Publication No. 76-e15

WA-37-1010

MEMORANDUM

March 29, 1976

To: Jim Milton

From: Douglas Houck

Subject: U & I (Toppenish) Class II Inspection

On October 14, 1975, Hans Cregg and I arrived at the U & I plant in Toppenish to conduct a Class II Inspection. Composite samplers were installed at the cooling ponds. A composite sample was taken from both the influent and effluent. A 250 ml sample was collected every 30 minutes.

The D.O. was 0.0 ppm for both the influent and effluent as determined by the modified azide Winkler method. The apparent reason for U & I's reported D.O. values, which were approximately 3.0 ppm, was due to sampling technique. The lab man was not fixing his D.O.'s at the time he took the sample but was waiting until after he had finished his sample collecting and driven back to the lab. This was discussed with their lab man who said he would correct his sampling procedures. The temperature and pH of the influent and effluent respectively was 40°C, 4.5 and 25°C, 6.7.

On the 15th we returned to pick up the composite samples. Grab samples were also taken from the Yakima River both above and below and at the point of discharge. The location below the discharge point was approximately 200 feet downstream and 20 feet from the bank of the discharge point. The following table gives the results of the grab samples.

	Ab. Outfall	Outfall	Bl. Outfall
Turbidity (JTU)	2	4	3
COD (mg/l)	4	49	4
BOD_5 (mg/l)	<2	3	4
NO_3-N (mg/l)	0.17	0.04	0.14
NO_2-N (mg/l)	ND	ND	ND
NH_3-N (mg/l)	0.02	5.0	0.60
T-KJEL-N (mg/l)	0.16	7.2	0.98
T.S.S. (mg/l)		4.0	

This shows that the main problem is one of ammonia. It should be pointed out that nitrifying bacteria do not normally begin exerting an oxygen demand until after the fifth day of a BOD test. A twenty day BOD test should be run for a more accurate idea of the BOD exerted by this particular type of effluent.

The following table gives the results of the composited samples along with their daily average NPDES effluent limitations for the beet slicing season.

	DOE		NPDES
	Inf	Eff.	Daily Average
BOD (mg/l)	<7	< 5	48
pH	4.5	6.7	6.0 - 9.0
NH_3-N (mg/l)	8.9	7.7	10
Temp. (°F)	104	77	90*

* Daily Maximum

This shows that at the time of the survey U & I Sugar Co. was within the limitations of their permit. It should be noted that the results of DOE's BOD were from five days of incubation. The permit does not stipulate whether it should be incubated for five or twenty days.

U & I measures their effluent flow with a parshall flume. It appeared to be adequate.

DH:ee