

CHECK  
INFORMATION  
FOR ACTION \_\_\_\_\_  
PERMIT \_\_\_\_\_  
OTHER \_\_\_\_\_

TO: Dan Neal, Ron Pine, Ron Devitt

FROM: Hans Cregg

SUBJECT: Mt. Spokane STP

\_\_\_\_\_

DATE: July 2, 1973

State of  
Washington  
Department  
of Ecology

On April 8, 1973, an efficiency study was conducted on the Mt. Spokane Sewage Treatment Plant. The survey ran without incident. A portion of the plant, which appeared to be a finishing unit, was in the process of being plumbed. At the time of the survey no date for completion of the unit was given.

The laboratory results on the composite influent and effluent samples show a high percentage reduction of solids, B.O.D. and C.O.D. However, the actual effluent figures do not meet D.O.E. standards and reflect the overloading that occurs on the influent side. Furthermore, it is also suggested by the high coliform count, that the chlorination of the effluent is insufficient for the amount of loading that occurs in the system.

HC:bjj

Enclosures

## STP SURVEY REPORT FORM

## (EFFICIENCY STUDY)

City Mt. Spokane STP Plant Type Package Population Served Design Capacity

Receiving Water Brickle Creek Engineer

Date  Survey Period 8 hour period Survey Personnel Hans Cregg

Comp. Sampling Frequency Every hour Weather Conditions Clear & cool  
(last 48 hours)

Sampling Alequot 1000 mls

## PLANT OPERATION

Total Flow 6000 gal How Measured estimate

Max. (Flow)  Time of Max.  Min.  Time of Min.

Pre Cl<sub>2</sub> None #/day  Post Cl<sub>2</sub> 1/2 #/day

## FIELD RESULTS

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	13.8	12.7	13.3	13.2	13.0	12.0	12.4	12.1
pH	7.0	6.7	6.9	7.0	7.4	7.1	7.2	7.3
Conductivity (umhos/cm)								
Settleable Solids	250	240	245		3.0	1.5	2.25	

## LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	73-1340	73-1341	
5-Day BOD	1500	96	93.6
COD	7170	410	94.3
T.S.	3550	600	
T.N.V.S.	845	215	
T.S.S.	3300	280	91.5
N.V.S.S.	875	124	85.8
pH	6.9	7.3	
Conductivity	620	650	
Turbidity	3000	80	97.4

Mt. Spokane STP

BACTERIOLOGICAL RESULTS

$\text{Na}_2\text{S}_2\text{O}_3$  added to sample before sample ~~XXXXX~~ was taken. ~~min~~ XXXX

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs)
73-342	1000	500,000	2500		
73-343	1300	350,000	800		
73-344	1400	220,000	1300		
73-345	1500	200,000	600		

Operator's Name Keith Jacobson Phone # \_\_\_\_\_

Comments: Note high total and fecal coliforms.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

FORM APPROVED  
BUDGET BUREAU NO. 42-111527

CHECK ONE <input checked="" type="checkbox"/> 1ST AUDIT <input type="checkbox"/> RE-AUDIT	DATE OF AUDIT <b>April 7, 1973</b>	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.)
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2. PLANT LOCATION (City, county) <b>Spokane County</b>	IDENTIFICATION OF AREAS SERVED <b>Mount Spokane Condominium Complex</b>
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3. POPULATION

