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Prepared for

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2525 West 190th Street
Torrance, California

NHOU Groundwater Characterization Report
North Hollywood Operable Unit

September 29, 2011

MWH

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September 30, 2011

Ms. Kelly Manheimer
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, California 94105

Subject: **NHOU Groundwater Characterization Report**
Administrative Order on Consent for Remedial Investigation
U.S. EPA Region IX, CERCLA Docket No. 9-2010-03

Dear Ms. Manheimer:

The enclosed NHOU Groundwater Characterization Report (Report) presents the results for soil and groundwater data collected from thirty-one (31) groundwater monitoring wells that were installed between June 2009 and August 2010 in the North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) Area 1 Superfund Site, California. The draft NHOU Groundwater Characterization Report was submitted to the U.S. Environmental Protection Agency (EPA) on April 7, 2010 for 26 of the 31 monitoring wells. This Report incorporates the remaining five wells. The monitoring wells were installed as set forth in the Administrative Settlement Agreement and Order on Consent for Remedial Investigation, U.S. EPA Region IX, CERCLA Docket No. 9-2010-03 and, as described in the "Work Plan for Additional Groundwater Monitoring Well Installation in North Hollywood Operable Unit", dated October 16, 2009.

The Report integrates newly obtained hydrogeologic and groundwater monitoring data with historical NHOU data. This combined data set was used to refine the understanding of the NHOU hydrostratigraphy, hydraulic gradients, the lateral and vertical extent of contaminant plumes, and contaminant sources. The results provided in the Report will facilitate and support efforts during design of the Second Interim Remedy for the NHOU.

The data also provides insight as to potential sources of groundwater contamination within the NHOU. Proper identification of sources and abatement of contamination at these sources will enhance the success of the planned new remedy and expedite the Potentially Responsible Party (PRP) settlement discussion.

With the submittal of this Report, Honeywell has fulfilled its obligations set forth in the Administrative Settlement Agreement and Order on Consent (AOC) for Remedial Investigation, U.S. EPA Region IX, CERCLA Docket No. 9-2010-03. Pursuant to Section XXX of the AOC, Honeywell requests upon receipt of this Report, EPA issue a written Notice of Completion letter that states that all work has been performed in accordance with the Settlement Agreement and that no further action is required.

Should you have any questions, please call me at (310) 512-2296.

Sincerely,

Benny Deghi
Manager, Remediation and Evaluation Services

Enclosure: NHOU Groundwater Characterization Report

cc:

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GROUNDWATER CHARACTERIZATION REPORT
NORTH HOLLYWOOD OPERABLE UNIT

Prepared For

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September 29, 2011

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EXECUTIVE SUMMARY

This Groundwater Characterization Report (Report) presents soil and groundwater analytical results from the construction and sampling of 31 groundwater monitoring wells during June 2009 through August 2010 in the North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) Superfund Site, Los Angeles County, California. The Report documents these field activities and presents an interpretation of the NHOU hydrogeology, distribution of impacted groundwater, and potential sources of contamination based on an integration of new and historical data.

These wells were constructed and sampled by Honeywell International, Inc. (Honeywell) to address key data needs identified by the United States Environmental Protection Agency (USEPA) in its September 2009 Second Interim Action Record of Decision (ROD) for the NHOU. Data are needed to better characterize the lateral and vertical extent of contaminated groundwater in relation to known and potential sources for the purpose of supporting decision-making during design of the Second Interim Remedy.

The monitoring wells were installed as set forth in the Administrative Settlement Agreement and Order on Consent for Remedial Investigation, U.S. EPA Region IX, CERCLA Docket No. 9-2010-03. The monitoring wells were completed in general accordance with the USEPA-approved Additional Groundwater Monitoring Well Installation Work Plan, prepared by MWH Americas, Inc., October 16, 2009.

The 31 wells were installed to depths ranging from 240 to 660 feet using mud rotary drilling at 8 individual-well locations and 11 clusters of 2 to 3 wells. Soil and groundwater samples were collected at regular intervals during drilling. Four-inch diameter groundwater monitoring wells were installed in each boring, after which each well was developed and sampled.

Data from these wells adds to an existing data base derived from approximately 130 existing NHOU monitoring wells, 8 NHOU Extraction (NHE) Wells installed as part of the First Interim Remedy, and approximately 70 water-supply production wells, of which 46 were active in 2009. USEPA administers an ongoing SFV basinwide sampling program that includes monthly sampling of the NHE extraction wells and quarterly or annual sampling of selected monitoring and production wells. The groundwater analytical results are provided by USEPA in its SFV database.

The new and existing NHOU boring logs indicate that the basin fill averages 50 to 65 percent clean sand and gravel, with the remainder consisting of varying percentages of sand, gravel, silt, and clay. About 75 percent of all geotechnically logged intervals are less than or equal to 20 feet thick.

The hydrostratigraphy is subdivided into four depth regions inferred from the lithology and the distribution of production-well screens. The boundaries between depth regions occur along zones that are relatively fine-grained and less commonly screened.

NHOU aquifer transmissivities and hydraulic conductivities are estimated to average approximately 50,000 to 100,000 ft^2/day and 200 to 400 ft/day, respectively. Pumping test analysis and model calibration indicate that the ratio of vertical to horizontal hydraulic

conductivity ranges from approximately 1:20 to 1:100. The specific yield of the basin deposits is estimated to range from 14 to 22 percent.

The North Hollywood groundwater system has a generally southeastward regional hydraulic gradient that is affected locally by pumping wells and spreading-ground recharge. Five area well fields are operated by the Los Angeles Department of Water and Power (LADWP): Tujunga, Rinaldi-Toluca, North Hollywood, Erwin, and Whitnall. Total groundwater production from these well fields has averaged approximately 30,000 gallons per minute (gpm) in recent years, while the combined discharge of the NHE remedial extractions has averaged less than 1,000 gpm.

Groundwater occurs under water table conditions at depths ranging from about 200 to 300 feet below ground surface. Groundwater levels fluctuate by as much as 40 feet during single years and 100 feet over several years. Groundwater becomes increasingly confined with depth as a result of the cumulative influence of fine grained lenses and zones. Vertical hydraulic gradients are generally downward during periods of heavy pumping and falling water levels, and become upward during periods of water-level recovery.

A contour map of the Depth Region 1 groundwater piezometric surface was estimated from water level measurements made during December 2009 and January 2010. The contours indicate a southerly flow direction in the area of the northern landfills. The groundwater flow direction turns southwesterly in the area of the former Hewitt Pit, likely influenced by pumping of the Rinaldi-Toluca Well Field. Southwest of the Hewitt Pit, groundwater flows in a southwesterly direction towards the North Hollywood West Well Field. The groundwater flow direction is southeasterly in the central part of the NHOU, potentially influenced by pumping of the NHOU Aeration Wells, the Erwin and Whitnall Well Field, and the natural groundwater flow direction towards the Los Angeles River Narrows. Additionally, USEPA's SFBFS-B groundwater flow model was used to simulate the effect of historical pumping on groundwater flow patterns. These simulations provide an indication of the range of hydraulic gradients and groundwater flow patterns that occur as a result of variable groundwater pumping. Model results indicate that there has been no significant net groundwater movement from areas south of Sherman Way north toward the Rinaldi-Toluca Well Field or west toward the western North Hollywood Well Field since 1981.

Contamination of NHOU groundwater has resulted from chemical use and disposal by a wide range of local industries and commercial services, and the disposal of related and consumer wastes in 13 area landfills sited in former gravel pits. The primary constituents of concern (COCs) listed by USEPA in the Second Interim ROD are trichloroethylene (TCE), tetrachloroethylene (PCE), chromium (total and hexavalent), and 1,4-dioxane. TCE and PCE are volatile organic compounds (VOCs) used as solvents. 1,4-dioxane has been used as a stabilizer in solvents, including 1,1,1-trichloroethane (1,1,1-TCA). Chromium is used in metal work and a variety of other industrial processes. Chromium and 1,4-dioxane are among several chemicals referred to as emerging contaminants (ECs) due to their relatively recent widespread detection in NHOU groundwater.

The Report presents isoconcentration contour maps at logarithmic intervals using the most recently available groundwater analytical results for TCE, PCE, 1,4-dioxane, 1,1,1-TCA, and hexavalent chromium in samples collected from approximately 190 NHOU monitoring, pumping, and remedial extraction wells between 1980 and 2011. For each COC, separate maps are presented for Depth Region 1 and Depth Regions 2 and 3 combined. Seventy-

five percent of the posted data are for wells sampled in 2008-2011, including the newly constructed 31 additional NHOU groundwater monitoring wells. The remaining 25 percent of the wells were most recently sampled between 1980 and 2007, and either have been destroyed, are no longer sampled, or are sampled infrequently. The Report also posts these data relative to the screened intervals of wells on a series of seven NHOU geologic cross sections.

The interpreted distribution of COCs in NHOU groundwater results from a complex set of factors including: spatial and temporal distribution of multiple contaminant; past variations in regional and local hydraulic gradients due to pumping wells and variable recharge; periodic mobilization of residual contaminant sources by percolating recharge and fluctuating groundwater levels; spatial variability of aquifer properties; and, various chemical properties of each COC that affect fate and transport.

Areas of elevated VOC contamination in NHOU groundwater occur predominantly along the east-west industrial corridor and near active and closed landfills. VOC-impacted groundwater appears to migrate southerly from the area of the northern landfills towards Rinaldi-Toluca Well Field. VOCs also appear to migrate towards both Rinaldi-Toluca and North Hollywood West Well Fields from an unidentified source near Hewitt Pit, perhaps along a groundwater divide created by these well fields. VOCs also migrate in a southeasterly direction towards Whitnall and Erwin Well Fields.

1,4-Dioxane is present throughout the NHOU in areas where VOC plumes exist, including 1,1,1-TCA. Concentrations of 1,4-dioxane across the NHOU range from 1 to 690 μg/L. 1,4-Dioxane appears to be migrating south from the former Bendix Facility at concentrations ranging from 3.4 to 690 μg/L. Concentrations decrease to 1.9 to 8 μg/L as this plume approaches the NHE Aeration wells.

Detections of hexavalent chromium above analytical laboratory method detection limits (typically 1 μg/L) are reported for groundwater samples collected throughout the NHOU. Naturally occurring background concentrations of chromium in NHOU groundwater are typically below 5 μg/L in Depth Region 1 and 1 μg/L in deeper regions. Concentrations and the plume geometry of hexavalent chromium in groundwater near and downgradient of the former Bendix Facility are relatively well defined.

A potential source evaluation has identified 38 NHOU facilities with known releases of COCs to the subsurface and another 281 sites representative of potential releases. Of the 281 potential release sites, 75 sites have a higher likelihood of potential release considering type of manufacturing, the timeframe and duration of operation, and history of wastes generated.

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per Liter
ac-ft	acre-feet
af/yr	acre-feet/year
bgs	below ground surface
CDWR	California Department of Water Resources
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
COC	constituent of concern
DTSC	Department of Toxic Substances Control
EC	emerging contaminants
EDR	Environmental Data Resources, Inc.
FFS	Focused Feasibility Study
ft/day	feet per day
ft^2/day	square feet per day
gpm	gallons per minute
GSA	Geological Survey of America
Honeywell	Honeywell International, Inc.
LADWP	Los Angeles Department of Water and Power
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
msl	mean sea level
MWH	MWH Americas, Inc.
NAPL	non-aqueous phase liquid
NDMA	n-Nitrosodimethylamine
NHE	indicates a remedial extraction well
NHOU	North Hollywood Operable Unit
PCE	tetrachloroethylene
RI	Remedial Investigation
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board, Los Angeles Region
SFB	San Fernando Groundwater Basin
SFBFS	San Fernando Basin Feasibility Study
SFBFS-B	USEPA's SFB groundwater flow model, version B
SFV	San Fernando Valley
TCA	trichloroethane
TCE	trichloroethylene
TCP	trichloropropane
ULARA	Upper Los Angeles River Area
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

SECTION 1.0

INTRODUCTION AND BACKGROUND

This Groundwater Characterization Report (Report) presents the results of an analysis of soil and groundwater data collected from 31 groundwater monitoring wells that were installed between June 2009 and August 2010 in the North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) Area 1 Superfund Site, California. The Report integrates newly obtained hydrogeologic and groundwater monitoring data with historical NHOU data. This combined data set was used to refine understanding of NHOU hydrostratigraphy, hydraulic gradients, lateral and vertical extent of contaminant plumes, and contaminant sources. The results in this Report can be used to support decision-making during design of the Second Interim Remedy for the NHOU. The monitoring wells were installed as set forth in the Administrative Settlement Agreement and Order on Consent for Remedial Investigation, U.S. EPA Region IX, CERCLA Docket No. 9-2010-03 (USEPA, 2010) and, as described in the Additional Groundwater Monitoring Well Installation Work Plan, dated October 16, 2009 (MWH Americas, Inc. [MWH], 2009).

1.1 REGULATORY FRAMEWORK

The United States Environmental Protection Agency (USEPA), under authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA, also commonly known as Superfund) has been implementing an interim remedy to address groundwater impacts caused by releases of volatile organic compounds (VOCs) at the NHOU, which is located in Area 1 of the SFV Superfund Site, California (Figure 1-1). SFV Area 1 is a large Superfund site with multiple responsible parties and a number of known and potentially contributing sources of contamination. VOC impacts in NHOU groundwater, primarily trichloroethylene (TCE) and tetrachloroethylene (PCE), are currently being addressed by an existing NHOU Interim Remedy groundwater extraction and treatment system, a remedy selected in the 1987 Interim Record of Decision (ROD) (USEPA, 1987). The Interim Remedy includes extraction and treatment of VOC-impacted groundwater and then delivers treated water for blending by the Los Angeles Department of Water and Power (LADWP) into the water supply system for the City of Los Angeles.

Due to changing groundwater conditions in the aquifer, the discovery of VOC impacts in new areas, and the identification of chromium and emerging contaminants (e.g., 1,4-dioxane) within the NHOU, USEPA completed a Focused Feasibility Study (FFS) for a Second Interim Remedy (USEPA, 2009a) and issued a Second Interim Action ROD for the NHOU for Area 1 of the SFV Superfund Site, dated September 30, 2009 (USEPA, 2009b). The ROD indicates that the primary purpose of the Second Interim Remedy is to:

> *. . . improve containment of contaminated groundwater in the North Hollywood area (including the areas of highest contamination) in order to limit its migration downgradient and to prevent further contamination of LADWP production (water-supply) wells.*

One of the data needs identified in the FFS and subsequent ROD was expansion of the NHOU groundwater monitoring network. The objectives stated in the ROD for expanding the groundwater monitoring network included:

Fill key data gaps to adequately characterize the lateral and vertical extent of contaminant plumes and known hotspot areas and their relationship to known source areas.

The construction and sampling of 31 groundwater monitoring wells was completed by Honeywell International Inc. (Honeywell) to support USEPA's objective of characterizing the contaminant plumes and understanding their relationship to source areas, while providing information that will improve decision-making during design of the Second Interim Remedy.

1.2 PHYSICAL SETTING

The NHOU is located in the SFV, a physiographic basin that is bounded by the San Gabriel Mountains to the north, the Simi Hills to the west, the Santa Monica Mountains to the south, and the Verdugo Mountains to the east. Figure 1-1 is a site vicinity map of the NHOU within portions of the SFV Area 1 Superfund Site. The SFV Groundwater Basin has a surface area of approximately 226 square miles. The elevation of the floor of the valley varies between approximately 600 and 1,200 feet above mean sea level (msl). The valley is underlain by alluvium which was deposited upon granitic and metamorphic basement rocks. Much of the basin consists of lower Pleistocene Saugus Formation and Pleistocene-to-Holocene age alluvium with a total thickness that approaches approximately 1,200 feet locally (California Department of Water Resources [CDWR], 2004). The NHOU is located in the eastern part of the basin, where coarse sandy and gravelly alluvium was deposited by braided streams that originated in the San Gabriel Mountains (Geological Survey of America [GSA], 1986). In general, the alluvium is dominated by gravel interbedded with localized lenses of clay and silt (USEPA, 1987).

The NHOU is hydrogeologically situated in the San Fernando Groundwater Basin (SFB), part of the water management area known as the Upper Los Angeles River Area (ULARA), which consists of the entire watershed of the Los Angeles River and its various tributaries (California State Water Rights Board, 1962). Water rights in the basin were adjudicated by court decree in 1979 and subsequent extraction by water rights holders have been administered by a basin Watermaster. The City of Los Angeles was granted rights to all groundwater in the SFB that is derived from precipitation within the ULARA. Throughout the basin, groundwater are extracted for the purposes of water supply, dewatering, and groundwater remediation. Water supply wells, such as the wells that comprise the various LADWP well fields, including many in the North Hollywood area, comprise an important source of drinking water for the region.

The general direction of groundwater flow in the basin is south to southeast towards the Los Angeles River Narrows. However, groundwater extraction associated with the municipal well fields locally influences, and in some instances, reverses the otherwise natural direction of groundwater flow. The North Hollywood Well Field (a northwest-southeast array of 29 water supply wells) has a combined extraction capacity of approximately 20,000 acre-feet (ac-ft) per year. The Rinaldi-Toluca Well Field has an extraction capacity of approximately 30,000 ac-ft per year. During the period 1991 through 2005, the water table elevation declined by as much as 60 feet. Historical changes in the water table are primarily attributed to extraction from the well fields, but also vary based on seasonal and long-term variations in recharge.

1.3 NHOU WELL DISTRIBUTION

The USEPA has divided the alluvial aquifer into four depth regions that exhibit similar flow characteristics (USEPA, 2009a):

- Depth Region 1 (200 to 280 feet below ground surface [bgs]): Wells completed in this zone include shallow remedial investigation (RI) groundwater monitoring wells, older production wells, and Regional Water Quality Control Board (RWQCB)-oversight facility wells;
- Depth Region 2 (280 to 420 feet bgs): A higher permeability zone that is penetrated by most NHOU production wells;
- Depth Region 3 (420 to 660 feet bgs): Also highly permeable within certain subzones; newer production wells tend to be completed in this zone (e.g., Rinaldi-Toluca, Tujunga, and the western North Hollywood Well Fields); and
- Depth Region 4 (660 feet bgs and deeper): Basin-fill alluvium deposits within which few wells are completed.

Figure 1-1 depicts the locations of the groundwater monitoring and production wells within the NHOU before the 31 additional groundwater monitoring wells were installed. Most RI groundwater monitoring wells and the NHOU extraction wells, many of which were installed as part of the initial Interim Remedy, are screened in Depth Region 1 and the upper part of Depth Region 2.

The NHOU well fields and extraction system include:

- North Hollywood East and West Well Fields (developed beginning in 1924 and completed in the 1950s);
- Erwin Well Field (completed in the 1950);
- Whitnall Well Field (completed in the 1950);
- NHOU Initial Interim Remedy Extraction System (completed in 1986 to contain VOC-impacted groundwater);
- Rinaldi-Toluca Well Field (completed in 1989/1999 to replace wells impacted with VOCs and add flexibility in water production); and
- Tujunga Well Field (completed in 1993 to replace wells impacted with VOCs and add flexibility in water production).

Table 1-1 lists over 190 NHOU monitoring wells (some including multiple sampling depths) and pumping wells. The wells were installed by several parties over more than 20 years for water supply, to conduct site assessments, and monitor the interim remedial action for NHOU groundwater. The elevations of the screened or perforated intervals of each well were compared against the hydrostratigraphic layer elevations of the USEPA San Fernando Basin Feasibility Study (SFBFS) groundwater flow model to determine the percentage of each depth region screened by each well. Based on these percentages, Table 1-1 classifies

these wells by depth region, disregarding depth regions less than five percent (5%) screened. These results are summarized as follows:

NHOU Monitoring Wells
Among the approximate 190 wells in the NHOU, 127 are considered wells installed and/or used for monitoring only. The depth regions represented include:

- Seventy-three (73) wells are representative of Depth Region 1 (the shallowest depth region), of which 31 are commonly dry.
- Twenty-one (21) are representative of Depth Region 2.
- Twelve (12) are representative of Depth Region 3.
- Three (3) are representative of Depth Region 4.
- Additionally, 14 may be considered representative of both Depth Regions 1 and 2; two are representative of both Depth Regions 2 and 3; and two are representative of Depth Regions 1, 2, and 3.

Inactive (Non-destroyed) Production Wells

- Forty-seven (47) wells are considered to be inactive production wells.
- One (1) is representative of a single depth region (Depth Region 2), whereas the remainder are representative of multiple depth regions as follows: four (4) Depth Regions 1 and 2; 24 Depth Regions 2 and 3; 11 Depth Regions 1, 2, and 3; seven (7) Depth Regions 2, 3, and 4; and five (5) in all four depth regions.

NHOU Extraction Wells

- Eight (8) wells were installed as part of the USEPA Interim Remedy.
- Seven (7) of the eight wells are screened in Depth Region 1, although two are typically dry. NHE-6 is screened in Depth Regions 1 and 2.

1.4 PRIOR STUDIES AND INVESTIGATIONS

A chronology of key events at the NHOU from 1979 through September 2009 is presented in Table 1-2. In 1985, groundwater contamination by VOCs was detected in water supply wells in the SFV. By 1992, USEPA had constructed and begun monitoring a network of 84 groundwater monitoring wells in the eastern portion of the SFV (referred to as “RI monitoring wells”). Additional monitoring wells were constructed by other parties at several industrial facilities in the NHOU.

Currently, USEPA administers an ongoing SFV basinwide sampling program that includes monthly sampling at NHE extraction wells and quarterly or annual sampling at selected monitoring and production wells. In addition to the ongoing SFV basinwide sampling program, facility-specific investigations directed by RWQCB and the Department of Toxic Substances Control (DTSC) also include collection and analysis of groundwater samples. The groundwater analytical results are provided by USEPA in the SFV database.

1.5 REPORT ORGANIZATION

This Report consists of seven sections and two appendices as follows:

Section 1.0 – Introduction and Background

Section 2.0 – Recent Field Activities

Section 3.0 – Hydrogeologic Interpretation

Section 4.0 – Groundwater Impacts

Section 5.0 – Sources Evaluation

Section 6.0 – Discussion

Section 7.0 – References

SECTION 2.0

RECENT FIELD ACTIVITIES

Honeywell installed 31 groundwater monitoring wells in the NHOU between the dates of June 2009 and August 2010 (as shown on Tables 1-1 and 2-1). The wells were constructed at the locations depicted on Figure 2-1. Table 2-1 presents the well construction details for these newly-completed wells. Of the 31 groundwater monitoring wells, 18 wells were installed in Depth Region 1, 12 wells were installed in Depth Region 2, and one well was installed in Depth Region 3.

Each groundwater monitoring well borehole was advanced using a mud rotary drill rig. During drilling activities, vadose zone soil and zone of saturation groundwater sampling was performed in the deepest well in a multiple well location. Monitoring wells were then installed and groundwater samples were collected. These activities are summarized below.

Vadose Zone Sampling: Soil samples were collected in the deepest well in a multiple well location and the single well in a Depth Region 1 well location. Samples were collected at 20-foot intervals to approximately 350 feet bgs, then every 50 feet thereafter until the final depth at each soil boring was attained. If visual observations or photoionization detector readings indicated the potential for contamination, soil samples were analyzed and the remaining samples placed on hold at the laboratory.

Zone of Saturation Sampling for Depth Regions 2 and 3 Wells: Groundwater samples were targeted for collection in the deepest well of a multiple well location. Samples were collected every 10 feet from the water table to approximately 350 feet bgs and every 50 feet from approximately 350 to total depth of borehole using a SimulProbe® sampler.

Groundwater Monitoring Well Installation and Sampling: Four-inch diameter groundwater monitoring wells were installed in each boring. Well screens were developed a minimum of 48 hours after the wells were installed. The newly installed groundwater monitoring wells were sampled no sooner than one week after well development. Wells in Depth Region 1 were purged using a 2-inch diameter submersible Grundfos® Redi-Flo II® pump. Wells in Depth Region 2 and 3 were purged using a bladder pump.

The groundwater monitoring wells were completed in general accordance with the USEPA-approved Additional Groundwater Monitoring Well Installation Work Plan (MWH, 2009). An Additional Groundwater Monitoring Well Installation Report was prepared that summarizes field activities and presents well construction diagrams, boring logs, and related field data associated with the installation of these wells (MWH, 2011).

SECTION 3.0

HYDROGEOLOGIC INTERPRETATION

This section presents an interpretation of the SFB groundwater system in the NHOU area. The elements of the local groundwater system discussed in this section include:

- the hydrostratigraphy;
- aquifer and aquitard properties;
- hydraulic stresses from pumping and recharge; and
- the resulting occurrence and movement of groundwater.

Section 3.0 concludes with a brief description of USEPA's SFBFS groundwater flow model and a presentation of representative model results.

3.1 HYDROSTRATIGRAPHY

The hydrogeology of the SFV groundwater basin has been studied extensively to address water-rights issues (California State Water Rights Board, 1962) and widespread groundwater contamination (JMM, LADWP, and USEPA, 1992). The basin fill consists of a Pleistocene-to-Holocene succession of water-bearing alluvial and fluvial deposits up to approximately 1,200 feet deep. In the NHOU area of the eastern SFB, highly permeable coarse-grained deposits have accumulated along the coalescing alluvial fans of streams draining the San Gabriel Mountains. Less permeable zones have developed as a result of weathering and soil formation during periods of reduced deposition. Appendix A provides additional discussion of the SFB geology.

The hydrogeologic conceptual model established to support groundwater modeling for the SFBFS subdivided the alluvial hydrostratigraphy into four depth regions inferred from geologic cross sections and the distribution of well screens (CH2M HILL, 1994). In the NHOU area, these depth regions are:

Depth Region 1 - The upper depth region typically consists of about 200 feet or more of vadose zone and 100 feet or less of saturation below the water table. Older production wells and the shallowest monitoring wells are screened in this zone.

Depth Region 2 - The second depth region ranges between 100 and 150 feet thick and contains one or more highly permeable zones screened by most production wells.

Depth Region 3 - The third depth region is between 200 and 300 feet thick and contains several zones targeted by deep production wells.

