

## **Site Goals Achieved in Two Months at a Santa Barbara Manufacturing Facility Using a Dispersive Colloidal Activated Carbon**

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**Background/Objectives.** A former manufacturing facility located in Santa Barbara, California has been an active PCE and TCE case with the Central Regional Water Quality Board (RWQCB) for over 30 years. The facility is located in a busy area of the city once used primarily for industrial and commercial manufacturing purposes, but recently has been transformed into an urban wine trail known as the “Funk Zone”. Since the late 1990s, assessments and remedial activities have been performed at the site. Previous remediation attempts were made through limited excavation and ISCO injections using permanganate, but were unsuccessful at achieving levels for closure. Due to development, the site required an aggressive approach to reach RWQCB clean-up goals prior to development. Colloidal activated carbon was chosen as the technology combined with enhanced reductive dechlorination versus permanganate in situ chemical oxidation approach.

**Approach/Activities.** Prior to implementation of a full-scale injection approach, a pre-field remediation test was implemented to confirm the technology can properly be applied and treat the residual PCE and TCE groundwater. Continuous cores were collected to identify the transmissive zones and high mass zones. In addition, a clear water injection test was performed to demonstrate that in situ injections were capable of achieving sufficient lateral distribution for full-scale implementation. This pre-field remediation test led to a revised full-scale injection plan, which reduced the project cost by 30%.

**Results/Lessons Learned.** In the 4,100 ft<sup>2</sup> area, PCE and TCE concentrations were reduced from 53 µg/L and 45 µg/L, respectively to clean-up goals set by the RWQCB. Closure has been requested and development is scheduled for early 2018. Total project time from injection to closure is estimated to be 15 months. Cost savings on the project for pre-field injection work is 30%, as the target treatment zone was reduced from 12 ft to 9 ft.