CASE STUDY: E-REDOX®-O (OXIDATION) ENHANCEMENT OF IN SITU BIODEGRADATION OF BENZENE AT AN ACTIVE FUEL STATION

Location: An active fuel station in Littleton, CO
Contaminated Matrix: Groundwater and saturated soil
Primary Contaminants of Concern: Benzene and TPH
Project Objective: In situ degradation of BTEX contaminants at an operating fuel station by applying E-Redox®-O (oxidation) technology

Eight (8) E-Redox®-O (oxidation) units were installed in groundwater wells (2") at an active fuel station with a total area of approximately 37,500 ft^2. The units were strategically installed throughout the locations of the predetermined contaminant plumes within the property, and operated continuously with ZERO energy input. After 4 months of operation, approximately 93% of benzene was degraded at the site (see figure below). After the benzene was degraded to below or near the detection limits, three E-Redox® units were moved from the "treated" locations to newly identified plume areas to continue operation. Electrical voltage was generated in all E-Redox® units since installation, ranging from 30 to 180 mV. The voltage profiles served as a convenient tool for real-time monitoring of the E-Redox®-O units performance and biodegradative activity in groundwater in general without the use of groundwater sampling.

Overall, the implementation of E-Redox®-O technology at this site has achieved a substantial reduction of overall benzene concentrations in the groundwater. The site is currently under post-remediation monitoring for closure.

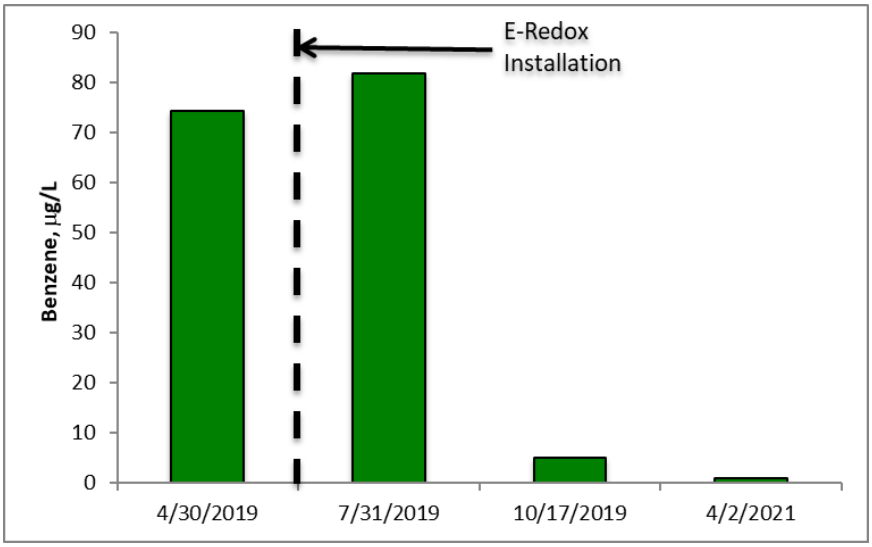

Figure 2.1. Overall benzene concentrations in groundwater