

Job Report

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Project No. MP-V-R-4 Date May 9, 1963
Project Name: Pollution Abatement in Region V
Period Covered: January 1, 1962 to December 31, 1962 Job No. 5

Investigation of Oilfield Pollution in Petronilla Creek

Objectives: To detect and measure the toxic components present in Petronilla Creek and to influence oil operators in the area to initiate a better pollution control program which would prevent destruction of aquatic organisms in Baffin Bay.

Procedure: Samples were collected monthly from five stations, established in Job No. F-4, 1961 report and analyzed for oil concentration according to procedures given in Standard Methods for the Examination of Water, Sewage and Industrial Wastes, Eleventh Edition.

The work was in conjunction with Texas Railroad Commission personnel. When oil in excess of 25.0 parts per million was found in the effluent of a well, the operator was issued a pollution notice and given a specified time to remedy the complaint. If repairs were not considered satisfactory by the Game and Fish Commission personnel, the Railroad Commission supervisor issued a pipeline severance which prohibits the sale of oil from storage tanks of this well. Habitual violators were issued a production severance, thus stopping production. Information on oilfield waste production was taken from records of the Railroad Commission.

Findings and

Discussion: In 1961 there were 64,380 barrels of oilfield waste emptied daily into Baffin Bay via Petronilla Creek (Job No. F-4, 1961). The disposal in 1962 was increased to 78,744 barrels daily. This increase was due to additional drilling operations and fluctuations in waste production from individual wells. The longer a well pumps, the more water is produced. This adds to the problem of retaining waste oil in the skimming pits. Failure to construct additional pits to handle this increase and poor maintenance of the pits in operation keeps oil in Petronilla Creek 100 per cent of the time.

Wells in Clara Driscoll and Minnie Bock fields empty 83 per cent of the total waste disposed into Petronilla Creek. Fifty-five per cent of the samples collected at Station 2, the collection point of waste disposal from these two fields, contained oil in excess of 25 ppm., the maximum concentration allowed by the Railroad Commission. The average oil concentration was 38.3 ppm. and ranged from 9.8 to 121.6 ppm. (Table 1).

Waste disposal is very sporadic and occasional between Stations 3 and 4. Fifty-five per cent of the samples collected at Station 3 and 18 per cent collected at Station 4 contained oil in excess of the allowable. This

decrease is attributed to filtering of oil from the water by the creek banks and debris in the creek.

There was a significant increase in oil at Station 5. All of the samples collected at this station contained oil ranging from 4.5 to 58.3 ppm. This station is the collection point of the Luby and North Luby fields. Wells in these fields empty 12,451 barrels of waste daily, or 27 per cent of the total volume of waste entering Petronilla Creek.

A monthly inspection of skimming pits in the three fields and samples collected from the effluents indicates that 50 per cent of the wells lost oil in excess of 25 ppm. during 1962. Pollution notices issued to these violators were very efficient. Most of the operators were cooperative and made any repairs necessary to decrease the oil content.

With the passing of House Bill 24 in the 57th Legislature, each operator is required to have a permit to dispose oilfield waste into a public body of water. This bill was passed in November 1961 and became effective November 1962. Only ten per cent of the operators checked possessed a permit and only 20 per cent were aware of the fact that a permit was required.

Oil lost in Petronilla Creek by drilling operations presents a threat to aquatic life in Baffin Bay. Improvement of skimming pits and better maintenance practices could reduce the oil content in the creek considerably. Investigations of the pits and creek and inspections for permits will be continued to enhance a better pollution abatement program.

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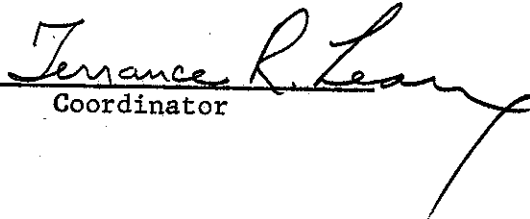

Coordinator

Table 1
 Monthly Averages of Oil and Salinity Content and Rainfall
 in Petronilla Creek

<u>Month</u>	<u>Station</u>	<u>Oil (ppm)</u>	<u>Salinity (o/oo)</u>	<u>Rainfall (inches)</u>
January	1	0.0	no flow	0.36
	2	39.8	57.6	
	3	20.6	51.3	
	4	21.3	51.6	
	5	35.6	45.4	
February	1	0.0	no flow	0.10
	2	46.5	61.5	
	3	35.8	60.9	
	4	21.2	61.4	
	5	37.9	43.1	
March	1	0.0	no flow	0.57
	2	62.5	60.9	
	3	41.6	61.2	
	4	30.5	60.1	
	5	38.2	45.9	
April	1	0.0	0.6	0.76
	2	21.2	58.7	
	3	18.1	53.2	
	4	10.1	51.6	
	5	19.7	38.9	
May	1	0.0	no flow	0.12
	2	24.3	61.2	
	3	26.1	60.8	
	4	19.4	59.9	
	5	23.5	47.2	
June	1	0.0	0.0	6.40
	2	9.8	5.0	
	3	6.1	5.0	
	4	3.2	5.0	
	5	4.5	8.6	
July	1	0.0	no flow	0.05
	2	121.6	62.1	
	3	83.5	60.8	
	4	61.2	56.9	
	5	58.3	48.7	
August	1	0.0	no flow	0.31
	2	29.3	59.6	
	3	20.5	58.9	
	4	15.3	56.7	
	5	19.1	41.3	

Table 1--Continued

<u>Month</u>	<u>Station</u>	<u>Oil (ppm)</u>	<u>Salinity (o/oo)</u>	<u>Rainfall (Inches)</u>
September	1	0.0	0.0	1.60
	2	21.7	14.1	
	3	15.5	12.9	
	4	21.5	36.5	
	5	21.5	36.8	
October	1	0.0	no flow	0.64
	2	25.6	61.5	
	3	17.8	61.4	
	4	9.1	60.9	
	5	10.2	42.5	
November	1	0.0	no flow	----
	2	18.7	42.5	
	3	15.1	41.4	
	4	10.3	41.2	
	5	12.5	43.5	

Figure 1
Sampling Stations

