



ISCO Full Scale: BTEX Related Compounds

Site

- Former Sign Manufacturing Facility, Denver, Colorado.

Contaminants of Concern

- BTEX (Up to 24,595 ppb)

Geology/ Hydrology

- Confined clay layers with permeable sand lenses.

ISCO Treatment Program

- Modified Fenton's Reagent (MFR).
- 9,600 sq. ft area from 2-8 ft bgs.
- Three injection events.
- Injection trenches and wells.

Results

- Overall BTEX reduced from 24,595 ppb to 89 ppb.
- Each COC was treated to ND or well below its cleanup level throughout the plume.
- An **unrestricted No Further Action** letter was issued to the property.

ISOTEC Case Study No. 4

ISCO TREATMENT PROGRAM: BTEX IMPACTED GROUNDWATER

Former Sign Manufacturing Facility
Denver, Colorado

INTRODUCTION

ISOTEC was retained to remediate groundwater contamination at a former sign manufacturing facility in Denver, Colorado. Areas of environmental concern included discharges from former gasoline and fuel oil underground storage tanks. Groundwater was contaminated with high concentrations of gasoline constituents including **benzene, toluene, ethylbenzene and total xylenes (BTEX)**. ISOTEC secured approvals from the United States Environmental Protection Agency (USEPA) **Region VIII** to perform laboratory and field treatment programs at the site. The area treated was approximately 9,600 sq. ft at an interval between 2-8 ft bgs.

GEOLOGY

The site geology consisted of confined clay layers with permeable sand lenses.

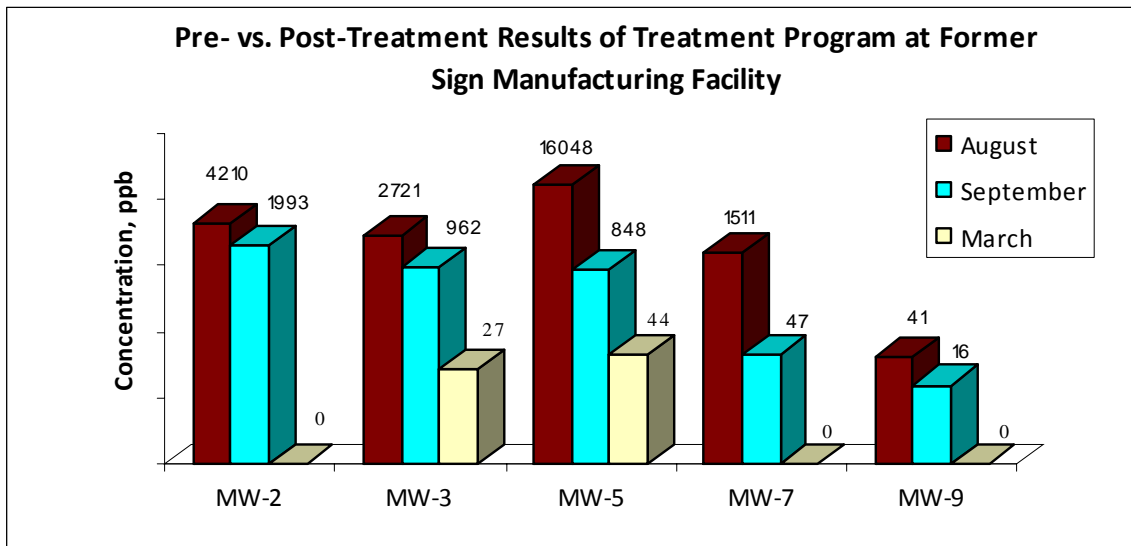
ISCO TREATMENT PROGRAM AND IMPLEMENTATION

Based on results of a bench-scale treatability study, a field treatment program was conducted using a network of injection trenches and permanent wells. **Field treatment program** achieved an overall **decrease in BTEX concentrations of over 99%** in groundwater following just three treatment applications. Total BTEX concentrations in groundwater reduced **from 24,595 ppb (pre) to 89 ppb (post)** within the entire contaminant plume. Individual contaminants were all treated to non-detect (**ND**) or **well below their regulatory requirements** at all monitoring points.

CURRENT PROJECT STATUS

Approximately **one-year after the treatment program** was implemented; the property owner received an **unrestricted No Further Action** letter from the State of Colorado.

Based on results of the ISOTEC program, a pending **real estate transaction of the property was completed.**



NOTES:

- (1) Colorado groundwater quality criteria: Benzene = 5ppb; Toluene = 1,000ppb; Ethylbenzene = 680ppb; and Xylene = 10,000ppb.
- (2) August concentrations represent baseline values.
- (3) September concentrations are approximately 4 weeks after initial application was completed.
- (4) March concentrations are approximately 4 weeks after final application was completed.