

San Fernando Groundwater Basin

Background

The City of Los Angeles (City) encompasses an area of 465 square miles with a population of nearly 4 million residents and an annual average water consumption of approximately 215 billion gallons. Local groundwater provides approximately 11% of the City's total water supply and has provided up to 20% of the City's total supply in drought years.

Unfortunately, over 70% of the Los Angeles Department of Water and Power (LADWP) groundwater production wells in the San Fernando Basin (SFB) are impacted by contamination caused by various commercial and industrial activities. The SFB is an aquifer which provides drinking water to over 800,000 residents within the City of Los Angeles.

History of Contamination

Groundwater basin contamination is found in the northeast San Fernando Valley. Contamination was likely caused by improper storage, handling, and disposal of hazardous chemicals used in the aircraft manufacturing industry, as well as commercial and heavy industrial activities dating back to the 1940s. Potentially responsible parties are still being identified.

Since the 1980 discovery of volatile organic compound (VOC) contamination of groundwater in the SFB, LADWP, Burbank Water and Power, and Glendale Water and Power have been working regionally with state and federal agencies to contain and remediate man-made contaminants in the SFB. Chlorinated solvents such as trichloroethylene (TCE), tetrachloroethylene (PCE) and carbon tetrachloride account for the majority of this groundwater contamination.

Clean Up Efforts

Efforts to clean up the SFB were initiated by the United States Environmental Protection Agency (USEPA) through their Superfund program. The North Hollywood Operable Unit (NHOU) groundwater treatment facility began operation in the City of Los Angeles in 1989. The Burbank Operable Unit (BOU) began operation in the City of Burbank in 1996, and the Glendale Operable Unit (GOU) began operation in the City of Glendale in 2000.

The USEPA's selected remedy for the NHOU area was designed to contain a small portion of the contamination. However, the remedy was not as effective as planned. The contamination continued to spread to other areas of the SFB and forced LADWP to shut down groundwater wells previously serving drinking water to Los Angeles residents. In response to this USEPA has undertaken new containment and remediation efforts through their planning for the NHOU 2nd Interim Remedy. The 2nd Interim Remedy will address VOCs as well as hexavalent chromium, 1,4-Dioxane, and perchlorate, which have emerged as additional contaminants of concern. This 2nd Interim Remedy is anticipated to contain concentrated areas of the plumes, but will not address contamination that has escaped and polluted many of the groundwater basin production wells in the adjacent areas.

Without comprehensive containment and groundwater basin remediation, the City will lose the ability to use this valuable local resource within the next decade.

LADWP's Next Steps

In early 2015, LADWP completed an \$11.5 million, 6-year study characterizing the groundwater basin contamination in the SFB. Twenty-five new monitoring wells were drilled in support of the groundwater characterization at a cost of approximately \$22 million.

LADWP has begun the necessary planning for state-of-the-art groundwater basin remediation facilities, to effectively cleanup and remove contamination from the SFB. These facilities may consist of centralized and localized treatment. Design and construction costs are estimated to be approximately \$600 million, with treatment and remediation costs of up to \$50 million per year. The facilities will be designed to utilize multiple best-available technologies to clean up the majority of contaminants impacting LADWP's highest producing wellfields, including TCE, PCE, and 1,4-dioxane.

Next steps will include environmental reviews, facility design, permitting, construction, and startup. The remediation facilities are anticipated to be operational by 2021.