

CASE STUDY #24

Client Category:	Clean up of Waste Oil Lagoon
Product Applied:	Eliminator, blend of PDM-7 H.C. and PDM-7 W.T., Nutrients
Procedure Employed:	<ol style="list-style-type: none">1. Full scale application of products to 4 million gallon lagoon.2. 8 @ 3-hp centrifugal compressors with aeration pipe (temporary).3. 2 @ 65-hp water circulating pumps (temporary).
Wastewater Characteristics:	Large accumulations of waste oil floating, dispersed and deposited as sludge. Concentrations >500,000 mg/l oil and grease. Approximately 2 million gallons waste oil dispersed in 4 million gallons.
Previous Treatment:	None.
Biological Treatment:	<p>Phase I: October – December</p> <p>Start-up of 6: 55 gallon drums of PDM-7 H.C., 6: 55 gallon drums PDM-7 W.T., 2: 55 gallon drums Eliminator, and Nutrients were introduced into lagoon and sprayed over the surface. On-going treatment consisted of regular addition of reduced amounts of PDM-7 H.C., PDM-7 W.T., Eliminator and Nutrients. Freezing weather forced the shut down of pumps and compressors to end Phase I.</p> <p>Phase II: April – September</p> <p>Treatment was restarted in the same manner as initial start-up in Phase I and utilized similar on-going treatment procedures. Four additional 2-hp compressors were added to increase available oxygen in the lagoon during Phase II.</p>
Results:	<ol style="list-style-type: none">1. High bacterial activity in the lagoon was achieved within four weeks of initial treatment in Phase I.2. The levels of oil and grease in the aqueous phase of the lagoon had dropped within acceptable limits for discharge to the local sanitary treatment facility at the end of Phase I. The dormant winter period, however released oil and grease from deposits on the bottom of the lagoon.

3. By the fourth month of Phase II, pockets of accumulated oil sludge on the lagoon bottom had been digested.
4. By the sixth month of Phase II, the concentrations of Hydrocarbon oil and grease had been sufficiently reduced to Hydrocarbon oil. The grease had been sufficiently reduced to allow the lagoon water to be pumped into the municipal sewer at the rate of 20,000 gallons per day with no adverse effects on the municipal trickling filter system.
5. Adapted bacterial biodegradation of the waste oil eliminated 99% of the waste oil in over 4 million gallons of wastewater.
6. The cost of the project for product, engineering and analytical work was approximately \$80,000.00. Cost of equipment was an additional expense.
7. The cost of in-situ bioremediation was 50% less than any of the alternatives originally considered.