Publication No. 74-e47

April 8, 1974

Memo to: Rhys Sterling, Howard Bunten

From: Pat Lee

Subject: Efficiency Study at Spokane Industrial Park.

An efficiency study was conducted on the Spokane Industrial Park on January 29, 1974. The influent and effluent were composited after comminution and before chlorination respectively. Coliform samples were collected at the end of the chlorine contact chamber. The facilities were neat and clean and the area well fenced off. The field and laboratory results (summarized on the efficiency study form) pretty well speak for themselves. Taking into account the 24 to 30 hour retention time of the system, one should not compare the influent and effluent directly. It does appear that the system is somewhat organically underloaded. Disinfection of coliform was excellent.

PL:jmh

STP SURVEY REPORT FORM

(EFFICIENCY STUDY)

Oxidation

City Spokane Indust. Park Plant Type Ditch Population Served Design Capacity .75 MGD

Receiving Water Spokane River Engineer Rhys Sterling

Date 1-29-74 Survey Period 0830-1430 Survey Personnel P. Lee, J. Armstron

Comp. Sampling Frequency half hour Weather Conditions (last 48 hours) cold but dry

Sampling Alequot a liter per half hour

PLANT OPERATION

Total Flow ---------- How Measured Digital Velocity meter

Max. (Flow) 1.07 MGD Time of Max. 1630 Min. .89 MGD Time of Min. 1000

Pre Cl_2 0 #/day Post Cl_2 ~40 #/day

FIELD RESULTS

17 Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp. °C	14.0	11.8	----	13.0	8.6	7.6	----	8.0
pH	8.4	6.8	----	7.8	8.4	7.4	----	
Conductivity (umhos/cm)	800	450	----	650	550	450	----	550
Settleable Solids	4.5	1.5	2.9	3.0	.1	<.1	----	<.1

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent 74-0298	Effluent 74-0299	% Reduction
5-Day BOD	40	40	----
COD	93	74	----
T.S.	365	334	----
T.N.V.S.	244	222	----
T.S.S.	57	58	----
N.V.S.S.	27	34	----
pH (UNITS)	7.5	7.7	----
Conductivity (umhos/cm)	500	450	----
Turbidity (STU's)	25	35	----

Spokane Industrial Park

BACTERIOLOGICAL RESULTS

$Na_2S_2O_3$ added to sample Before sampling after _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF) Total	Fecal*	Cl Residual ppm	Cl Residual (after secs.)
74-300	0900	20		.75	180
301	0930	<5		>1.0	"
302	1150	20		1.0	"
303	1500	<5		1.0	"
304	1630	<5		1.0	"

Operator's Name Charles Crocker (Manager Spokane Industrial Park) Phone # _____

Comments: _____

NO_3-N	=	1.30 ppm	Chromium	=	None detectable
NO_2-N	=	.02 ppm	Copper	=	1.0 ppm
NH_3-N	=	1.3 ppm	Iron	=	1.4
T.Kjeldahl-N	=	5.0 ppm	Phenols	=	.004
O-PO_4-P	=	0.3 ppm			
T-PO_4-P	=	2.5 ppm			

*No fecals due to transportation problems.

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: P. Lee

COPIES TO:

LAB FILES

DATA SUMMARY

Source Spokane Industrial Park Collected By P. Lee & J. Armstrong

Date Collected 1-29-74 Goal, Pro./Obj.

Log Number: 74-	0298	299	300	301	302	303	304				STORET
Station:	INF	EFF	0900	0930	1150	1500	1630				
pH	7.5	7.7									00403
Turbidity (JTU)	25.	35.									00070
Conductivity (umhos/cm)@25°C	500.	450									00095
COD	93	74.									00340
BOD (5 day)	39.	39.									00310
Total Coliform (Col./100ml)	-	-	EST 20	<5	EST 20	<5	<5				31504
Fecal Coliform (Col./100ml)	-	-									31616
NO3-N (Filtered)	-	1.30									00620
NO2-N (Filtered)	-	.02									00615
NH3-N (Unfiltered)	-	1.3									00610
T. Kjeldahl-N (Unfiltered)	-	5.0									00625
O-PO4-P (Filtered)	-	0.3									00671
Total Phos.-P (Unfiltered)	-	2.5									00665
Total Solids	365	334									00500
Total Non Vol. Solids	244	222									
Total Suspended Solids	57	58									00530
Total Sus. Non Vol. Solids	27	34									
Chromium	-	ND									
Copper	-	1.0									
Iron	-	1.4									
Phenols	-	.004									

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 P. Kobl Date 2-13-74