3A. FRACTION OF AREA POPULATION SERVED (%) <b>100%</b>	3B. PLANT DESIGN (population equivalent)	3C. SERVED BY PLANT (domestic) <b>75</b>
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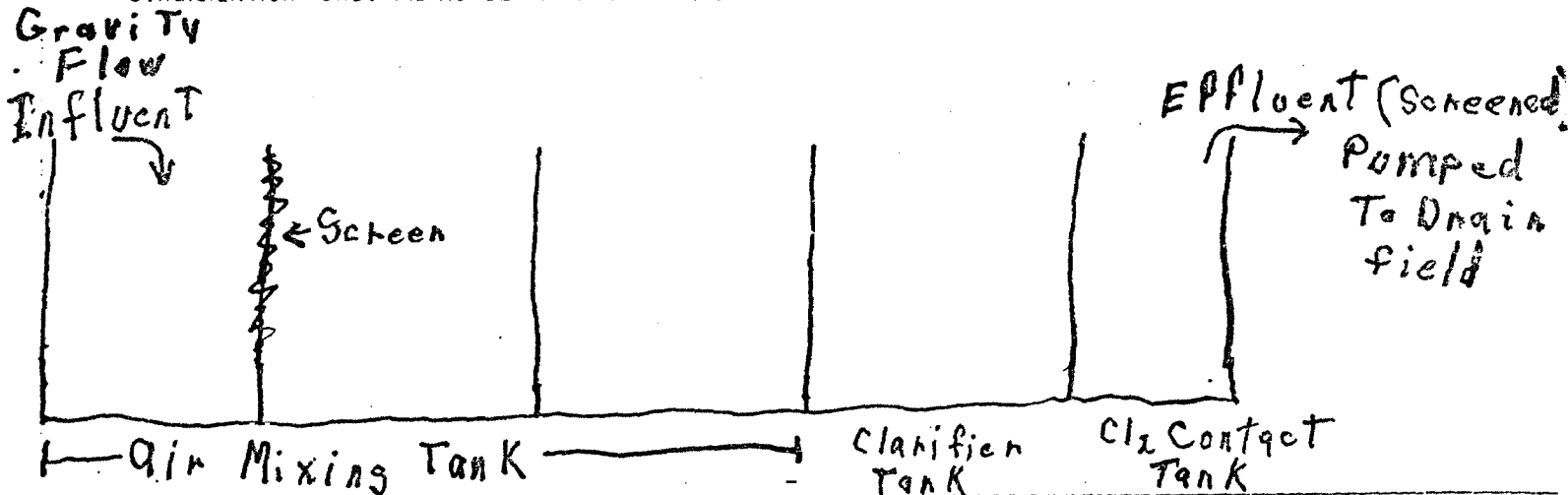
4. TYPE OF COLLECTION SYSTEM

4A. <input type="checkbox"/> COMBINED <input type="checkbox"/> SEPARATE <input type="checkbox"/> BOTH	4B. ESTIMATED FLOW CONTRIBUTED BY SURFACE OR GROUND WATER (infiltration, mgd) <b>None</b>
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5. YEAR COMMUNITY BEGAN SEWAGE TREATMENT <b>1973</b>	6. YEAR PRESENT SYSTEM PLACED IN OPERATION		
	6A. SEWER	6B. PLANT <b>X</b>	6C. ANCILLARY WORKS

7A. SIZE OF PLANT SITE (acres) <b>1 1/2</b>	7B. APPROXIMATE AREA LEFT FOR EXPANSION (acres) <b>1/2</b>
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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 <b>BRICKLE CREEK</b>	9B. STREAM FLOW IS
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<input checked="" type="checkbox"/> PERENNIAL	<input type="checkbox"/> INTERMITTENT	<input checked="" type="checkbox"/> NATURAL	<input type="checkbox"/> REGULATED
		<input checked="" 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) <b>6000 gal</b>	1B. PEAK FLOW RATE (mgd)	1C. MINIMUM FLOW RATE (mgd) <b>2500</b>
	DRY WEATHER	WET WEATHER

2. AVERAGE BOD OF RAW SEWAGE (5 DAY 20°C) (ppm)	3. AVERAGE SETTLEABLE SOLIDS OF RAW SEWAGE (mg/l)
	<b>300</b>

4. AVERAGE SUSPENDED SOLIDS OF RAW SEWAGE (mg/l)	5. AVERAGE COLOUR DENSITY OF RAW SEWAGE (mg/l)
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6. ANNUAL AVERAGE PLANT PERFORMANCE			
6A. BOD (%)	6B. SETTLEABLE SOLIDS (%)	6C. SUSPENDED SOLIDS (%)	6D. COLOUR (%)

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

Chlorinates every batch cycle

8A. PURPOSE OF CHLORINATION

Disinfect Effluent

8B. TYPE OF CHLORINATOR  
Wallace + Tiernan

8C. POINT OF APPLICATION OF CHLORINE  
Contact Tank

8D. CAN BYPASSED SEWAGE BE CHLORINATED?  YES  NO

8E. AVERAGE FEED RATE OF CHLORINE (lb/day)  $\frac{1}{2}$  lb.

