

# MUNDELL & ASSOCIATES, INC.

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## CASE HISTORY

### Air Sparging and Soil Venting Provides Rapid Cleanup at Heavily Impacted Petroleum Site

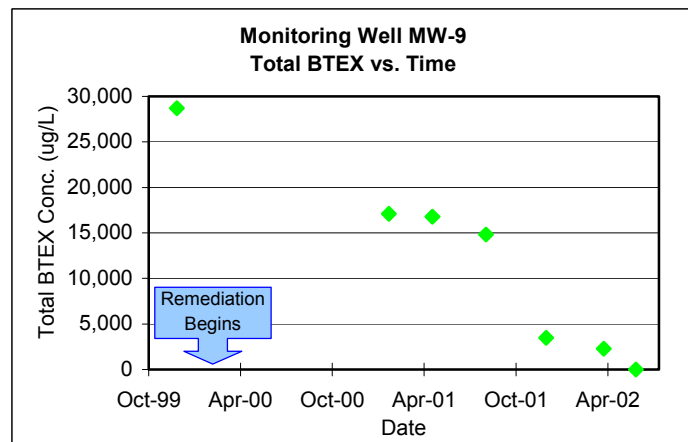
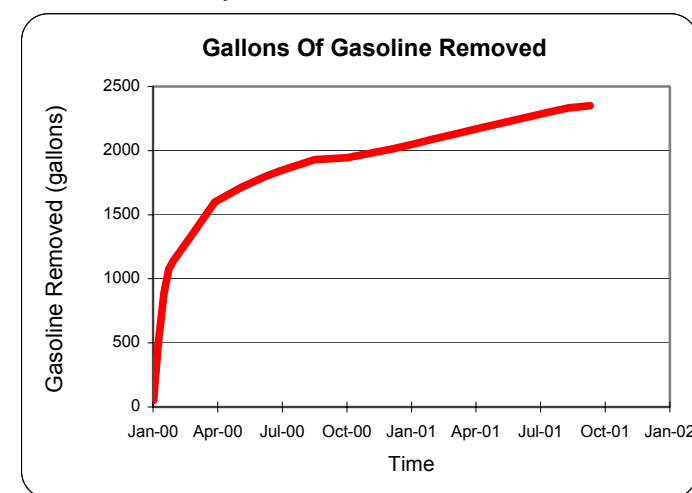
#### Challenge:

A regional petroleum retailer closed a facility that had been in continuous operation since the late 1940's. A total of 13 underground fuel storage tanks were removed from the site, including several which were installed when the site was originally developed. Both soil and groundwater beneath the site were significantly impacted with petroleum hydrocarbons. A limited amount of separate-phase hydrocarbons were present on the groundwater surface. A dissolved benzene plume had migrated off-site. Concentrations of benzene in the groundwater were greater than 7,000 micrograms per liter in one on-site well. Concentrations of TPH in the

soils exceeded several thousand parts per million. Because of the presence of separate-phase hydrocarbons and the off-site migration of impacted groundwater, the Indiana Department of Environmental Management (IDEM) ranked the site as a 'high priority' requiring soil and groundwater remediation. MUNDELL was contracted by the site owner to evaluate the site, and recommend cost-effective remedial alternatives.

#### Action:

MUNDELL personnel initially utilized a mobile dual-phase vacuum system to recover separate-phase hydrocarbons from selected monitoring wells. Once the separate-phase hydrocarbon levels had been reduced, MUNDELL personnel designed and installed an aggressive air-sparging/soil vapor extraction system to remediate the groundwater and soil beneath the site. The system consisted of 20 air sparging wells and 7 soil vapor extraction wells connected by manifolds to an on-site treatment trailer.



Because the site was located in a mixed commercial/residential neighborhood, the system was designed to produce minimal noise emissions.

#### Results:

During the initial start-up phase of operation in January 2000 the air sparging/soil venting system removed hydrocarbons at a rate of 105 tons/year. This removal rate decreased steadily over the system's operational life, as expected. Upon IDEM approval, the system was shutdown in October of 2001 after removing more than 15,000 pounds of hydrocarbons from the subsurface. MUNDELL is in the process of obtaining a final closure agreement from IDEM for this site.