Depth Region 4 - The fourth depth region is 200 to 600 ft thick, screened by few wells, and extends to the interpreted base of water-bearing basin deposits.

The boundaries between depth regions occur at relatively unscreened zones, interpreted to be finer grained and possibly representative of the disconformities described above.

Figure 3-1 presents seven geologic cross sections constructed from existing and new NHOU boring logs. Superimposed on these cross sections are the depth region boundaries established for the SFBFS. These logs indicate that basin fill averages 50 to 65 percent clean sand and gravel, with the remainder consisting of varying percentages of sand, gravel, silt, and clay. About 75 percent of all logged intervals are less than or equal to 20 feet thick.

Given this heterogeneity, it is difficult to confirm the suitability of the depth region boundaries through inspection of these cross sections alone. Therefore, Appendix A provides an evaluation of the SFBFS hydrostratigraphic conceptual model and its consistency with currently available boring logs and well completions using a USCS lithologic indicator approach. The evaluation considers elevation profiles of average aquifer-versus-aquitard characteristics inferred from boring logs and well-completion reports. These profiles are generally consistent with the vertical subdivision of NHOU hydrostratigraphy into four depth regions as conceptualized in the SFBFS groundwater flow model (see Section 3.5). Additionally, these profiles help quantify aspects of the heterogeneity. For example, the evaluation indicates that about 50 percent of all wells that penetrate the partial aquitard along the boundary of Depth Regions 1 and 2 encounter clean sand and gravel.

Furthermore, the evaluation presented in Appendix A supports additional subdivision of the hydrostratigraphy layered within the SFBFS groundwater flow model (see Section 3.5). For example, a discrete aquitard zone could be inserted between Depth Regions 1 and 2, as opposed to the two-dimensional plane of low hydraulic conductivity (i.e., vertical conductance) presently modeled along this boundary. Also, Depth Regions 2 and 3 could be subdivided further based on average lithologic and well-completion indicators. The vertical subdivision of Depth Region 2 may be particularly justified given the proposed deepening of some NHE remedial extraction wells into the upper portion of Depth Region 2.

Further evaluation of the SFBFS hydrostratigraphy was conducted using twenty (20) sets of geophysical logs from the newly installed NHOU wells using a marker bed approach to assess if similarities exist between the Depth Regions. The ULARA Watermaster provided an example of marker beds from NHOU Rinaldi-Toluca well RT-1 as a basis for comparison of specific characteristics within the region. Natural gamma ray log, sonic log, and resistivity were reviewed in the assessment to find similar patterns across the geophysical logs to correlate hydrostratigraphy. The geophysical log analysis was generally consistent with the SFBFS EPA depth regions and the USCS lithologic indicator approach. Figure 3-2 shows the approximately-located marker beds and how the beds correlate to the depth regions.

3.2 AQUIFER PROPERTIES

Table 3-1 presents a range of estimated values of aquifer transmissivity and hydraulic conductivity for the North Hollywood area. Estimated transmissivities range from 40,000 to 160,000 square feet per day (ft^2/day) and average approximately 50,000 to 100,000 ft^2/day. Estimated hydraulic conductivities range from 100 to nearly 1,000 feet per day (ft/day) and average approximately 200 to 400 ft/day.

Values of hydraulic conductivity assumed by USEPA's current SFBFS model (USEPA, 2009a) in the central NHOU area near NHE-2 are 150 and 338 ft/day for model layers 1 and 2 (i.e., Depth Regions 1 and 2), respectively. As shown in the following table, multiplying these values by the saturated thicknesses of these zones (in December 2009) gives a total transmissivity of approximately 45,000 ft^2/day and an effective average hydraulic conductivity of 280 ft/day.

	Depth Region		
	1	2	Total
Approximate December 2009 Saturated Thickness (ft)	47	113	160
SFBFS-B Model Hydraulic Conductivity near NHE-2 (ft/day)	150	338	
Transmissivity (ft^2/day)	7,050	38,200	45,250
Effective average hydraulic conductivity (ft/day)			280

Based on time-drawdown analysis of recent pumping tests in this same area (MWH, 2010), the hydraulic conductivity of the relatively shallow aquifer zone is about 200 to 300 ft/day based on estimated transmissivities of 35,000 to 48,000 ft^2/day. These values agree reasonably well with the estimated and modeled values presented in Table 3-1. Model calibration and recent pumping tests (MWH, 2010) indicate that the ratio of vertical to horizontal hydraulic conductivity ranges from approximately 1:20 to 1:100. The specific yield of the basin deposits is estimated to range from 14 to 22 percent (CDWR, 2004).

3.3 HYDRAULIC STRESSES

The North Hollywood groundwater system is stressed hydraulically by pumping wells, areal recharge, and recharge at up-gradient spreading grounds.

3.3.1 Pumping

Along with the generally southeastward regional hydraulic gradient, pumping wells exert a dominant influence on NHOU groundwater gradients and contaminant migration. Figures 3-3a and 3-3b present the historical pumping record and projected-future pumping of NHOU-area wells, expressed in quarterly averaged gallons per minute (gpm).

Figure 3-3a summarizes the 1981-2009 groundwater extraction records for five well fields operated by LADWP in the NHOU area. For the Tujunga and Rinaldi-Toluca Well Fields, the plotted pumping is partitioned among groups of nearby wells. For the North Hollywood Well Field, pumping is subdivided between western and eastern wells in light of the well field's large area and differences in the magnitude and extent of groundwater contamination between east and west.

Figure 3-3b summarizes the 1989-2009 pumping record for the seven active NHOU remedial extraction wells. Projections of future pumping provided in the FFS (USEPA, 2009a) anticipate that NHOU remedial extractions will double while the Tujunga, Rinaldi-Toluca, and western North Hollywood Well Fields continue to serve as primary sources of LADWP groundwater.

The following table provides the five-year average (2002-06) and projected future production rates for each well field, expressed in both gpm and acre-feet/year (af/yr):

Well Field	Water Years* 2002-2006 Average		Future Average (USEPA, 2009a)	
	af/yr	gpm	af/yr	gpm
Tujunga	16,800	10,400	22,400	13,900
Rinaldi-Toluca	17,700	10,900	25,200	15,600
North Hollywood - West	14,800	9,100	22,400	13,900
North Hollywood - East	200	100	0	0
Whitnall	2,000	1,200	2,800	1,700
Erwin	1,400	900	2,900	1,800
NHOU Extraction Wells (NHE)	1,300	800	3,200	2,000
Total	54,200	33,400	78,900	48,900
(*e.g., water year 2010 extends from October 2009 to September 2010)				

Table 3-2 provides a partial-year groundwater production record for the NHOU area during water year 2008-09. Figure 3-4 is a map showing the distribution of this pumping among individual wells.

3.3.2 Recharge

Table 3-3 provides the annual record of spreading basin recharge up gradient of the NHOU area. Spreading basin recharge consists of both native runoff and imported water. Total annual recharge by the Branford, Hansen, Pacoima, and Tujunga spreading basins averages approximately 30,000 af/yr.

Additional native recharge from rainfall and runoff have been estimated to average about 3 inches per year across the basin, about half of which is assumed to occur along the basin margins with the surrounding uplands. Annual recharge of another 6 inches or more is estimated to result from the deep percolation of some of the water delivered and used across the basin (CH2M HILL, 1994).

3.4 GROUNDWATER OCCURRENCE AND MOVEMENT

Groundwater occurs under water table conditions at depths ranging from about 200 to 300 feet bgs. Groundwater becomes increasingly confined at greater depths as a result of the cumulative influence of fine grained lenses and zones (CH2M Hill, 1994). The following sections provide a discussion on groundwater levels and piezometric surfaces.

3.4.1 Groundwater Level Hydrographs

Figure 3-5 shows the location of selected monitoring wells in the NHOU area for which hydrographs were prepared. Figure 3-6 provides water-level hydrographs for three NHOU-area wells monitored by the ULARA Watermaster since 1956. Groundwater levels fluctuate by as much as 40 feet during single years and 100 feet over several years.

Figures 3-7a through 3-7c provide hydrographs for wells monitored by USEPA since as early as 1989. Vertical hydraulic gradients are most evident in the cluster well records for 1998-2001 when these wells were equipped with continuous data loggers. Vertical gradients are generally downward during periods of heavy pumping and falling water levels, and become upward during periods of water-level recovery.

3.4.2 Groundwater Piezometric Surface

Figure 3-8 presents a contour map of the Depth Region 1 groundwater piezometric surface estimated from groundwater level measurements for December 2009 and early January 2010. These contours are based on water level data presented in Table 3-4, including selected data from the 31 recently installed monitoring wells. For monitoring well clusters, data from only the shallowest wells were used. These contours reflect the influence of the regional gradient and well field pumping.

The contours indicate a southerly flow direction in the area of the northern landfills. The groundwater flow direction turns southwesterly in the area of the former Hewitt Pit, likely influenced by pumping of the Rinaldi-Toluca Well Field. Southwest of the Hewitt Pit, groundwater flows in a southwesterly direction towards the North Hollywood West Well Field. The groundwater flow direction is southeasterly in the central part of the NHOU, potentially influenced by pumping of the NHOU Aeration Wells, the Erwin and Whitnall Well Field, and the natural groundwater flow direction towards the Los Angeles River Narrows.

3.5 GROUNDWATER FLOW MODELING

USEPA developed a basinwide groundwater flow model for use in its SFV Superfund Site feasibility study (CH2M HILL, 1994). It simulated groundwater pumping, recharge, water levels, and boundary flows on a quarterly basis for water years 1982-1992. The modified and re-calibrated model, updated through 2006 and referred to as version SFBFS-B, is described in Appendix B of the NHOU FSS (USEPA, 2009a). The spacings of the current model's rectangular grid range from 50 to 320 feet in the NHOU area. Vertically, the model is divided into 4 layers representative of the four hydrostratigraphic depth regions defined by the hydrogeologic conceptual model (see Section 3.1).

Figures 3-9 and 3-10 present representative model simulations of the NHOU groundwater surface. These provide an indication of the range of hydraulic gradients and groundwater flow patterns that occur as a result of variable groundwater pumping.

Figure 3-9 shows simulated groundwater contours for autumn 1988 following a period of exceptionally high rates of groundwater pumping from both the eastern and western portions of the North Hollywood Well Field and the Rinaldi-Toluca Well Field (Figure 3-2a). Under these conditions, the model simulates a depression in the groundwater-surface around the well fields such that gradients are reversed relative to the regional southeastern gradient.

Figure 3-10 shows the average of groundwater contours simulated quarterly for water year 2006, when municipal pumping was significantly reduced due to the availability of alternative water supplies. In this case, the direction of groundwater flow was consistently toward the southeast and only slightly inflected at pumping wells.

Figure 3-11 presents plots of the directional distribution of simulated historical water table gradients at five NHOU locations. These represent the quarterly results of SFBFS-B model simulations for Fall 1981 to Fall 2008. For this period at these locations, the direction of the simulated water table gradient varies between south and east for 60 to more than 80 percent of all simulated quarters. As shown by the plot of simulated water table gradient versus time for one of those locations (Figure 3-10), the simulated water table gradient was almost always southeasterly with minimal fluctuation prior to the mid-1980s.

In summary, the results of groundwater monitoring and modeling indicate that the direction of groundwater flow has been predominately to the southeast and south in all depth regions, with localized variations in both space and time as a result of pumping wells.

SECTION 4.0

GROUNDWATER IMPACTS

The discussion in the following sections focuses on the primary constituents of concern (COCs) and their distribution in groundwater underlying the NHOU.

4.1 ORIGIN OF KNOWN CONTAMINANTS

This section presents a discussion of the origin of known contaminants to soil and groundwater and provides a review of historical industrial and waste disposal practices that have influenced the current subsurface contaminant distribution in the NHOU.

4.1.1 Historical Development of the San Fernando Valley

The development of the SFV began with agriculture supported by local water supplies. When the Los Angeles Aqueduct from the Owens Valley was completed in 1913, the City of Los Angeles' water supply suddenly increased to about four times its municipal demand. Although federal restrictions prevented use of the aqueduct water for irrigation outside the City limits, Los Angeles quadrupled its area through a series of annexations between 1914 and 1923, allowing a SFV agricultural boom that included citrus groves, beans, and potatoes (CDWR, 1979). SFV agriculture reached a peak of 80,000 acres in 1920 (Kahrl, 1983). Despite a severe drought that began in the mid-1920s, water use was sustained through further development of the SFV groundwater resource, the use of which had sharply declined following completion of the aqueduct. In 1924, the Los Angeles Department of Water and Power began installing the North Hollywood Well Field.

The population of Los Angeles grew by a factor of about five between 1900 and 1920, resulting in pressures for the rapid urban development of the SFV beginning in the 1920s. Recognizing the economic importance of industry, the cities of Los Angeles, Burbank, and Glendale began encouraging industrial development in the SFV. By 1929, there were approximately 300 manufacturing plants in Glendale alone (Perry and Parcher, 1974). Factors attracting industry to the SFV were climate, a low cost of living, access to basic materials, a stable source of both skilled and unskilled labor, abundant and inexpensive power, water and fuel supplies, developing transportation systems, innovative industrial parks, and access to growing domestic and foreign markets.

4.1.2 Industries

The 1930s to the 1950s were characterized by rapid growth in industrial manufacturing in the SFV. Industry grew in association with the railroad corridors, two airports (Burbank and Van Nuys), and eventually an extensive freeway system (Perry and Parcher, 1974). Principal industries included:

- aerospace;
- defense;
- automatic controls;
- electronics;
- automotive;

- ceramics; and
- pharmaceuticals.

These industries required the use of various chemicals, including:

- solvents such as TCE, PCE, and 1,1,1-trichloroethane (1,1,1-TCA) for degreasing;
- chromium for multiple uses, including metal fabrication, electroplating, welding, dyes, and anti-corrosion in cooling towers and wind tunnels; and
- fuels and accelerants (e.g., perchlorate and n-nitrosodimethylamine [NDMA] in rocket fuel.)

Various chemicals also were used in consumer products and services that catered to the SFV's growing residential and commercial development. For example, dry cleaners used PCE and automotive repair shops often used TCE for degreasing.

Landfills have comprised another SFV industry (see Figure 4-1 for landfills in the NHOU). Although landfills do not produce chemical wastes as a result of manufacturing processes, they may have accepted chemical waste from other industries, and as a result, may be sources of soil or groundwater contamination. Many of these landfills were originally sited in old gravel pits (ULARA Watermaster, 2007), including:

- Bradley East, 1960 to early 1980s;
- Bradley West, 1981 to not known;
- Branford, 1957 to 1961;
- Cal Mat (old), not known;
- Cal Mat (new), 1983 to not known;
- Greg Pit/Benz, 1955 to 1966;
- Hewitt, 1962 to 1975;
- Penrose, 1960 to 1985;
- Newberry, 1948 to 1955;
- Strathern, not known;
- Pendleton, closed;
- Sheldon-Arleta, 1962 to 1974; and
- Tuxford, closed.

4.1.3 Waste Disposal Practices

In the past, solvents such as TCE and PCE were widely used for dry cleaning and degreasing machinery. Disposal practices of these solvents were not well regulated and resulted in contamination in the groundwater. Following the detection of groundwater contamination in 1979, which was subsequently found to occur in large plumes throughout the eastern SFV, investigators identified more than 2,000 industrial plants that had no connection to a municipal sewer system (Gumprecht, 2001).

The Los Angeles Water Pollution Control Board (now known as RWQCB) adopted a SFV basin plan in 1957 that banned the uncontrolled discharge of contaminants. However, the development of adequate disposal practices and infrastructure lagged behind the basin plan's adoption. By 1962 local governments and the Water Pollution Control Board, had

issued more than 1,600 permits for industrial-waste discharge in the SFV (Amter and Ross, 2001).

Solvent handling practices were modified by 1966, contributing to the partial curtailment of contaminant releases. At that time, the use of TCE as the principal industrial solvent was largely replaced with PCE, and to a lesser degree with 1,1,1-TCA.

4.1.4 Water Quality Impacts

Contamination of SFV groundwater by VOCs was first detected in 1979. SFV groundwater was not commonly analyzed for VOCs prior to 1979 and because chlorinated VOCs are persistent contaminants that can last for many years in soil or groundwater, were likely present prior to 1979.

Results of groundwater monitoring from 1981 to 1987 indicated that over 50 percent of water supply wells in the eastern SFV were contaminated (USEPA, SFV Superfund websites). During this period, or soon thereafter, the LADWP shut down 24 of the North Hollywood eastern supply wells due to VOC impacts. More recently, groundwater contamination from chromium and emerging contaminants (ECs) (e.g., 1,2,3-trichloropropane [TCP], 1,4-dioxane, NDMA, and perchlorate) has been identified in the SFV basin.

Historically, chromium and EC concentration data has been limited. Many of the groundwater data sources within the SFV have been sampled only once or have been sampled sporadically. These ECs likely existed in NHOU groundwater prior to 1998, but advances in field sampling and analytical methods have recently made it possible to detect them at lower levels. It should be noted that trace background concentrations of chromium occur in SFV groundwater, typically at levels below 3 micrograms per liter (µg/L), as a result of naturally occurring chromium in the soils comprising the aquifer material (USEPA, 2009b).

Since 1992, USEPA has mapped large plumes of groundwater contaminated with nitrate throughout eastern SFV at concentrations in excess of the 45 milligrams per liter (mg/L) federal and state maximum contaminant level (MCL) (USEPA, SFV Superfund websites). These plumes result from past agricultural and wastewater disposal (e.g., septic tanks) practices dating back many decades.

4.2 CONSTITUENTS OF CONCERN

Early in the RI process, USEPA developed a list of COCs that was mainly comprised of VOCs. The Second Interim Remedy ROD further refined the primary COC list to be TCE, PCE, chromium (total and hexavalent), and 1,4-dioxane, noting that the other detected VOCs were typically detected at lower concentrations than TCE and PCE and ECs, and other than 1,4-dioxane are not expected to exceed their respective MCLs and do not require further treatment (USEPA, 2009b). The ROD established performance goals for the treatment system, but did not establish cleanup goals for the groundwater since this is an interim action. Table 4-1 summarizes the five primary COCs and provides an overview of common commercial and industrial uses of these COCs.

Figure 4-1 is a map of the newly installed 31 NHOU wells summarizing the results of recent groundwater sampling for COCs. The seven geologic cross sections presented in

Figure 3-1 present a summary of COC groundwater chemistry data from the USEPA SFV Database relative to the screened intervals of wells posted along each cross section.

4.3 CONTAMINANT DISTRIBUTION

The most recently available groundwater analytical results for approximately 190 NHOU monitoring, pumping, and remedial extraction wells sampled between 1980 and 2011 are posted and contoured for five COCs (TCE, PCE, 1,4-dioxane, 1,1,1-TCA, and hexavalent chromium) on the maps presented in Figures 4-2 through 4-6. Two maps are provided for each COC, one for Depth Region 1 and one for Depth Regions 2 and 3 combined (e.g., Figures 4-2a and 4-2b for TCE). This is approximately analogous to the shallow and deep plume maps prepared annually by USEPA for the entire SFV Superfund Site (e.g., CH2MHILL, 2009). The highest COC concentrations tend to occur in Depth Region 1.

Seventy-five percent of the posted data are for wells sampled in 2008-2011, including the newly constructed 31 additional NHOU groundwater monitoring wells. The remaining 25 percent of the wells were most recently sampled between 1980 and 2007; these wells either have been destroyed, are no longer sampled, or are sampled infrequently. Data for these previously existing wells were obtained from the USEPA SFV database.

Groundwater COC values posted in Figures 4-2 through 4-6 are contoured using isoconcentration contours at logarithmic intervals of the MCL or Notification Level (e.g., 1, 10, 100, and 1000 µg/L). For hexavalent chromium, the LADWP voluntary action level of 5 µg/L was selected in absence of an MCL or Notification Level. The contouring is weighted most heavily to data collected in 2010-2011, with secondary consideration given to data collected between 1980 and 2009. Consideration of the older data is justified as an indication of where groundwater contamination has and has not occurred, given that general areas of contaminated groundwater have been fairly consistent over time, as discussed further in Section 4.4.3. It is acknowledged that certain wells have longer screen zones, therefore the mid-point of such screens were used to represent depth regions rather than specific depths.

The isoconcentration contours on maps with posted data for both Depth Regions 2 and 3 (e.g., Figure 4-2b for TCE) are weighted most strongly to the Depth Region 2 data. There are relatively few Depth Region 4 data above analytical method detection limits, and these were not considered in the contouring. The isoconcentration contours are dashed where poorly constrained by the available data. Meaningful contouring below the selected minimum concentrations is difficult due to their widespread presence at lower concentrations throughout the NHOU.

The current distribution of COCs in NHOU groundwater results from a complex set of factors, including:

- spatial and temporal distribution of multiple contaminant sources for each COC;
- past variations in regional and local hydraulic gradients due to pumping wells and variable recharge;
- periodic mobilization of residual contaminant sources by percolating recharge and fluctuating groundwater levels;

- spatial variability of aquifer properties; and,
- various chemical properties of each COC that affect fate and transport.

Chemical fate and transport and the resulting influence on contaminant distributions are further discussed in Section 4.4.

In light of this complex set of factors and the limited distribution of data, the delineation of the isoconcentration contours is for the most part empirical, and does not reflect an interpretation of the net effects of these factors. For some COCs in some areas, these contours resemble distinct plumes, i.e., a relatively elevated concentration contour encompassing a single or cluster of sources, with concentric lower concentration contours extending downgradient. Generally, however, these contours are best described as isoconcentration envelopes of the available data that encompass multiple potential sources and reflect various influences on contaminant migration.

For discussion purposes, the contoured areas of groundwater contamination shown in Figures 4-2 through 4-6 are divided into three sectors: eastern, western, and northern. The eastern sector is located near and south of the Burbank Airport. The western sector encompasses most of the eastern and western portions of the North Hollywood Well Field, including the utility corridor alignment of NHOU remedial extraction wells NHE-2 through NHE-6. The northern sector lies between the northern edge of the NHOU and the Tujunga and Rinaldi-Toluca Well Fields to the west and southwest. The approximate boundary between the western and eastern sectors lies between Tujunga and Vineland Avenues and the approximate southern boundary of the northern sector lies between Sherman Way and Saticoy Street. For several COCs, the western and northern sectors contain multiple subareas with COC concentrations above the minimum contoured value. The distribution of contaminants in the eastern sector tends to form only one area above the minimum contour value. As discussed in Section 5.0, these maps also post the distribution of known and potential contaminant releases.

Aspects of the contoured contaminant concentration distributions shown in Figures 4-2 through 4-6 are discussed briefly below.

4.3.1 Distribution of TCE

In the eastern sector, the area of shallow groundwater (i.e., Depth Region 1) with a TCE concentration above 5 μg/L resembles a typical plume consisting of an upgradient area of relatively elevated concentration encompassed by lower concentration contours that extend hydraulically downgradient to the southeast (Figure 4-2a). The deeper zone contains a elevated concentration area (Figure 4-2b) that appears translated downgradient from a corresponding area in the shallow zone, consistent with a downward component within the hydraulic gradient.

The distribution of TCE contamination in the western sector appears more complex. Multiple sources are indicated by the absence of a simple concentration trend within the shallow groundwater zone (Figure 4-2a), and by the occurrence of a few separate areas of TCE concentration greater than 5 μg/L in the deeper zone (Figure 4-2b). Concentrations of TCE greater than 50 μg/L in the deeper zone southwest of the alignment of NHOU remedial extraction wells NHE-2 through NHE-6 may be unrelated to an area of shallow TCE

contamination directly along this alignment, given that these areas have been historically cross gradient from one another (Figure 3-10). Rather, the deeper area may have migrated from sources to the northwest, given the absence of overlying shallow TCE contamination.

In the northern sector, an area of greater than 5 μg/L TCE contamination in the shallow zone extends southward from near the NHOU border. In the deeper zone, an area of TCE contamination appears translated downgradient from the shallow contaminated area, but is oriented southwest toward the Rinaldi-Toluca Well Field. Another area of deep-zone contamination appears oriented toward Rinaldi-Toluca Well Field from the southwest (western sector).

4.3.2 Distribution of PCE

The distribution of PCE concentrations in Depth Region 1 consists of a single area greater than 5 μg/L in the eastern sector and two such areas in each of the western and northern sectors (Figure 4-3a). One of the western sector areas follows the utility corridor alignment of NHOU remedial extraction wells NHE-2 through NHE-6. Differences between the configuration of this area and that of a partially overlapping area of shallow TCE contamination suggest multiple and separate VOC sources. Areas of PCE contamination greater than 5 μg/L in the deeper zone (Figure 4-3b) are relatively limited (Figure 4-3b).

4.3.3 Distribution of 1,1,1-TCA and 1,4-Dioxane

Because 1,4-dioxane has been used as a stabilizer in solvents including 1,1,1-TCA and TCE, its occurrence in groundwater is commonly associated with these VOCs and their degradation byproducts (e.g., 1,1-DCE). This is consistent with overlapping shallow-zone areas of 1,1,1-TCA and 1,4-dioxane concentrations above 2 and 1 μg/L, respectively in Figures 4-4a and 4-5a. Furthermore, the generally greater downgradient extent of 1,4-dioxane compared to 1,1,1-TCA is consistent with the very low retardation of 1,4-dioxane (see Section 4.4).

In the northern sector, a small area of 1,4-dioxane above 1 μg/L in the deeper zone (Figure 4-4b) appears translated downgradient from a corresponding area in the shallow zone (Figure 4-4a). In the western sector, an area of greater than 1 μg/L 1,4-dioxane extends across the NHE-2 to NHE-6 alignment in a direction counter to the historical general direction of groundwater flow (Figure 3-10), suggesting the potential influence of multiple contaminant sources. In the eastern sector, the area of greater than 1 μg/L 1,4-dioxane extends across the airport and southward.

4.3.4 Distribution of Hexavalent Chromium

The distribution of contoured areas of hexavalent chromium include one plume in the shallow zone of the western sector originating from the former Bendix facility and several smaller areas elsewhere in both the shallow and deep zones (Figures 4-6a and 4-6b). The limited areal distribution of hexavalent chromium compared to other COCs is consistent with its high retardation factor (see Section 4.4).

