Publication No. 73-e65

WA-41-9250

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TO:_____Dan Neal

FROM: Scott Jeane

SUBJECT: Investigation of Seepage to a Grant County Watercourse

Adjacent to U & I Sugar Co., Moses Lake

April 10, 1973

Howard Bunten and I met on March 2, 1973, and reviewed the area to be sampled. The following morning I collected samples from 3 watercourse stations and a lagoon station (see Figure 1).

Analysis of the samples reveals that the watercourse is being subjected to a high organic loading between Stations 1 and 4 (see Table 1). The dissolved oxygen decreased 50+%, the COD increased 1000%, and the total solids increased 300%. The nutrients decreased slightly, indicating the pollutant is not of a nitrogenous character. The high BOD and COD levels indicate a carbonaceous type material (sugars or starches) is entering the waterway and depleating the oxygen.

The enclosed six slides indicate the conditions observed. Slide #1 is of the control station. Slide #2 shows the clear water coming from upstream and the pollutant bubbling up through the dark holes in the stream bed. Slide #6 reveals the effects of the leachate on the color and clarity of the water.

The source of the leachate is from the lagoons. Survey of the area reveals no other possible sources. The leachate has a drastic effect on the water quality of the waterway in the areas of dissolved oxygen, BOD, COD, and solids. Previous sampling has shown the effect of the leachate to extend south to the freeway. A possible solution is to line the lagoons with an impervious membrane.

Table 1. Water Quality Adjacent to U & I Sugar, Moses Lake, Grant County, WA, March 8, 1973.

Station:	1	3 Waterway	4	2 Lagoon	
Location:	Upstream Control	Opposite Lagoons	Downstream		
Temperatúre ^O C	7.5	7.1	9.6		
D.O. mg/1	13.8	11.9	6.3		
рН	8.1	7.2	7.4		
COD	20	267	243	9260	
BOD5	3	166	163	5080	
Total Solids	391	678	1200	7300	
Total Non Vol Solids	290	436	853	1440	

GSJ:bj

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W	ATER QUALITY LABORATO	DRY	• • • • • • • • • • • • • • • • • • •
	DATA SUMMARY		LAB FILES
source Ut I SUGAR		Collected By S	. <i>J.</i>
Date Collected <u>3-8-23</u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Goal, Pro./Obj	3.2.21 43.2-23

Date <u>3-25-72</u>

Log Number: >3-	,989	990	, 991	992	993	994	-	·	·	- }	STORET
Station:		14_	2	3	<u>3</u> A	<u> </u>			- 4		
рН	8.1	-	6.3	7.2		74			Ì	_	00403
Turbidity (JTU)	<u> </u>						-				00070
Conductivity (umhos/cm)@250	<u>}</u>										00095
COD	20	-	9260	267	-	243					00340
BOD (5 day)	3	-	50%	<u>j66</u>		163					00310
Total Coliform (Col./100ml)	500000		-	~		50,000	-			-	31504
Fecal Coliform (Col./100ml)	50	-				(40					31616
NO3-N (Filtered)	1.53	1.59	8.06	.02	1.39	.58					00620
NO2-N (Filtered)	,02	50.	.03	-01	50.	. 01	W		•		00615
NH3-N (Unfiltered)	.04		5.4	. 05		,13		ļ	·		00610
T. Kjeldahl-N (Unfiltered)	.05		6.16	.09	-	. 20	······································	ļ			00625
0-PO4-P (Filtered)	.32	.24	3.60	.13	. 10	. 32		ļ			00671
Total PhosP (Unfiltered)	1.87		5.09	.37	_	.33					00665
Total Solids	391		7300	678		1200		Ì			00500
Total Non Vol. Solids	290		1440	436		853		ļ	.		
Total Suspended Solids	14.		434	50		77.				-	00530
Total Sus. Non Vol. Solids	12.		82	35	<u> </u>	65.					
	L			¥				ļ			
				2 7		2		l			
	5 2 2 5			7		\$ \$		<u> </u>			
	1/30			4 U		2					
	5			14		0/0					
Note: All results are in]	PPM unl	ess ot	herwis	e spec	ified.	ND i	s 'Nor	ne Det	ected"		

