

# Ohio Brownfield Site Receives “No Further Action” Status within One Year of Implementation

NFA status granted on Clean Ohio Revitalization Fund (CORF) Project

## Project Highlights

- Combined remedy approach allowed for immediate redevelopment within same year of implementation
- Efficiencies resulted in vapor intrusion mitigation cost of \$3.34 per sq. ft., with no long term operation and maintenance required
- Cost for groundwater treatment approximately \$10 per cubic yard (product + application)

## Project Summary

A former industrial magnet manufacturing facility in Ohio received a \$2.34 million Clean Ohio Revitalization Fund (CORF) grant through the Ohio Department of Development in 2011. Site investigation activities identified chlorinated VOC's in groundwater and vapors above the state standards, requiring remediation. Enhanced Reductive Dechlorination, using 3D Micro-Emulsion®, and BDI-Plus® were implemented within the defined 24,000 sq. ft. treatment area via direct push injection.

This work was conducted in the Spring of 2012. In the Fall of 2012, the Geo-Seal® Vapor barrier system was installed below a 15,522 sq. ft. apartment complex raised at the site. Utilizing a combined approach of enhanced reductive dechlorination with vapor mitigation addressed the immediate risk of vapor intrusion, in addition to the long term risk of groundwater impacts. By implementing this strategy, the site was allowed to be redeveloped as an apartment complex roughly 6 months following the groundwater treatment. The cost for groundwater treatment was approximately \$10/cy (product + application) and Geo-Seal was \$3.34/sq. ft. (product + installation).

## Technology Description

BDI Plus is an enriched, natural microbial consortium containing species of Dehalococcoides sp. (DHC) which are capable of completely dechlorinating contaminants during *in situ* anaerobic bioremediation processes.

3-D Microemulsion is a wide-area distribution, staged release, electron donor emulsion for the optimized enhanced anaerobic biodegradation of chlorinated compounds. Geo-Seal is a composite system that creates the ideal blend between constructability and chemical resistance by using both high density polyethylene (HDPE) and spray-applied asphalt latex.

## Results

Housing developers face many considerations, including approvals for land excavation and required building permits. By implementing a combined remedy approach, consisting of enhanced reductive dechlorination with vapor mitigation, this site was able to qualify for NFA status in less than a year, allowing the developer to begin new construction without further delay.



## Site Details

**Site Type:** Manufacturing

**Contaminant of Concern:** Chlorinateds (PCE, TCE, c-DCE, VC)

**Concentration:** Groundwater TCE-120 ug/L, Cis-DCE-1,300 ug/L, VC 190 ug/L

**Remediation Approach:** Combined Remedy

**Soil Type:** Clay with interbedded sand layers

**Technology Used:**



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