

**RegenesiS Remediation Services™ – PCE Plume Treated with 3-D Microemulsion®**

Combined Treatment Remedies Used to Reductively Dechlorinate Contamination at Former Dry Cleaners Site



*St. Louis, Missouri*

RegenesiS Remediation Services (RRS) was contracted to design and implement the treatment of groundwater contaminated by residual chlorinated volatile organic compounds (cVOCs) at this former dry cleaner site. The design included the use of 3-D Microemulsion® as a controlled-release electron donor and bioaugmentation using BDI® Plus. The treatment area covered approximately 600 square feet (ft<sup>2</sup>), and a total of 800 pounds of 3-D Microemulsion and 18 liters of BDI Plus with over 10<sup>11</sup> (Dehalococcoides) DHC cells per liter were injected throughout the treatment area in one day of work.

Taking advantage of 3-D Microemulsion's unique ability to distribute in the subsurface via micellar movement, twelve direct-push injection points were advanced every 50 ft<sup>2</sup>. RRS utilized retractable screen-tip injection tooling to apply the pH neutral 3-D Microemulsion with BDI Plus at discrete intervals across the injection vertical treatment interval from 6 to 13 feet below ground surface (bgs). The RRS trailer and equipment configuration allowed for low pressure application of the remediation chemistry while monitoring flow rates, reagent distribution, and injection pressures at each application point.

**Remediation Details:**

**Site Type:** Former Dry Cleaner

**Remediation Approaches:** Enhanced Reductive Dechlorination, Bioaugmentation

**Technologies:** 3-D Microemulsion, BDI Plus

**Geology:** Sand

**Medium:** Groundwater, Saturated Soil

**COCs:** Chlorinated VOCs

**Surficial Treatment:** 600 ft<sup>2</sup>

**Treatment Interval:** 6-13 ft. bgs

**Cubic Yards Treated:** 156

**Cost Per Cubic Yard:** \$107 applied

**About RRS:**

RegenesiS Remediation Services (RRS) is a dedicated team of scientists and engineers whose primary function is to provide environmental engineering and consulting firms with specialized groundwater and soil remediation planning, design, verification and application services.

This uniquely qualified group of remediation professionals combine excellence in field activity management and RegenesiS' class-leading technologies to bring sites to closure. RRS draws from REGENESIS' 19+ years of experience working with hundreds of leading environmental engineering firms on thousands of remediation projects around the world.