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# PROJECT DESCRIPTION

## IN-SITU CHEMICAL OXIDATION

### Transfer Pipe Release at Bulk Storage Terminal Dallas/Fort Worth Area, Texas

#### INTRODUCTION

MEC<sup>X</sup>, LLC (MECX) performed an in-situ chemical oxidation (ISCO) application at a fuel bulk storage terminal located northwest of Dallas, Texas. An underground transfer pipe associated with a fuel storage tank was suspected to have leaked and was subsequently cleaned and abandoned in-place. Non-aqueous phase liquid (NAPL) and high concentrations of dissolved petroleum hydrocarbon constituents including methyl tert-butyl ether (MTBE) benzene, toluene, ethyl-benzene, xylene (BTEX) and were identified. Rather than excavate affected soils, near utilities, and compromise the tank berm and floor, a rapid and effective in-situ chemical oxidation remediation solution was selected to remove the source area (i.e. NAPL) and reduce the BTEX and MTBE levels.



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#### PROJECT BACKGROUND

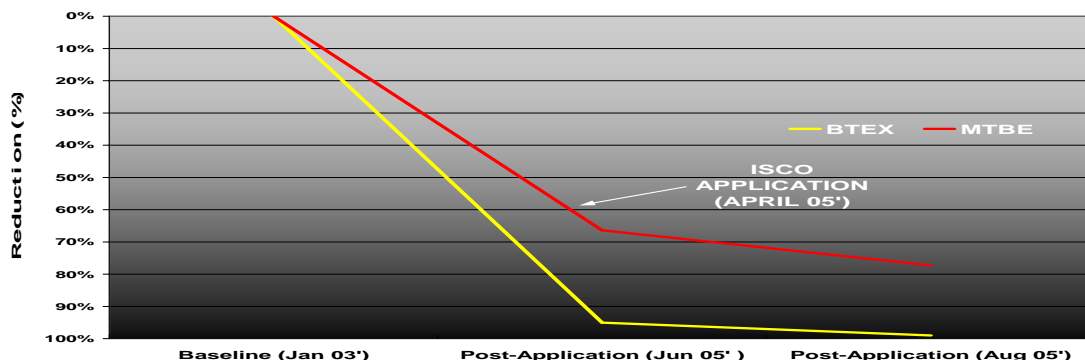
The target remediation zone was located between approximately 2 to 16 feet below grade surface (bgs) and the groundwater dissolved plume/saturated zone covered approximately 13,400 square feet with portions located inside and outside of the tank berm. Shallow lithology included silty clays with interbedded gravel seams. Logistical challenges included staging of equipment away from emergency right-of-ways and working at an active storage facility. MECX's versatile and scaleable chemical delivery system allowed configuration to meet the safety objectives while safely applying reagents to the affected area, while not interrupting ongoing site fueling activities.

#### REMEDIATION SOLUTION

MECX's ISCO process includes the application of low concentration hydrogen peroxide and ferrous for the high-energy desorption and some oxidation of contaminants in the saturated zone and for activation of sodium persulfate. Sodium persulfate is a slow-release oxidant that further oxidizes contaminants for 30 to 60 days after activation. Real-time monitoring of water quality parameters, including temperature, dissolved oxygen, pH, conductivity and oxidation/reduction potential were performed during the application to determine the effectiveness of the application and allow adjustments of reagents in the field.

#### REMEDIATION EFFECTIVENESS

MECX successfully eliminated NAPL and significantly reduced total BTEX by 95% within 1 month after the May 2005 application and to below detection levels after 3 months, as depicted below. Also, MTBE concentrations were reduced to by 66% 1 month after and 77% 3 months after the application.



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