

JOB REPORT

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Project No. MP1-R-2 Date 15 January 1961

Project Name: Pollution Waste Control in Region MP-1.

Period Covered: 15 June 1959 - 15 June 1960. Job No. F3-12

Bioassay and Chemical Analysis of Pure Oil Refinery's Waste Waters, Port Neches, Texas.

Procedures: Collect waste water samples from outfall and run chemical analysis and bioassays on fish life.

Findings: Pure Oil Refinery discharges approximately 2,400 gallons per minute of waste waters to the Neches River near the city of Port Neches. The wastes receive varying amounts of treatment at three locations. First the wastes go through the refinery's old, obsolete oil skimmers to remove most of the oils. Next the wastes are collected in a 35 acre retention pond for a period of 2 days where bio-oxidation takes place. At the end of the retention pond on the banks of the Neches River there is a new A.P.I. separator which removes the floating oils and collects the bottom sludges. The sludges are pumped to a pond adjacent to the 35 acre retention pond where further oxidation takes place.

Even though Pure Oil Refinery has what appears to be an ideal waste treatment facility, the condition of the final effluent is poor. See Tables No. I and II on chemical analysis and toxicity respectively. It is not definitely known why ~~the quality of~~ Pure's waste water is not of better quality with the existing treatment facilities. One possible reason could be the shallowness of the retention pond which is only one foot deep. A deeper pond would allow more retention time. Another possible reason is that the wastes are channeling straight through the 35 acre pond to the final A.P.I. separators and the whole 35 acre pond is not being utilized.

It is recommended that further study of Pure Oil Refinery's waste be made to help the company solve its waste water problem.

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Accepted by

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Date

1 February 1961

References

American Public Health Association, American Water Works Association, Federation of Sewage and Industrial Waste Associations. Standard Methods for the Examination of Water, Sewage and Industrial Wastes. 10th Edition, 1955.

American Petroleum Institute's Manual on Disposal of Refinery Wastes. Vol. IV. Sampling and Analysis of Waste Water. Second Edition, 1957.

State Water Pollution Control Board, Sacramento, California. Water Quality Criteria. Second Printing, 1957, Publication No. 3.

Table No. I
Industrial Waste Analysis

<u>Plant:</u> Pure Oil Company	Sulfides Neg.
<u>Location:</u> Port Neches, Texas - Neches River	Phenols 110 ppm (4 Amino Anti Pyrine Method)
<u>Type Sample:</u> Grab	pH 7.6
<u>Date:</u> 18 June 1959	Oil 115 ppm
<u>Collected by:</u> Warden R. Z. Funchum	Odor Strong Phenol

Table No. II
PURE OIL COMPANY - Toxicity Studies

Fish	Concentration	Observations
Mollys, Shrimp, Silversides	Control	All alive and well after 48 hours.
Mollys, Shrimp, Silversides	10%	Irritation and discomfort noted within one hour. Two silversides dead within four hours. Shrimp jumped out of test jar. Mollys swam in circles near the surface with increased respiration.