STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

DANIEL J EVANS
GOVERNOR

JOHN A.
DIRECTOR

Publication No. 72-e30

July 13, 1972

MEMORANDUM

TO: Nelson Graham

FROM: Grover Scott Jeane, II

SUBJECT: Survey of Kalama Chemical Incorporated - 5/31/72

On the morning of May 31, 1972 I met with Mr. J. Opgrande of the Kalama Chemical Company. We located the proposed sampling sites and I commenced collecting at 0915 hr.

All sampling stations were as requested in your April 25 memo, except for the total plant effluent. The dilute acid process stream is introduced into the main effluent line below the cooling water sump. There is no accessible sampling port with which to take a total plant effluent sample. This deficiency was not considered to be of major consequence after reviewing the laboratory results. (See Figure #1). The dry weather prevented the collection of a sample of tar pit runoff water.

Sample Evaluation

The dilute acidic process stream was very consistant as to temperature, pH, and volume. The same can be said for the cooling water effluent. (See Table #1). The extremely low pH of the acidic stream proved to be toxic to organisms used in the BOD test below a dilution factor of 8. A rough estimate reveals the dilution factor for the acidic stream by the cooling water effluent to be around 2000. At a dilution of 2000, the BOD would be $\sim$ 30 lbs/day of O_2 and there would be no toxicity problems. The cooling water effluent averaged about 10°C above the Columbia River's temperature. The filter backwash and influent samples are very similar in properties and present no water quality problems.

Summary

The plant was very clean and well operated. The slight amount of leakage around the dilute acidic process stream sampling location should be collected or corrected. The plant poses no water quality problem under present operation standards. The tar pit should be observed frequently until the storage problem is corrected. During the future surveys, the composites should be run only every two hours.

GSJ:bj

Attachments

Table 1. Kalama Chemical Company Effluent Analysis - 5/31/72.

