12	13.25	14	11	10	10.5	11
pH	8.4	7.4	7.5	8.4	7.8	7.2	6.8	7.2
Conductivity (umhos/cm)	900	500	600	600	1025	500	527	550
Settleable Solids	10	3	6.6	7.5	—	TRACE	—	—

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	73-1197	73-1198	
5-Day BOD	100	19	79
COD	274	116	58
T.S.	773	398	49
T.N.V.S.	282	230	21
T.S.S.	155	43	72
N.V.S.S.	38	7	82
pH	7.6	7.6	--
Conductivity	660	660	--
Turbidity	50	20	--

Colfax STP

DACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample before sample ~~XXXX~~ was taken. ~~XXX.~~

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)	Cl Residual	
			ppm	(after sec)
73-1199	0830	> 80,000	.2	
73-1200	0930	> 80,000	.4	
73-1201	1030	> 40,000	.4	
73-1202	1130	> 160,000	.4	
73-1203	1330	> 40,000	.4	
73-1204	1500	> 160,000	.4	

Operator's Name Lem Long

Phone # EX7-3541

Comments: _____

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

FORM APPROVED BY
BUDGET BUREAU NO. 42-11527

CHECK ONE <input checked="" 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)		SCOPE OF PROJECT (new plant, additions, etc.)	
2. PLANT LOCATION (City, County) <i>Colfax Whitman</i>		IDENTIFICATION OF AREAS SERVED <i>City</i>	
3. POPULATION			
3A. FRACTION OF AREA POPULATION SERVED (%) <i>48</i>	3B. PLANT DESIGN (population equivalent) <i>10,100</i>	3C. SERVED BY PLANT (Domestic) <i>2860</i>	
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, etc.) <i>UNKNOWN</i>	
5. YEAR PRESENT SYSTEM PLACED IN OPERATION			
5A. YEAR COMMUNITY BEGAN SEWAGE TREATMENT <i>1937</i>	5B. SEWER <i>UNKNOWN</i>	5C. PLANT <i>1968</i>	5D. ANCILLARY WORKS <i>NONE</i>
7A. SIZE OF PLANT SITE (acres) <i>5</i>	7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres) <i>3</i>		

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.

B. RECEIVING STREAM

9A. NAME OF STREAM <i>Palouse</i>			
9B. STREAM FLOW IS <input checked="" type="checkbox"/> PERENNIAL <input type="checkbox"/> INTERMITTENT		<input checked="" 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) <i>378,000</i>	1B. PEAK FLOW RATE (MGD)		1C. MINIMUM FLOW RATE (MGD) <i>330,000</i>
	DRY WEATHER <i>370,000</i>	WET WEATHER <i>700,000</i>	
2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (MG/L) <i>150</i>		3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (5 DAY 20°C) (MG/L) <i>2.9</i>	
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (MG/L) <i>UNKNOWN</i>		5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (MPN/100 ML) <i>UNKNOWN</i>	
6. ANNUAL AVERAGE PLANT PRODUCTION			
6A. BOD (MG/L) <i>70</i>	6B. SETTLEABLE SOLIDS (MG/L) <i>100</i>	6C. TOTAL SOLIDS (MG/L) <i>UNKNOWN</i>	6D. OTHER DATA

DO OPERATORS HAVE STANDBY POWER GENERATOR
FOR BACKUP POWERING FACILITIES? YES NO

IS ADDITIONAL ALARMS SYSTEM FOR
FLOW OR EQUIPMENT FAILURE? YES NO

ARE CHLORINATION FACILITIES PROVIDED? YES NO
IF YES, ANSWER BA THRU G

IF YES, IS CHLORINATION CONTINUOUS? YES NO
IF NO, EXPLAIN REASON FOR INTERMITTENT CHLORINATION

8A. PURPOSE OF CHLORINATION

8B. TYPE OF CHLORINATOR

BIF

8C. POINT OF APPLICATION OF CHLORINE

3 FT. CLAY PIPE

8D. CAN BYPASSED SEWAGE BE CHLORINATED?

YES NO

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

12

8F. CHLORINE RESIDUAL IN EFFLUENT

1.0 PPM AT END OF *5* MINUTES

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

300

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)

High River water

9B. AVERAGE DURATION (hours)

24 to 36

9C. REASON FOR BYPASSING

Plant Flooded out

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

Health Dept

9H. DO OPERATORS HAVE OPTION TO BYPASS INDIVIDUAL PLANT UNIT? (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

13. CUMULATIVE VEGETATIVE GROWTH IN PONDS ELIMINATED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		14. BANKS AND DILLS MAINTAINED (CONSIDER ETC.)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
15. LEAKING AND "FLOODING" - FRESHWATER "SIGNS" PRESENT AND IN GOOD REPAIR? <i>leaked</i> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		16. FREQUENCY OF INSPECTION BY OPERATOR <i>daily</i>	
17. WATER DEPTH (FEET) <i>UNKNOWN</i> _____ HIGH _____ LOW _____ MEDIUM			
18. ADEQUATE CONTROL OF DEPTH? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		19. SEEPAGE REPORTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
20. ANY REPORTS OF GROUND WATER CONTAMINATION FROM POND (If yes, give details)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			

21. MOSQUITO BREEDING PROBLEMS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF YES, NAME OF SPECIES IF KNOWN	22. 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 ARLAT

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?

Replace Sewer collection system

CHECKED BY (Initials) (Name) (Address) (City) (State) (Zip)						RECORDED BY (Initials) (Name) (Address) (City) (State) (Zip)					
CONTROLLED BY (Initials) (Name) (Address) (City) (State) (Zip)						TO (Initials) (Name) (Address) (City) (State) (Zip)					
YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	REGISTER	GRIET HANDLED	ELEC. USED	COST DATA	AIR USED	MAINTENANCE	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, GAUGES AND METERS ARE CALIBRATED PERIODICALLY?

B. P. D. M.P.N.

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 (ppm)	C. POPULATION EQUIVALENT (SS) OF INDUSTRIAL WASTES (ppm)
D. VOLUME OF INDUSTRIAL WASTES (mgd)	E. COMPOSITION AND CHARACTERISTICS OF INDUSTRIAL WASTES
F. MAIN DIFFICULTY EXPERIENCED WITH INDUSTRIAL WASTE (explain)	

8. 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

CHARGE 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

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE? IF YES, WHO WROTE AND PROVIDED IT?

YES NO *LEIM LONG*

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

UNKNOWN

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 PLANT OR PLANT	RANGE IN YEARS OF EXPERIENCE IN THE BUSINESS
1. SUPERVISOR/INCHARGE					
2. OPERATORS					
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS					
6. TOTAL					

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. DOB	3	3		3				
2. SUSPENDED SOLIDS								
3. SETTLEABLE SOLIDS	2	2		2				
4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN	2	3		2				
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	2	2		2				
9. TEMPERATURE		2						
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE				2				
12. VOLATILE ACIDS								
13. H. 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
DARRELL ANDERSON	SCI. AIDE II	DEPT. OF ECOLOGY

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
LEM LONG	PLANT OPERATOR	CITY OF COLEMAN	3-22-73

G. NOTATIONS BY EVALUATOR

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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

very good

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