

TO: Dan Neal, Ron Pine, Ron Devitt
FROM: Hans Cregg
SUBJECT: Medical Lake (LAGOON)

DATE: July 2, 1973

State of
Washington
Department
of Ecology



On May 16, 1973, an efficiency study was conducted on the Medical Lake lagoon system. The system consists of three lagoons, two of which are influent lagoons and one effluent lagoon. The operator has the option of switching the incoming waste water between the two influent lagoons.

Laboratory results indicate that the solids reduction is rather low and does not meet water quality standards. The data regarding coliforms is somewhat indecisive due to laboratory error.

HC:bjj

Attachments

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City Medical Lake Plant Type Lagoon Population 3500 Design Capacity
 Served
 Receiving Water Deep Creek Engineer W. E. Thompson
 Date 5-16-73 Survey Period 8 hours Survey Personnel Hans Cregg, Jim
 Armstrong
 Comp. Sampling Frequency Hourly Weather Conditions Clear & warm
 (last 48 hours)
 Sampling Alequot 1000 mls

PLANT OPERATION

Total Flow _____ How Measured _____
 Max. (Flow) _____ Time of Max. _____ Min. _____ Time of Min. _____
 Pre Cl₂ none #/day Post Cl₂ none #/day

FIELD RESULTS

Influent

Effluent

Determinations	Influent				Effluent			
	Max.	Min.	Mean	Median	Max.	Min.	Mean	Median
Temp. °C	15	14	14.4	14.2	23	18.8	21.5	22
pH	8.2	7.6	7.8	7.8	10.5	10.0	10.3	10.4
Conductivity (umhos/cm)								
Settleable Solids	8.0	7.7	7.9	7.9	<.1	<.1	<.1	<.1

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
	73-1849	73-1850	
5-Day BOD	158	29	81.65
COD	376	196	47.88
T.S.	625	458	26.72
T.N.V.S.	358	265	25.98
T.S.S.	203	128	39.95
N.V.S.S.	21	24	-12.50
pH	7.4	10.6	
Conductivity	850	460	
Turbidity	70	56	20

Medical Lake

BACTERIOLOGICAL RESULTS

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

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs)
73-1851	1000	400	<400	NONE	NONE
73-1852	1200	<400	<400		
73-1853	1600	<400	<400		

Operator's Name _____ Phone # _____

Comments: Coliform count was taken without the benefit of chlorination.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

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

DATA SUMMARY

Source Medical Lake STP

Collected By H.C. + J.A.

Date Collected _____

Goal, Pro./Obj. 2223

Log Number:	23-1849	1850	1851	1852	1853							STORET
Station:	INF	EFF	1000	1200	1600							
pH	7.4	10.6	-	-	-							00403
Turbidity (JTU)	70	56	-	-	-							00070
Conductivity (umhos/cm)@25°C	850	460	-	-	-							00095
COD	376	196	-	-	-							00340
BOD (5 day)	158	29	-	-	-							00310
Total Coliform (Col./100ml)	-	-	400	<400	<400							31504
Fecal Coliform (Col./100ml)	-	-	<400	<400	<400							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	625	458	-	-	-							00500
Total Non Vol. Solids	358	265	-	-	-							
Total Suspended Solids	203	128	-	-	-							00530
Total Sus. Non Vol. Solids	21	24	-	-	-							

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 5-29-73