4.4 CONTAMINANT FATE AND TRANSPORT

Contaminant transport occurs through both the vadose and saturated zones and is influenced by numerous factors, including the nature of the chemical source, various properties of both the chemical and subsurface media, and properties of the groundwater flow regime. The fate of contaminants is further determined by their potential to degrade and the occurrence of conditions that allow degradation.

The release of contaminants into the subsurface may occur as either pure phase (e.g., a non-aqueous phase liquid [NAPL]), dissolved aqueous phase, or vapor phase (i.e., dissolved in soil gas). Released NAPL has the greatest potential to remain in the subsurface as a residual, continuing source of contamination, whereas dissolved and vapor-phase releases may attenuate more readily as a result of more active transport, dilution, and degradation. Although past releases of NAPL may have occurred within the NHOU, there is no evidence to suggest that NAPLs are currently present within either the NHOU vadose or groundwater zones (USEPA, 2009b).

Chemical migration through the vadose zone is influenced by the properties of both the chemical and the subsurface media. A chemical's solubility determines the mass of the chemical that can dissolve in vadose zone pore water, whereas Henry's Law constant controls the partitioning between dissolved and vapor phases. Relevant properties of the subsurface media include its porosity, density, permeability as a function of degree of saturation, organic carbon content, mineralogy, and capillary properties.

Dissolved-phase transport through the vadose zone is downward under the influence of gravity but retarded by the specific retention of the soil. The hydraulic conductivity of the soil is determined by the degree of saturation as a result of specific retention and spatially and temporally variable sources of percolating recharge. Vapor transport occurs as molecular diffusion, which is a function of a chemical's air diffusivity and the air-filled porosity of the vadose zone. Under sufficiently elevated soil gas concentrations, a chemical may partition from the vapor phase into shallow groundwater, causing measurable dissolved-phase concentrations.

Once a chemical has been transported to the water table, transport occurs through advection (i.e., the bulk motion of flowing groundwater) and hydrodynamic dispersion. Hydrodynamic dispersion consists of mechanical mixing and molecular diffusion. Mechanical mixing occurs during groundwater flow as a function of pore size, roughness, and tortuosity along flow paths.

Chemical properties relevant to transport in groundwater include a chemical's solubility, diffusion coefficient, octanol-water partitioning coefficient, organic carbon-water partitioning coefficient, distribution coefficient, biodegradation constant, and vapor pressure. Many organic chemicals are hydrophobic, indicating that they have a low affinity for solution in water and instead are taken up readily by organic matter in the soil and rock solids. Relevant properties of the saturated subsurface media include its porosity, density, organic carbon content, and hydraulic conductivity, as well as lateral and vertical hydraulic gradients within the groundwater regime.

Dissolved-phase transport through the saturated zone is attenuated by dispersion, adsorption, and degradation. The potential for adsorption, as defined by the distribution coefficient (K_d), is determined by the bulk density and organic carbon content of the aquifer,

and properties of both the chemical and groundwater. Chemical retardation is defined as the ratio of the rate of groundwater flow to the rate of chemical transport as influenced by adsorption.

Contaminant transport is further attenuated by chemical degradation. A chemical may undergo biotic degradation (i.e., biodegradation) as well as abiotic transformation. Both processes result in decreased mass of the degrading chemical and increased mass (and corresponding concentration) of the chemicals that are produced (i.e., daughter products). Biological degradation may occur under aerobic conditions (i.e., in either the vadose or saturated zones) or anaerobic conditions (typically the saturated zone only). The rate at which degradation proceeds is described by a chemicals degradation constant, or half-life. The half-life of an organic chemical depends on both its chemical properties and the prevailing environmental conditions. Chemical half-lives are used to estimate a chemical's persistence in the environment. Chemical-specific half-lives are calculated according to the general decay equation.

4.4.1 VOCs

NHOU COCs include the chlorinated ethenes TCE and PCE. In general, such halogenated VOCs have:

- moderate-to-high solubilities;
- a high tendency to volatilize into air;
- moderate–to-high vapor pressures;
- variable tendencies to dissolve preferentially in organic liquids compared to water; and
- moderate tendencies to sorb to organic matter in soil.

These properties indicate that chlorinated VOCs can readily dissolve in water and transport quickly through soil and into groundwater. Retardation factors for TCE and PCE were estimated by the SFV RI to be 2.2 and 3.5, respectively (JMM, LADWP, and USEPA, 1992).

Under suitable conditions, TCE and PCE degrade by reductive dechlorination into 1,2-DCE (primarily the cis-1,2-DCE isomer) and, vinyl chloride, and finally, ethene. Degradation may be limited, however, by redox conditions influenced by factors such as the presence of dissolved oxygen or nitrate. Large nitrate plumes exist within NHOU groundwater as a result of past agricultural and wastewater practices, and this dissolved nitrate may inhibit reductive dechlorination as well as consume reductants such as polysulfide.

TCA-1,1,1 degrades to 1,2-DCE primarily under strongly reducing conditions. Although the rate of degradation can be rapid, NHOU groundwater generally is not sufficiently reducing to support this degradation, except perhaps near source areas where other biodegradable materials (e.g., petroleum hydrocarbons) are present to drive the anaerobic conditions and degradation. Under these conditions, 1,1,1-TCA will degrade to 1,1-DCA, and more rapidly than to 1,1-DCE. The breakdown of 1,1,1-TCA to 1,1-DCE is abiotic and not dependent on geochemical conditions. The half life of 1,1-DCE is highly temperature dependent and is on the order of a couple of years in the NHOU area.

Another NHOU COC, 1,4-dioxane, has a high solubility in water, low volatility, moderately high vapor pressure, and low tendency to sorb to organic matter. As such, it readily dissolves in water and migrates at a rate similar to the average linear groundwater velocity (i.e., a retardation factor of essentially 1.0). In the absence of a continuing source, chemicals with low retardation, such as 1,4-dioxane, can migrate away from the original source without leaving a residual-plume pathway (i.e., a detached plume) or leaving only residual contamination as low concentrations of the contaminant desorbs from the aquifer matrix. The spatial distribution of concentration data versus known or suspected potential sources, and the highly coarse-grained character of the basin fill (see Section 3.1), are consistent with the interpretation of detached plumes. The occurrence of 1,4-Dioxane in groundwater is commonly associated with 1,1,1-TCA, TCE, and their degradation products as a result of its use as a stabilizer in these VOCs.

4.4.2 Chromium

Chromium occurs widely in nature. In its natural, trivalent form, chromium has limited solubility except under extremely acidic conditions. Chromium used in industrial activities is commonly in the hexavalent form. Hexavalent chromium is soluble over a wide range of pH conditions, and is highly mobile in the groundwater and soil environment (Palmer and Puls, 1994). The transport of hexavalent chromium is impacted by redox conditions influenced by total organic carbon, ferrous iron, and sulfides. Sulfides may derive from sulfate reduction under anaerobic conditions. Retardation factors for hexavalent chromium may range from 1 to more than 100 depending on factors such as remaining sorption capacity. Residual hexavalent chromium in the vadose zone can continue to serve as a “reservoir” of contamination migrating into the groundwater table.

The use of soil sample analyses alone to evaluate potential sources of hexavalent chromium in soil may be highly misleading. Results are significantly influenced by soil type, grain size and moisture content. Rarely is hexavalent chromium sorbed to soil, except in rare cases where the hexavalent chromium concentrations were very high and chromate minerals such as barium or calcium chromate formed as secondary minerals. Rather, hexavalent chromium is typically present dissolved in the interstitial pore fluid within the vadose or saturated zones. Thus, the amount of hexavalent chromium is more a function of moisture content, which in turn is more a function of grain size and capillary retention capacity. When a laboratory prepares a soil core for analysis, the sample is dried, the dry solids are analyzed, and the detected concentrations of hexavalent chromium are reported in milligrams per kilogram (mg/kg). However, analyzing the pore moisture, and reporting the results in mg/L, is much more representative of the possible presence of mobile hexavalent chromium in the soil (Rouse, 1997).

The use of soil core analysis, with or without synthetic leach protocols, does not portray the actual mobile portion of hexavalent chromium in the vadose-zone and provides minimal indication of the potential threat to groundwater. Thus, the potential for groundwater contamination from hexavalent chromium cannot be determined solely from soil samples. More representative information may be obtained by the installation of pressure/vacuum lysimeters, which collect actual samples of the interstitial fluid. The lysimeters can also be used to evaluate the results of *in situ* remediation.

4.4.3 Observed Aspects of Fate and Transport

Factors affecting COC concentrations in groundwater include the following:

- Residual contaminant sources sorbed to sediments and dissolved in retained pore water above the water table may mobilize and enter groundwater as a result of flushing by infiltrated water through the vadose zone or resaturation of the vadose zone by a rising water table. This was observed immediately following wet years 2005 and 2006 when increased recharge and decreased pumping resulted in a 10-year peak in shallow groundwater levels (Figure 3-5) and a corresponding peak in some COC concentrations in some areas of shallow groundwater.

- Chemical retardation within the saturated zone causes the contaminant mass to migrate more slowly than the groundwater flow. As a result, transient groundwater flow causes plume spreading such that plumes may not mimic the groundwater flow orientation at any one particular point in time.

- As dissolved contaminants migrate with the flow of groundwater, isoconcentration contours may remain fairly stationary as a result of dilution from chemical dispersion and decreases in contaminant mass from chemical degradation or reduction.

- Contaminant dilution results from the convergence of groundwater flow paths in the vicinity of pumping wells, such that the isoconcentration contours that define the plume do not extend all the way to the pumping well. For example, this is seen in deep-zone TCE plumes that approach the Rinaldi-Toluca Well Field from both the northeast and southwest (Figure 4-2b).

- Plumes may become detached from their original source areas where a) the contaminant source becomes effectively exhausted and b) the contaminants have low retardation factors. For example, landfills generally represent a diffuse contaminant source as a result of the disposal of low-concentration wastes over extended periods of time. Upon landfill closure and gradual depletion of the diffuse contaminant source, the downgradient contaminant plume may become detached from the source area, leaving minimal evidence of a plume pathway extending back to the landfill.

- Chemicals with low retardation, such as 1,4-dioxane, can migrate away from an original, depleted source without leaving a residual-plume pathway.

SECTION 5.0

SOURCES EVALUATION

This section presents a summary of facilities within the NHOU that have known releases of the COCs to soil and/or groundwater, and facilities with the potential to have released COCs based on the type, timeframe, and duration of operations, and information on waste generation and handling practices.

The identification of facilities with known and potential releases was conducted by reviewing publically-available information sources. These sources include:

- USEPA Administrative Record for the San Fernando Valley Superfund Site (USEPA, 2007) found at a repository (Burbank Public Library);
- North Hollywood Operable Unit Chromium Evaluation (CH2M Hill, 2006);
- Chromium VI Investigation: San Fernando Valley Phase I Inspections (RWQCB, 2002);
- Water Board website - Case List – San Fernando Valley Cleanup Program (RWQCB, 2008);
- USEPA website – General and Specific Notice Letter Recipients List;
- List of signatures to the 1996 Partial Consent Decree and the 1997 Second Partial Consent Decree (US vs. Allied Signal et al, 1997);
- RWQCB Geotracker website, which includes regulatory data base listings, as well as reports and site investigation data for sites under RWQCB jurisdiction;
- review of regulatory case files for selected facilities, obtained under the Freedom of Information Act;
- a search of publically available environmental records and databases conducted through Environmental Data Resources, Inc. (EDR);
- city directories obtained from EDR at 1-year intervals from 1920 to 2006, focusing on addresses that lie within the industrially zoned areas;
- Sanborn maps obtained from EDR focusing on addresses that lie within industrially zoned areas;
- Internet searches of company websites and other potentially relevant information; and
- review of professional organization publications and websites.

The EDR search areas focused primarily on industrial and commercial land-use areas aligned along an east-west corridor through the approximate center of the NHOU, as depicted in Figure 5-1. The available Sanborn maps applicable to industrial and commercial facilities within these areas were reviewed primarily for 1960, 1963, 1966, and 1969. Limited Sanborn Map sets were also available for 1941, 1943, 1953, 1954, and 1956. Site

information gathered from the Sanborn Maps was used to identify sites that may have used industrial solvents or conducted metal treatment and plating activities, and to corroborate site addresses and information gathered from agency lists and reports. Figure 4-1 shows the location of selected facilities and former landfills in the NHOU.

Typical manufacturing operations and industrial processes that may have used the COCs were researched and are summarized below:

- PCE, TCE, and 1,1,1-TCA - industrial solvents used in adhesives, paint removers, dry cleaning, dyestuffs, textiles, spot removers, metal degreasers, and the manufacture of various chemical products.
- Hexavalent Chromium – used in metal finishing and plating processes, aircraft assembly (e.g., zinc chromate putty), and conversion coating (i.e., chromate film for paint bonding).
- 1,4-Dioxane – used as a stabilizer in 1,1,1-TCA and TCE after 1960; used in vapor degreasers associated with pre-1989 plating operations; and used in photographic film cleaning processes after 1970 when the use of carbon tetrachloride was banned.

Upon review of this information, the identified facilities were sorted into the following two categories:

1. Known Release Site, and
2. Potential Release Site.

Known Release Sites are facilities that have documented impacts to soil and/or groundwater as determined by the review of publicly-available documents. Potential Release Sites are facilities where the types of manufacturing, timeframe and duration of operation, and types of waste generated indicate the potential for COC releases to soil and/or groundwater.

Table 5-1 presents a summary of the 38 NHOU facilities with known releases. The table identifies each company or entity, the NHOU facility names and addresses, their operating histories, and a brief description of known impacts to the subsurface.

Table 5-2 presents a summary of the additional 281 facilities identified as potential release sites. The table provides available information regarding their historical operations, chemical usage, regulatory status, and known impacts. Table 5-2 also classifies each facility as either Tier 1 or Tier 2 based on the following information:

Tier 1:

- Type of operation (i.e., manufacturing, machining or aircraft support services, chemical product manufacturing or usage).
- Period of operation when VOCs, 1,4-dioxane, or chromium were widely used.

Tier 2 (higher likelihood of potential release):

- Tier 1 information.
- Operated for 5 or more years.
- Evidence of chemical usage.

Known release sites and Tier 2 potential release sites are posted on the COC distribution maps presented in Figures 4-2 through 4-6.

SECTION 6.0

DISCUSSION AND CONCLUSIONS

This section evaluates the distribution of contaminated groundwater described in Section 4.3 relative to the distribution of known and potential contaminant releases identified in Section 5.0. This section also identifies groundwater monitoring and chemical analysis data gaps that limit the understanding of the vertical and horizontal extent of the COC distributions in NHOU groundwater.

Over the past three decades, groundwater samples have been collected and chemically analyzed from more than 190 groundwater monitoring wells in the NHOU area. These samples are representative of all the depth regions and suggest that groundwater is impacted as a direct result of decades of industrial manufacturing and historical waste management activities. The source evaluation (Section 5.0) has identified 38 NHOU facilities with known releases of COCs to the subsurface and another 281 sites representative of potential releases. Of the 281 potential release sites identified in Section 5.0, 206 are designated Tier 1 and 75 are designated Tier 2. Tier 2 represents a higher likelihood of potential release according to criteria presented in Section 5.0. The locations of 38 known releases and 75 Tier 2 potential releases are posted on the COC distribution maps provided in Figures 4-2 through 4-6. These maps suggest that releases from both known and potential release sites have contributed to the observed comingled plumes of groundwater contamination.

The discussion contained in this section is based on currently available information and reasonable interpretation of sources and potential sources. Based on this information reasonable judgments are presented as to the need for facilities warranting further consideration in a number of areas. It must be recognized that more is known about some facilities than others, and there are likely sources of which are currently unaware. Given the long and complex industrial nature of the area, changes in pumping rates in nearby well fields, variations in groundwater flow directions and water levels, combined with the near ubiquitous distribution of many groundwater contaminants make source identification a complex process. It is likely that as more information becomes available additional sources and potential sources will be identified and some of the potential sources discussed here will be determined not to have contributed to groundwater contamination.

6.1 VOLATILE ORGANIC COMPOUNDS

Areas of elevated VOC contamination in NHOU groundwater occur predominantly along the east-west industrial corridor described in Section 5.0 (Figure 5-1) and near active and closed landfills (Figure 4-1). The relation between known and potential release sites and areas of contaminated groundwater are discussed below for the western, eastern, and northern sectors of the NHOU defined in Section 4.3.

6.1.1 Western Sector

Western and eastern portions of the western sector are discussed below.

Western Portion

- In this area, concentrations of TCE and PCE ranged up to 82 μg/L in groundwater samples collected from monitoring wells NH-C09, NH-C11, NH-C13, and NH-C20 during the second quarter 2011 (2Q11) (Figures 4-2a, 4-2b, and 4-3a). These detections suggest the presence of nearby and hydraulically up gradient releases.

- Areas of VOC-impacted groundwater appear to be migrating northeasterly towards the Rinaldi-Toluca Well Field and southwesterly towards the western North Hollywood Well Field.

- Consistent with the strong southeast tendency of the historical groundwater gradient (Figure 3-10), VOCs also appear to be migrating from an unidentified release in the vicinity of the Hewitt Pit southeast toward the Whitnall and Erwin Well Fields (see wells NH-C18 and NH-C19 on Figure 4-2b).

- Groundwater chemistry presented on cross-section D-D' in Figure 3-1 suggests that VOCs are migrating from an unknown source in the vicinity of the Hewitt Pit area. There are approximately 14 known releases and 30 potential release sites in this general area. Based on currently available information related to past industrial operations, chemical use, and waste management practices, three facilities appear to warrant further consideration: Hewitt Pit, LADPW, Raintree (Tables 5-1 and 5-2).

Eastern Portion

- Groundwater impacted by VOCs in the eastern portion of the western sector appears to migrate southeasterly and commingle with VOC contamination migrating from the former Bendix Facility.

- Elevated VOC concentrations detected in the vicinity of Pacific Steel Treating suggest that one or more separate sources occur downgradient of the former Bendix Facility (Figure 4-2a). This area does not appear to have been sufficiently investigated for the purpose of identifying such sources.

- Based on the source evaluations, there are approximately 8 known releases and 25 potential release sites upgradient or near the eastern portion of the western sector. Based on currently available information related to past industrial operations, chemical use, and waste management practices, the following nine facilities appear to warrant further consideration: Allan Aircraft Co., Avibank Manufacturing, EM Coatings, Federal Manufacturing Corp., Fleetwood Machine Products, General Wax and Candle Co., Pacific Airmotive, Pacific Magnetics, and Pacific Steel Treating..

6.1.2 Eastern Sector

- VOC contamination appears to originate west of the east-west Burbank Airport runway, near LC1-CW06, and migrate to the southeast. This plume appears to migrate into Depth Region 2 and toward the North Hollywood Extraction Wells and Whitnall Well Field (Figures 4-2b and 4-3b).

- This area does not appear to have been sufficiently evaluated to define potential releases near and upgradient of LC1-CW06. Concentrations presented in cross-

section C-C' (Figure 3-1) suggest that VOC releases may have occurred near LC1-CW06.

- Approximately 8 known and 12 potential releases have been identified in the LC1-CW06 area. Based on currently available information related to past industrial operations, chemical use, and waste management practices, the following 8 facilities appear to warrant further consideration: Almore Dye House, Barry Controls, Burbank Airport, Greg's Automotive, Hawker Pacific, Los Angeles Unified School District, Skipower Plating Works, and Valley Friction Materials.

- Relatively elevated detections of PCE in shallow groundwater sampled from monitoring wells LC1-CW-06 (43 µg/L in 4Q10) and LC1-CW08 (42 µg/L in 4Q10) suggest one or more releases near or upgradient of this well (Figure 4-3a). VOC-contaminated groundwater appears to migrate from Depth Region 1 towards Depth Region 2, and from the Burbank Airport towards the Burbank Operable Unit (Figures 4-3a and 4-3b).

- Three known releases have been identified in the LC1-CW08 area that may have impacted groundwater. However, this area does not appear to have been sufficiently evaluated to define all potential releases in the vicinity of LC1-CW08. Groundwater chemistry presented on cross-section F-F' (Figure 3-1) suggests that a VOC release may be located near LC1-CW08. Based on currently available information related to past industrial operations, chemical use, and waste management practices, the following five facilities appear to warrant further consideration: former Lockheed Facility Plant C-1, former Lockheed Building 528, former airport operator Martin Aviation, former Lockheed Facility Plant B-5, and Burbank Airport Hanger 22.

6.1.3 Northern Sector

- VOC concentrations detected in shallow groundwater (up to 16 µg/L in 2007 in well 4917A) suggest one or more releases near the Tuxford Landfill, which may commingle with one or more releases in the vicinity of the Penrose, Newberry, and Strathern landfills as evidenced by the detection of 36.6 µg/L TCE (1Q07) at well 4918B.

- Groundwater impacted by TCE in the northern sector appears to migrate southwesterly toward the Rinaldi-Toluca Well Field and commingle with VOC contamination in the western sector. TCE in deeper groundwater between the landfills and the Rinaldi-Toluca Well Field (e.g., at NH-C05) suggests downward migration of the plume and/or one or more additional but unidentified sources in this area (see Figure 4-2b).

- Groundwater PCE concentrations above the MCL (e.g., in samples from well NH-C01-325) suggest there may be southeast migration toward the Burbank Airport. This area does not appear to have been sufficiently evaluated to better define potential releases in the vicinity of NH-C05. Furthermore, more current data from the landfill monitoring wells are needed to better define this plume.

- Based on currently available information related to past industrial operations, chemical use, and waste management practices, the following four facilities appear

to warrant further consideration: the Tuxford, Newberry, Penrose, and Strathern Landfills.

6.2 1,4-DIOXANE

1,4-dioxane is present throughout much of the NHOU in areas where VOC plumes exist, including areas where 1,1,1-TCA is present. Much of the groundwater chemistry data for 1,4-dioxane are for groundwater samples collected at or near the Former Bendix Facility. Limited data are available for other areas within the industrial corridor and downgradient of landfill areas.

6.2.1 Western Sector

- Concentrations of 1,4-dioxane detected in groundwater from monitoring well NH-C09 (13 μg/L in 4Q10) suggests there may be one or more releases near and/or hydraulically upgradient of this area (Figures 4-4a and 4-4b). This area does not appear to have been sufficiently evaluated to define potential releases in the vicinity of NH-C09. Analysis of groundwater samples from the western North Hollywood Well Field may better define the vertical and horizontal extent of the 1,4-dioxane in this area. Known and potential VOC releases noted above for the western sector also may be applicable to 1,4-dioxane in this area.

- 1,4-dioxane appears to be migrating south from the former Bendix Facility at concentrations recently ranging from 3.4 to 690 μg/L (Figure 4-4a). Concentrations decrease as this plume approaches the NHE wells. Detected concentrations in NHE wells range from 1.1 to 2.4 μg/L (2Q11).

- Concentrations of 1,4-dioxane in groundwater samples from wells GW-9 and GW-18A (see inset on Figure 4-4a) suggest that additional sources may exist to the northwest, between the former Bendix Facility and well NH-VPB-06. Caravan Fashion may be a source for 1,4-dioxane in this area because this facility historically used 1,1,1-TCA in the manufacturing of fasteners for the aerospace industry. Based on type of work, chemical use, and operating history, the following two facilities may warrant further consideration: General Wax and Candle and Trimm WH Mfg Co Sheet Metal.

- Potential separate releases may exist hydraulically upgradient of well NH-C10 (2.3 μg/L in 4Q10). As indicated by the strongly southeastward historical groundwater gradient (Figure 3-10), the area located immediately upgradient of NH-C10 does not appear to have been sufficiently evaluated. Chemical analysis of groundwater samples from the eastern North Hollywood Well Field and Pacific Steel Treating may better define the vertical and horizontal extent of this plume.

- 1,4-dioxane has been detected sporadically at or below analytical detection limits in Depth Regions 2 and 3 in this area (up to 6 μg/L in 2Q11; Figure 4-4b). Available data are insufficient for determining whether these data points represent isolated or more extensive areas of contamination in the deeper zone. Analyses for 1,4-dioxane in groundwater sampled from the Rinaldi-Toluca, Erwin, and Whitnall Well Fields may define the horizontal extent of 1,4-dioxane in this area more clearly.

6.2.2 Eastern Sector

1,4-dioxane was detected at 3.8 μg/L in a groundwater sample from well NH-C12 (4Q10) south of the east-west Burbank Airport runway. This suggests one or more potential releases near or upgradient of this well (Figure 4-4a). This area does not appear to have been sufficiently evaluated to define potential releases in the vicinity of NH-C12. Known and potential VOC releases noted above for the eastern sector also may be applicable to 1,4-dioxane. Based on currently available information related to past industrial operations, chemical use, and waste management practices, the following three facilities appear to warrant further consideration: Almore Dye House and Gregs Automotive.

6.2.3 Northern Sector

Concentrations of 1,4-dioxane (up to 5.18 μg/L in 1Q07) detected in groundwater samples from the vicinity of the northern landfills suggests one or more potential releases in this area (Figures 4-4a and 4-4b). The analysis of groundwater samples from monitoring wells associated with Bradley Landfill, Greg Pit, and Benz Dump are needed to help delineate the occurrence of 1,4-dioxane in this area.

Known and potential VOC releases noted above for the northern sector also may be applicable to 1,4-dioxane. The industrial corridor west of the Newberry, Penrose, and Strathern Landfills has not been evaluated sufficiently. Additional searches are needed to determine if there are other facilities in this area where one or more potential releases may have occurred.

6.3 1,1,1-TCA

Concentrations of 1,1,1-TCA ranged between less than one to 3.9 μg/L with one detection of 85 μg/L in the northern area occur in groundwater throughout the NHOU in areas of TCE and PCE contamination (Figures 4-5a and 4-5b). Additionally, this chemical is present in the areas where 1,4-dioxane has been detected.

