Final Close Out Report

SAN FERNANDO VALLEY BASIN AREA 3
VERDUGO STUDY AREA SUPERFUND SITE
LOS ANGELES, CALIFORNIA

I. INTRODUCTION

This Final Close Out Report (FCOR) documents that the U.S. Environmental Protection Agency (EPA) has completed all response actions for the San Fernando Valley Basin Area 3, Verdugo Study Area Superfund Site, in accordance with the EPA guidance, *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-09A-P) (January 2000).

II. SUMMARY OF SITE CONDITIONS

Background

The Verdugo Study Area (the Site) comprises approximately 2,000 of the 4,400 acre Verdugo Basin, which is situated in the eastern portion of the San Fernando Valley Basin (SFVB) (Fig 1). The Verdugo Study Area includes the groundwater in and around several water supply well fields in the Verdugo Basin. The Verdugo Basin is bounded on the northeast by the San Gabriel Mountains, on the west by the Verdugo Mountains, and on the southeast by the San Rafael Hills. The Verdugo Basin is generally considered a small tributary of the larger San Fernando Valley groundwater basin. Land use in the Verdugo Basin is primarily residential along the floor of the valley, open space in the surrounding mountains, with limited commercial and agricultural activity. No significant industrial development is present and the Site does not appear to have any primary sources of groundwater contamination.

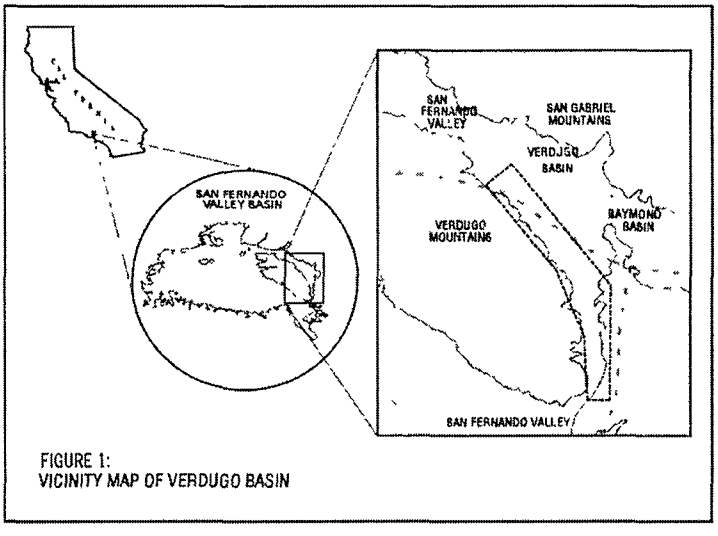

FIGURE 1:
VICINITY MAP OF VERDUGO BASIN

In 1986, at the request of the State of California (state), EPA placed four areas within the SFVB on the National Priorities List (NPL) as individual Superfund sites, due to the presence of volatile organic compounds (VOCs) in groundwater at concentrations exceeding state and federal drinking water standards. The four areas are: North Hollywood (Area 1), containing the North Hollywood Operable Unit (OU) and the Burbank OU; Crystal Springs (Area 2), containing the Glendale North and South OUs; Verdugo Study Area (Area 3); and Pollock (Area 4).

Groundwater is used as a potable supply by two purveyors in the Verdugo Study Area, the City of Glendale and the Crescenta Valley Water District (CVWD). The City of Glendale operates the Glorietta well field in the southern portion of the Site and the CVWD operates the Glenwood and Mills well fields in the north-central part of the Site (Fig. 2). PCE in groundwater is the primary contaminant of concern (COC) for the Verdugo Study Area. Historically, PCE in the Verdugo Study Area has extended from the Glenwood well field in the north to the Glorietta well field in the south, and appears to be elongated in the direction of groundwater flow. The geometry of the Verdugo Basin is such that it funnels flow from the broader northern area to the more narrow southern area. The maximum historic concentration of PCE from sampling efforts in 1982 was 52 ppb in the northern portion of the Site, but by 2002 the maximum level was below the MCL at 2.5 ppb PCE in the southern end of the Site. Based on consistently decreasing levels of contamination over time to below MCLs and risks falling within the EPA risk range, EPA selected the no action remedy for this site in a Record of Decision, February 24, 2004.

