

**IN-SITU CHEMICAL OXIDATION  
XYLENE NON-AQUEOUS PHASE LIQUID (BRAZIL)**

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## **ABSTRACT**

Elimination of non-aqueous phase liquid (NAPL) using chemical oxidation is a viable and effective approach when the appropriate sequence and reagents are used. Specifically, NAPL has to first be converted to the dissolved phase, where it can then be readily oxidized by an aggressive chemical oxidation.

Another key consideration for the effective use of in-situ chemical oxidation (ISCO), is the effective distribution of reagents in the target treatment zone. Given the heterogeneous nature and/or low permeability of some soils, reagent distribution is the biggest hurdle to overcome on most ISCO projects. Groundwater recirculation during ISCO applications has proven effective at enhancing and controlling ISCO reagents. Groundwater flow can be altered to induce preferential flow and enhance the distribution of ISCO reagents during application with a close-loop recirculation approach.

A successful remediation project of solvents in groundwater was performed at an active chemical plant outside of Sao Paulo. ISCO rapidly desorbed/destroyed contaminant mass, including NAPL. ISCO using sodium persulfate activated by catalyzed hydrogen peroxide was designed and implemented. Groundwater recirculation was used to preferentially distribute chemical reagents to the target remediation zone. Solutions and results for the project will be discussed.

### **Presenter**

Isaac Aboulafia is a professional engineer with 20+ years experience in environmental remediation and consulting. He specializes in feasibility evaluation, design, cost-estimating, implementation and construction oversight of soil and groundwater remediation projects. He has expertise in soil and groundwater remediation projects utilizing innovative technologies such as in-situ chemical oxidation, bio-enhancements, enhanced soil vapor extraction, hydraulic removal/control and complicated engineered excavations. Mr. Aboulafia serves as MECX, LPs Chief Operations Officer (COO) and manages MECX's Remediation and Engineering Operations and staff. He also serves as the technical director for remediation services within MEC<sup>X</sup>, in which role he is responsible for evaluating/implementing new and emerging remedial technologies for the remediation of hazardous waste sites.

**Platform presentation preferred**