

# New Jersey Manufacturing Facility Achieves Non-Detect with PersulfOx® Application where Pump and Treat Solution Failed

PersulfOx® Application reduces 1,1-DCE and 1,4-Dioxane to below NJ Ground Water Quality Standards

## Project Highlights

- Replacing a costly pump and treat solution, REGENESIS® was able to efficiently inject PersulfOx® into bedrock, saving time and money
- Maximum 580 µg/L levels of 1,1-DCE and 1,4-dioxane within the source area reduced to non-detect
- Low-level concentrations of 1,1-DCE surrounding the original treatment area also reduced to non-detect

## Project Summary

A former manufacturing facility in New Jersey was contaminated with 1,1-dichloroethylene (1,1-DCE) and 1,4-dioxane in a fractured bedrock aquifer. The previous treatment approach utilized a pump and treat method that was successful at containing and reducing contaminant concentrations within the source area, but the associated off-site transportation and disposal of recovery water was expensive.

Historic concentrations for 1,1-DCE within the source area ranged from 43-580 µg/L, and concentrations outside of the immediate source area persisted at low levels above Ground Water Quality Standards. 1,4-dioxane concentrations within the source area peaked at 580 µg/L.

PersulfOx *in situ* chemical oxidation (ISCO) was selected as a lower-cost alternative to the pump and treat method and also as a way to address the diffuse contamination surrounding the immediate treatment area. After application of PersulfOx, both 1,1-DCE and 1,4-dioxane concentrations within the source area rapidly decreased below detection levels and remained non-detect. In addition, the low levels of 1,1-DCE surrounding the original treatment area were also reduced to non-detect. Quarterly groundwater sampling will continue to track treatment performance.

## Technology Description

PersulfOx is a sodium persulfate-based chemical oxidation technology that destroys both hydrocarbon and chlorinated solvent contaminants in the subsurface. PersulfOx contains a built-in catalyst that activates the persulfate component and generates contaminant-destroying free radicals without the need for the addition of a separate activator.

## Results

Application of PersulfOx resulted in the rapid reduction of source area 1,1-DCE and 1,4-dioxane concentrations to below detection limits. Low concentrations of 1,1-DCE surrounding the original treatment area were also reduced to non-detect. The concentrations of contaminants in both areas have remained below groundwater quality standards, meeting site requirements.



## Site Details

**Site Type:** Manufacturing

**Contaminant of Concern:** 1,1-DCE, 1,4-Dioxane

**Concentration:** 1,1-DCE: 530 µg/L  
1,4-Dioxane: 580 µg/L

**Remediation Approach:** *In Situ* Chemical Oxidation (ISCO)

**Soil Type:** Fractured Bedrock

**Technology Used:** **PERSULF** 

