



Contaminant Concentrations at an Active Gas Station Reduced by 90% Using PersulfOx® and ORC Advanced®

REGENESIS Uses an Outside-In Application to Push 30-Year Old LUST Case to Closure in Remote Region of Arizona

Project Highlights

- Innovative "Outside-In" approach incorporated injection design working from perimeter of the treatment area first, and progressively working toward the center
- First event application completed within seven days with a second event completed in nine days the following month without disruption to active site
- Closely managed injection wells to ensure proper distribution and avoid surfacing

Project Summary

An active gasoline station in Springerville, AZ was listed as a hazardous Leaking Underground Storage Tank (LUST) site by the state of Arizona. After 30 years of unsuccessful remediation using a number of approaches, REGENESIS Remediation Services (RRS) was contacted to perform two separate injection events approximately one month apart. Both events included injections at 15 injection points over a range of depths. The first round of injections included a combination of PersulfOx and ORC Advanced. The second round of injections contained only PersulfOx.

During both injections PersulfOx and ORC Advanced were successfully applied within the treatment area and at the targeted treatment interval of 18 to 60 ft. bgs. Low to moderate injection pressures and application flow rates were observed at each of the injection well locations, indicating good distribution of the amendments. Increases in dissolved oxygen, conductivity, pH, and oxidation-reduction potential were observed, indicating good distribution and influence of the PersulfOx and ORC Advanced remediation chemistry.

Technology Description

PersulfOx is an advanced *in situ* chemical oxidation (ISCO) reagent that destroys organic contaminants found in groundwater and soil through abiotic chemical oxidation reactions. It is an all-in-one product with a built-in catalyst which activates the sodium persulfate component and generates contaminant-destroying free radicals without the costly and potentially hazardous addition of a separate activator. The patented catalyst enhances the oxidative destruction of both petroleum hydrocarbons and chlorinated contaminants in the subsurface.

ORC Advanced is an engineered, oxygen release compound designed specifically for enhanced, *in situ* aerobic bioremediation of petroleum hydrocarbons in groundwater and saturated soils.

Results

Since the two injections have been completed, three rounds of groundwater monitoring have been performed. Benzene concentrations have been reduced by 90% to 20 µg/L. A closure request has been submitted by the client awaiting regulatory approval.



Site Details

Site Type: Gas Station

Contaminant of Concern: Benzene

Concentration: 2,000 µg/L

Remediation Approach: Injection well application into multi-screen intervals: 20-45' and 50-60' bgs.

Soil Type: Bedrock

Technology Used: ORC Advanced, PersulfOx

PERSULF Ox
Catalyzed Persulfate

ORC OXYGEN
RELEASE
COMPOUND