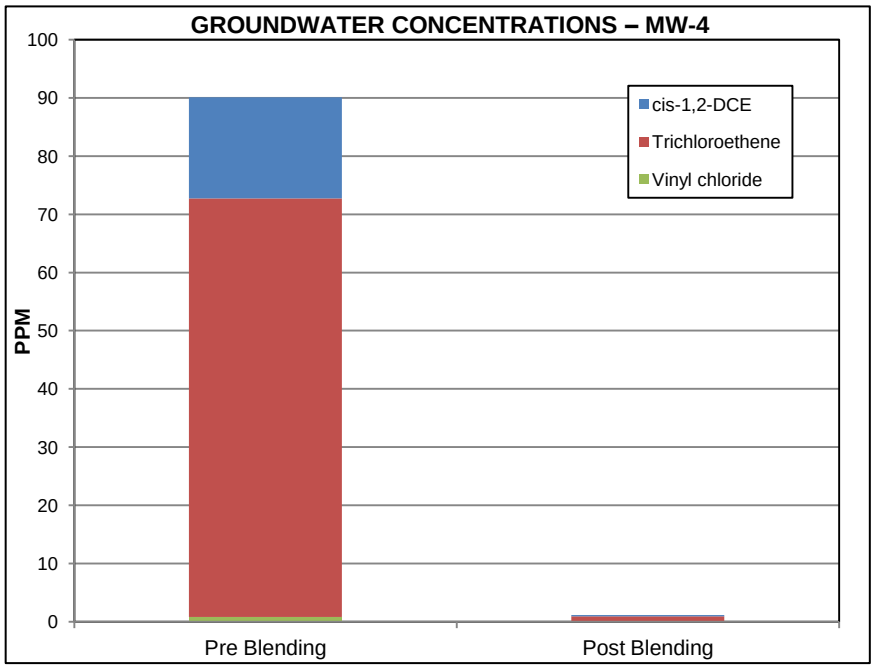
Brownfield Site
Cullman, AL

Exo Tech performed an innovative In-Situ soil blending treatment at a Brownfield site developed by the City of Cullman. The site was formerly used by a drum manufacturer and contained a mixture of chlorinated solvent VOCs (PCE, TCE, etc.) and petroleum VOCs in the vadose zone soils and shallow groundwater. Goodwyn, Mills, & Cawood (GMC) performed an assessment which identified a 4,500 square foot source area contaminated from approximately 2 to 12 feet with a maximum of 180 ppm of trichloroethene (TCE), 6.6 ppm of cis-1,2-dichloroethene (DCE) and lesser concentrations of vinyl chloride, tetrachloroethene, xylenes, ethylbenzene, and related VOCs. Impacted soils were identified as silty-clay loam underlain by clay and weathered shale bedrock. Dissolved TCE and DCE were identified above the shallow shale bedrock at concentrations of 49,000 ppb and 17,000 ppb, respectively. In order to select the most effective oxidant and dose for soil blending, Exo Tech performed a treatability study. Preliminary evaluation indicated that due to the high clay content and other factors, lime activated sodium persulfate would provide the most effective oxidation treatment. The study evaluated 0.5%, 1%, and 2% doses of lime activated persulfate. After 16 days of expedited treatment the most effective treatment was the 2% dose.

In December 2011-January 2012, Exo Tech treated approximately 1,500 tons of impacted soils in-place. Due to the high clay content in the soil matrix, additional lime was utilized for soil conditioning prior to oxidant blending. The results of confirmatory sampling indicate VOC concentrations were reduced to non-detect levels above and below the water table (see graph below). No Further Action is pending regulatory review.



Exo Tech Soil Blending Head

Lime Activated Soil

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