6.4 HEXAVALENT CHROMIUM

Detections of hexavalent chromium above analytical laboratory method detection limits are reported for groundwater samples collected throughout the NHOU (Figures 4-6a and 4-6b). Naturally occurring background concentrations of chromium in NHOU groundwater are typically below 5 μg/L in Depth Region 1 and 1 μg/L in deeper regions (USEPA, 2009a). The variability of hexavalent chromium groundwater analytical results may be caused by sampling methodologies (e.g., filtering samples in the field or in the laboratory), preservation methods, and different laboratory analytical methods. These variables create some inherent uncertainty within the historical data.

6.4.1 Western Sector

- A hexavalent chromium concentration of 7 μg/L (4Q10) was detected in groundwater sampled from well NH-C11. The source of this contamination is unknown. Based on the source evaluations, there are approximately three known releases and 30 potential release sites and in this area that may have impacted groundwater. Based on currently available information related to past industrial operations, chemical use,

and waste management practices, the following three facilities appear to warrant further consideration: Federal Manufacturing Corp. and Sprayco.

- Concentrations and the plume geometry of hexavalent chromium in groundwater near and immediately downgradient of the former Bendix Facility are relatively well defined (see inset on Figure 4-6a). This plume extends south toward well NHE-2. The strong southeast tendency of the historical hydraulic gradient (Figure 3-10) suggests that hexavalent chromium detections in Depth Region 2 at well NH-C18 may have migrated from other sources to the northwest.

- Chromium concentrations in groundwater monitoring wells NH-VPB-06 and NH-C20-380 are not elevated to the west of the former Bendix Facility toward NHE-1.

- Further down gradient of the former Bendix Facility, past hexavalent chromium concentrations increase slightly in the vicinity of Pacific Steel Treating, suggesting the potential for one or more additional releases in this area (Figure 4-6a). Additional sampling for hexavalent chromium from existing wells in this area, including a well located at Pacific Steel Treating, would provide a better understanding of whether (a) the plume from the former Bendix Facility commingles with a second source, (b) the hexavalent chromium detections at NH-C10-280 and NHE-5 represent a separate chromium plume, and/or (c) such detections represent the leading edge of the plume associated with the former Bendix Facility.

- Based on the source evaluations, there are approximately eight known releases and 25 potential release sites that may have impacted groundwater in this area. Based on currently available information related to past operations, chemical use, and waste management practices, the following five facilities appear to warrant further consideration: AAA Metal Plating, Avibank Manufacturing, Casa de Chrome, EM Coatings, and Pacific Magnetics.

6.4.2 Eastern Sector

- Hexavalent chromium has been detected above analytical detection limits in groundwater sampled from well 3830S south of the Burbank Airport (10.8 μg/L in 2Q09; Figure 4-6a). Historically, this well had a 15 μg/L detection in 2006.

- Based on the evaluation of known and potential sources, there are approximately eight known releases and 12 potential release sites in this area that may have impacted groundwater. Based on currently available information related to past operations, chemical use, and waste management practices, the following five facilities appear to warrant further consideration: Burbank Airport Hanger 22, former Lockheed Building 528, former Lockheed Facility Plant C-1, and former airport operator Martin Aviation.

6.4.3 Northern Sector

Hexavalent chromium has been reported in groundwater samples at concentrations above analytical detection limits in groundwater monitoring wells 4898 and 4897 in 1987 (up to 50 μg/L; Figures 4-6a and 4-6b). This area does not appear to have been sufficiently

evaluated in order to better define a potential release in this vicinity, which could potentially impact the northern portion of the Rinaldi-Toluca Well Field.

SECTION 7.0

SUMMARY

The construction and sampling of 31 groundwater monitoring wells was completed by Honeywell (MWH, 2011) to support USEPA's objective of characterizing the contaminant plumes and understanding their relationship to source areas, while providing information that will improve decision-making during design of the Second Interim Remedy. Work was performed under an Administrative Settlement Agreement and Order on Consent for Remedial Investigation and, as described in the Additional Groundwater Monitoring Well Installation Work Plan, dated October 16, 2009. Data obtained from the newly installed wells were integrated with historical NHOU data to refine the understanding of NHOU hydrostratigraphy, hydraulic gradients, lateral and vertical extent of contaminant plumes, and contaminant sources.

Results from the groundwater characterization were as follows:

- The hydrostratigraphic evaluation of the NHOU is generally consistent with the vertical subdivision of NHOU hydrostratigraphy into four depth regions as conceptualized by the SFBFS model.

- Further subdivision of the hydrostratigraphy within the SFBFS-B groundwater flow model should be considered to account for a lower permeability zone between Depth Regions 1 and 2. Also, Depth Regions 2 and 3 could be subdivided to better simulate the affect of deepening of some NHE remedial extraction wells on groundwater flow patterns.

- A contour map of the Depth Region 1 groundwater piezometric surface estimated from groundwater level measurements for December 2010 and January 2011 indicate a southerly flow direction in the area of the northern landfills. The groundwater flow direction turns southwesterly in the area of the former Hewitt Pit, likely influenced by pumping of the North Hollywood West Well Field. The groundwater flow direction turns southeasterly in the central part of the NHOU, potentially influenced by pumping of the NHOU Aeration Wells, the Whitnall Well Field, and the natural groundwater flow direction towards the Los Angeles River Narrows.

- Modeling using the SFBFS-B groundwater flow model indicates that modeling indicate that the direction of groundwater flow has been predominately to the southeast and south in all depth regions, with localized variations as a result of pumping wells.

- The current distribution of COCs in NHOU groundwater results from a complex set of factors including: spatial and temporal distribution of multiple contaminant; past variations in regional and local hydraulic gradients due to pumping wells and variable recharge; periodic mobilization of residual contaminant sources by percolating

recharge and fluctuating groundwater levels; spatial variability of aquifer properties; and, various chemical properties of each COC that affect fate and transport.

- Over the past three decades, groundwater samples have been collected and chemically analyzed from more than 190 groundwater monitoring wells in the NHOU area. These samples are representative of all the depth regions and suggest that groundwater is impacted as a direct result of decades of industrial manufacturing and historical waste management activities.

- Areas of elevated VOC contamination in NHOU groundwater occur predominantly along the east-west industrial corridor and near active and closed landfills. VOC-impacted groundwater appears to migrate southerly from the area of the northern landfills towards Rinaldi-Toluca Well Field. VOCs also appear to migrate towards both Rinaldi-Toluca and North Hollywood West Well Fields from an unidentified source near Hewitt Pit, perhaps along a groundwater divide created by these well fields. VOCs also migrate in a southeasterly direction towards Whitnall and Erwin Well Fields.

- 1,4-Dioxane is present throughout the NHOU in areas where VOC plumes exist, including 1,1,1-TCA. Concentrations of 1,4-dioxane across the NHOU range from 1 to 690 μg/L. Some 1,4-dioxane appears to be migrating south from the former Bendix Facility. Concentrations decrease to 1.9 to 8 μg/L as this plume approaches the NHE Aeration wells.

- Detections of hexavalent chromium above analytical laboratory method detection limits (typically 1 μg/L) are reported for groundwater samples collected throughout the NHOU. Naturally occurring background concentrations of chromium in NHOU groundwater are typically below 5 μg/L in Depth Region 1 and 1 μg/L in deeper regions.

- Concentrations and the plume geometry of hexavalent chromium in groundwater near and immediately downgradient of the former Bendix Facility are relatively well defined. This plume extends south towards well NHE-2. The strong southeast tendency of the historical hydraulic gradient (Figure 3-10) suggests that hexavalent chromium detections in Depth Region 2 at well NH-C18 may have migrated from other sources to the northwest.

- A potential source evaluation has identified 38 NHOU facilities with known releases of COCs to the subsurface and another 281 sites representative of potential releases (Tables 5-1 and 5-2). Of the 281 potential release sites, 75 sites have a higher likelihood of potential release considering type of manufacturing, the timeframe and duration of operation, and history of wastes generated (Tier 2).

- Of the 75 sites, 40 facilities are referenced in the body of this report as warranting further consideration based on their history of manufacturing and their proximity to plumes. These 40 facilities are listed in Table 7-1.

- Discussions contained in this report are based on currently available information and reasonable interpretation of sources and potential sources. Based on this information reasonable judgments are presented as to the need for facilities

warranting further consideration in a number of areas. It is likely that as more information becomes available additional sources and potential sources will be identified and some of the potential sources discussed in this report will be determined not to have contributed to groundwater contamination.

These results can be used to support decision-making during design of the Second Interim Remedy for the NHOU.

SECTION 8.0

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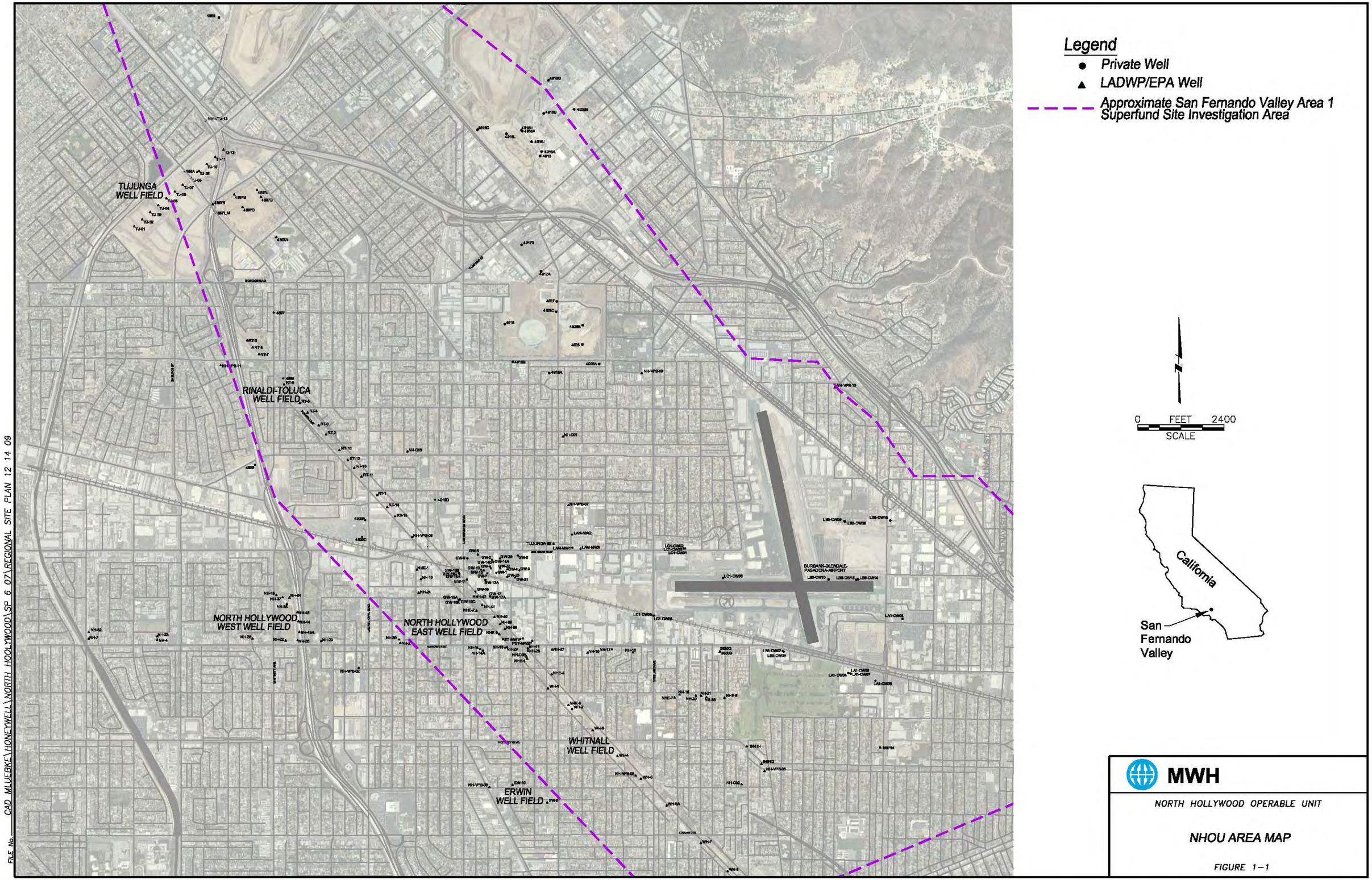
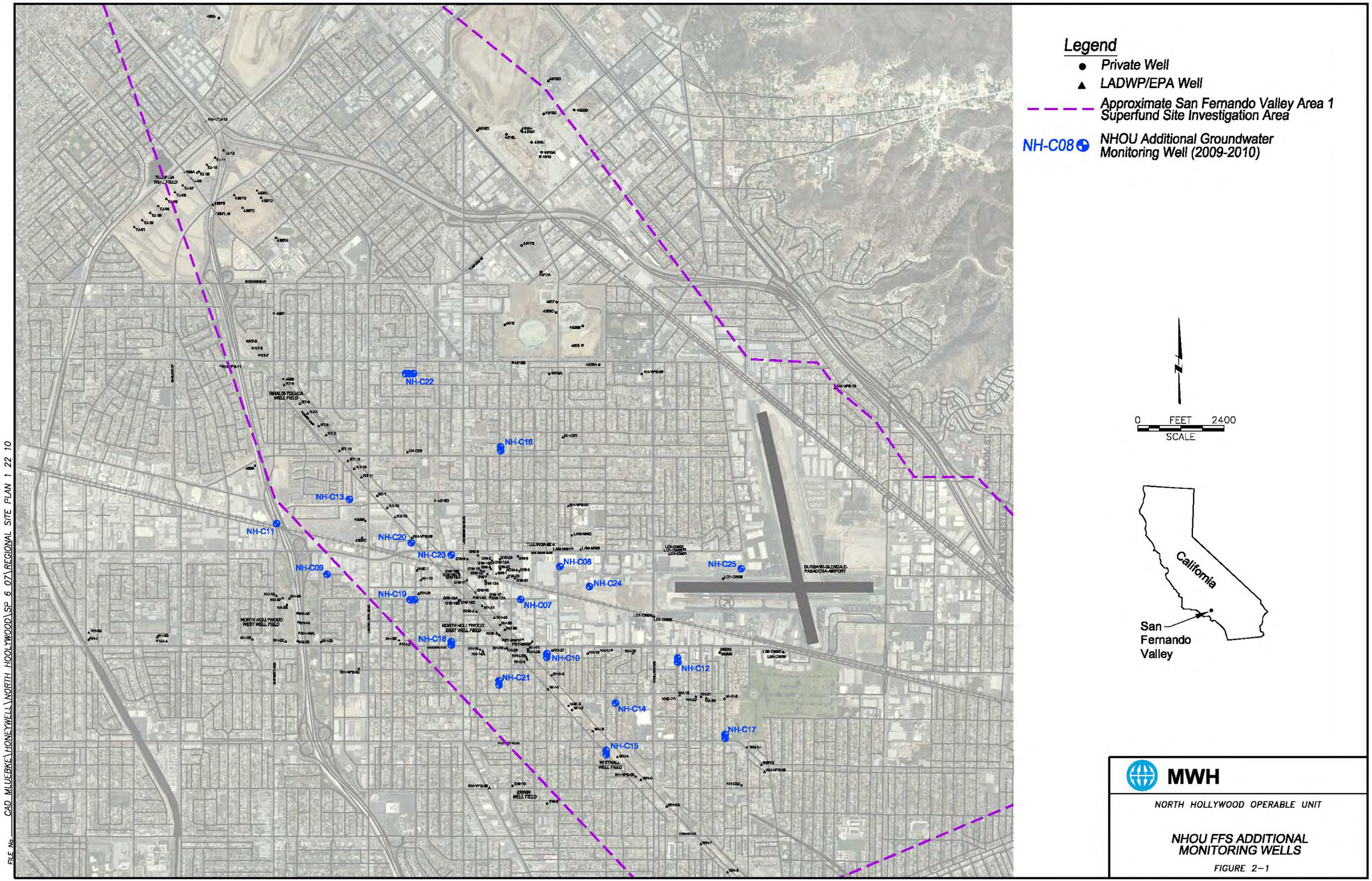
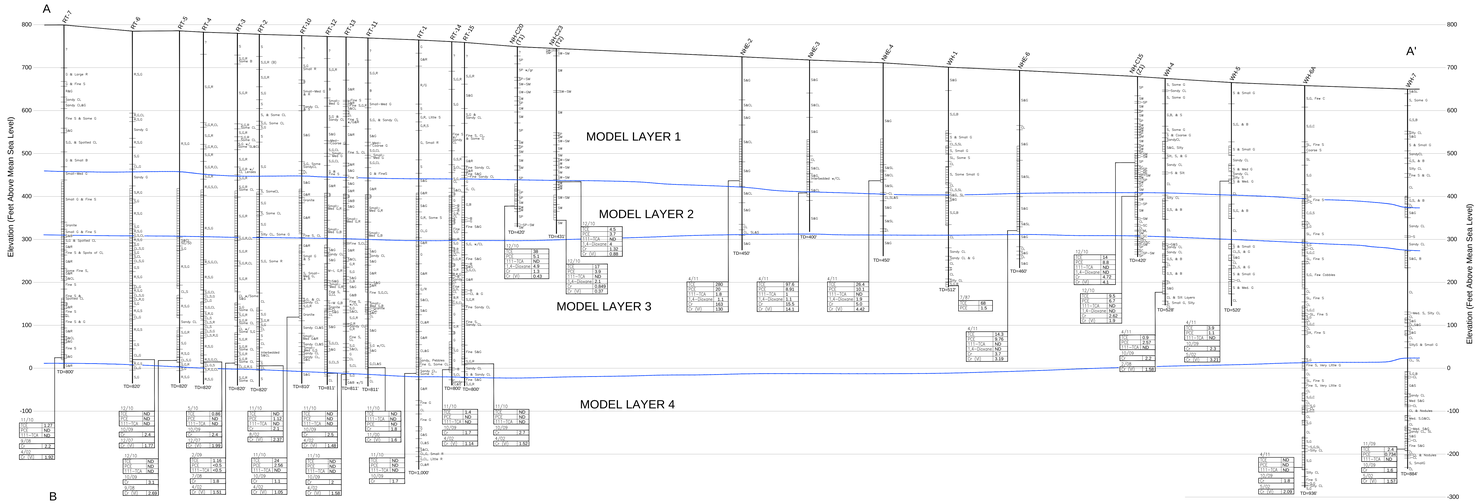
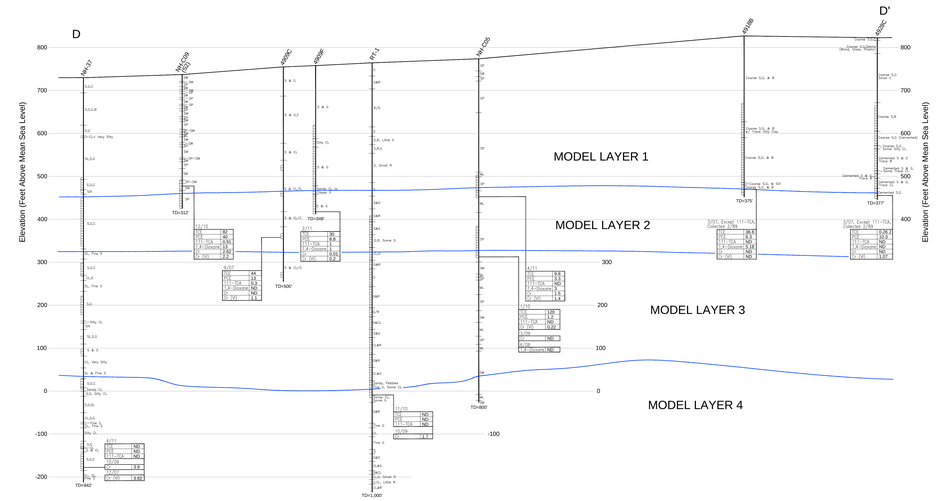
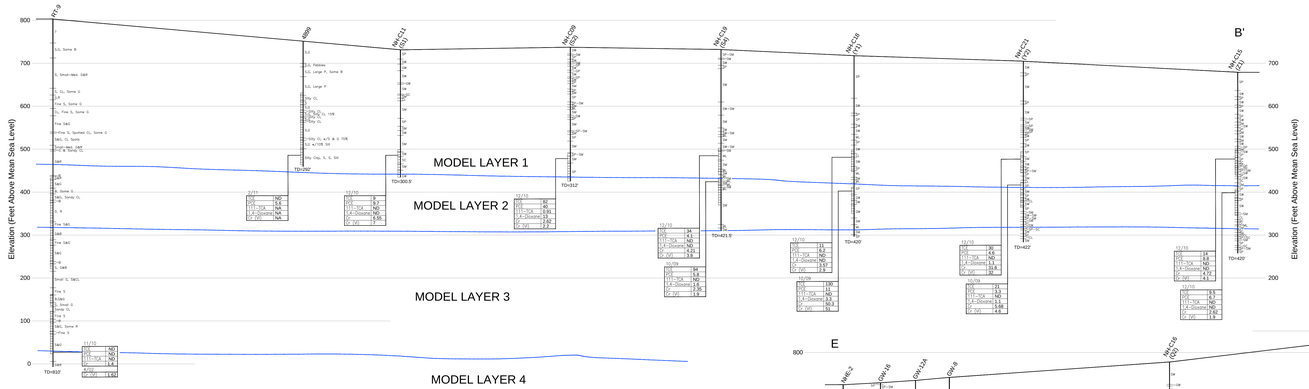
FIGURES

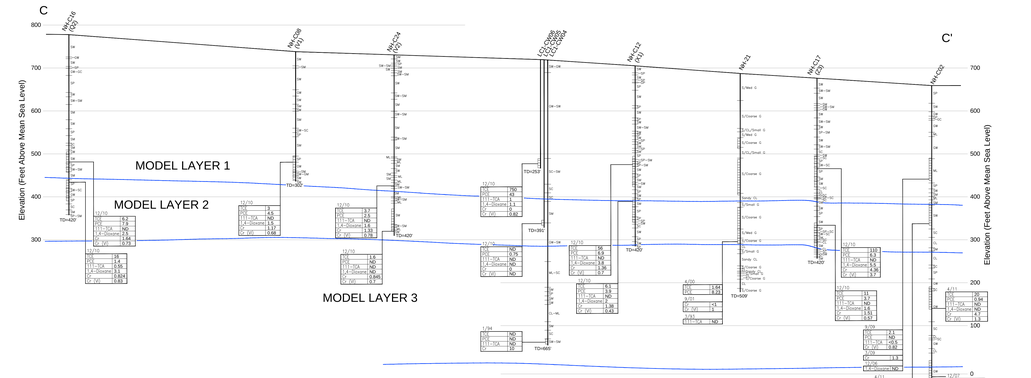

Legend
Private Well
LADWP/EPA Well
Approximate San Fernando Valley Area 1 Superfund Site Investigation Area
TUJUNGA WELL FIELD
RINALDI-TOLUCA WELL FIELD
NORTH HOLLYWOOD WEST WELL FIELD
NORTH HOLLYWOOD EAST WELL FIELD
WHITNALL WELL FIELD
ERWIN WELL FIELD
BURBANK-GLENDALE-PASADENA-AIRPORT
0 FEET 2400
SCALE
California
San Fernando Valley
MWH
NORTH HOLLYWOOD OPERABLE UNIT
NHOU AREA MAP
FIGURE 1-1
CAD: MLUEBKE\HONEYWELL\NORTH HOLLYWOOD\SP 6 07\REGIONAL SITE PLAN 12 14 09
FILE No.

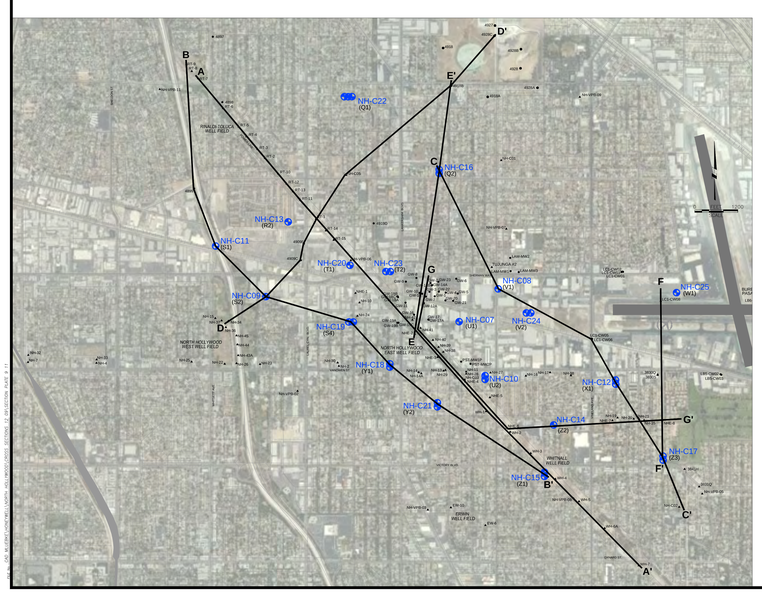

Legend
Private Well
LADWP/EPA Well
Approximate San Fernando Valley Area 1 Superfund Site Investigation Area
NH-C08 NHOU Additional Groundwater Monitoring Well (2009-2010)
0 FEET 2400
SCALE
California
San Fernando Valley
NH-C22
NH-C16
NH-C13
NH-C11
NH-C20
NH-C23
NH-C08
NH-C09
NH-C24
NH-C25
NH-C19
NH-C07
NH-C18
NH-C10
NH-C21
NH-C12
NH-C14
NH-C17
NH-C15
BURBANK-GLENDALE-PASADENA-AIRPORT
NORTH HOLLYWOOD WEST WELL FIELD
NORTH HOLLYWOOD EAST WELL FIELD
RINALDI-TOLUCA WELL FIELD
ERWIN WELL FIELD
MWH
NORTH HOLLYWOOD OPERABLE UNIT
NHOU FFS ADDITIONAL MONITORING WELLS
FIGURE 2-1
CAD MLUEBKE\HONEYWELL\NORTH HOLLYWOOD\SP 6 07\REGIONAL SITE PLAN 1 22 10
FILE No.

