



E-REDOX[®] CURRENT PROJECT SUMMARY: *IN SITU* REDUCTION AND MASS REMOVAL OF CHLORINATED SOLVENTS IN GROUNDWATER

Location: Former industrial site at a confidential location in the southeast US

Contaminated Matrix: Groundwater and saturated soil

Primary Contaminants of Concern: Chlorinated ethenes

Project Objective: Full-scale enhancement of *in situ* contaminant reduction and mass removal using E-Redox[®] technology coupled with dual-phase extraction (DPE)

Case Study Description & Results: A full-scale implementation of E-Redox[®] systems was conducted at a former industrial site in the southeast United States (US), where subsurface soil and groundwater are contaminated with chlorinated VOCs (CVOCs). After two weeks of operation, substantial desorption and back-diffusion were observed in locations with historically low, yet persistent CVOC concentrations. In one example well, the CVOC concentration was 12 mg/L before E-Redox[®] operation (Figure 1, *left*). CVOCs concentrations increased to 50,000 mg/L after 26 weeks of operation. When CVOC levels peaked, the E-Redox[®] system polarities were switched to initiate and sustain reductive degradation, which decreased the concentration of CVOCs sharply to near non-detect level within three weeks. This demonstrated that one electrode polarity works on CVOC back-diffusion and desorption while the opposite polarity achieves contaminant destruction through a combination of abiotic and biological reductive dechlorination. Currently, a DPE system has been installed onsite for CVOC mass removal that is enhanced by E-Redox[®] technology. Overall, the total CVOC concentrations are decreasing with the combined enhancement of contaminant reduction and mass removal (see Figure 1, *right*).

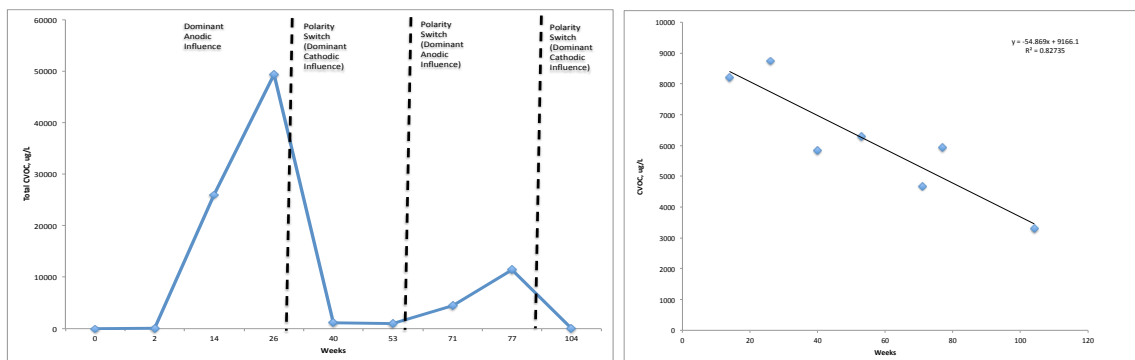


Figure 1. Chlorinated VOCs concentration change in a representative well (*left*), and the overall site chlorinated VOCs concentrations (*right*).