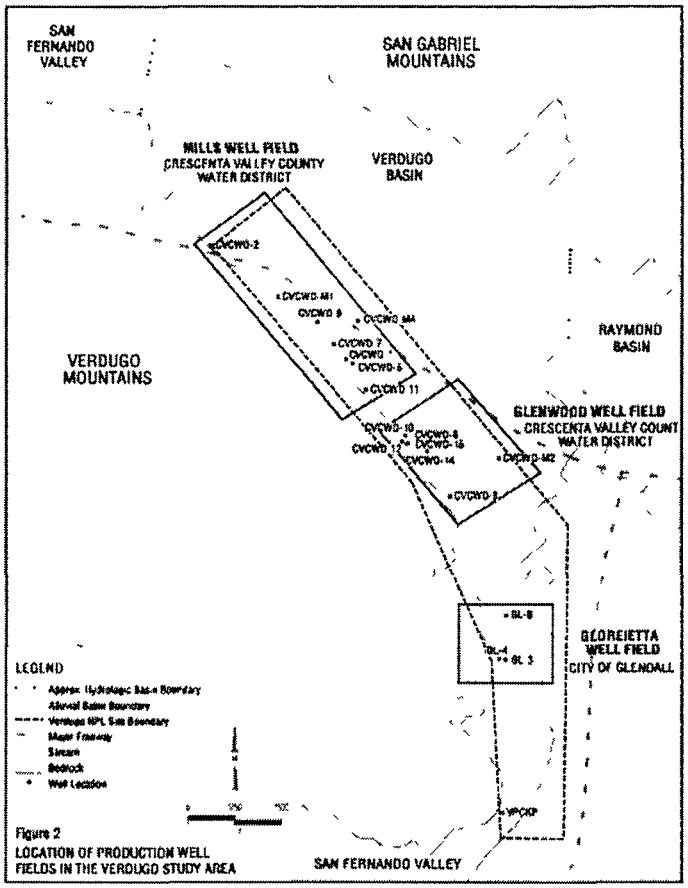

Figure 2
LOCATION OF PRODUCTION WELL FIELDS IN THE VERDUGO STUDY AREA

Past Studies/Remedial Investigation

In 1981, prior to the Site being listed on the NPL, the Los Angeles Department of Water and Power (LADWP) began a 2-year study to assess groundwater contamination in the SFVB, including wells located in the Glenwood, Mills and Glorietta well fields in the Verdugo Study Area. More than 600 water supply wells were sampled in the SFVB as part of this program. Additional work included a review of existing hydrogeologic data and industrial site surveys. Results of this work are presented in the *Groundwater Quality Management Plan for the San Fernando Valley Basin*, and indicate that 45 percent of LADWP supply wells in the eastern SFVB contained trichloroethene (TCE) in excess of maximum contaminant levels (MCLs) and/or perchloroethene (PCE) in excess of state action levels (LADWP, 1983). However, in the Verdugo Study Area, no TCE above MCLs was detected. PCE was the most prevalent organic contaminant at the Site. The historic high of 52 parts per billion (ppb) PCE was detected during this sampling effort, in Glenwood well field production well CVCWD-8.

Pursuant to California Assembly Bill 1803 (AB 1803), wells within the SFVB were sampled in 1983 for VOCs, semivolatile organic compounds (SVOCs), and pesticides/herbicides. Results of the 1983 sampling again revealed concentrations of VOCs above MCLs in several SFVB well fields, with TCE and PCE the two most common contaminants (the EPA and state MCL for TCE and PCE is 5.0 parts per billion (ppb)). Again, PCE was the main contaminant detected in the Verdugo Study Area, and was detected in excess of its MCL in several water supply production wells, although the levels were below the 52 ppb detected in 1982.

