



Former Manufacturing Facility Santa Ana, California

Scope of Services Provided:

Multi Phase Extraction (MPE)	Vapor Phase Carbon
In-Situ Chemical Oxidation (ISCO)	Groundwater Monitoring
OSHA-Trained Personnel	<u>Fixed Price/Guaranteed to Closure</u>

Role: Team with Existing Consultant

Discussion:

Environmental Remediation Group (ERG) personnel designed, constructed, and operated an in situ direct chemical oxidation system combined with Multi Phase Extraction (MPE) for the remediation of chlorinated hydrocarbons in groundwater and soil at this site. The groundwater treatment system remediate's groundwater in-situ by use of continuous injection of oxidant to directly oxidize the contaminants in situ.

The sites soils had been excavated to approximately 20 feet removing the majority of the impacted soil. A slurry wall and pump and treat system was installed and operated by others. The pump and treat system was not able to reduce groundwater concentrations and future site construction/development required that remediation be complete in six months. ERG was called on to remediate site soils and groundwater to 0.5 mg/l in groundwater and 0.5 mg/kg in soil (total VOC's) in six months. The site was to be developed and the regulatory agencies would not allow development until remedial goals were met. Original groundwater concentrations were as high as 13,000 ppb total VOC's and the primary contaminant was TCE. ERG personnel accepted the challenge and guaranteed performance with a fixed bid.

Due to the required short remedial time frame, ERG after completing the remedial action plan (RAP), began in-situ treatment of groundwater using continuous air injection of hydrogen peroxide as the sole remedial technology. Following approval of the South Coast Air Quality Management District (SCAQMD) Permit to Construct ERG's personnel mobilized MPE equipment to combine and enhance the injection technology with MPE.

Following only four months of remedial operations the clean up objectives of the site were met. The regulatory agency soon approved closure of the site with no further remedial action required and the site was developed.