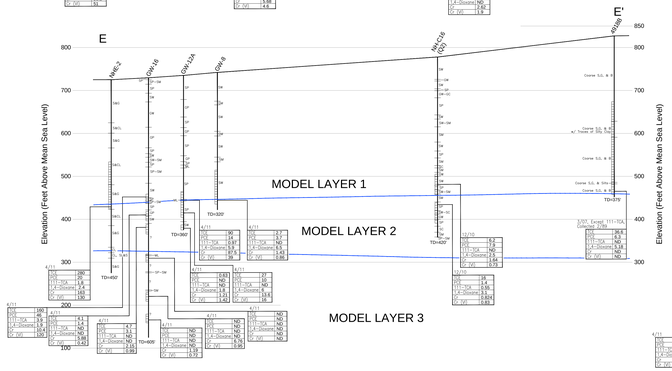


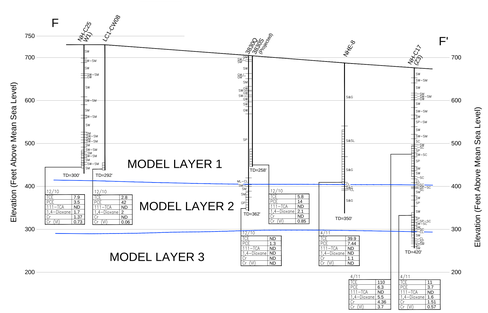


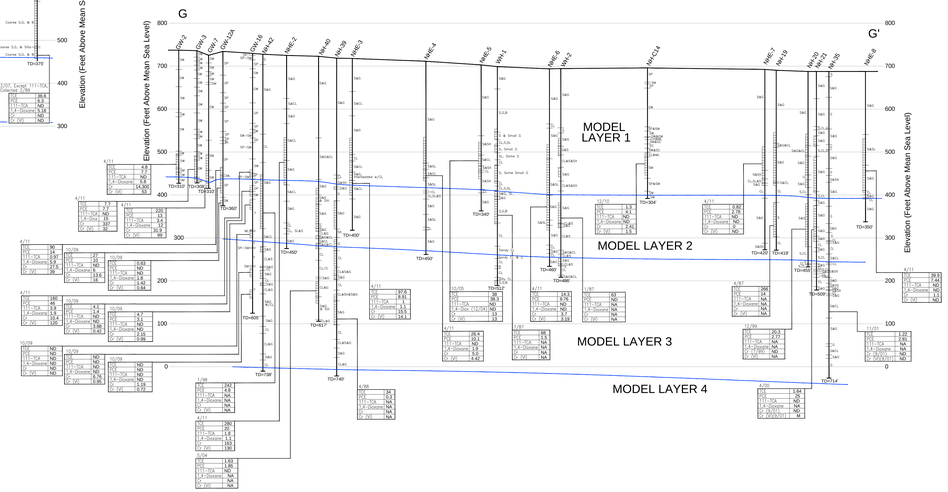












Legend

- Well/Soil Boring ID
- Screened Interval
- CL — USCS Symbol
- ML — Lithologic Contact
- TD=420 — Total Depth of Boring

Notes:

Concentrations are in micrograms per liter (ug/L).
Data Sources: this report and USEPA SFV database.
Samples were representative of entire screened interval.
NA = Not Analyzed
Model layer depths depicted on these cross-sections are referenced from the U.S. EPA San Fernando Basin Conceptual Model (Depth Regions).

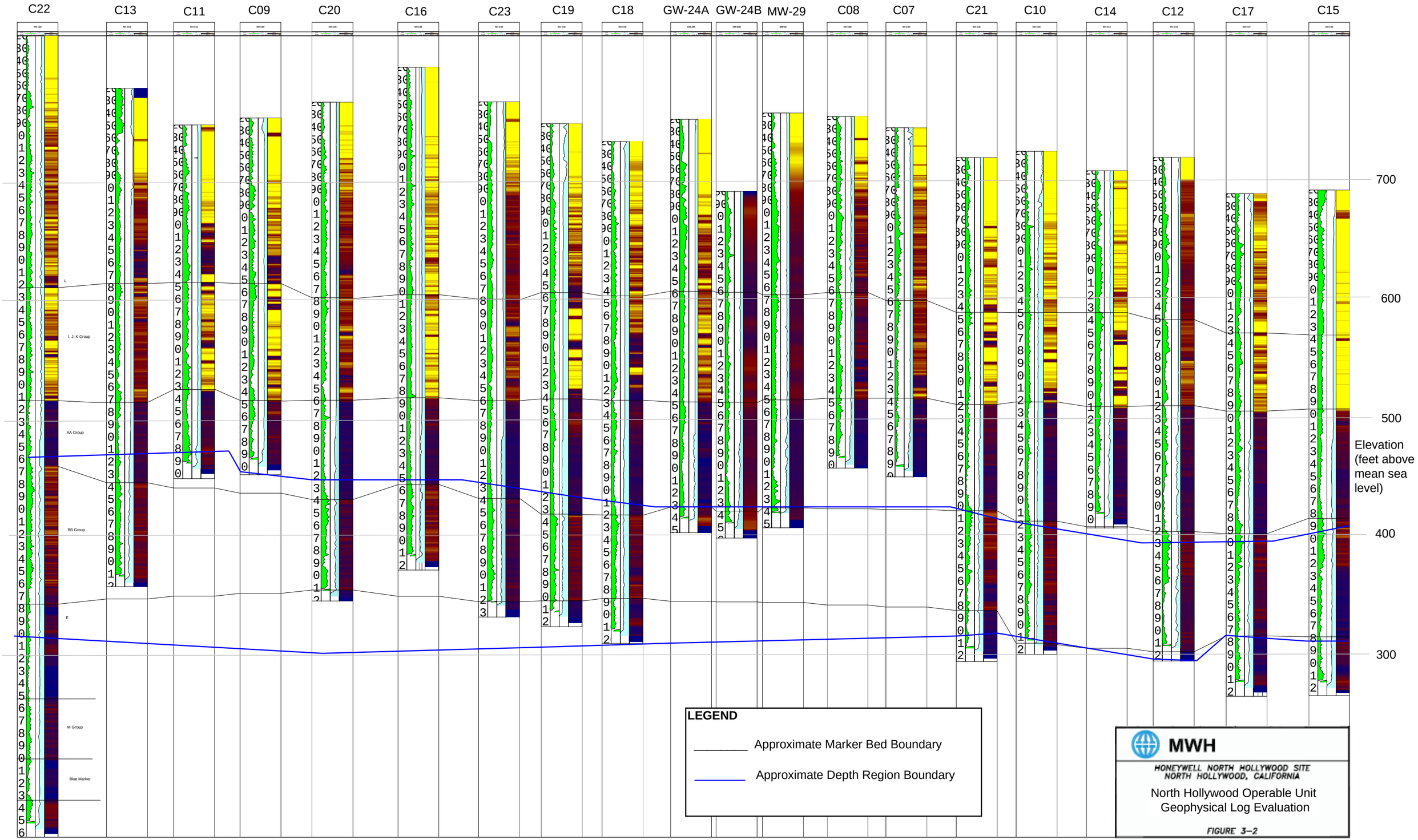
Scale in Feet
0 100
0 600

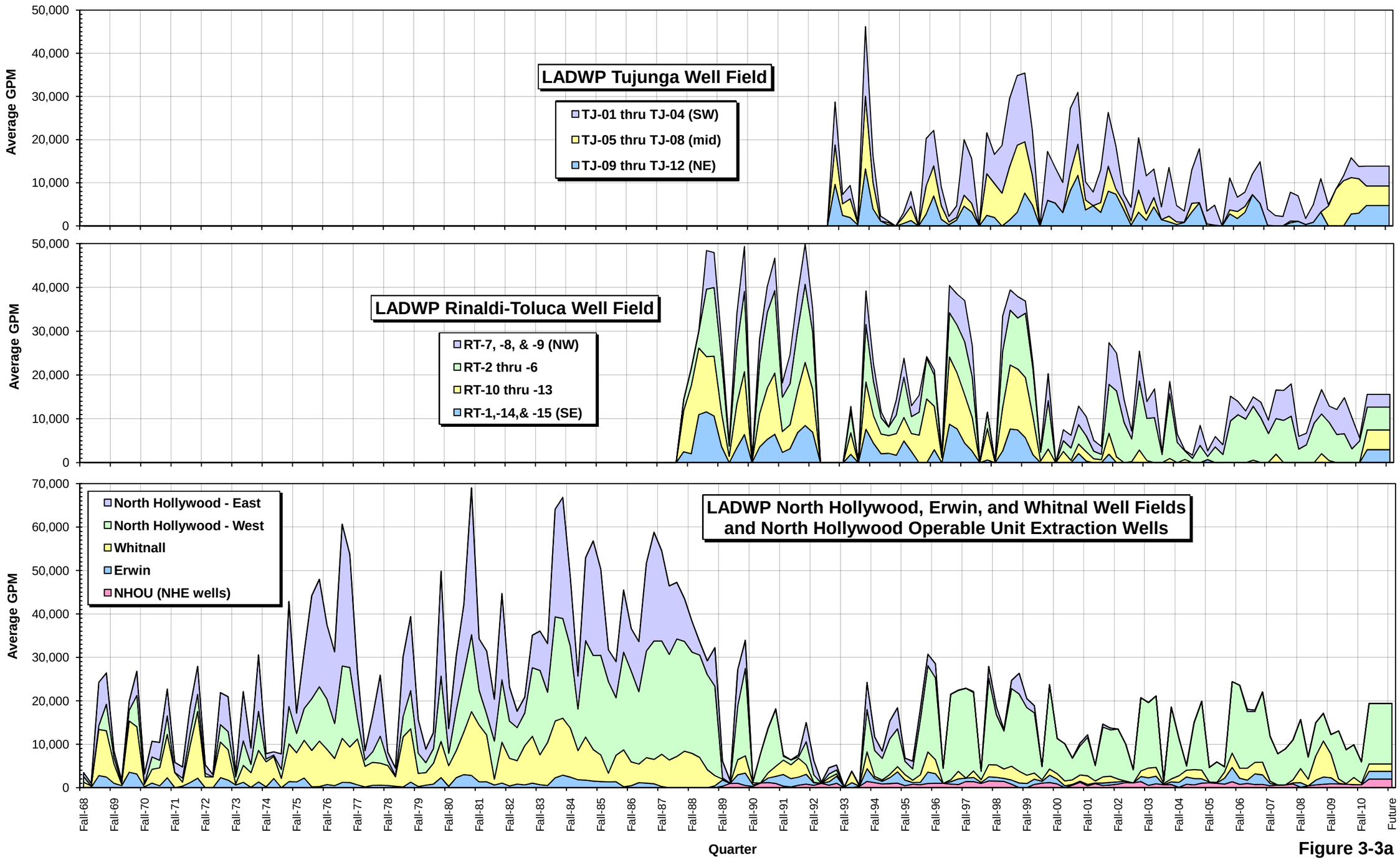
MWH

NORTH HOLLYWOOD OPERABLE UNIT

GEOLOGIC CROSS SECTIONS

FIGURE 3-1

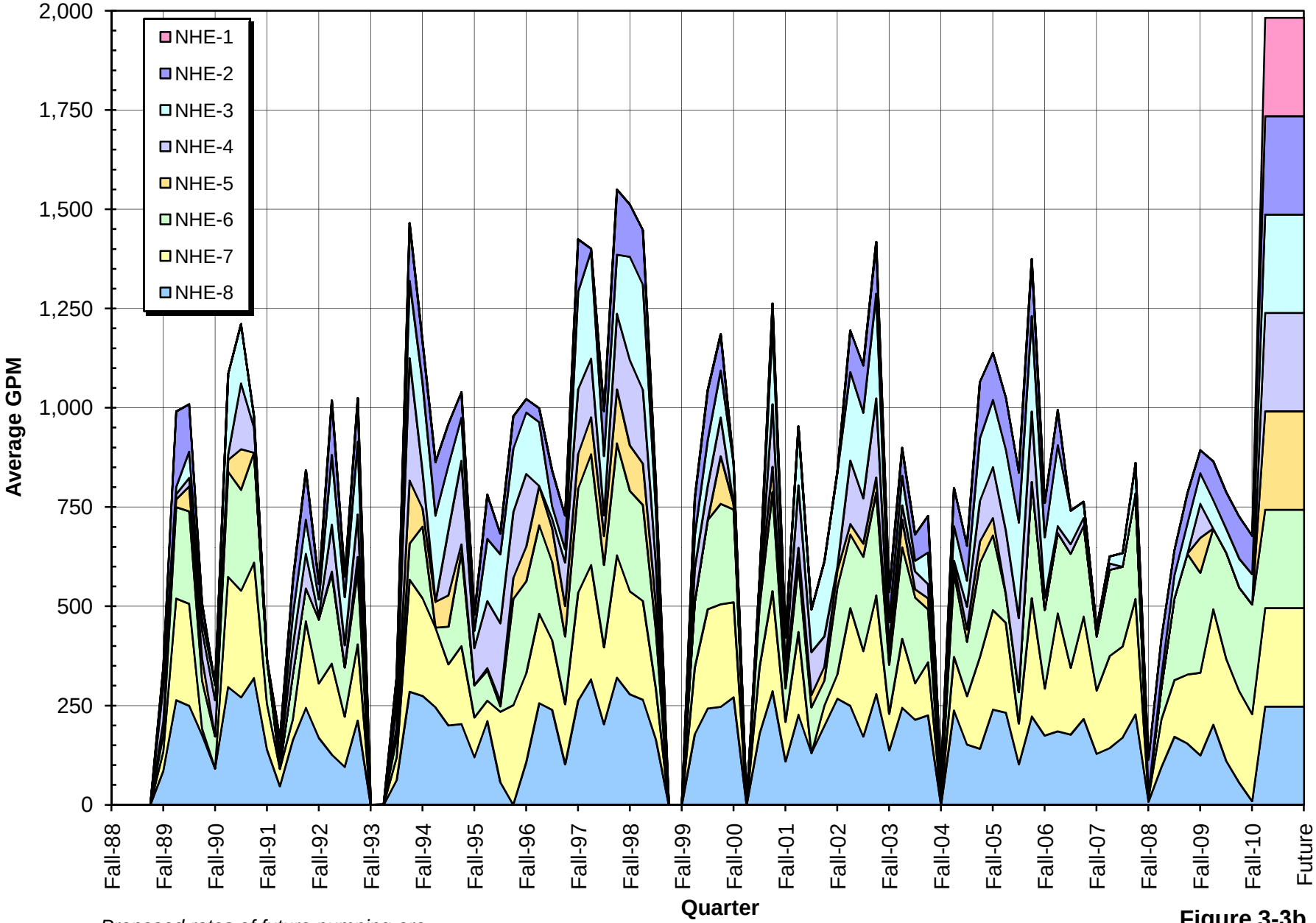

C22
C13
C11
C09
C20
C16
C23
C19
C18
GW-24A
GW-24B
MW-29
C08
C07
C21
C10
C14
C12
C17
C15
700
600
500
400
300
Elevation (feet above mean sea level)
L
I, J, K Group
AA Group
BB Group
E
M Group
Blue Marker
LEGEND
Approximate Marker Bed Boundary
Approximate Depth Region Boundary
MWH
HONEYWELL NORTH HOLLYWOOD SITE
NORTH HOLLYWOOD, CALIFORNIA
North Hollywood Operable Unit
Geophysical Log Evaluation
FIGURE 3-2



Projected future pumping are average annual rates (USEPA, 2009a).

Figure 3-3a
Historical and Projected-Future Groundwater Extraction, NHOU-Area Production Wells

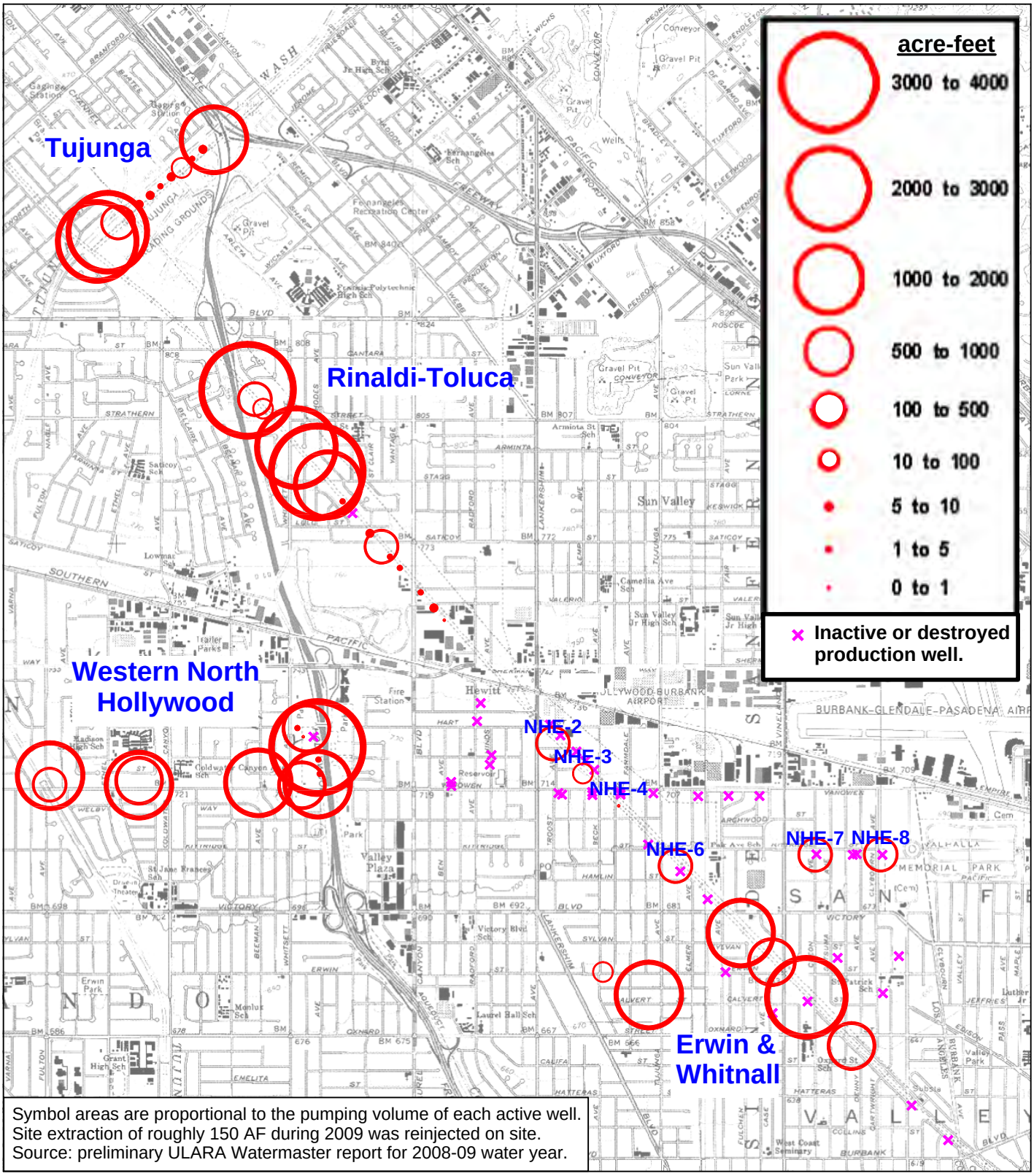
Qp-plots5.xlsx LADWP 8/17/2011 5:09 PM



Proposed rates of future pumping are average annual (USEPA, 2009a).

Figure 3-3b
Historical and Projected-Future Groundwater Extraction, NHE Remedial Wells

Qp-plots5.xlsx NHE 8/17/2011 5:11 PM



Symbol areas are proportional to the pumping volume of each active well.
Site extraction of roughly 150 AF during 2009 was reinjected on site.
Source: preliminary ULARA Watermaster report for 2008-09 water year.

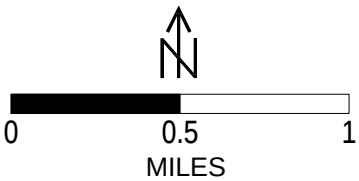
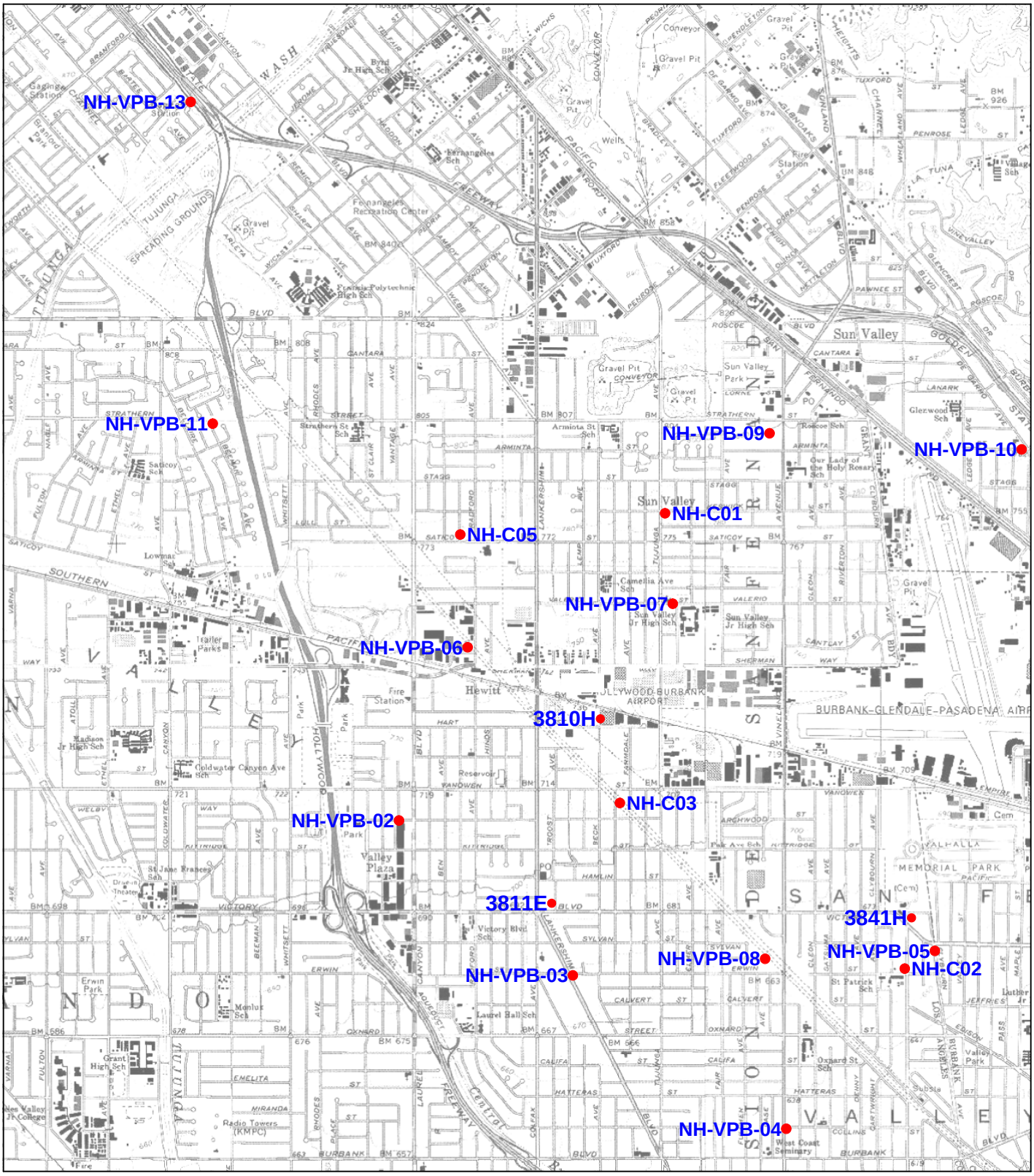


Figure 3-4
Distribution of Groundwater Production, Partial 2008-09 Water Year (October 2008 through July 2009) (acre-feet)

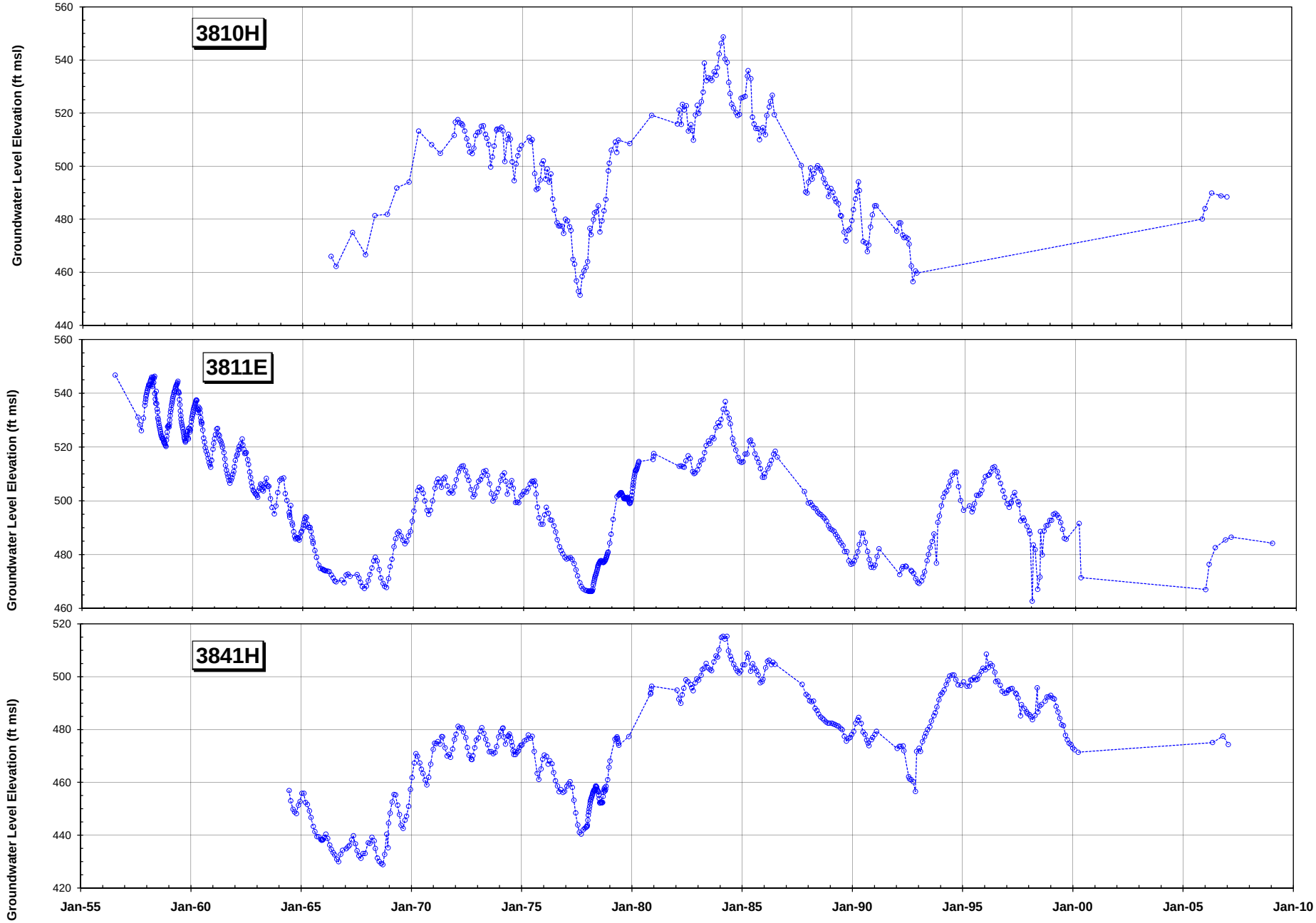
Source: see Table 3-2



0 0.5 1
MILES

Figure 3-5
Location of Selected Monitoring Wells with Long-Term Hydrographs

See Table 3-4 for well completion information.