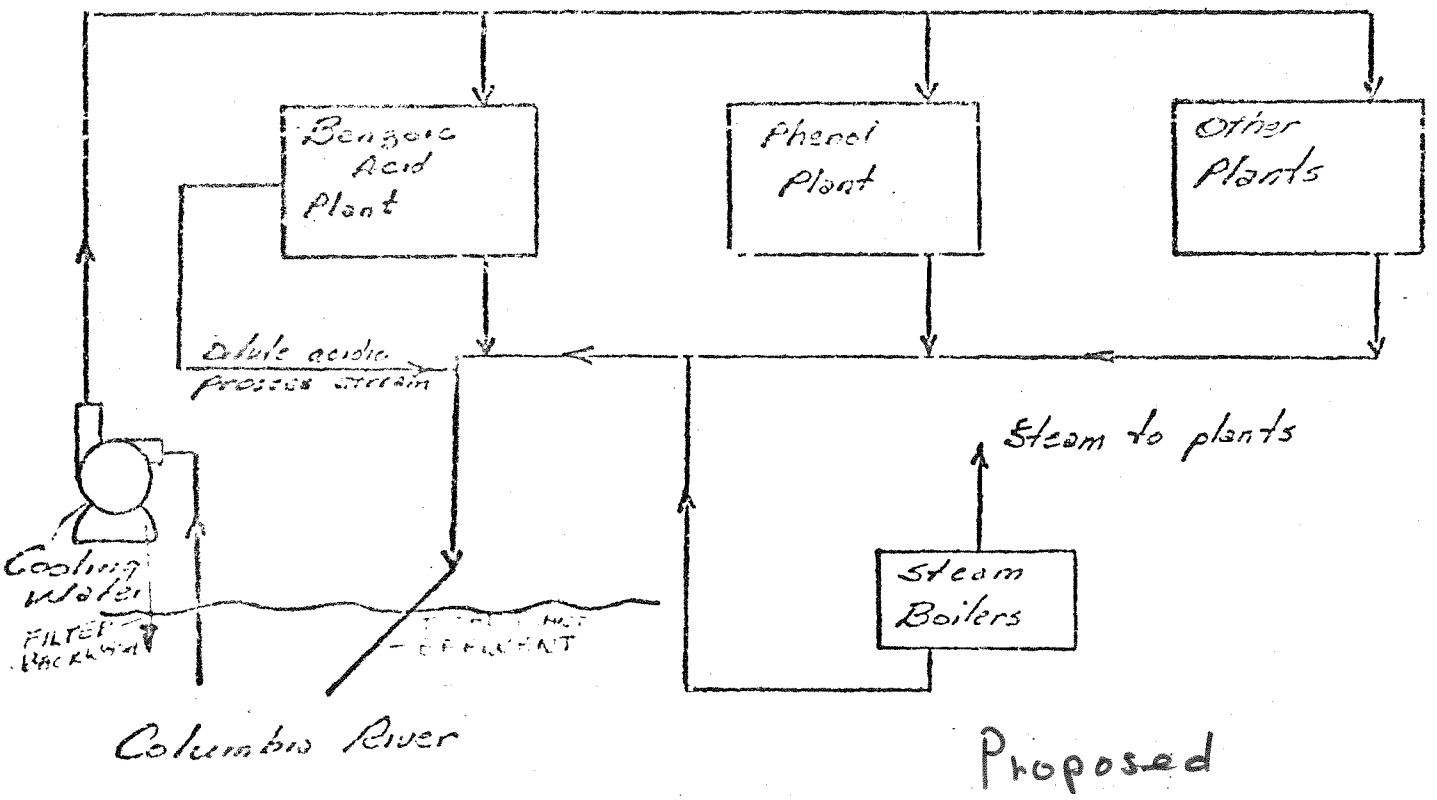
Dilute Acidic Process Stream				Cooling Water Effluent			
Time	Temp °C	pH	Volume GPM	Time	Temp	pH	Volume GPM
0915	22.8	2.2	5.1	0925	23.8	7.5	10,500
1005	23.1	1.9	5.0	1000	23.8	7.6	10,200
1035	23.3	1.9	4.8	1030	23.3	7.3	10,400
1055	23.3	1.9	4.6	1100	23.4	7.7	10,500
1135	23.4	1.9	4.6	1125	23.3	7.7	10,400
1210	23.6	1.9	4.4	1200	23.9	7.7	10,000
1233	23.6	1.9	4.5	1230	24.1	7.7	10,300
1301	23.7	1.9	4.4	1258	24.0	7.7	10,100
1400	24.2	1.9	4.5	1410	24.3	7.6	10,300
1435	23.9	1.85	4.5	1420	24.0	7.7	10,300

