San Fernando Valley Superfund Site: Case Study of a Regional Plume in Los Angeles County, California

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Background/Objectives. A groundwater plume containing primarily trichloroethene and tetrachloroethene (TCE, PCE) covers approximately 7,400 acres (11.6 square miles) within the eastern part of the San Fernando Valley (SFV) in Los Angeles County, California. The SFV is a fully developed urban area; supporting industrial, residential, recreational, and commercial land uses. Groundwater in the eastern SFV occurs in thick alluvial sediments shed from surrounding mountains and is tapped as a critical drinking water supply source by the cities of Los Angeles, Glendale, and Burbank. The SFV Superfund Sites overlie the eastern portion of the San Fernando Basin.
The vast continuous groundwater plume originated from industrial chemical use and releases from regional aerospace and other industries. Groundwater contamination was first discovered in 1980 and resulted in the shutdown of 50% of the municipal production wells operating in the SFV by 1987. The U.S. Environmental Protection Agency (EPA) designated the SFV groundwater plume a National Priorities List site in 1986; remedial investigations began in the early 1990s and continue to this day. Interim remedial actions implemented beginning in 1989 consist of pump and treat with treated water incorporated into municipal water supplies. Soil source cleanups are conducted under regulatory oversight of the State of California. During the past 30 years of investigation and cleanup, emerging contaminants including hexavalent chromium, 1,4-dioxane, and 1,2,3-trichloropropane were discovered and found to not be fully treated by existed interim groundwater remedies.

Approach/Activities. To meet the challenges of working with a broad array of large and small corporations and municipalities, as well as the affected public, EPA uses the full Superfund “tool kit” of enforceable negotiated settlements, directed unilateral orders, and fund-lead actions. In addition, EPA works closely to leverage the resources and participation of other key stakeholders, including the State of California, the Cities, and local water purveyors. Additionally, EPA provides key resources and support activities, including a SFV database available to all stakeholders, frequent stakeholder meetings, basin-wide monitoring activities, and basinwide groundwater modeling. Currently, the EPA is coordinating basin-wide efforts to upgrade or replace existing interim remedies, as well as completing the RI in the southern part of the basin.

Results/Lessons Learned. Fund-led actions, such as the investigation of nature and extent of emerging contaminants, have been implemented ahead of or coincidentally with discovery of PRPs, as a protective measure for public health. Changing site conditions, including extended drought and significant declines in groundwater elevations, have to be considered during feasibility studies and remedial design. Purely technical considerations aside, the EPA has found that negotiation skills, patience and persistence is required to bring multiple parties with different agendas together in productive working relationships that will ensure long-term remedy effectiveness.