

# Remedial Investigation in Fractured Bedrock

- EXPERIENCE
- INTEGRITY
- SERVICE

California Superfund Site



HARGIS + ASSOCIATES, INC  
ENGINEERING • HYDROGEOLOGY

## **This California site had recycled spent industrial solvents and waste oils for the reclamation process.**

The property was designated a California State Superfund Site in 1984. Initial site investigations performed by a contractor for the California Department of Toxic Substances Control (DTSC) found the soil had been impacted by chlorinated solvents, heavy metals, and polychlorinated biphenyls (PCBs), and groundwater beneath and downgradient of the site was impacted by chlorinated solvents, including trichloroethylene (TCE) and tetrachloroethylene (PCE). The geologic setting is characterized by weathered granitic rock near the surface, with fractured bedrock below.

**Hargis + Associates, Inc. (Hargis)** was retained to conduct a Remedial Investigation (RI) to evaluate the extent of subsurface contaminants, and design and implement an interim groundwater treatment facility. The RI included geologic mapping, aerial photograph analysis, drilling and geophysical logging of exploratory soil borings, installation of monitor wells, groundwater monitoring, aquifer testing, soil sample collection, regional survey of domestic water supply wells, sediment sampling, surface water sampling, a biological survey, characterization, and disposal of on-site wastes in barrels and tanks, and preparation of a RI report. Hargis assisted with preparation of a FS including evaluation of Applicable or Relevant and Appropriate Requirements (ARARs). The RI was completed, a Remedial Action Plan (RAP) was approved by DTSC, and Hargis was

retained to perform the Remedial Design/Remedial action (RD/RA).

The scope of work for the RD/RA included design, installation, and implementation of a full-scale groundwater remediation facility consisting of a UV/Chemical Oxidation treatment unit, followed by liquid phase granular activated carbon (GAC) adsorbers, and the design, installation, and implementation of a soil vapor extraction (SVE) system. Hargis managed the excavation of PCB-impacted soil that was removed for off-site treatment and disposal and designed and facilitated the installation of a compacted soil cover. Hargis prepared a Sampling and Analysis Plan, a Monitoring Plan, Construction Quality Assurance Plan, and Contingency Plan for the construction activities to be performed, and obtained encroachment, excavation, grading, and traffic control permits. Hargis obtained an Authority to Construct and Operate permit from the County Air Pollution Control District for the SVE system, and an Industrial Waste Discharge permit for the discharge of treated groundwater to the sanitary sewer. Hargis is currently providing operation and maintenance services for both the soil and groundwater remediation systems at the site.

## KEY ACCOMPLISHMENTS

- Conducted a Remedial Investigation for a State Superfund Site.
- Implemented interim remedial action for groundwater impacted by chlorinated solvents.
- Prepared RAP and performed RD/RA.
- Conducted evaluation of Applicable or Relevant and Appropriate Requirements (ARARs).
- Designed, installed, and implemented full scale groundwater remediation facility and soil vapor extraction system.
- Providing operation & maintenance for groundwater and soil remediation systems.
- Conducted Remedy Review to assess the effectiveness of remediation systems.