



ISCO Pilot Program: Gasoline/Diesel Related Compounds

Site

- Utilities Authority, New Jersey.

Contaminants of Concern

- Toluene (87 ppb)
- Ethylbenzene (91 ppb)
- Xylenes (1,260 ppb)
- Naphthalene (27 ppb)

Geology/ Hydrology

- Sandy formation.
- Moderate to high permeability sand.
- Depth to water approximately 9-10 feet bgs.

ISCO Pilot Program

- Modified Fenton's Reagent (MFR).
- 1,000 sq. ft from 10-18 ft bgs.
- Two 5-day injection events.
- Injection wells.

Results

- All COCs were treated to below NJDEP groundwater criteria with VOCs reduced by 99% and base neutral compounds by 76%.

ISOTEC Case Study No. 9

ISCO PILOT PROGRAM: GASOLINE/DIESEL IMPACTED GROUNDWATER

Utilities Authority
Southern New Jersey

INTRODUCTION

Groundwater at the subject site was contaminated by diesel and gasoline products including volatile organic and base neutral compounds released from former underground storage tanks (USTs) at the site. Primary contaminants of concern were: **toluene, ethylbenzene, xylenes, naphthalene, and 2-methylnaphthalene.** In-situ chemical oxidation (ISCO) was evaluated as a remedial option to address the contaminants of concern. ISOTEC performed a **field pilot program** pursuant to a permit by rule issued by the New Jersey Department of Environmental Protection (NJDEP) for injection into a Class V aquifer. The area treated was approximately 1,000 sq. ft at an interval between 10-18 ft bgs.

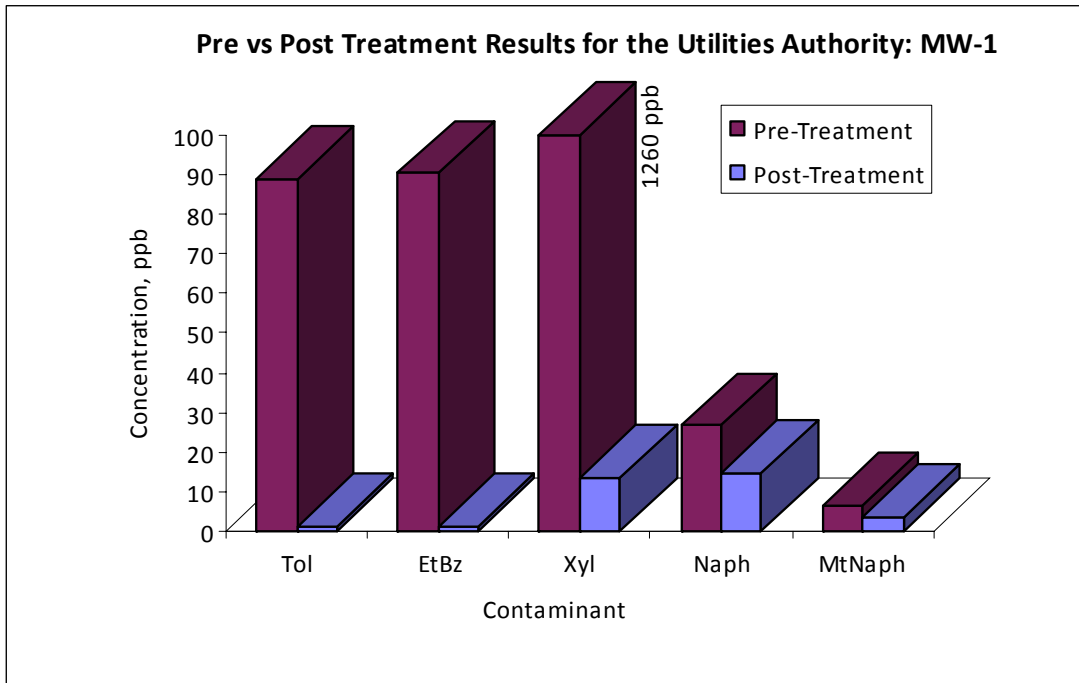
GEOLOGY

Site geology consists of moderate to high permeability sands. Groundwater was encountered at approximately 9-10 ft bgs.

ISCO PILOT PROGRAM AND IMPLEMENTATION

Field injections were performed utilizing two permanent injection wells for a total of five days over two separate events. Results indicated approximately **99% to 100%** destruction of volatile organic compounds and **46% to 76% destruction** of base neutral organic compounds including tentatively identified compounds. The entire treatment was completed for a cost of \$50,000, excluding analytical costs.

Alternative technologies considered for site remediation included Air Sparging/Natural Attenuation with associated costs estimated at \$150,000-\$200,000. The ISOTEC process was selected based on its low cost and client's preference to achieve a no restrictions case closure.



NOTES:

- (1) Tol = Toluene; EtBz = Ethylbenzene; Xyl = Total Xylenes; Naph = Naphthalene; and MtNaph = 2-Methyl Naphthalene
- (2) NJDEP groundwater quality criteria: toluene = 1,000 ppb; ethylbenzene = 700 ppb; xylenes = 1,000 ppb; and naphthalene = 300 ppb.