

# Distler Brickyard Residual Chloroethene Remediation Project

## Background

- Chloroethene source area (mainly TCE) is present in low permeability sediments.
- The objective of remediation activities is to clean up the source and prevent migration of contamination to underlying aquifer, which is a local drinking water source.
- The selected remediation technology must deal with the following constraints:
  - Contamination is present in low permeability sediments that undergo variable saturation in response to seasonal fluctuations
  - Available funding for remediation is limited.
- The selected approach enhances the formation permeability while simultaneously providing an electron donor for anaerobic reductive dechlorination (ARD).
- The technology uses hydraulic fracturing to create high permeability fractures; a solid electron donor, KLARIFY CTN™ chitin, is injected with sand into the fractures to enhance ARD.
- The technology is in situ, passive, and low maintenance.



## Project Status

### Accomplishments

- Three fractures with an effective radius of about 14 ft were created in the chloroethene source area.
- Propionate, a volatile fatty acid (VFA) produced from chitin and a high quality electron donor for ARD, was present at concentrations greater than 600 mg/L approximately 9 ft from the fracture well.
- The presence of VFAs immediately stimulated sulfate reduction and methanogenesis, creating the geochemical conditions favorable for ARD of chloroethenes. After 4 months, significant concentrations of VFAs persisted, indicating that chitin may be a relatively long-lived electron donor.
- The SBIR Phase II proposal for full implementation of this technology at the Distler Site is currently in preparation.

