

January 22, 1974

State of
Washington
Department
of Ecology



Memo to: John Arnquist, Howard Buntен
From: Pat Lee
Subject: Efficiency Study at Newport STP.

An efficiency study was conducted at Newport STP on December 12, 1973. The influent and effluent were composited proportional to flow for six hours. I could not judge the neatness of the plant due to the amount of snow on the ground but the premises were well fenced. The plant personnel were very inquisitive as to laboratory practises and reasons for certain tests. The field and laboratory test results (summarized on the efficiency study form) show a primary plant providing 18% removal of total solids and 50% removal of suspended solids. BOD reduction was less than 30% while fecal coliform counts were all less than 200 colonies per 100 ml. Secondary treatment for the town of Newport has already been designed and bids let.

PL:jmh

(EFFICIENCY STUDY)

City Newport Plant Type Primary Population 2,000 Design 3,500
Served Capacity
Receiving Water Pend Oreille River Engineer John Arnquist
Date 12-12-73 Survey Period 0930-1530 hour Survey Personnel Pat Lee
Comp. Sampling Frequency half hour Weather Conditions Cold, snow on ground
(last 48 hours)
Sampling Alequot MGD x 4 = sampling alequot

PLANT OPERATION

Total Flow 56,000 gallons in 6 hrs. How Measured flow meter
Max. (Flow) .258 MGD Time of Max. 1030 Min. .183 MGD Time of Min. 1530
Pre Cl₂ 0 #/day Post Cl₂ 12 #/day

FIELD RESULTS

	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
6 Determinations								
Temp. °C	10.8	10.1	---	10.6	10.4	9.4	---	10.2
pH	7.9	7.3	---	7.4	7.5	7.4	---	7.4
Conductivity (umhos/cm)	625	600	605	600	650	525	600	600
Settleable Solids	8.0	5.0	6.1	6.0	.5	.5	.5	.5

LABORATORY RESULTS ON COMPOSITE IN PPM

	Influent	Effluent	% Reduction
Laboratory Number	73-4513	-4514	
5-Day BOD	240	>160	
COD	360	210	42%
T.S.	577	475	18%
T.N.V.S.	265	256	3%
T.S.S.	250	125	50%
N.V.S.S.	21	5	76%
pH	7.9	7.7	
Conductivity	730	750	
Turbidity	85	50	

Newport

BACTERIOLOGICAL RESULTS

Na₂S₂O₃ added to sample before sampling after _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs.)
73-4541	1015	12000	<200	.4	180
4542	1045	360	<200	1.0	↓
4543	1130	3100	<200	1.0	
4544	1230	6100	<200	1.0	
4545	1430	2100	<200	1.0	
4546	1530	4500	<200	.4	

Operator's Name Clinton Lowery, Verne Hovey Phone # 447-3514
and Ken Hill.

Comments: _____

NH₃-N = .10 ppm

T-Kjeldahl-N = 21 ppm

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

FORM APPROVED
BUDGET BUREAU NO. 42-71527

CHECK ONE: 1ST AUDIT RE-AUDIT DATE OF AUDIT: 12-12-73 PLANT DESCRIPTION CODE (For Official Use Only): Primary

A. GENERAL INFORMATION

1. PROJECT (State, Number): Newport - Washington SCOPE OF PROJECT (new plant, additions, etc.): Routine
2. PLANT LOCATION (City, county): Newport - Bend Oreille IDENTIFICATION OF AREAS SERVED: Newport + Old Town Idaho

3. POPULATION

3A. FRACTION OF AREA POPULATION SERVED (%): 100 3B. PLANT DESIGN (population equivalent): 3,000 → 4,000 3C. SERVED BY PLANT (domestic): 2,000

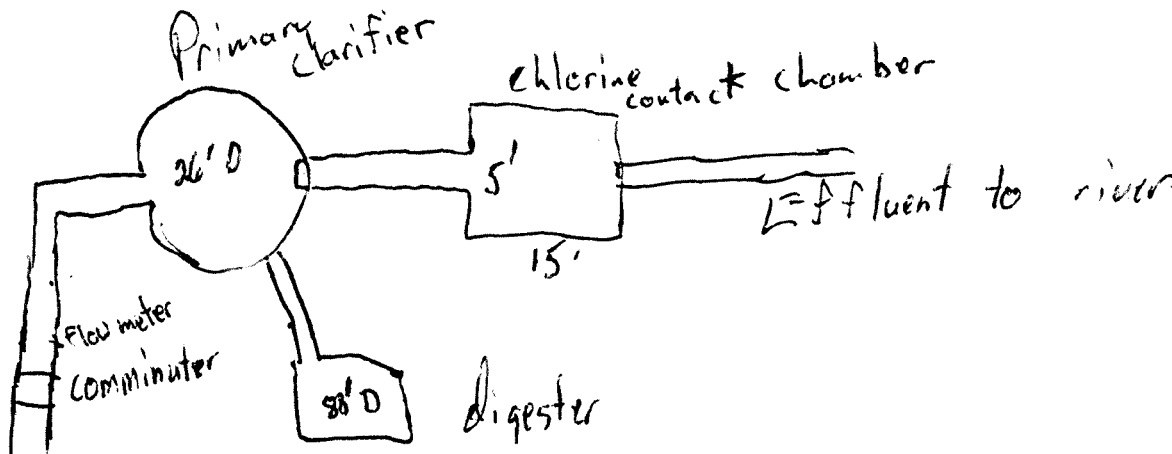
4. TYPE OF COLLECTION SYSTEM

4A. COMBINED SEPARATE BOTH 4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd): 1