See Figure 3-4 for well locations.

Source: ULARA Watermaster

Figure 3-6

Selected Historical Groundwater Level Hydrographs in the NHOU Area, 1956-2009

LongTermHGs.xls Sheet1 2/24/2010 8:44 AM

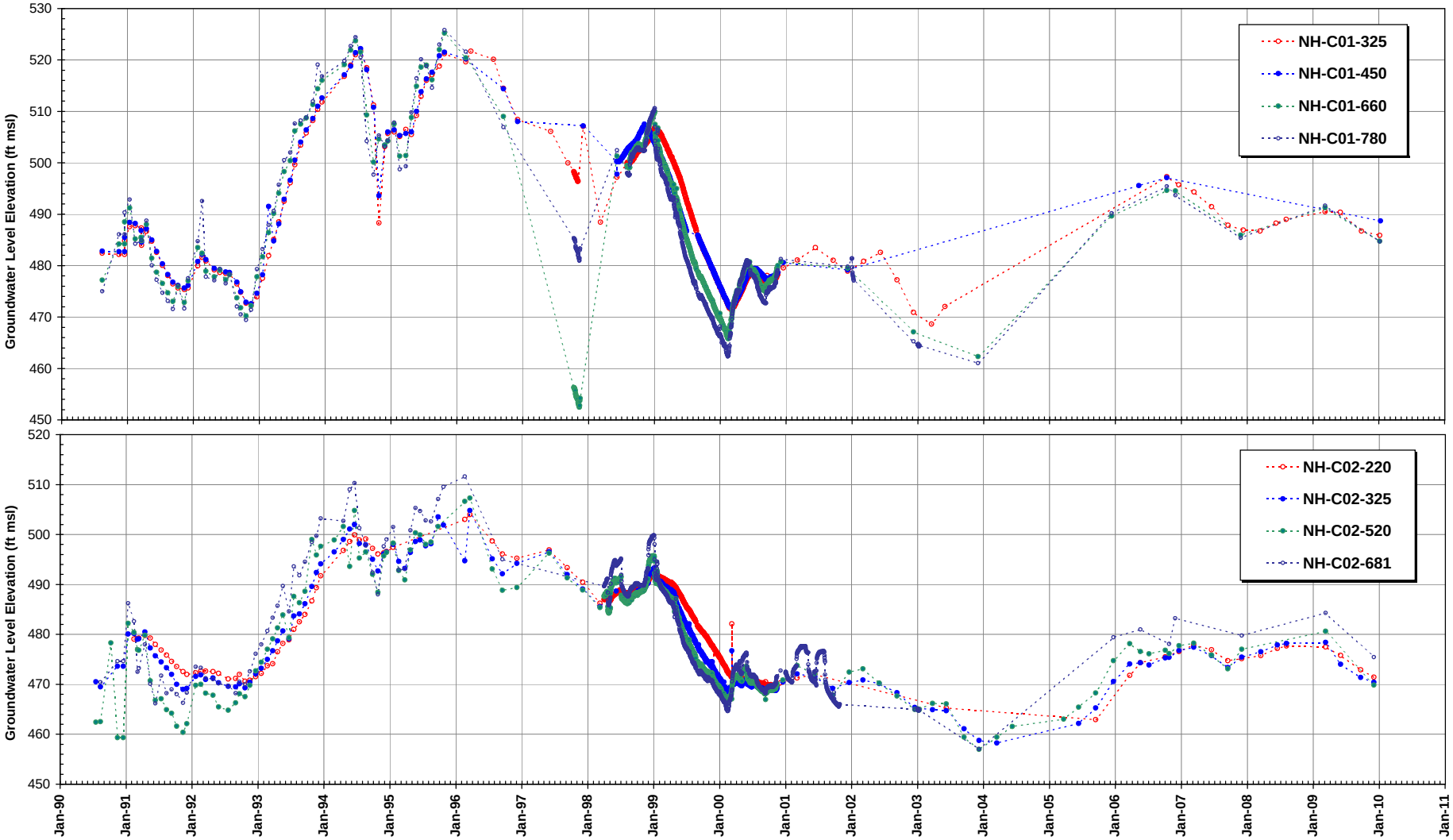


Figure 3-7a
USEPA Monitoring Well Groundwater Level Hydrographs, NH-C01 and NH-C02, 1990-2010

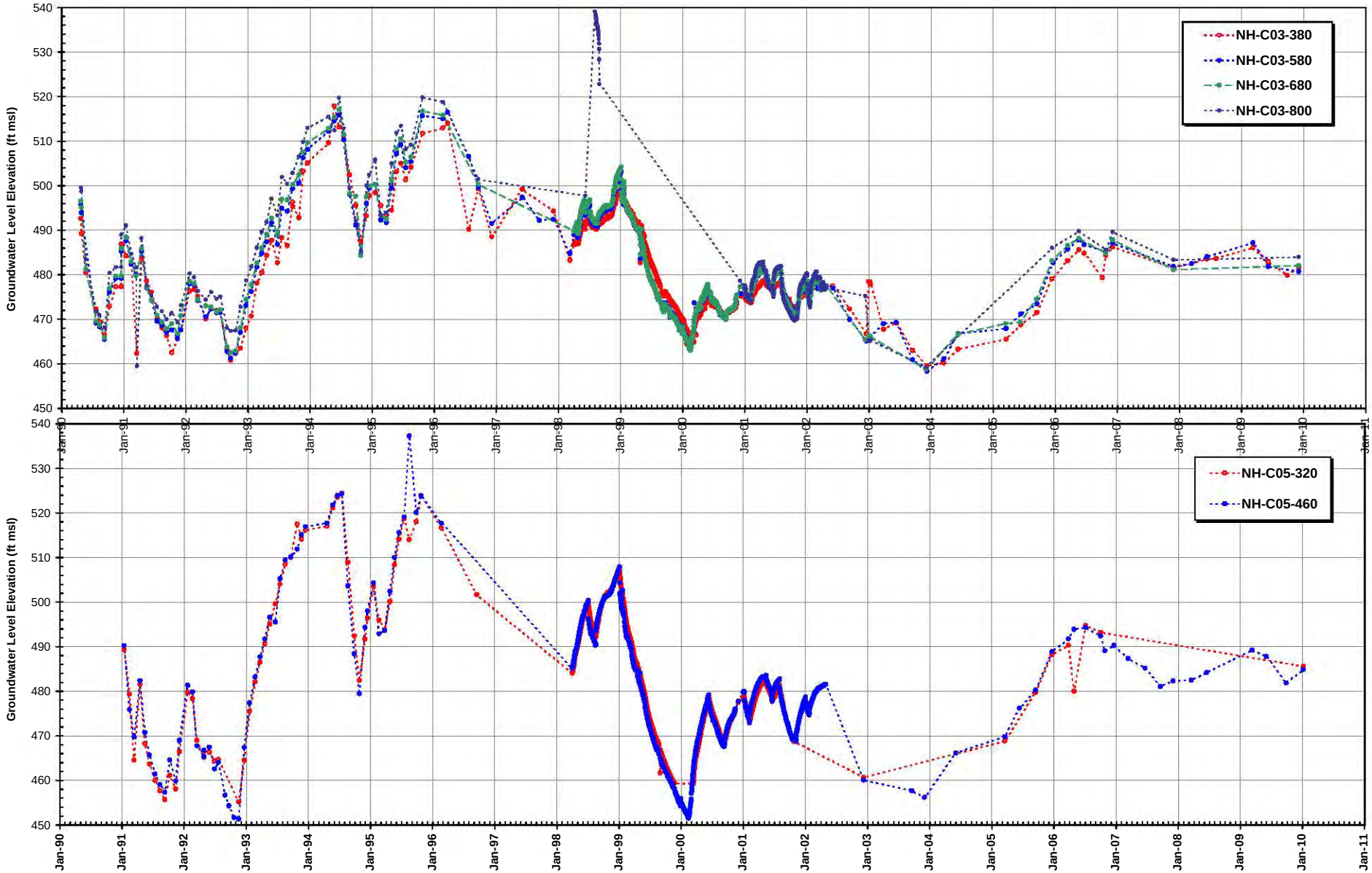


Figure 3-7b
USEPA Monitoring Well Groundwater Level Hydrographs, NH-C03 and NH-C05, 1990-2010

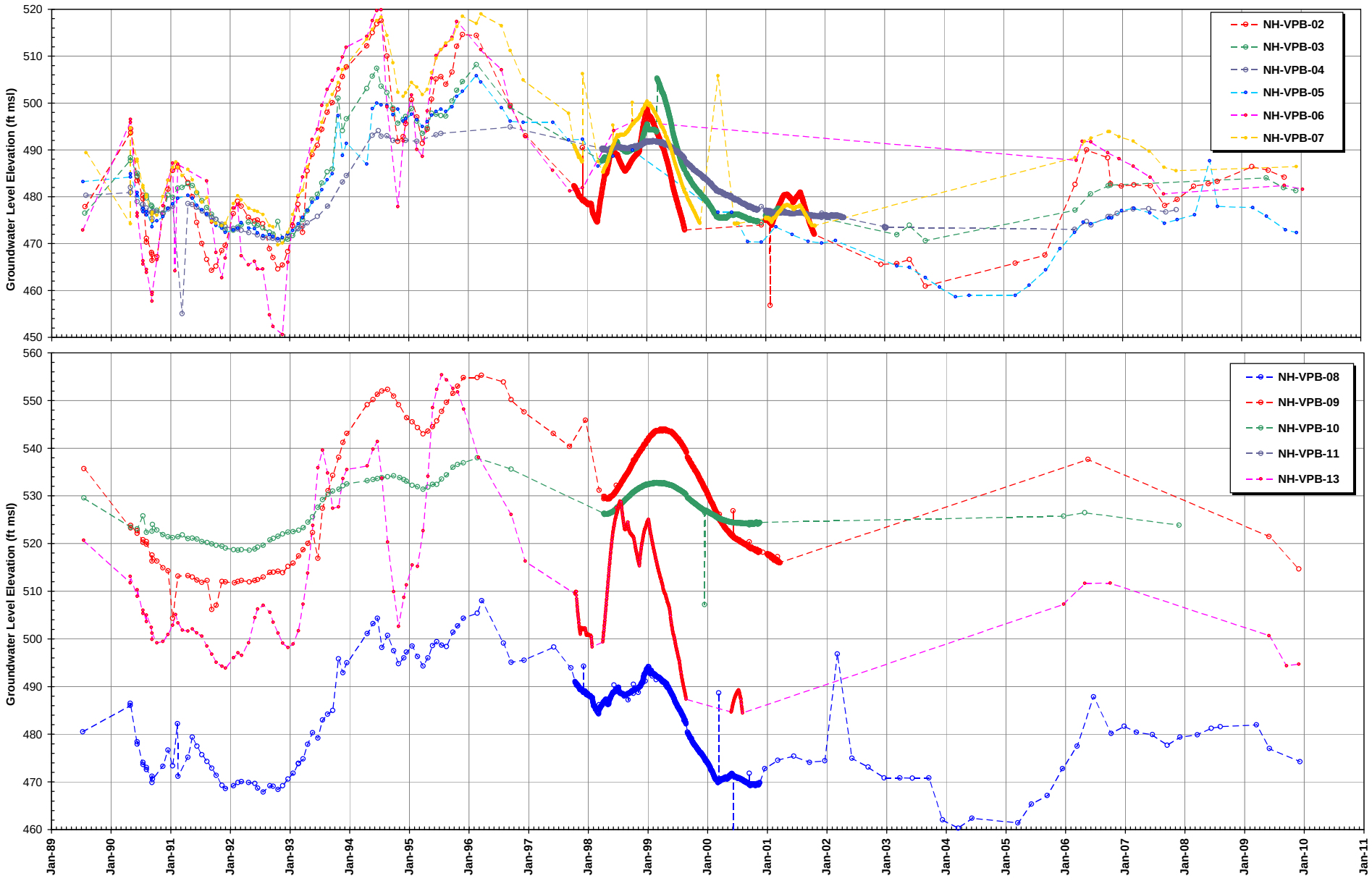
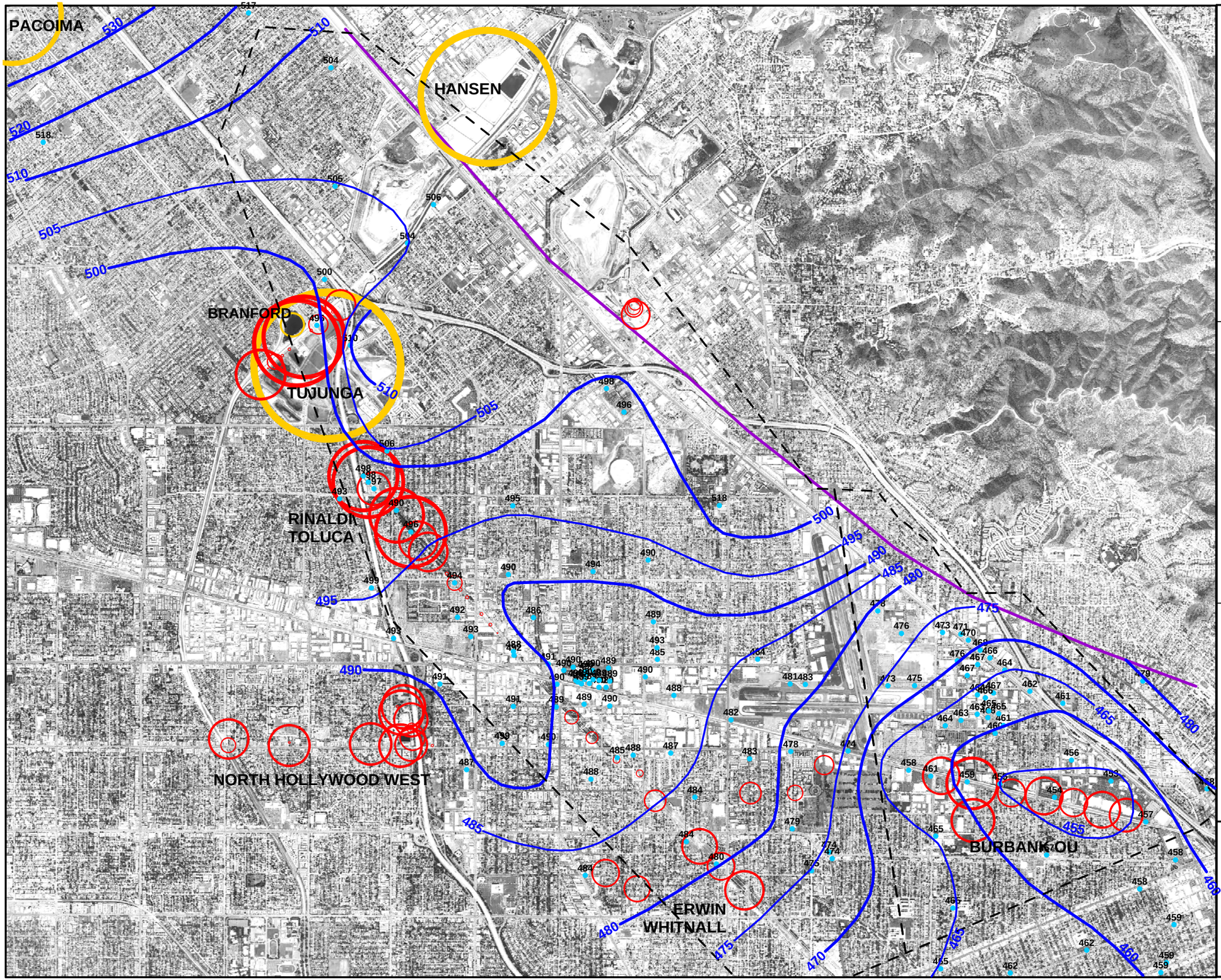


Figure 3-7c
USEPA Monitoring Well Groundwater Level Hydrographs, NH-VPB Wells, 1989-2010



Groundwater level data point (data provided in Table 3-4)

Estimated groundwater surface contour (ft msl)

Verdugo Fault

North Hollywood/Burbank OU (Area 1)

Well Production

Spreading Ground Recharge

Water Year 2010 Well Production and Spreading Ground Recharge (acre-feet)

<2 · 10 · 100 · 500 · 1000 · 2500 · 5000 · 10,000

Among monitoring well clusters, water levels from only the shallowest well used. Contours smooth some of the data variability that is partially attributable to differences in well completion.

N

0 2000 4000 FEET

MWH

Figure 3-8
Estimated Groundwater Surface
December 2010-January 2011

NORTH HOLLYWOOD OPERABLE UNIT

Legend

- Private Well
- LADWP/EPA Well
- Groundwater Surface Elevation (ft. msl)

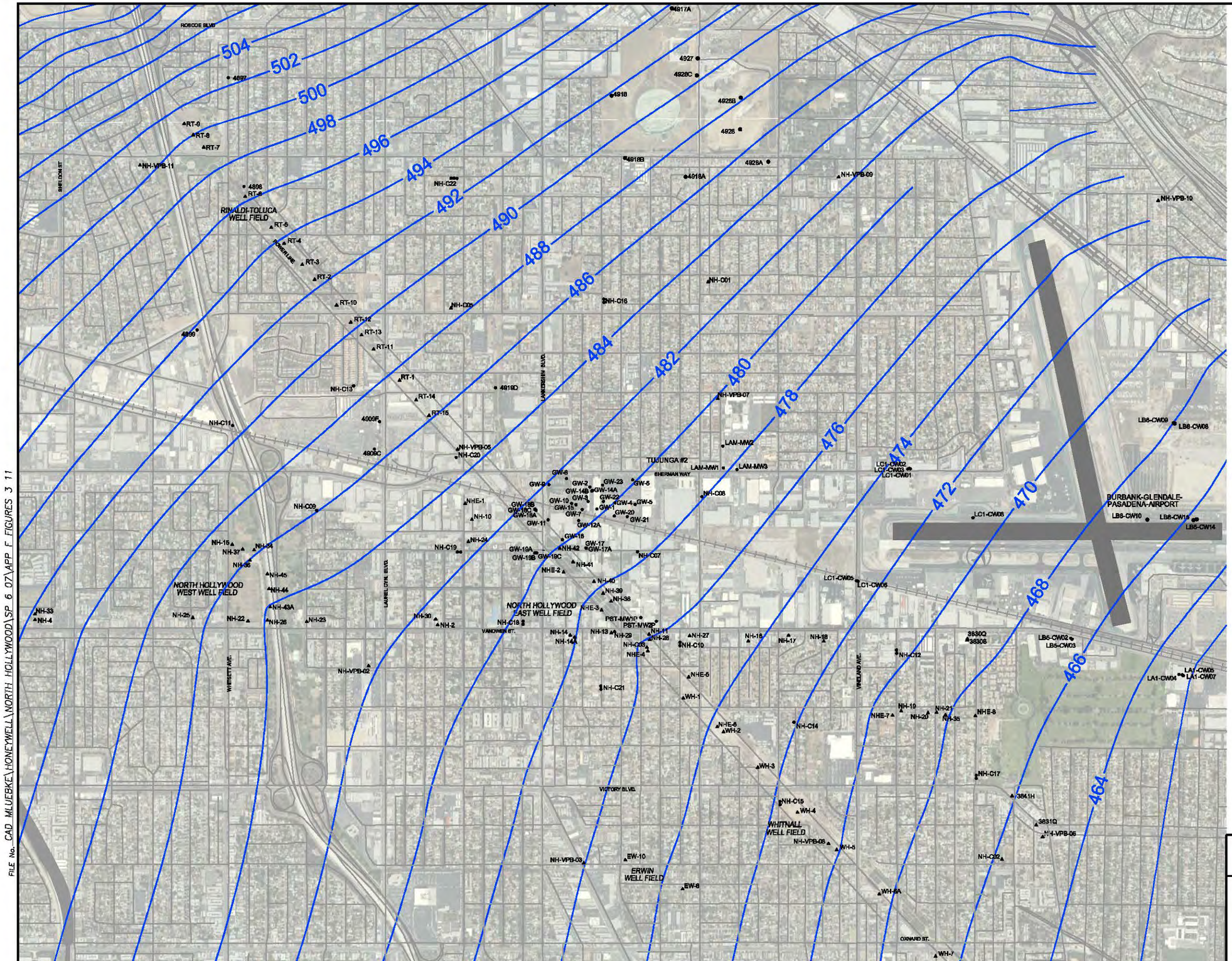
MWH

NORTH HOLLYWOOD OPERABLE UNIT

SIMULATED GROUNDWATER SURFACE ELEVATION - AUTUMN 1988 WITH CURRENT WELL LOCATIONS

FIGURE 3–9

FILE No. CAD MLUEBKE\HONEYWELL\NORTH HOLLYWOOD\SP 6 07\APP F FIGURES 3 11



Legend

- Private Well
- LADWP/EPA Well
- Groundwater Surface Elevation (ft. msl)

0 FEET 1600
SCALE

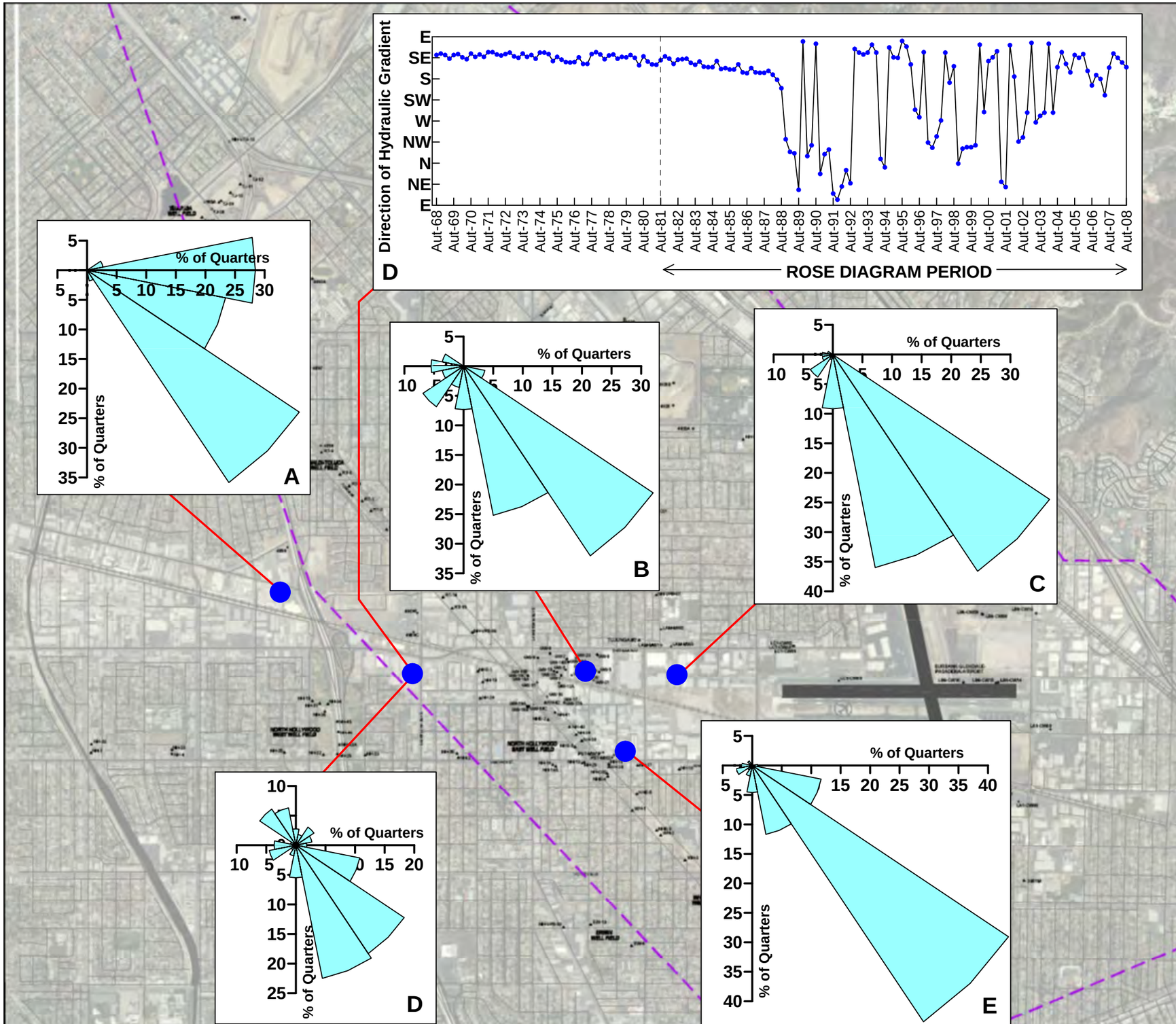
MWH

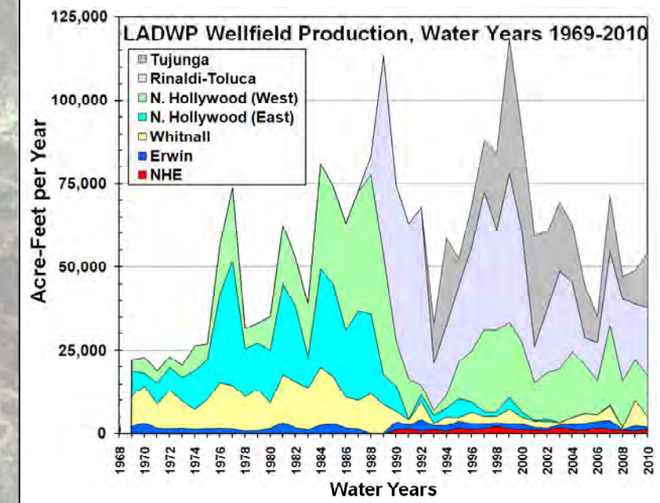
NORTH HOLLYWOOD OPERABLE UNIT

SIMULATED GROUNDWATER SURFACE ELEVATION - AVERAGE 2006 WITH CURRENT WELL LOCATIONS

FIGURE 3-10

FILE No. CAD_MLUEBKE\HONEYWELL\NORTH_HOLLYWOOD\SP_6_07\APP_F_FIGURES_3_11





Hydraulic gradients estimated from water table contours simulated by USEPA's SFBFS-B MODFLOW groundwater model (CH2M HILL, 2009).

