



Innovative Soil Decontamination

Problem

An East Coast chemical company suffered an accidental rupture of two tanks containing approximately 1500 tons of chlorinated benzenes. The contents of the tank flowed down a hill into a tidal water bay. Weston Services was called to contain the spill. To prevent further spread of the benzenes into the bay, a dam was built part way down the hill from the tanks and a filter was installed into the bay.

Contaminated soil between the dam and the fence was removed, but the dredging was difficult to operate in the marshy shore where much of the chemical had accumulated in suspension or as a crusty deposit. A means of fast and effective soil and water decontamination was needed.

Solution

Belpar Environmental was retained to clean up the site. They tested twelve different products, mostly polymers, for soil decontamination and containment removal. Only one product was found to produce the desired results. ECA* 10, a uniquely formulated reverse demulsifier, rapidly destabilized the chemical dispersion and "washed" the soil particles at a concentration of 300-700 ppm.

A boat mounted, rotating dredge pumped 10, 000 cubic yards of contaminated soil and water through an eight-inch, 2000 foot long pipe to an impoundment located at the top of the incline. The HPD-lined impoundment was used for settling. ECA 10 was transfer-injected into the pipe where it acted instantly and caused the solids to settle rapidly to the bottom.

There was no need for pH adjustment, elaborate mixing, or enhancement of particle settling with ECA 10.

Results

430,000 gallons per day of dredged material were treated with ECA 10. The concentration of benzenes was reduced dramatically:

	ppm before	ppm after
[1,4-dichlorobenzene]	100	14.0
[1,2,4-trichlorobenzene]	42	2.5

The ECA 10 worked so effectively that the operators were able to optimize the level to 300 ppm from 700 ppm and were still able to meet or exceed lab results.

The decontaminated water was returned to the bay after verification for purity. The operators performing the cleanup task observed that the soil had indeed been successfully decontaminated. The higher gravity of the benzenes relative to the water allowed it to settle out of the water on top of the decontaminated soil. The top layer of soil containing the benzenes has yet to be disposed of. If the contaminant had been lighter than the water, the soil would have been suitable for replacing in the original site.

Success Hint

The combined skills of scientists and engineers, especially on the part of Belpar Environmental should be noted. Their recognition of the outstanding properties of ECA 10, and their diligence in applying it according to the unique expertise of Emulsions Control, Inc. have made it possible to solve a difficult environmental problem ingeniously and skillfully.