8F. CHLORINE RESIDUAL IN EFFLUENT  
0.6 PPM AT END OF 10 MINUTES

8G. MINIMUM SUPPLY OF CHLORINE STORED ON PREMISES (lb)  
60 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)

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  
Effluent is discharged into Drain field

12. USES OF RECEIVING STREAM WITHIN 10 MILES OF OUTFALL  
Recreational

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 PONDS

A. WILDS CUT AND VEGETATIVE GROWTH IN PONDS ELIMINATED?  
 YES  NO

D. BANKS AND DIKES MAINTAINED (erosion etc.)?  
 YES  NO

C. FENCING AND BRACING - "POLLUTED WATER" SIGNS PRESENT AND IN GOOD REPAIR?  
 YES  NO

D. 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

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)

*Submersible pumps have gone out*

C. OPERATIONAL  YES  NO (If yes, explain)

*Screen in air mixing tank becomes plugged and requires much attention*

D. BASED ON OPERATING EXPERIENCE TO DATE WHAT IF ANY CHANGES WOULD YOU RECOMMEND TO IMPROVE OPERATION OF THE PLANT?

*Submersible pumps should be changed to Non-submersible type*

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	MAINTENANCE	OTHER
DAILY		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? **NONE**

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?

**GAEA FACTORY REP**

11. IS A MANUAL OF PRACTICE OR INSTRUCTIONS AVAILABLE?

YES  NO

IF YES, WHO WROTE AND PROVIDED IT?

**GAEA**

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

**7 HOURS**

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 EMPLOYED IN TREATMENT
1. SUPERINTENDENT					
2. OPERATORS	2	10	NONE	3 MONTH	3 MONTH
3. LABORATORY TECHNICIANS					
4. LABORERS					
5. PART-TIME LABORERS					
6. TOTAL	2	10	0	3 MONTH	3 MONTH

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	3			3				
2. SUSPENDED SOLIDS	3			3				
3. SETTLEABLE SOLIDS	3			3				
X 4. SUSPENDED VOLATILE								
5. DISSOLVED OXYGEN								
6. TOTAL SOLIDS								
7. VOLATILE SOLIDS								
8. pH	1			1				
9. TEMPERATURE								
10. COLIFORM DENSITY								
11. RESIDUAL CHLORINE	1			1				
12. VOLATILE ACIDS								
13. M. 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			144			
PRIOR YEAR 19						
PRIOR YEAR 19						
PRIOR YEAR 19						

EVALUATION PERFORMED BY	TITLE	ORGANIZATION
HANS CREGG	INSTRUMENT TECH	D. O. E

INFORMATION FURNISHED BY	TITLE	ORGANIZATION	DATE
KEITH JACOBSON	MAINT. MAN	SPOKANE DEVEL. CO.	4/2/77



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

2. GENERAL COMMENTS ON HOUSEKEEPING AND MAINTENANCE

FAIR

3. REQUIREMENTS OF HIGHER AUTHORITY

3A. DOES THE PLANT PROVIDE THE DEGREE OF TREATMENT PRESENTLY REQUIRED BY THE STATE? (If no, explain)

YES  NO SEE LAB RESULTS

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.

ONE

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

DATA SUMMARY

ORIGINAL TO: H. Clegg  
COPIES TO:  
.....  
.....  
LAB FILES: .....

Source Mt. Spokane Ski STP

Collected By H.C.

Date Collected 4/8/73

Goal, Pro./Obj. 3.2.23

Log Number:	73-	340	41	42	43	44	45	46	47	48	49	50	51	STORET
Station:		INF	EFF	1	2	3	4	1000 INF	EFF	INF	EFF	INF	EFF	
pH		6.9	7.3											00403
Turbidity (JTU)		3000	80											00070
Conductivity (umhos/cm)@25C		620	650											00095
COD		7170	410											00340
BOD (5 day)		1500	96											00310
Total Coliform (Col./100ml)				500,000	350,000	220,000	200,000							31504
Fecal Coliform (Col./100ml)				2500	800	1300	600							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		3550	600											00500
Total Non Vol. Solids		845	215											
Total Suspended Solids		3300	280											00530
Total Sus. Non Vol. Solids		825	124											
Hexane Extract. Greases								590	5	5 <sub>30</sub>	7	4 <sub>30</sub>	22	

Note: All results are in PPM unless otherwise specified. ND is "None Detected"  
Convert those marked with a \* to PPB (PPM X 10<sup>3</sup>) prior to entry into STORET

Summary By Stephen D. Rahl Date 5-7-73