Rose diagrams represent simulated quarterly results for Fall 1981 to Fall 2008.

Note: Hydraulic gradients oriented to the south-west, west, and northwest tend to be much flatter than the typical southeastern regional gradient.

San Ferndando Valley Superfund Site Area 1 Boundary

N

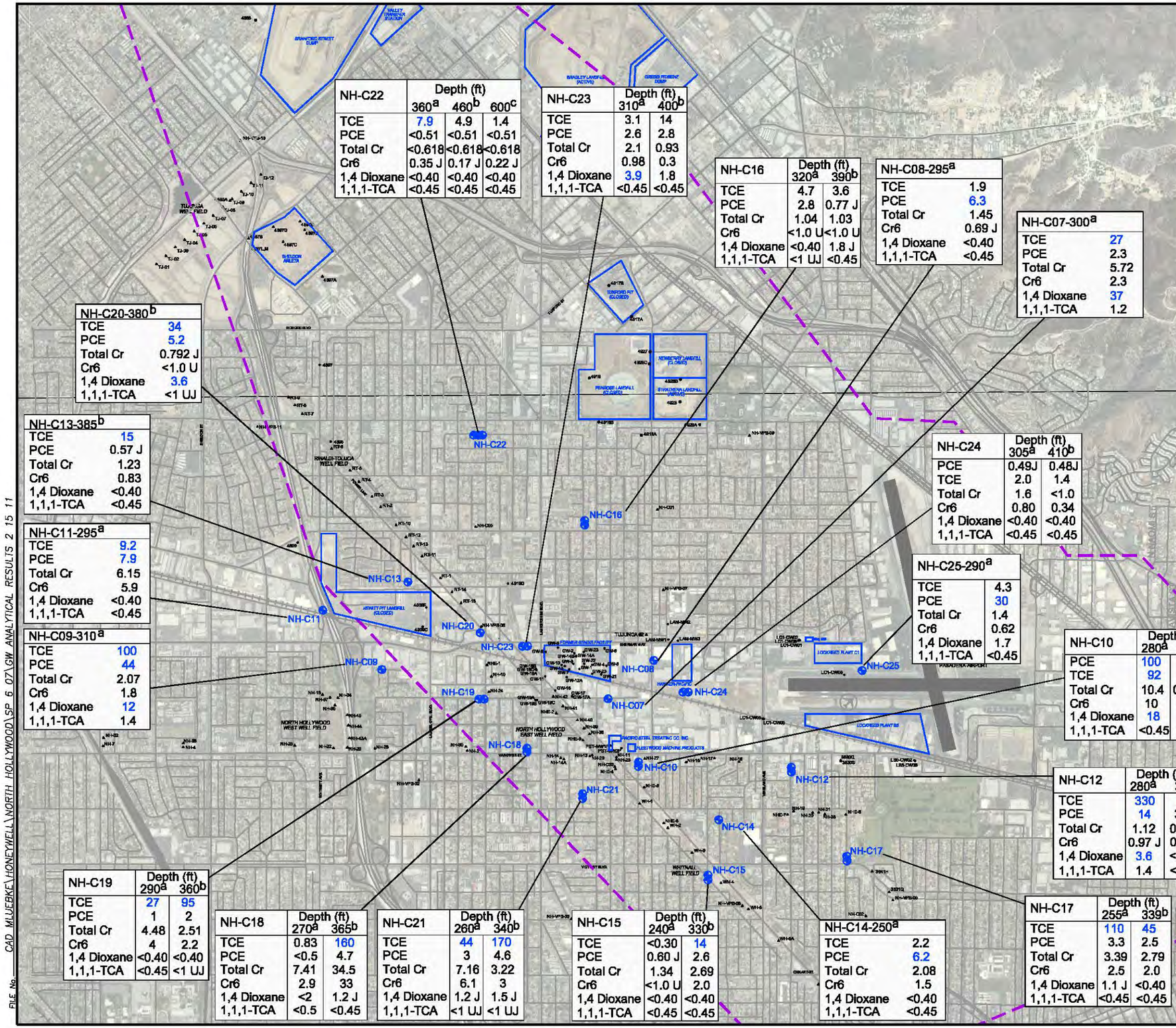
0 0.25 0.5
MILES

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Directional Distribution of Simulated Historical Water Table Gradients

FIGURE 3-11



NH-C22	Depth (ft) 360[a]	460[b]	600[c]
TCE	7.9	4.9	1.4
PCE	<0.51	<0.51	<0.51
Total Cr	<0.618	<0.618	<0.618
Cr6	0.35 J	0.17 J	0.22 J
1,4 Dioxane	<0.40	<0.40	<0.40
1,1,1-TCA	<0.45	<0.45	<0.45

NH-C23	Depth (ft) 310[a]	400[b]
TCE	3.1	14
PCE	2.6	2.8
Total Cr	2.1	0.93
Cr6	0.98	0.3
1,4 Dioxane	3.9	1.8
1,1,1-TCA	<0.45	<0.45

NH-C16	Depth (ft) 320[a]	390[b]
TCE	4.7	3.6
PCE	2.8	0.77 J
Total Cr	1.04	1.03
Cr6	<1.0 U	<1.0 U
1,4 Dioxane	<0.40	1.8 J
1,1,1-TCA	<1 UJ	<0.45

NH-C08-295[a]	
TCE	1.9
PCE	6.3
Total Cr	1.45
Cr6	0.69 J
1,4 Dioxane	<0.40
1,1,1-TCA	<0.45

NH-C07-300[a]	
TCE	27
PCE	2.3
Total Cr	5.72
Cr6	2.3
1,4 Dioxane	37
1,1,1-TCA	1.2

NH-C20-380[b]	
TCE	34
PCE	5.2
Total Cr	0.792 J
Cr6	<1.0 U
1,4 Dioxane	3.6
1,1,1-TCA	<1 UJ

NH-C13-385[b]	
TCE	15
PCE	0.57 J
Total Cr	1.23
Cr6	0.83
1,4 Dioxane	<0.40
1,1,1-TCA	<0.45

NH-C11-295[a]	
TCE	9.2
PCE	7.9
Total Cr	6.15
Cr6	5.9
1,4 Dioxane	<0.40
1,1,1-TCA	<0.45

NH-C09-310[a]	
TCE	100
PCE	44
Total Cr	2.07
Cr6	1.8
1,4 Dioxane	12
1,1,1-TCA	1.4

NH-C24	Depth (ft) 305[a]	410[b]
PCE	0.49J	0.48J
TCE	2.0	1.4
Total Cr	1.6	<1.0
Cr6	0.80	0.34
1,4 Dioxane	<0.40	<0.40
1,1,1-TCA	<0.45	<0.45

NH-C25-290[a]	
TCE	4.3
PCE	30
Total Cr	1.4
Cr6	0.62
1,4 Dioxane	1.7
1,1,1-TCA	<0.45

NH-C10	Depth (ft) 280[a]	360[b]
PCE	100	3.6
TCE	92	8.2
Total Cr	10.4	0.874 J
Cr6	10	0.64
1,4 Dioxane	18	1.2 J
1,1,1-TCA	<0.45	<0.45

NH-C12	Depth (ft) 280[a]	360[b]
TCE	330	12
PCE	14	3.8
Total Cr	1.12	0.68 J
Cr6	0.97 J	0.46 J
1,4 Dioxane	3.6	<0.40
1,1,1-TCA	1.4	<0.45

NH-C19	Depth (ft) 290[a]	360[b]
TCE	27	95
PCE	1	2
Total Cr	4.48	2.51
Cr6	4	2.2
1,4 Dioxane	<0.40	<0.40
1,1,1-TCA	<0.45	<1 UJ

NH-C18	Depth (ft) 270[a]	365[b]
TCE	0.83	160
PCE	<0.5	4.7
Total Cr	7.41	34.5
Cr6	2.9	33
1,4 Dioxane	<2	1.2 J
1,1,1-TCA	<0.5	<0.45

NH-C21	Depth (ft) 260[a]	340[b]
TCE	44	170
PCE	3	4.6
Total Cr	7.16	3.22
Cr6	6.1	3
1,4 Dioxane	1.2 J	1.5 J
1,1,1-TCA	<1 UJ	<1 UJ

NH-C15	Depth (ft) 240[a]	330[b]
TCE	<0.30	14
PCE	0.60 J	2.6
Total Cr	1.34	2.69
Cr6	<1.0 U	2.0
1,4 Dioxane	<0.40	<0.40
1,1,1-TCA	<0.45	<0.45

NH-C14-250[a]	
TCE	2.2
PCE	6.2
Total Cr	2.08
Cr6	1.5
1,4 Dioxane	<0.40
1,1,1-TCA	<0.45

NH-C17	Depth (ft) 255[a]	339[b]
TCE	110	45
PCE	3.3	2.5
Total Cr	3.39	2.79
Cr6	2.5	2.0
1,4 Dioxane	1.1 J	<0.40
1,1,1-TCA	<0.45	<0.45

Legend

- ● Private Well
- ▲ LADWP/EPA Well
- Approximate San Fernando Valley Area 1 Superfund Site Investigation Area
- Selected Facility Location Boundary
- NH-C08 NHOU Additional Groundwater Monitoring Well (2009-2010)

TCE = Trichloroethene (MCL - 5 ug/L)
PCE = Tetrachloroethene (MCL - 5 ug/L)
Total Cr = Total chromium (MCL - 50 ug/L)
Cr6 = Hexavalent Chromium (MCL - 50 ug/L)*
1,4-Dioxane (Action Level - 3 ug/L)
1,1,1-TCA = 1,1-Trichloroethane (MCL - 200 ug/L)
< less than listed detection limit
Concentrations in micrograms per liter (ug/L)
MCL = Maximum Contaminant Level
Concentrations in blue exceed regulatory thresholds
* Federal and state MCLs specific to hexavalent chromium have not been established; therefore, the MCL for total chromium currently is applied to hexavalent chromium
J = Estimated Value
U = Non Detect
UJ = Result is Non Detect, however, the detection limit or reporting limit value is qualified as estimated.
[a] Depth Region 1 well
[b] Depth Region 2 well
[c] Depth Region 3 well
NOTE: Groundwater samples were collected in either 3Q09, 4Q09, or 3Q10.

0 FEET 2400
SCALE

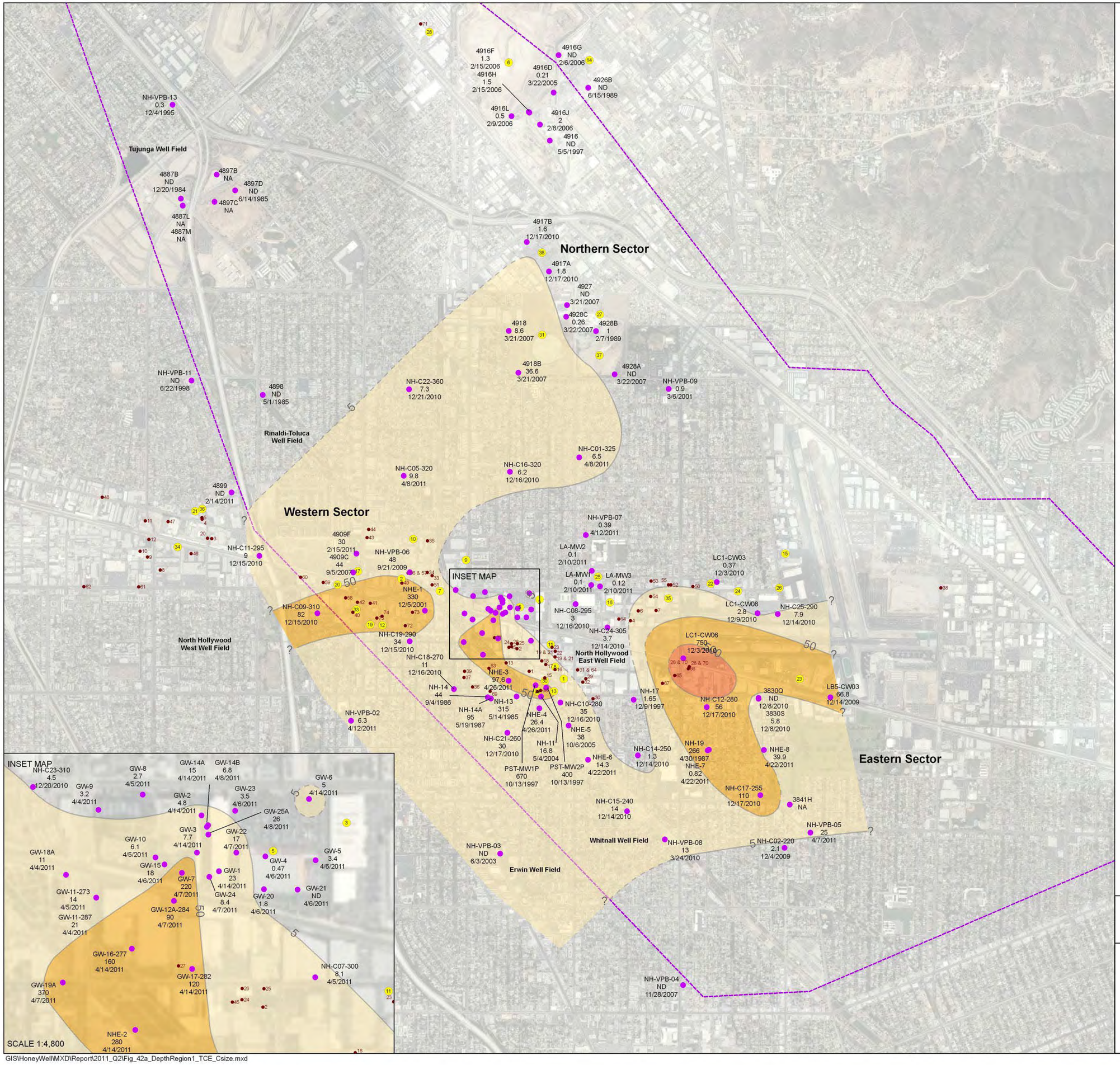
MWH

NORTH HOLLYWOOD OPERABLE UNIT

GROUNDWATER ANALYTICAL RESULTS FROM NHOU FFS ADDITIONAL MONITORING WELLS

FIGURE 4-1

FILE No. CAD MLUEBKE\HONEYWELL\NORTH HOLLYWOOD\SP 6 07\GW ANALYTICAL RESULTS 2 15 11



Legend

Wells (Depth Region 1, 200'-280' bgs)

5 — TCE Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

5-50 µg/L

50-500 µg/L

>500 µg/L

Approximate San Fernando Valley Area I Superfund Site Investigation Area

1 — NHOU Known Release (Table 5-1)

1 — NHOU Potential Release (Table5-2)

Note:

NH-02	NHOU Groundwater Well (Table 1-1)
38.5*	TCE Concentration (µg/L)
10/20/2009	Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
Maximum Contaminant Level = 5 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

N

0 1,500 3,000 Feet

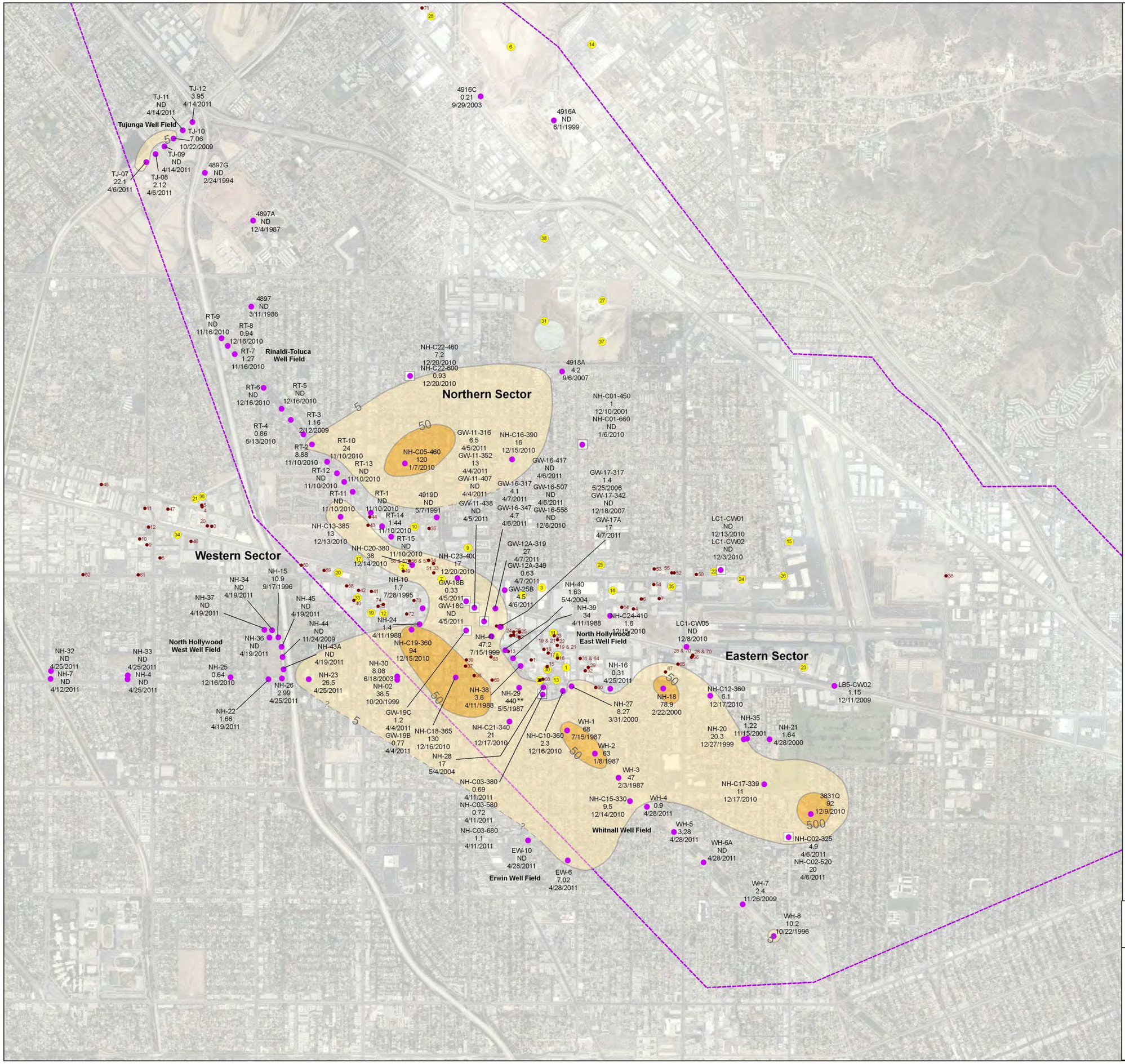
MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of TCE in NHOU Groundwater Depth Region 1

Figure 4-2a

GIS\HoneyWell\MXD\Report\2011_Q2\Fig_42a_DepthRegion1_TCE_Csize.mxd



Legend

- Wells (Depth Region 2, 280'-420' bgs)
- Wells (Depth Region 3, 420'-660' bgs)
- 5 — TCE Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

- 5-50 µg/L
- 50-500 µg/L
- Approximate San Fernando Valley Area I Superfund Site Investigation Area
- 1 — NHOU Known Release (Table 5-1)
- 1 — NHOU Potential Release (Table 5-2)

Note:

NH-02 — NHOU Groundwater Well (Table 1-1)
38.5* — TCE Concentration (µg/L)
10/20/2009 — Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
Maximum Contaminant Level = 5 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

**NH-29 not used for contouring

N

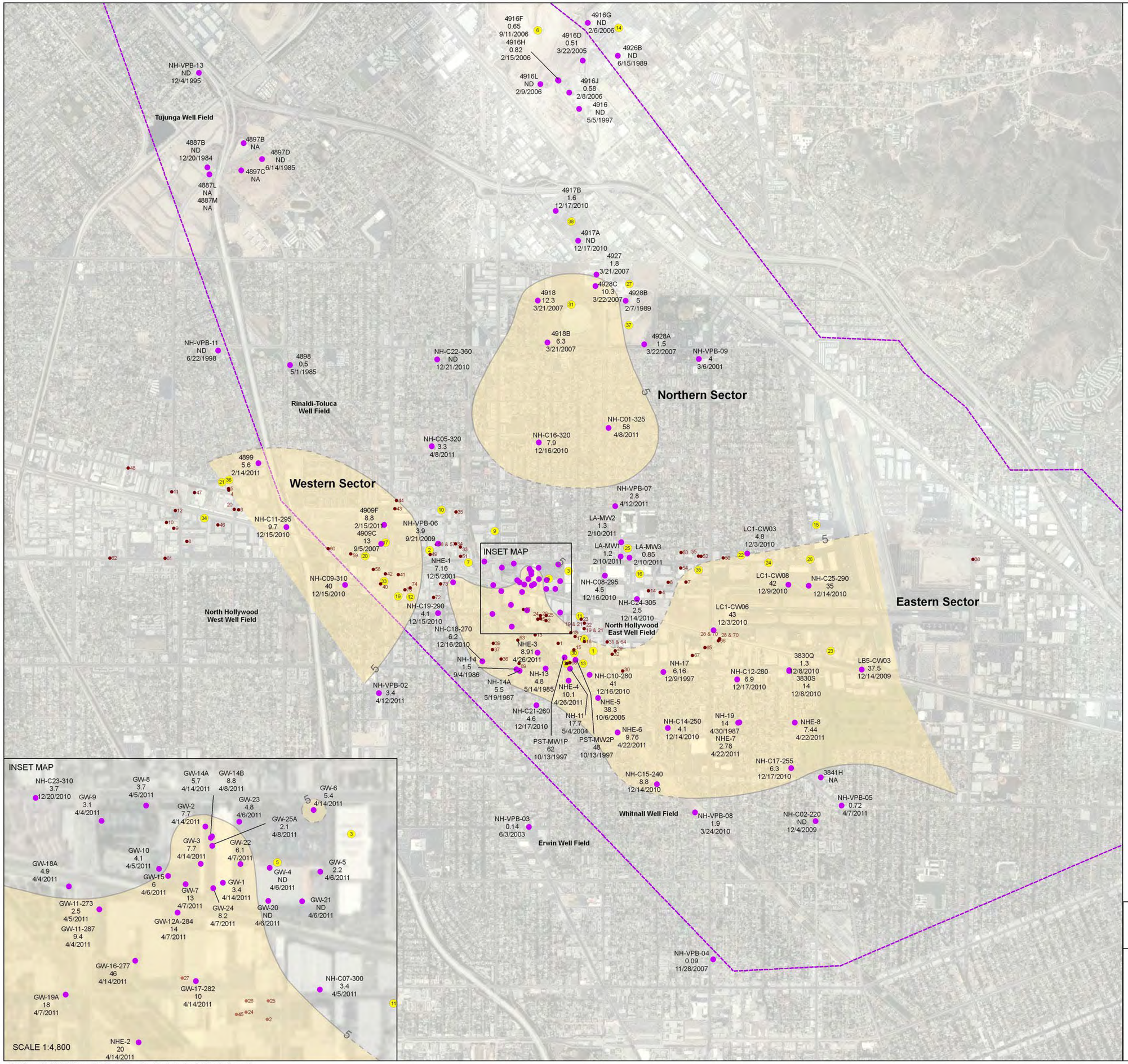
0 1,500 3,000 Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of TCE in NHOU Groundwater Depth Region 2 and 3

Figure 4-2b



Legend

Wells (Depth Region 1, 200'-280' bgs)

PCE Isoconcentration Contour in Micrograms per Liter (ug/L), dashed where inferred

Concentrations

5-50 µg/L

Approximate San Fernando Valley Area I Superfund Site Investigation Area

NHOU Known Source (Table 5-1)

NHOU Potential Source (Table 5-2)

Note:

NH-02 NHOU Groundwater Well (Table 1-1)
38.5* PCE Concentration (µg/L)
10/20/2009 Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
Maximum Contaminant Level = 5 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

