



Bioremediation Project Experience The Furniture House – UST Cleanup

Project Description

During the removal of three underground storage tanks in 1987, extensive soil contamination was discovered that extended under a building located next to the tanks. The extent of the groundwater and soil contamination was determined and a treatment program was developed to treat the waste that was patented as a result of the success of this project.

Excavated soil on the outside of the building was treated *ex-situ* by applying microbes to the soil stockpile and occasionally turning the soil pile. The soil and groundwater under the building was treated *in-situ* by drilling 4-inch wells on five-foot centers inside the building to below the contaminated strata. Inside each boring, a 1½-inch perforated pipe was installed with a ½-inch solid pipe to the bottom of the wells. The microbial solution was applied through the ½-inch pipe around the perimeter of plume to prevent migration away from the site. Oxygen levels in the soil and groundwater necessary to support aerobic microbial activity were maintained by intermittently injecting air through diffusers set in the wells.

Remedial Time Frame

The time from the beginning of construction to completion of treatment was 120 days. The County of Santa Barbara Health Department, who oversaw the entire project, approved the soil for backfill at the site.

Analytical Results

Both the in-situ and ex-situ treatments were successful in treating the contaminated soil. The innovative approach saved the client from expensive excavation under the building and off-site disposal.

The Furniture House Analytical Data

Contaminant	Initial (mg/kg)	<i>ex-situ</i> Final (mg/kg)	<i>in-situ</i> Final (mg/kg)
TPH - Gasoline	3,700	0.6	1.1
Benzene	6.7	< 0.001	< 0.005
Toluene	51	0.001	< 0.005
Ethylbenzene	28	< 0.001	< 0.005
Xylene	67	0.003	< 0.005

