Bioremediation of #6 Fuel Oil in Soil Using M-1000H*™

OPERATION: In the fall of 1992, Pennsylvania manufacturing company, Arbogast General Company, removed an old underground storage tank that was used to store #6 fuel oil.

PROBLEM(S): During the removal it was discovered that the tank had been leaking. Approximately 650 cubic yards of contaminated soil were removed and stock piled. The soil was tested for total petroleum hydrocarbons (TPH) using EPA method 418.1 and was found to exceed state standards.

TREATMENT: In the summer of 1993, five landfarming bio cells were constructed. The contaminated soil was placed into cells to a depth of approximately one foot. In late July of 1993, M-1000H*™ biological culture product, OSNF#1™ nutrients and water were sprayed onto the soil which was then covered with black plastic sheeting. The soil was not tiled or mixed. Maintenance of the bio cells consisted only of moisture control and TPH analysis. The initial values of bio cells from composite samples consisted of 3112 mg/kg (cell 1), 4028 mg/kg (cell 2), 1747 mg/kg (cell 3), and 1803 mg/kg (cell 4) and 1856 mg/kg (cell 5).

RESULTS: In August, 1994, the readings on the cells from composite samples were as follows: 50 mg/kg (cell 1), 45 mg/kg (cell 2), 28 mg/kg (cell 3), 54 mg/kg (cell 4) and 33 mg/kg (cell 5). In December of 1994, the State of Pennsylvania allowed the closure of the bio cells. The cells were dismantled and the soil was allowed to be used as fill on site.

CONCLUSION: Biological treatment programs can accomplish environmental restoration of hydrocarbon spills without excess tilling, water and nutrient addition and other manipulations.