After listing the four San Fernando Valley Basin sites in 1986, EPA entered into a cooperative agreement to have the LADWP conduct a Remedial Investigation (RI) for the SFVB sites. In 1989, LADWP completed a soil gas sampling and analysis program within the SFVB, designed to better define the limits of shallow groundwater contamination. In the Verdugo Study Area, 73 soil gas samples were obtained and analyzed. Based upon results of soil gas sampling and available data from existing production wells, seven vertical profile borings in the Verdugo Study Area were converted into shallow monitoring wells in 1990.

A baseline risk assessment was conducted in conjunction with the SFVB RI in 1991. This baseline risk assessment was completed on a regional scale and did not specifically focus on the Verdugo Study Area. The risk assessment addressed compounds that exceeded MCLs in the groundwater of the entire eastern portion of the SFVB. Results indicated that the total cancer risk in the eastern SFVB was greater than EPA's acceptable range for ingestion and inhalation. However, in the Verdugo Study Area, the levels of contaminants were significantly lower than the concentration levels used to calculate risk for the entire SFVB. The primary carcinogenic risk drivers for the SFVB were 1,1-DCE, carbon tetrachloride, TCE, PCE, 1,2-DCE and arsenic; of these only PCE was present in the Verdugo Study Area. (A subsequent screening risk assessment for the Verdugo Study Area indicated risks for the Site within the acceptable risk range).

To focus specifically on the Verdugo Study Area, EPA completed a hydrogeologic site assessment in 1993 (*Site Assessment and Monitoring Plan for the Verdugo Basin, Los Angeles County, California*,

April 17, 1993). This document assisted in evaluating the nature and extent of groundwater contamination in the basin and provided recommendations for ongoing monitoring of groundwater contamination.

Since the completion of the RI in 1992 up through 2002, EPA continued to monitor groundwater quality by sampling monitoring wells in the Verdugo Study Area four times a year as part of the SFVB basinwide monitoring program. Due to the low levels of PCE and low risk, no Feasibility Study was prepared for the Verdugo Study Area. Groundwater sampling results for this Site from the 1980's through 2002 are summarized in the "Final Summary of Groundwater Quality, San Fernando Valley Superfund Site, Area 3 (Verdugo Basin)," dated May 20, 2003, prepared by CH2M Hill for EPA.

Summary of Investigative Results Supporting the ROD

Groundwater contamination in the Verdugo Study Area has been characterized by data obtained from historical sampling of production wells in the 1980's and by sampling of production and groundwater monitoring wells from the early 1990's up through 2002. The data indicate that concentrations of VOCs have declined from the historic high of 52 ppb PCE in 1982 to levels below MCLs. Groundwater contamination in the Verdugo Study Area has been centered in and near the Glenwood well field area with concentrations of PCE between about .5 ppb to 52 ppb. Concentrations of PCE in the Glorietta well field have been between about .25 ppb and 9 ppb. The extent and severity of PCE in groundwater decreased between 1988-1992. Based on PCE plume contour maps ('94, '96 and '97), it appears that the plume became smaller and more localized over time. The most recent (2002) PCE concentrations in the Verdugo Study Area are below the MCL, at a maximum value of 2.5 ppb in the Glorietta well field. With one exception, all wells in the Glenwood well field were below MCLs for the last ten quarters. TCE has never been detected in concentrations above the MCL in the Verdugo Study Area. As a part of the San Fernando Valley Cooperative Agreement between the EPA and the California Regional Water Quality Control Board (RWQCB), potential VOC source areas in the Verdugo Basin were extensively investigated by the RWQCB. As a result of these inspections, the RWQCB determined that the area was not industrial and that no primary PCE sources could be located.

Believed to be due to historic fertilizer application, nitrate has been detected consistently above the MCL in roughly half of the wells tested since the early 1990's in the San Fernando Valley Basin; however, all groundwater extracted from the Verdugo Study Area and used for drinking water is treated/blended by the purveyors to reduce nitrate concentrations to levels acceptable to the state Department of Health Services (DHS). Other contaminants detected during the Site investigation which occasionally exceeded MCLs include metals, such as chromium, antimony and thallium. Chromium was determined to be an anomaly (detected only one time), and the other metals results were qualified by the laboratory as unreliable data or non-detect.

