

**NOVEL TREATMENT APPROACH: IN-SITU CHEMICAL OXIDATION
COMBINED WITH ENHANCED AEROBIC BIOREMEDIATION**

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Combining chemical oxidation and enhanced bioremediation can be particularly effective in subsurface treatment and provides a cost-effective approach to high concentration plumes. This combined method can result in expedited remediation over various stand-alone technologies. Petroleum hydrocarbon contamination was discovered during the excavation of leaking underground storage tanks. Sampling from downgradient well MW-2 revealed a benzene concentration of 2.4 parts per million (ppm), a level in excess of the regulatory limit. To reduce benzene concentrations, a combined strategy using chemical oxidation and enhanced aerobic bioremediation was implemented. This approach was designed to quickly and efficiently chemically oxidize the heavier contamination using RegenOx™ then apply ORC Advanced® to promote the enhanced aerobic biodegradation of any residual contamination. RegenOx™ was applied in January 2006 around well MW-2, followed by ORC Advanced in late February 2006. Within 6 months, benzene was reduced below the cleanup goal of 0.99 ppm. A second, smaller application which combined RegenOx™ and ORC Advanced in a single injection was performed around MW-2 in October 2006. This approach was deployed to mitigate the risk of re-contamination and treat a small amount of weathered gasoline. By April 2007, benzene was reduced by more than 99% in well MW-2. A request for site closure is planned after further monitoring has been completed. The site is currently being prepared for redevelopment. Design features of successful combined chemical oxidation and enhanced bioremediation are discussed.

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