

Multi-Source Soil and Groundwater Chlorinated Solvent Investigation, Vapor Intrusion Assessment, and Remediation

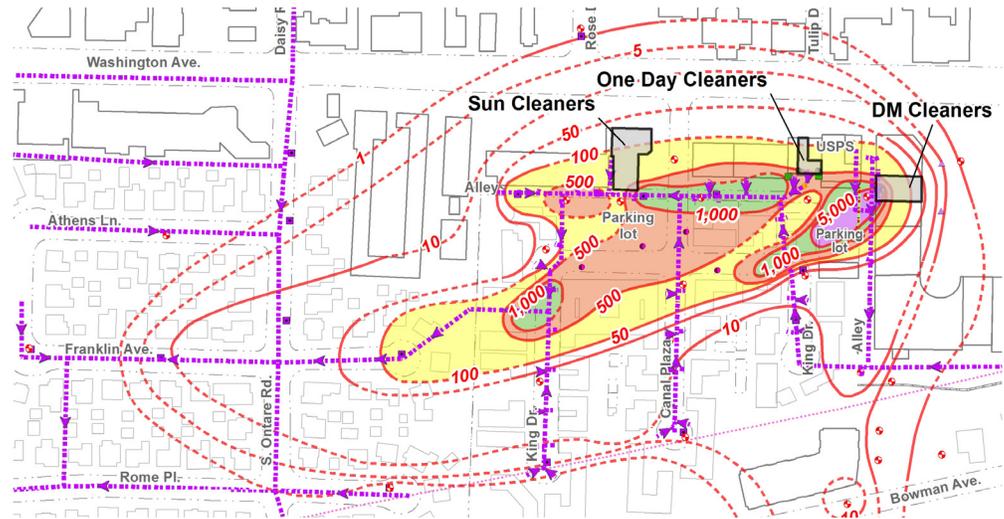
Central Coast, California

Client

San Roque Cleanup Fund

Highlights

- ◆ Contaminants of concern: PCE and degradation products
- ◆ Delineated soil, soil vapor, and groundwater chemical impacts
- ◆ Assessed human health and commercial risk from residential soil vapor intrusion
- ◆ Developing soil and groundwater remediation program
- ◆ Developing and leading comprehensive public participation program



DBS&A completed a comprehensive groundwater investigation and hydrogeologic conceptual site model to support a vapor intrusion risk evaluation.

Originally developed as a commercial shopping center in the mid-1950s, several former dry cleaning businesses conducted operations that used chlorinated solvents at the site and in the nearby vicinity dating back to the 1960s. Tetrachloroethene (PCE) was also historically released to leaking sanitary sewers that service (and run beneath) a nearby residential and light-commercial business neighborhood.

The San Roque Cleanup Fund retained DBS&A to investigate indoor vapor intrusion by PCE volatilizing from groundwater and potentially exposing vicinity residents and commercial business employees to unacceptable levels of volatile organic compounds (VOCs). In addition to resolving the vapor intrusion issue, DBS&A was charged with characterizing and cleaning up site soil and groundwater VOC impacts.

A vapor intrusion risk assessment was performed in accordance with California Environmental Protection Agency (CalEPA) guidance. Although pre-existing groundwater data indicated that vapor mitigation may be required within residences, DBS&A's vapor intrusion risk assessment demonstrated that on-site vapor mitigation is not currently necessary. Critical to the client's potential legal liability, DBS&A's vapor intrusion investigation and data evaluation demonstrated that, while groundwater VOC impacts at the site are relatively extensive, hydrogeologic conditions beneath the site limit the amount of vapor intrusion exposure to residents and commercial business employees to levels that are below human health risk thresholds of concern. Site regulators with the Regional Water Quality Control Board, Department of Toxic Substances Control, and Office of Environmental Health Hazard concurred with this assessment.



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DBS&A evaluated soil vapor impacts downgradient of the source areas over an approximately 24-acre area. DBS&A installed more than 60 dual-nested soil vapor monitoring probes and instituted a quarterly soil vapor monitoring program. DBS&A also performed in situ measurements of soil diffusivity, and collected soil cores for measurement of physical properties to critically inform vapor intrusion modeling. Soil testing procedures were conducted in accordance with CalEPA guidance.

Soil vapor VOC concentrations exceeded CalEPA “preliminary screening levels” for several chlorinated VOCs; therefore, a site-specific vapor intrusion evaluation was conducted. Johnson/Ettinger vapor intrusion modeling was used to develop site-specific screening concentrations and estimate cumulative cancer risk and non-cancer hazard. All sampled locations exhibited an incremental cancer risk less than 10^{-4} , and therefore it was determined that vapor mitigation is not currently necessary.

Ultimately, DBS&A’s work at the site will result in cleanup of the relatively extensive VOC groundwater plume on-site and in the vicinity, and reduce current and future site financial environmental liabilities for the San Roque Cleanup Fund. DBS&A is developing a public participation program that includes a neighborhood concerns survey, public meetings, and an informational website.



DBS&A field work provided the data that demonstrates vapor mitigation is not needed at the Site.

A trustee of the San Roque Cleanup Fund recently commended DBS&A on its work.

“I have worked with many contamination ‘experts’ over the years, specifically since 1985 when I made it a predominant niche in my law practice. DBS&A is the best of them: prompt, diligent, accurate, and above all, absolutely up to date in every detail with respect to methodology, cost-benefit analysis, and the meaning and effect of the ever-changing regulatory guidelines set by the State of California and the federal government—and that says a lot.”

~John DeLoreto, Attorney at Law