ROD Findings

On February 24, 2004, consistent with the Remedy Delegation Report of March 8, 1985, EPA Region IX approved a Record of Decision (ROD) for this Site. The selected remedy was no remedial action. The

results from groundwater monitoring conducted from the early 1980's through December 2002 indicate that the low levels of VOC contamination are within EPA's acceptable risk range and meet state and federal MCLs. No activities using removal authority were conducted at this site.

Site-specific screening-level human health and ecological risk assessments were conducted to support EPA's proposal for no remedial action for the Verdugo Study Area. Potential risks to human health associated with exposure to chemicals of potential concern in groundwater were found to be within EPA's acceptable risk range for carcinogens. The non-carcinogenic hazard index (HI) of three was driven by thallium which is considered to be unreliable data. Using the highest thallium value in the risk assessment was therefore considered an overestimate of risk. Without the thallium data, the HI was considered to be less than one. There were no ecological risks found for the compounds present, as no completed exposure pathways exist for eco-receptors.

Design Criteria

Not applicable to the no action remedy.

Remedial Construction Activities

Not applicable as no construction will occur under the no action remedy.

Community Involvement Activities

The Proposed Plan was distributed using EPA's mailing list for this Site. EPA published notice of the Proposed Plan in the Los Angeles Daily News and San Fernando Sun on November 6, 2003, and in Asbarez (a local newspaper) on November 14, 2003. A public comment period on the Proposed Plan was held from November 6, 2003 to December 5, 2003. A formal public meeting was held on November 18, 2003 at the Verdugo Woodlands Elementary School. No public comments were received orally or in writing at the public meeting or subsequently submitted to EPA.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL

Not applicable since no remedial action will occur.

IV. MONITORING RESULTS

The Verdugo Study Area wells may continue to be sampled in association with investigations of other sites within the San Fernando Valley Basin and as part of the regional groundwater monitoring program. Under the regional program, wells are sampled on a quarterly basis under an EPA approved Sampling and Analysis Plan and Quality Assurance/Quality Control Plan.

V. SUMMARY OF OPERATION AND MAINTENANCE

Not applicable since no facility construction will occur that would require O&M.

VI. SUMMARY OF REMEDIATION COSTS

Not applicable since there will be no remediation.

VII. PROTECTIVENESS

This site meets the site completion requirements as specified in OSWER Directive 9320.2-09-A-P, *Close Out Procedures for National Priorities List Sites.* Confirmatory groundwater sampling demonstrates that the no action remedy is protective of human health and the environment with respect to VOC contamination. Nitrate treatment by the municipal water purveyors is still necessary under requirements of the state DHS, and is already being conducted by the water purveyors.

VIII. FIVE YEAR REVIEW

As no remedial action is required at this Site, a Five-Year Review is not required under CERCLA § 121(c). A Five-Year Review may be required at a site where the remedy is no remedial action if hazardous substances, pollutants or contaminants are left in place at levels that will not permit "unlimited use and unrestricted exposure." See 42 U.S.C. § 9621(c), 40 C.F.R. § 300.430(f)(4)(ii). Generally, if the remedy relies upon restrictions on the use of land or groundwater by humans, a Five-Year Review will be conducted. See *Comprehensive Five-Year Review Guidance*, (OSWER No. 3355.7-03B-P) (June 2001), § 1.2 at 1-2. Here, the remedy permits unlimited use and unrestricted exposure to groundwater, which is below the MCLs for VOCs. Nitrates remain in the groundwater, but the water purveyors already treat and blend to reduce nitrate concentrations. However, EPA may decide to conduct a discretionary review to confirm that the no action decision remains appropriate, in conjunction with other San Fernando Valley Basin site activities in the future.

Approved By:

Elizabeth J. Adams
Chief, Site Cleanup Branch, Superfund Division
U.S. Environmental Protection Agency, Region IX

May 20, 2004
Date