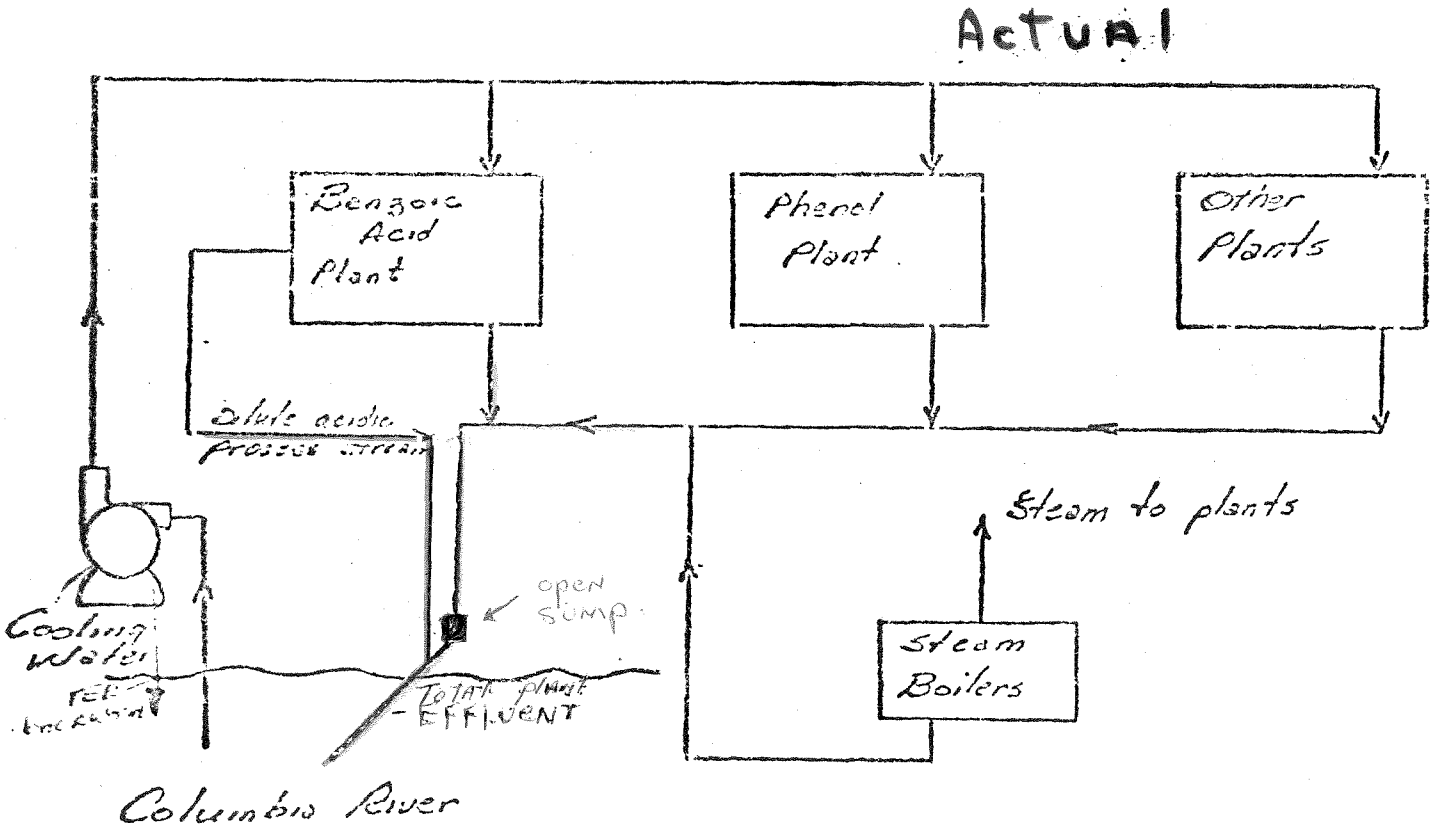
Table 1. Kalama Chemical Company Effluent Analysis - 5/31/72 (Continued)

	COMPOSITE		GRAB	
	Dilute Acidic P.S.	Cooling Water Effluent	Filter Backwash	Influent
pH	2.7	7.6	7.4	7.6
Temp (^{o}C)	See Above	See Above	13.9	13.7
Turbidity (JTU)	1	10	15	10
COD	61,000	22	18	18
BOD (5 day)	40,700	2	3	<2
Total Solids	----*	147	134	134
Total Non Vol. Solids	----*	96	95	61
Alkalinity (as $CaCO_3$)	0.0	44	44	47
Phenols	.010	.049	---	.077

* Sample was consumed in earlier test.

Figure 1 - Kalama Chemical Incorporated Flow Scheme





STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

DANIEL J. EVANS
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[illegible]
[illegible] 04

Telephone. 753 2353

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: S. Jeans
COPIES TO: N. Gunsari
LAB FILES

