MEMORANDUM

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Publication No. 73-e36

WA-59-1010

TO: Dan Neal, Ron Pine, Ron Devitt

FROM: Hans Cregg

SUBJECT: Chewelah ~~STP~~ (Lagoon)

DATE: July 2, 1973

State of Washington
Department of Ecology

On May 17, 1973, an efficiency study was conducted on the Chewelah sewage treatment lagoon. The system consists of two influent lagoons which are operated in parallel and an effluent lagoon. The wastewater upon leaving the secondary lagoon is chlorinated and discharged into the Colville River. All three lagoons exhibited a thriving insect population and vigorous algae growth.

These factors may have influenced the effluent BOD and solids values. Total and fecal coliforms are exceeding state standards by a substantial margin.

HC:bjj

Attachments

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

City Chewelah Plant Type Lagoon Population Served 1600 Design Capacity 3000

Receiving Water Colville River Engineer W.A. Thompson

Date 5/17/73 Survey Period 8 hours Survey Personnel Hans Cregg & Jim Armstrong

Comp. Sampling Frequency hourly Weather Conditions (last 48 hours) clear and warm

Sampling Alequot 1,000 mls.

PLANT OPERATION

Total Flow 241,000 gal/day How Measured Parshall flume

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

Pre Cl_2 #/day Post Cl_2 15 #/day

FIELD RESULTS

Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp. °C	14.2	13.0	13.8	14.0	22.0	20.4	21.2	21.1
pH	7.5	7.1	7.3	7.2	8.6	8.2	8.4	8.4
Conductivity (umhos/cm)								
Settleable Solids	4.0	4.0	4.0	4.0	<.1	<.1	<.1	<.1

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent 73-1856	Effluent 73-1857	% Reduction
5-Day BOD	100	40	>60
COD	204	78	62
T.S.	470	354	25
T.N.V.S.	259	226	13
T.S.S.	124	18	85
N.V.S.S.	13	1	92
pH	7.5	8.8	
Conductivity	760	550	
Turbidity	40	10	75

Chewelah Lagoon

BACTERIOLOGICAL RESULTS

$Na_2S_2O_3$ added to sample before sample ~~XXXXX~~ was taken. ~~XXX~~.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)		Cl Residual	
		Total	Fecal	ppm	(after secs)
73-1858	1100	<200	<80	.4	15
73-1859	1400	<200	<80	.4	15
73-1860	1600	<200	<80	.4	15

Operator's Name Ray W. Meyer Phone # _____

Comments: _____

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: A. CREGG

COPIES TO:

LAB FILES

DATA SUMMARY

Source Chewelah STP

Collected By

Date Collected 5-17-73

Goal, Pro./Obj. 3.2.23

Log Number: 73-	1856	57	58	59	60						STORET
Station:	INF	EFF	1100	1400	1600						
pH	7.5	8.8									00403
Turbidity (JTU)	40	10									00070
Conductivity (umhos/cm)@25°C	760	550									00095
COD	204	78									00340
BOD (5 day)	100	<40									00310
Total Coliform (Col./100ml)	-	-	<200	<200	<200						31504
Fecal Coliform (Col./100ml)	-	-	<80	<80	<80						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	470	354									00500
Total Non Vol. Solids	259	226									
Total Suspended Solids	124	18									00530
Total Sus. Non Vol. Solids	13	1									

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

Summary By Stephen D. Roll Date 6-1-73