Gasoline Station BTEX Remediation
Muskegon, Michigan

Accelerated Remediation Technologies, Inc. (ART) in-situ treatment technologies were selected by MACTEC Engineering & Consulting, Inc. (MACTEC) to remedy groundwater impacted with BTEX, at a site in Muskegon, Michigan. A pump & treat (P&T) system has been operating at the site for approximately 10 years. The P&T system was not adequate to reduce contaminant levels to applicable regulatory criteria in a timely manner. MACTEC evaluated numerous remedial alternatives and identified the ART Technology as the most promising and cost effective remedy to achieve two objectives: (1) source area contaminant reduction and (2) prevention of contaminant migration. A total of seven, 6-inch ART wells were installed to treat impacted water.

Site Description: The site is an active gasoline service station with a confirmed petroleum release from underground storage tanks. Subsurface at the site consists of sand deposits. Hydraulic conductivity was estimated to be approximately 10^{-2} cm/sec. Depth to groundwater at the site is approximately 10 feet below grade surface (bgs).

The ART Technology was installed in two separate areas. Four ART wells were installed in the hot zone (source area) and three wells were positioned near the downgradient boundary of the site. The ART wells were completed to a total depth of 55 feet bgs. Mactec monitored several parameters including contaminant concentrations in extracted vapor, dissolved oxygen (DO) in monitoring wells along with BTEX compounds. Based on DO and BTEX concentration changes along with other parameters, it was determined that the ART wells radius of influence ranged between 50 and 70 feet. The ART Technology combines vapor extraction, in-well air sparging, in-well air stripping, bioremediation, flushing and other processes applied synergistically to treat contaminants simultaneously.

Summary: The objectives of these installations included contaminant mass reduction, but the main focus was to prevent migration of contaminants to off-site locations. ***Within 6 months of the startup of the ART System, down-gradient concentrations decreased to below detection levels in all down-gradient wells. Thus, migration of contaminants was eliminated without the need for pumping massive amounts of contaminated water and associated remediation and disposal costs.***

For additional information, please contact:

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