

**CHEMICAL OXIDATION AND BIOSTIMULATION ACHIEVES SIGNIFICANT
PLUME REDUCTION WITH SINGLE AMENDMENT APPLICATION**

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A coupled chemical oxidation and biostimulation or “chem-bio” treatment was applied to an active petroleum service station site in the coastal plain of Florida, USA. A historic release of gasoline affected a 1,550-square-meter area and a volume of 9,600 cubic meters of a sandy aquifer. A layer (3 centimeter maximum) of LNAPL was present in a 56-square-meter area. Klozur® CR (5384 kg) was applied to the source area (450 square meters) and PermeOx® Plus (2455 kg) was applied to the balance of the plume as aqueous slurries using temporary direct push points to a maximum depth of 55 feet below ground surface.

Significant treatment was achieved. Three months post-amendment application, the size of the plume area was reduced by 70 percent and MCL remediation goals were achieved within the PermeOx® application area. Initial results in the Klozur® CR application area showed near complete treatment of lighter hydrocarbons, and higher concentrations of heavier hydrocarbons which is likely attributable to high-pH induced desorption from soils or dissolution from the NAPL.

Advanced diagnostic tools (DNA/RNA qPCR and CSIA) were used to monitor contaminant destruction and to identify biologically-mediated mechanisms responsible for contaminant destruction.

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