5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT: 1950 6. YEAR PRESENT SYSTEM PLACED IN OPERATION: 1950
6A. SEWER: 1950 6B. PLANT: 1950 6C. ANCILLARY WORKS: _____

7A. SIZE OF PLANT SITE (acres): 5 7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres): 2

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: Pend Oreille River
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): 145-150,000 1B. PEAK FLOW RATE (mgd):
 DRY WEATHER: 190 WET WEATHER: 230 1C. MINIMUM FLOW RATE (mgd): 75
2. AVERAGE DOB OF RAW SEWAGE (3 DAY 20°C) (ppm): _____ 3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (mg/l): 10
4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l): 200 5. AVERAGE COLIFORM DENSITY OF RAW SEWAGE (mpn/100 ml): _____

5. ANNUAL AVERAGE PLANT PERFORMANCE

6A. BOD (5%) _____ 6B. SETTLEABLE SOLIDS (%) 66 6C. SUSPENDED SOLIDS (%) 85 → 125 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

8A. PURPOSE OF CHLORINATION

disin.

8B. TYPE OF CHLORINATOR

Wallace + Tiernan

8C. POINT OF APPLICATION OF CHLORINE

effluent

8D. CAN BYPASSED SEWAGE BE CHLORINATED? YES NO

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

12

8F. CHLORINE RESIDUAL IN EFFLUENT

6.4

PPM AT END OF 3 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)

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

golf course

12. USES OF RECEIVING STREAM WITHIN 10 MILES OF OUTFALL

Recreation

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

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 FARMING - "POLLUTED WATER" SIGNS PRESENT AND IN GOOD REPAIR?

YES NO

U. FREQUENCY OF INSPECTION BY OPERATOR

E. WATER DEPTH (FEET)

_____ HIGH _____ LOW _____ MEDIUM

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:

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)

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?

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

REPORTED TO WHOM? YES NO
D.S.H.S.

FREQUENCY	WEATHER	FLOW	SLUDGE HANDLED	CHEMICALS USED	DIGESTER	GRIT HANDLED	ELEC. USED	COST DATA	AIR USED	MAINTENANCE	OTHER
DAILY	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: *NO*

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)

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
 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?

Maloney

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE?

YES NO

IF YES, WHO WROTE AND PROVIDED IT?

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

25

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>4</i>	<i>25</i>	<i>4</i>	<i>4-5</i>	
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. BOD								
2. SUSPENDED SOLIDS	6	6						
3. SETTLEABLE SOLIDS	2	6						
4. SUSPENDED VOLATILE	6	6					6	
5. DISSOLVED OXYGEN	2	2						
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	2	2					2	
9. TEMPERATURE	2	2					2	
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE	#			2				
12. VOLATILE ACIDS								
13. M. B. STABILITY								
14. ALKALINITY							2	
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 ^{month}	600.	42,05	72.00		40.00	
PRIOR YEAR 19						
PRIOR YEAR 19				34.5	1/cap/mo.	
PRIOR YEAR 19 72	5292	530.	1520	242.	rest	8280

EVALUATION PERFORMED BY	TITLE	ORGANIZATION
Pat Lee	E I	DOE

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
Clinton Lower	Operator	City of Newport	2-12-73
Verne Hovey	"	"	"
Ken Hill	"	"	"

WPCA-12 (Rev. 4-63) (Page 5)
 John Bowerman. Superintendent. " "

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

DATA SUMMARY

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

Source Newport STP

Collected By P. Lee

Date Collected 12-12-73

Goal, Pro./Obj. _____

Log Number:	73-4539	40	41	42	43	44	45	46		STORET
Station:	INF	EFF	1015	1045	1130	1230	1430	1530		
pH	7.9	7.7								00403
Turbidity (JTU)	84.	50.								00070
Conductivity (umhos/cm)@25°C	730.	750.								00095
COD	360	210								00340
BOD (5 day)	238	>160								00310
Total Coliform (Col./100ml)	-	-	12,000	360	3100	6100	2100	4500		31504
Fecal Coliform (Col./100ml)	-	-	<200	<200	<200	<200	<200	<200		31616
NO3-N (Filtered)										00620
NO2-N (Filtered)										00615
NH3-N (Unfiltered)		10.								00610
T. Kjeldahl-N (Unfiltered)		21.								00625
O-PO4-P (Filtered)										00671
Total Phos.-P (Unfiltered)										00665
Total Solids	577	475								00500
Total Non Vol. Solids	265	256								
Total Suspended Solids	250	125								00530
Total Sus. Non Vol. Solids	21	5								

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 D. Roll Date 1-17-74