Memorandum

To Paul M. Smith, Alameda County Department of Environmental Health

From Douglas W. Lovell

Copies Linda Cademartori

Date 15 February 1991

Subject Potential Insitu Bioremediation
Cademartori Trucking Facility
1833 Peralta Street
Oakland CA

Project No. P15

In accordance with our telephone conversation of 13 February 1991, this memorandum describes the treatment measures under consideration by Cademartori Trucking at the subject facility.

Recently completed overexcavation (January 1991) has removed contaminated soil discovered during tank removal (July 1990). To provide for the soil removal, water contained within the excavations was pumped and disposed of at H&H Environmental Services. Although we believe these activities were effective in removing contamination source areas, there may be some low-level residual groundwater contamination. This suspect contamination has not been recently sampled, nor do we recommend sampling from within the excavations because of the planned monitoring wells.

If this suspect contamination is cost-effectively treated, planned groundwater monitoring may more conclusively show adequate source removal, allowing case closure earlier instead of later. Also, if this suspect contamination is cost-effectively treated, backfill soil will not be contaminated upon placement within the excavation, below the groundwater table. Because the potential benefits of treatment are limited, the expense of treatment should be commensurately limited. Our judgement indicates an appropriate effort for the subject facility may expend several-hundred dollars. We have recommended that Cademartori Trucking consider the following biotreatment approach which has a reasonable probability of achieving the treatment objective while maintaining economy.

Oxygen will be added to the excavation water via direct addition of a solution of concentrated hydrogen peroxide (35% solution in water). Most bacteria are able to use hydrogen peroxide as an oxygen source via enzymes such as catalase. Approximately 55 gallons of solution will be added to the water within the excavations (±10,000 gallons) and agitated (stirred) to facilitate mixing. The addition will raise the dissolved oxygen level to approximately 8 mg/L, close to saturation. The residual hydrogen peroxide level will be below 2,000 ppm, a commonly-accepted threshold for biotoxicity. The initial hydrogen peroxide reaction will require approximately 2 hours, during which time some of the native bacteria within the excavation water will likely be oxidized (killed), and after which time inoculated bacteria are expected to survive.

The oxygenated water will then be inoculated with a commercial strain of adapted bacteria (such as Formulation L-104 from Solmar Corporation). Approximately 10 pounds of dried bacteria will be regenerated in 50 gallons of water and then added to the water within the excavations. The water will then be agitated to facilitate mixing. Depending on existing levels of nitrogen and phosphorous within the excavation water, a commercial fertilizer (such as Miracle Grow with

nitrogen content - ammonium salts - approximately 3 times phosphorous content - phosphate salts) may also be added and agitated to provide nutrients for the inoculated bacterial population. Fertilizer will be added if nutrient levels are below 1 ppm, as measured by field test kit. The amount of fertilizer will be added to boost nutrient levels to approximately 2 ppm.

The excavations will then be closed, the area paved, and planned groundwater monitoring activities conducted.

There is not an established need for groundwater remediation at the subject facility and Cademartori Trucking is considering the bioremediation option as a good-faith measure to facilitate treatment. It is likely that additional administrative or testing requirements, that you may want to impose or that we may wish to implement from a scientific viewpoint, will render the contemplated remediation too costly (given the present circumstances).

Standard Industrial and Commercial Business Inspection Report - Attachment A

Facility ID #: 375

Page ___ of

MAP INFORMATION

TYPE _____

NUMBER _____

SCALE 1" = 100'

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

FACILITY

COUNTY

DATE: 6/20/94 | DRAWN: | CHECKED:

CADEMARTORI TRUCKING, INC.
1833 PERALTA ST.
OAKLAND 94607