

SHANNON'S MARKET

COMBINED IN SITU REMEDIATION USING ISCO AND MPE

MERCED, CA

Summary –The relevant work performed includes preparation of environmental documents, Work Plan for Bench Scale testing of ISCO, Assessment Work Plan, Health and Safety Plan, O&M Plan, QA/QC Plans, Corrective Action Plan (CAP), Implementation of CAP, Perform construction, operation, maintenance, O&M related sampling, and monitoring of remediation system in accordance with local regulations and CERCLA. ERG also developed technical memorandum/reporting to regulatory agencies and client including inspection findings, modeling, sampling, testing, and reviews. Conducted evaluation of sampling strategy and operations to maximize program performance. Evaluated system design and optimized performance by implementing innovative technology enhancements. Provided technical and administrative support for public involvement activities. Conducted verification activities such as soil and groundwater sampling, soil gas sampling and reporting. Managed and disposed of wastes generated during performance of the project.

Sites contaminants include chrome, arsenic, MTBE, BTEX, PCE, Vinyl Chloride, free product. The site consisted of a dissolved phase benzene and MTBE plume extending down gradient 480 feet beneath residences and businesses. Free product was also trapped in the saturated zone beneath a low permeability layer. ERG conducted a review of an existing Air Sparging and SVE system to optimize performance and evaluate system design. Initial system optimization resulted in three orders of magnitude increase in mass removal and improved quality of operation. ERG's value engineering and performance review indicated that technology upgrades would optimize system performance, enhance efficiency, improve quality, and reduce life cycle costs. ERG implemented the technology enhancements by conducting bench tests for ISCO, performed pump and treat pilot test, and then designing, constructing, operating, sampling, and monitoring a soil and groundwater remediation system. Initial technology enhancements reduced in-situ groundwater concentrations by an average of 90% within 3 months. ERG also conducted groundwater sampling of 24 groundwater monitoring wells. The technical approach used a phased implementation of a combined remedy of MPE and ISCO. Free product recovery was completed near the source area. Remediation system included 750 scfm Thermal with 200 gpm GAC water treatment system. ERG maintained all interface with the regulatory agency including providing technical and administrative support for public meetings, and reporting.



COMBINED IN SITU REMEDY

Treatment Technologies:

Air Sparging,
Multi-Phase Extraction,
In Situ Chemical Oxidation

Contaminants:

MTBE
BTEX
PCE
Vinyl Chloride
(Comingled As NAPL)

Extraction System:

750-SCFM MPE System

Liquid Phase Treatment:

OWS separation, LPGAC
treatment

Vapor Phase Treatment:

Thermal Oxidizer with
VGAC

Project Costs:

\$805,000

