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# PROJECT DESCRIPTION

## IN-SITU CHEMICAL OXIDATION

### *Pipeline Release Threatening a Nearby Creek Kentwood, Louisiana*

#### **INTRODUCTION**

MEC<sup>X</sup>, LLC (MECX) performed an in-situ chemical oxidation (ISCO) application at a pipeline site in Kentwood, Louisiana. The site was located in a remote part of Louisiana, adjacent to a major four-lane highway. A repair coupling in a refined products pipeline developed a leak after several years of service and threatened a nearby creek and wildlife. Non-aqueous phase liquid (NAPL) was identified at thicknesses ranging from 0.1 to greater than 1 feet thick in addition to high concentrations of dissolved petroleum hydrocarbons. Due to the proximity of the contamination to the creek, a rapid and effective in-situ chemical oxidation remediation solution was selected to prevent further migration.



#### **PROJECT BACKGROUND**

The target remediation zone was located between approximately 7 to 13 feet below grade surface and the groundwater dissolved plume/saturated zone covered approximately 30,000 square feet. Logistical challenges that the remote location posed included the lack of electric power, lack of potable water and access for chemical delivery to the site. MECX overcame the logistical challenges by renting a farm house (located approximately 1 mile away from the site) with a potable water well and an all-terrain fork lift to transport diluted reagents from the farm house to the site.

#### **REMEDICATION SOLUTION**

MECX's ISCO process for the site included the application of low concentration hydrogen peroxide and ferrous for the high-energy desorption of contaminants in the saturated zone and for activation of sodium persulfate (Klozur<sup>®</sup>), a slow-release oxidant which is activated by ferrous, hydrogen peroxide and heat. Prior to field activities, MECX performed a design parameter evaluation in a laboratory setting prior to field application and achieved an average contaminant reduction of 96.8% to 100% in groundwater and 84.6% to 100% in soil.



#### **REMEDICATION EFFECTIVENESS**

MECX successfully eliminated measurable NAPL in perimeter monitoring wells 4 months after completion of application, as depicted below. Furthermore, post-application sampling showed an average of 83% decrease in benzene concentrations (target compound) within 4 months and an overall total petroleum hydrocarbon reduction of 70% only 4 months after application completion.

