

PROJECT SNAPSHOT

Thermally Enhanced Bioremediation for Xylene Using Thermal Conduction Heating to 35°C

TCH

Location: New York

Client: Confidential

Contamination: Xylenes, Ethylbenzene,
Toluene and Naphthalene

Volume: 17,611 cy

Goal: Reduce soil concentrations of all
COCs to below 1000 mg/kg

Number of Heaters: 143

Duration: 18 months of operation

Mass Removed: 3,651 lbs.

WHAT MAKES THIS PROJECT UNIQUE?

This project demonstrated how thermal conduction heating (TCH) was very effective in heating the subsurface to a modest temperature in the 30-40°C range, and to stimulate biological degradation. Combined with a targeted investigation of permeability, and a system to deliver oxygen for the aerobic reactions, very substantial rates of biodegradation, and eventually site closure, was attained.

Important Project Details

- **Approach:** To stimulate biological degradation, oxygen needed to be delivered to the target volume, and gentle heating to temperatures between 30 and 40°C was shown to greatly enhance rates. The subsurface was heated while air was pulled into the xylene-rich zones, facilitating bioremediation. Interim soil sampling was used to track the progress
- **Challenges:** The first interim soil sampling round revealed that the goals had been met in more than 75% of the volume, with two hotspots remaining – xylene concentrations remained above 1,000 mg/kg. System enhancements were made to improve the distribution of heat – and more time allowed for the remediation.
- **Results:** Subsequent soil sampling events in the two smaller areas showed significant progress towards the goals, and eventually the completion of the remedy.



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