DATA SUMMARY

Source: Pulp & Chemical Collected By: S. Jeans

Date Collected: 5-31 Sol, Pro./Obj.: 3.2 2s

Log Number: 22-	1819	1820	1821	1822								STORET
Station:	IN1	DIL No. PPO UNIT	FILTER	CIT								
pH	7.6	5.7	7.4	7.6								
Turbidity (JTU)	10	1	1	10								
Conductivity (umhos/cm)@25°C												0095
COD	18	61,000	18	22								00340
BOD (5 day)	22	40,000	3	2								00310
Total Coliform (Col./100ml)												31504
Fecal Coliform (Col./100ml)												31616
NO3-N (Filtered)												00620
[illegible] -N (Filtered)												00615
NH3-N (Unfiltered)												00610
T. Kjeldahl-N (Unfiltered)												00625
O-PO4-P (Filtered)												00671
Total Phos -P (Unfiltered)												00665
Total Solids	134.	--*	174.	117								00500
Total Non Vol. Solids	61	--*	1[illegible]	16								
Total Suspended Solids												00530
Total Sus Non Vol. Solids												
ALKALINITY (as CaCO3)	47	0.	44.	44.								00410
Phenols	.011	.010	—	.049								32730*

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 [illegible] Date 6 1-[illegible]

MEMORANDUM

Department of Ecology
P. O. Box 829
OLYMPIA, WASHINGTON
98504

	Check
Information	
For Action	
Permit	
Other	

TO: Ron Pine

DATE: April 25, 1972

FROM: Nelson Graham

SUBJECT: Kalama Chemical Incorporated, Kalama 3.2.23

This memo is a request for industrial waste effluent survey and the request will follow the outline prescribed in the memo dated June 1, 1971 from OTS to the Office of Operations.

A. This request comes from the Southwest Regional Office District No. 4. The data is needed to evaluate the effectiveness of the firm's existing pollution control facilities and to determine the need, if any, for additional controls. We are currently rewriting the firm's industrial waste discharge permit. They have already made application, their current permit expires on May 2, 1972.

B. The object of the survey is to determine the quality of the firms waste water effluent. We should be able to conclude from the survey what the firms daily effluent discharge consists of.

C. One or two persons should be able to conduct the survey. It should not take more than ten to twelve hours total time, including travel. The Regional Office could supply one person if necessary. The project should be scoped by OTS.

D. This survey should be run as soon as possible but no later than May 31, 1972.

E. No special equipment is needed. A boat is not needed, just a car and sampling equipment.

F. One composite sample of the firms total plant effluent should be obtained (See attached schematic) and a grab sample of the influent Columbia River water. The following laboratory analysis should be made of these two samples:

pH
Temperature
BOD
COD
Total suspended solids
Turbidity
Alkalinity
Acidity
phenol

The composite sample of the filter backwash process ~~strain~~ should be obtained. The following laboratory analysis should be run on this sample:

pH
temperature
BOD
COD
Total suspended solids
Turbidity
Acidity

One grab sample of the backwash from the influent pump house filters should be obtained and analyzed for BOD, COD, total suspended solids and turbidity.