All results are in PPM unless otherwise specified. ND is "None Delected Convert those marked with a * to PPB (PPM X 10³) prior to entry into STORET NO UNFILT. SAMPLE for 730890 + -992 for 7-P Summary By _______ D_for Date_____

#1. Rd. 2 NE Pronto Danin 2-21-73 2.0 pm #2. UtI DEAIN @ Free way * 20 ppm @ wheeler A. = 8.0 ppm moses LK. PA @ Outfall : 2,0 fpm above outfall = 1.0ppm #3 North Am hind Coule = 5.0 ppm = Portholes = 8.0 pm . K 44 Rd 3 SE (cost of thing #17) Phonto DRAIN Readings m 2-3-73 above Worden h.R. outlet were 2.0 ppm in the hind couler Readings on 2-16-73 @ Rd 3 SE (East of Highing # 17) and where this drain (Pronto) enters hind (aller were 6.0 ppm SAmples taken And Ana hyzed by Howard Binter. EAST, Rug NOE.

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ML OF CONCM Department of Ecology

Spokane

TO: Dan & Files

DATE: February 5, 1973

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FROM: Howard Bunten 413

SUBJECT: Carnation Company - Moses Lake

Don Lobe of this firm called February 2, 1973, at 1:46 P.M., stating a dike had broken at 11:00 A.M.

He stated that the tractor was on the way to repair it at that time. Apparent cause of the break is burrowing varmints. At the present time the frost is just coming out of the ground, and damage to the wasteway could be bad.

February 5, Don called again and stated that dike repairs were completed.

February 6, I received a call from Bob Butler, Utility Superintendent at Warden. He had been notified by a fisherman that "there had been a fish kill in Lind Coulee," and he had traced the foaming material in the Coulee to the Warden insudtrial treatment system.

I was ill with pneumonia Feb. 5, 1973 to Feb. 20, 1973. February 21, 1973 I travelled to Warden, called on Bob Butler, and inspected the industrial lagoons. There was no discharge and no evidence of there having been any all winter.

I travelled to Ephrata and discussed the situation with Ray Duff and Merle Spence, Game Department Fish Biologists. We inspected the wasteway which received the Carnation spill, the wasteway which flows past U & I Sugar Company's evaporation ponds, and the arm of Lind Coulee.

We surveyed for D.O. and found oxygen depletion severe in the drain receiving the Carnation (Pronto) spill. However, we found worse depletion in the drain which flows south past the west side of U & I. This is hard to explain as there is no discharge into it above the worst area of depletion. This point is from the Warden road down to the power line (approximately 1 mile) at which point there is a surface water discharge (2.0 PPM).

The morth arm of the Coulee seems to be recovering. That D.O. was 5.0 PPM.

It appears we need a survey to determine what is happening in the U & I drain. Very possibly it is seepage from the U & I ponds. They have built some new ones of which we were unaware (last two months).

Enclosed are results of our sampling, also work done by Bob Butler.

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TO: Dan & Files

DATE: February 5, 1973

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FROM: Howard Bunten

SUBJECT: Carnation Company - Moses Lake

Regarding the fish kill, there were no counts, and no species or carcasses available when Ray Duff investigated February 3, 1973.

HB:glc 3 - 5 - 73

cc: Bob Butler - Warden Carnation files U & I Files Complaint files Ron Pine - DOE - Olympia / Jeleppetr 3.5-77 11,1-5 a.m. enclosures: 2

N.O. SANDINTS 2-<u>21-</u>12 - Il. Ad. a DE Thomas Duren - à. Oppon #2. USI DRAIN On Tire way = aio ppm Co where It R Rd, = 8.0 jijm motes LK. Pd @ outfall = 2.0 ppm abour outfall = 1.0 ppm #3 porth Airm . Lind Coule = 5.0 ppm - Portholes (cast of thing "1) = 8,0 ppm ~ #4 Rd 3 SE Phonto DRAIN Readings on 2-3-73 above Worden LR. outlet I were 2.0 ppm in the hind coulse Readings on 2-16-73 @ Rd 3 SE (Enst of Highing #17) and where this drain (Pronto) cillers hind (oulce īΠ were 6.0 ppm