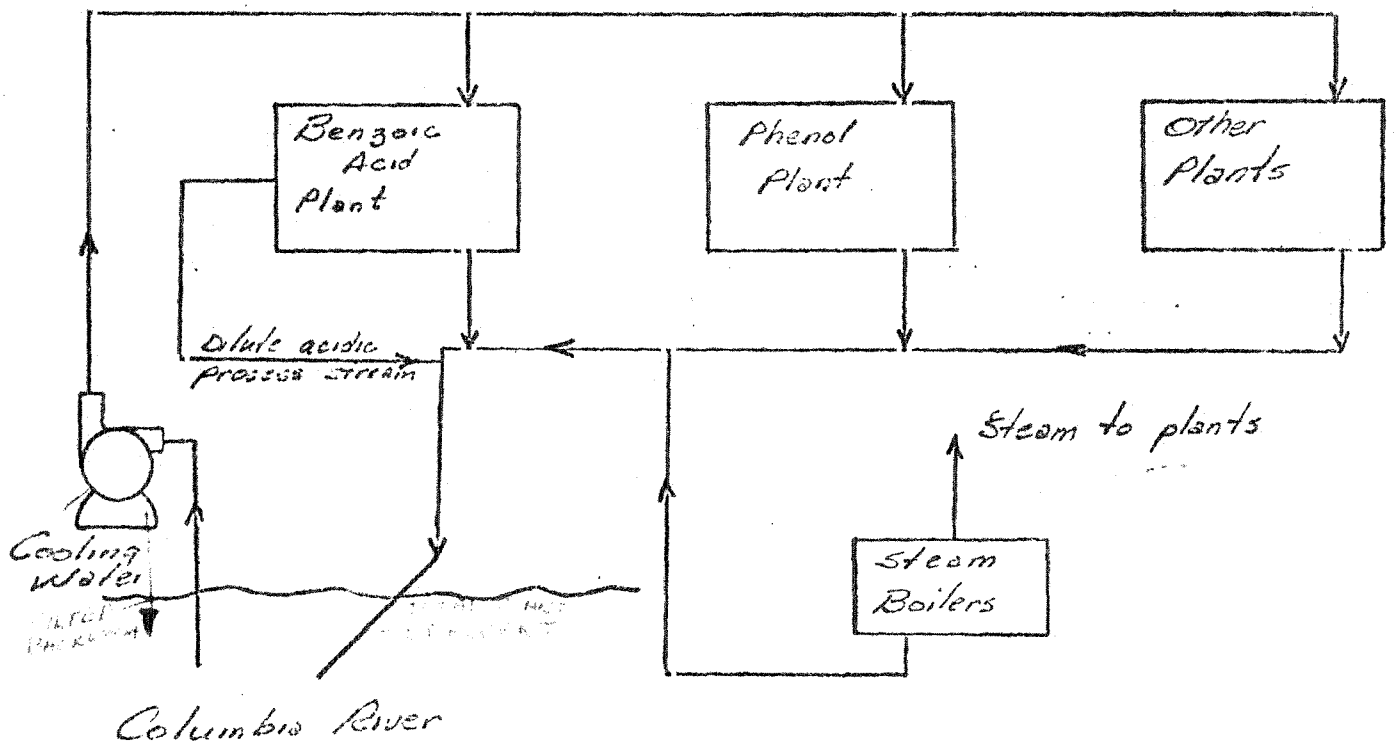
If it is raining the grab sample of the runoff water draining from the ~~power~~ pit should be obtained and analyzed for phenol and pH. TWC

EXHIBIT #1

The effluent from our plant includes cooling water, steam boiler blowdown and a dilute acidic process stream. The cooling water is withdrawn from the Columbia River and kept at a higher pressure than the process side at all times. In case of a leak, the cooling water will leak into the process side. This procedure requires the use of some booster pumps and a cooling water pressure alarm system.

The boiler blowdown consists of a continuous removal of a small amount of boiler water to keep the boiler from corroding. This blowdown is mixed with effluent cooling water prior to discharge into the river.

The dilute acidic process stream is produced in our benzoic acid plant and is discharged through the effluent pipe with our cooling water and boiler blowdown.



REQUEST FOR ANALYSIS

Date 5-30

REQUESTED BY G. S. Jeane

RECEIVING WATER

COLLECTED BY G. S. Jeane

PROCESS WATER

DATE WERE (WILL BE) COLLECTED 5-31

OTHER

PRIORITY: REASONABLY SOON ___ AS SOON AS POSSIBLE X EMERGENCY ___

SAMPLES WILL ARRIVE: DATE 5-31 APPROXIMATE TIME 4PM CARRIER VAA

ROUTE DATA SUMMARY TO: G. S. Jeane II

ADDITIONAL INFORMATION (PROBLEM, BACKGROUND, INTERFERENCES, PATTERNS, ETC.)

3.2.23 Kalama Chemical

For Lab Use Only

Type of Analyses Required	Number of Samples	Approx Range	Preservative Type - Vol.	Laboratory Number	Analyst	Date	Notes
BOD	4						
COD	4						
Tot. Suspend. Solids.	1						
Turbidity	4						
Alkalinity	2						
Acidity	3						
phenols	3						
	24 TOTAL						

Fill out as completely as possible. Some Analyses (bacteriological, biological, BOD, etc.) and large numbers of samples should be scheduled ahead of time. Specific questions should be directed to the Analyst supervising the particular analysis desired. Lab. phone: 206 753-2362.