N

0 1,500 3,000 Feet

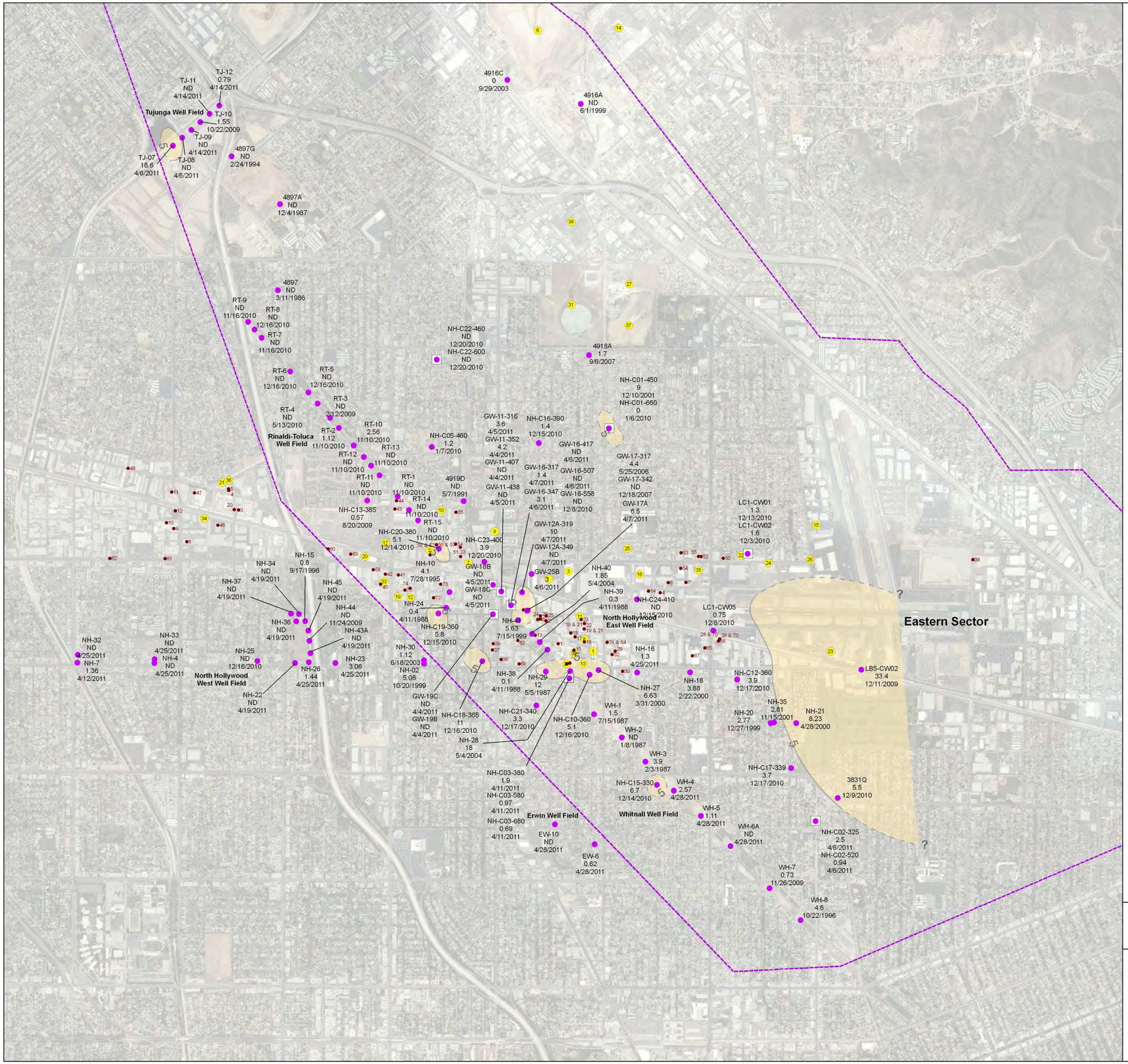
MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of PCE in NHOU Groundwater Depth Region 1

Figure 4-3a

GIS\HoneyWell\MXD\Report\2011_Q2\Fig_43a_DepthRegion1_PCE_Csize.mxd



Legend

- Wells (Depth Region 2, 280'-420' bgs)
- Wells (Depth Region 3, 420'-660' bgs)
- 5 — PCE Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

- 5-50 µg/L
- Approximate San Fernando Valley Area I Superfund Site Investigation Area.
- 1 — NHOU Known Source (Table 5-1)
- 1 — NHOU Potential Source (Table 5-2)

Note:

NH-02 — NHOU Groundwater Well (Table 1-1)
38.5* — PCE Concentration (µg/L)
10/20/2009 — Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
Maximum Contaminant Level = 5 µg/L

*Groundwater concentration reported during most recent available sampling event up to 2nd quarter 2011.
Isoconcentration contours reflect current groundwater data (2011).
Older data (1980's-2008) were also considered.

N

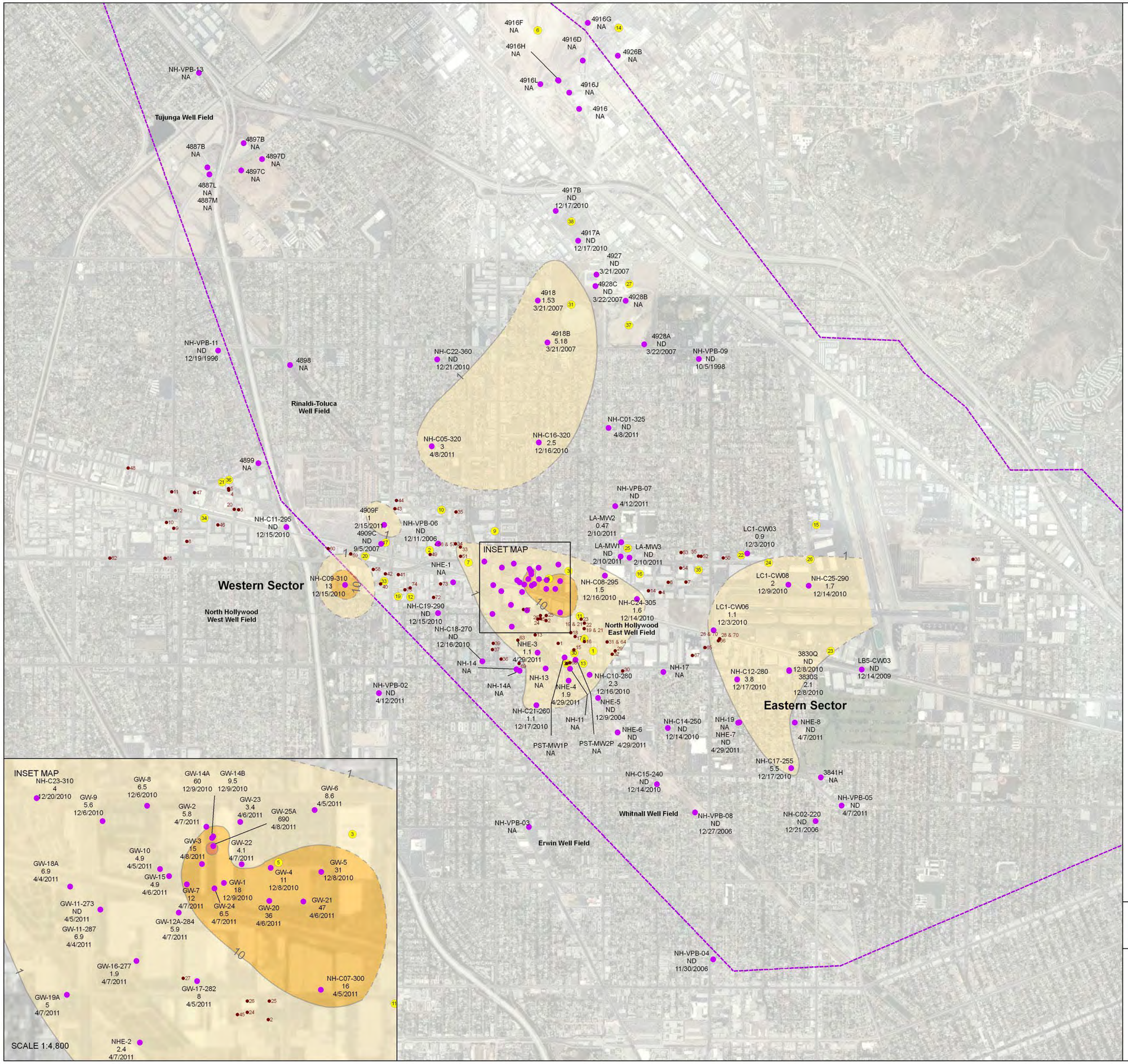
0 1,500 3,000
Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of PCE in NHOU Groundwater Depth Region 2 and 3

Figure 4-3b



Legend

- Wells (Depth Region 1, 200'-280' bgs)
- 1,4-Dioxane Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

- 1-10 µg/L
- 10-100 µg/L
- 100-1000 µg/L

- Approximate San Fernando Valley Area I Superfund Site Investigation Area
- NHOU Known Release (Table 5-1)
- NHOU Potential Release (Table 5-2)

Note:

NH-02 NHOU Groundwater Well (Table 1-1)
38.5* 1,4-Dioxane Concentration (µg/L)
10/20/2009 Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
State Notification Level = 1 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

N

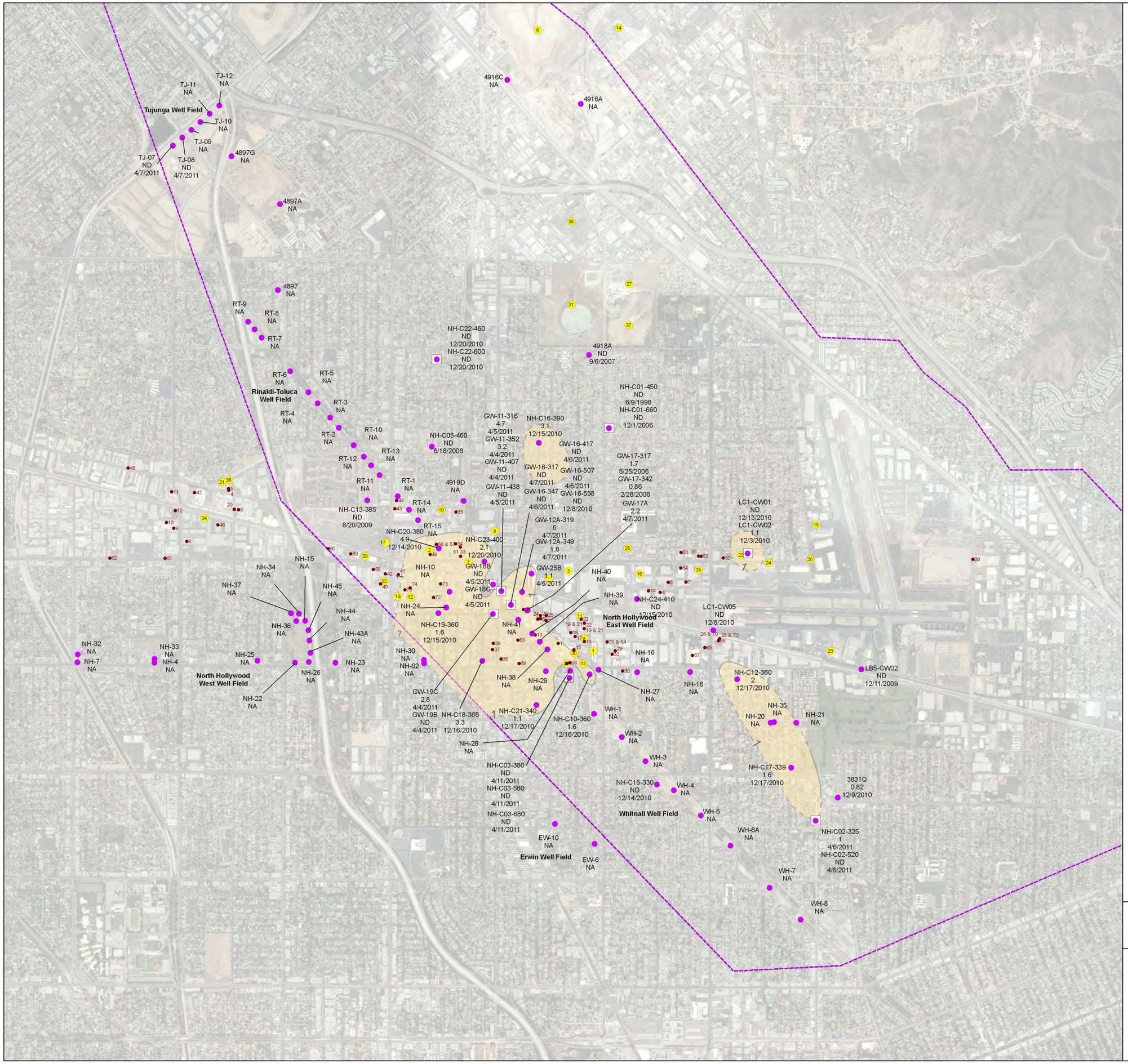
0 1,500 3,000 Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of 1,4-Dioxane in NHOU Groundwater Depth Region 1

Figure 4-4a



Legend

Wells (Depth Region 2, 280'-420' bgs)

Wells (Depth Region 3, 420'-660' bgs)

1,4-Dioxane Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

1-10 µg/L

Approximate San Fernando Valley Area I Superfund Site Investigation Area

NHOU Known Release (Table 5-1)

NHOU Potential Release (Table 5-2)

Note:

NH-02 — NHOU Groundwater Well (Table 1-1)
38.5* — 1,4-Dioxane Concentration (µg/L)
10/20/2009 — Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
State Notification Level = 1 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd 2011.
Isoconcentration contours reflect current groundwater data (2011).
Older data (1980's-2008) were also considered.

N

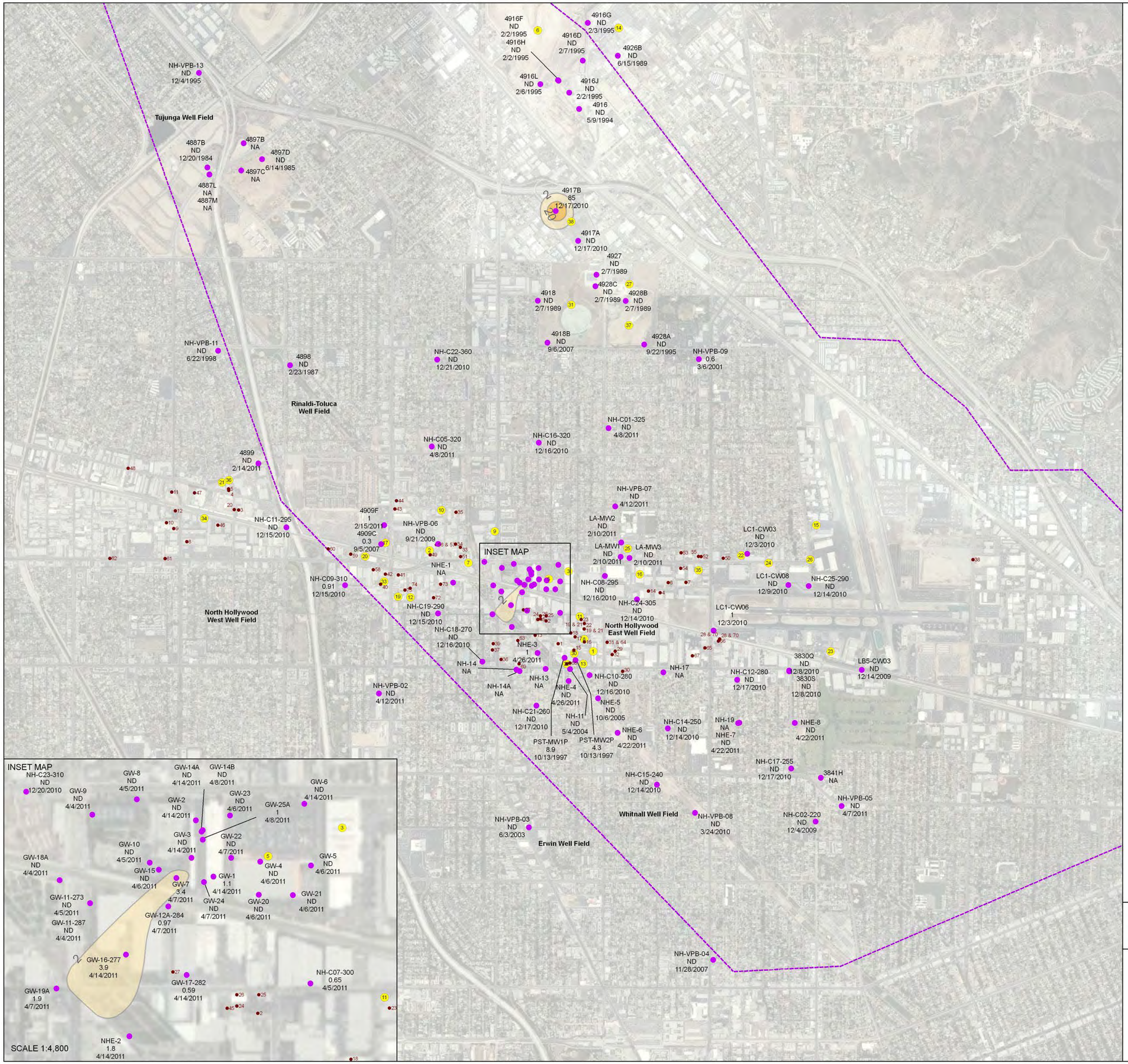
0 1,500 3,000 Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of 1,4-Dioxane in NHOU Groundwater Depth Region 2 and 3

Figure 4-4b



Legend

Wells (Depth Region 1, 200'-280' bgs)

Concentrations

2-20 µg/L

20-200 µg/L

Approximate San Fernando Valley Area I Superfund Site Investigation Area

NHOU Known Release (Table 5-1)

NHOU Potential Release (Table 5-2)

Note:

NH-02
38.5*
10/20/2009

NHOU Groundwater Well (Table 1-1)
1,1,1-TCA Concentration (µg/L)
Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
Maximum Contaminant Level = 200 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

N

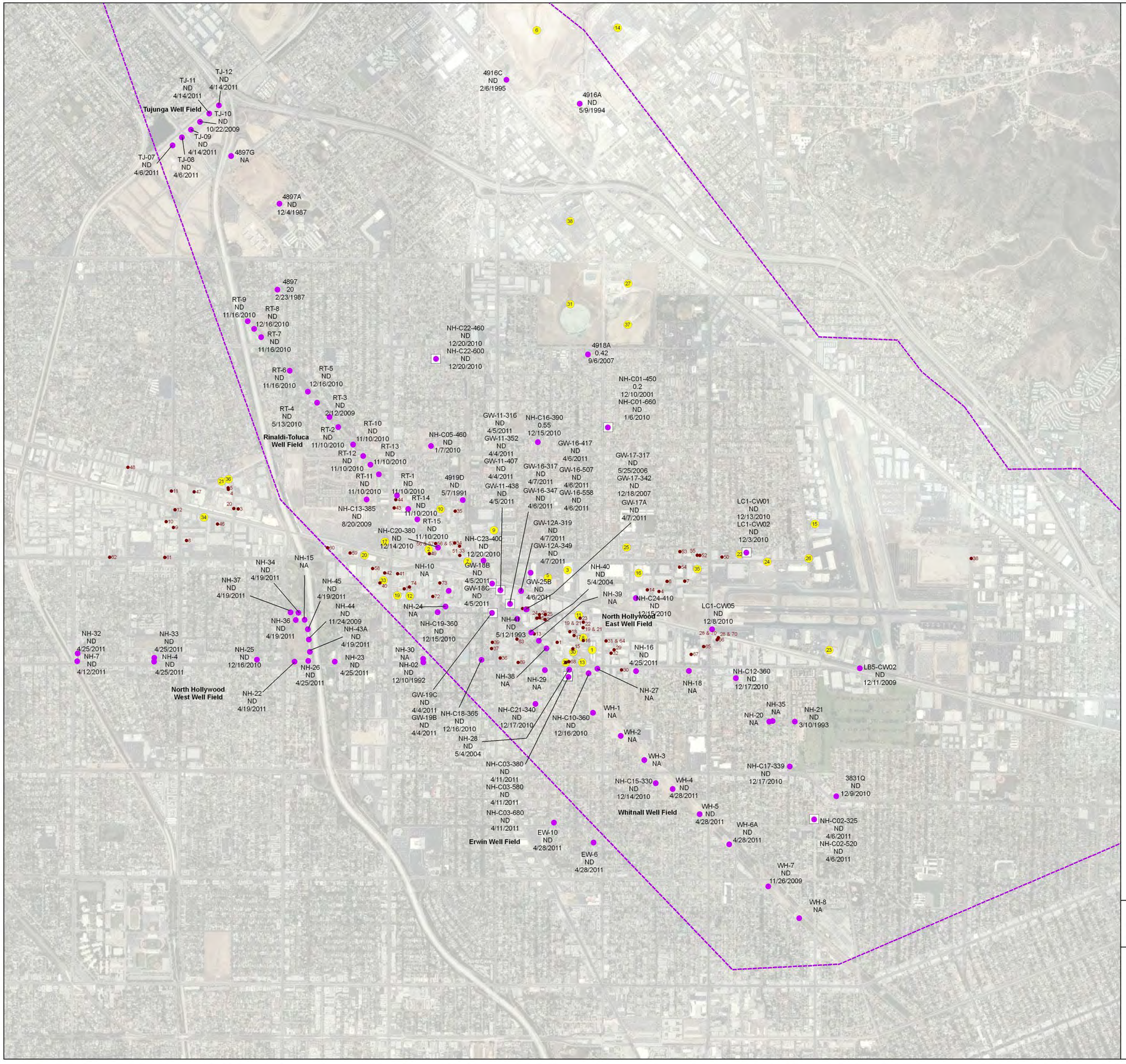
0 1,500 3,000
Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of 1,1,1-TCA in NHOU Groundwater Depth Region 1

Figure 4-5a



Legend

- Wells (Depth Region 2, 280'-420' bgs)
- Wells (Depth Region 3, 420'-660' bgs)
- Approximate San Fernando Valley Area I Superfund Site Investigation Area
- NHOU Known Release (Table 5-1)
- NHOU Potential Release (Table 5-2)

Note:

NH-02	NHOU Groundwater Well (Table 1-1)
38.5*	1,1,1-TCA Concentration (µg/L)
10/20/2009	Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
Maximum Contaminant Level = 200 µg/L

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

N

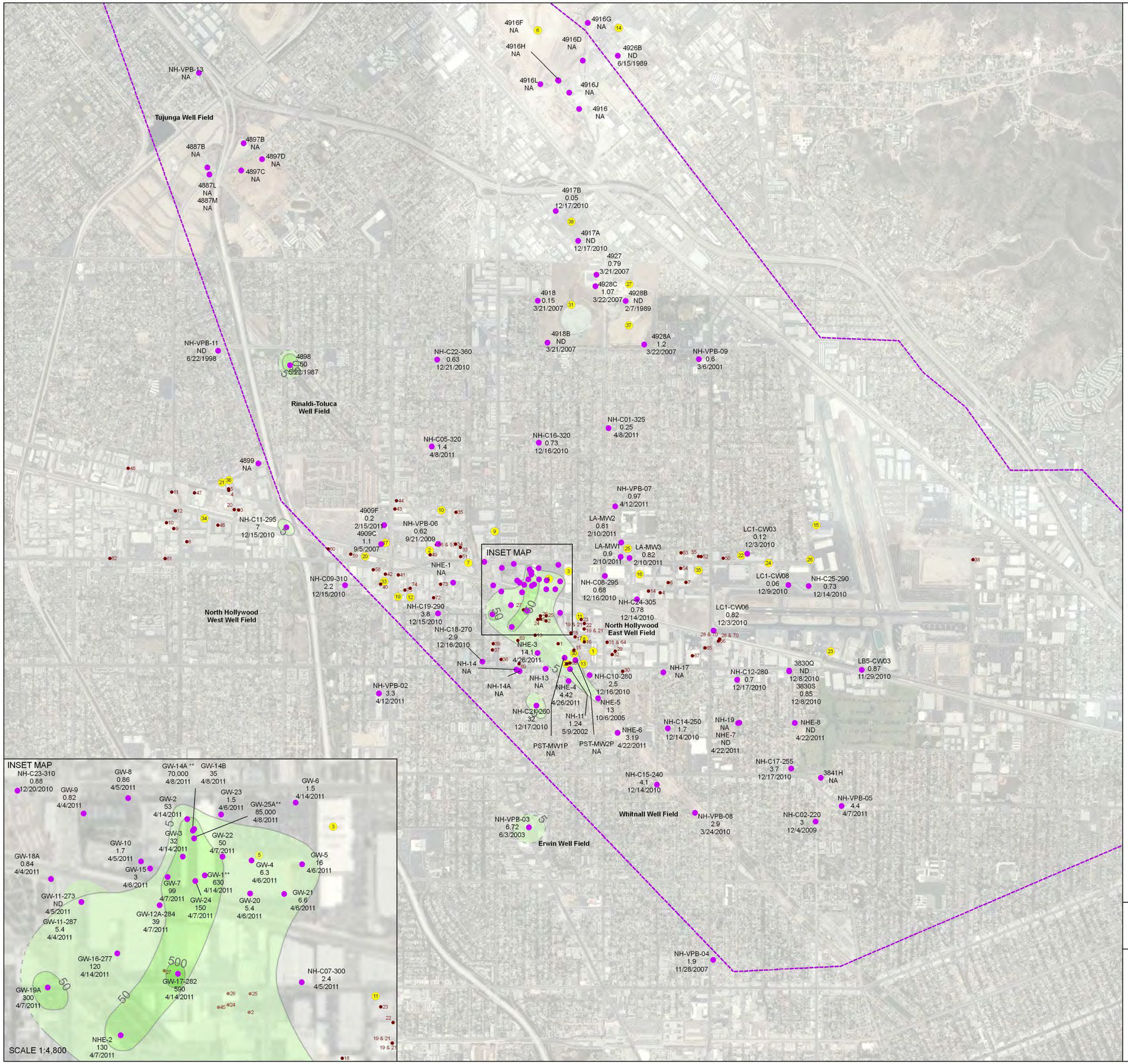
0 1,500 3,000 Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of 1,1,1-TCA in NHOU Groundwater Depth Region 2 and 3

Figure 4-5b



Legend

Wells (Depth Region 1, 200'-280' bgs)

5 — Hexavalent Chromium Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

5-50 µg/L

50-500 µg/L

500-5000 µg/L

Approximate San Fernando Valley Area I Superfund Site Investigation Area

1 — NHOU Known Release (Table 5-1)

1 — NHOU Potential Release (Table 5-2)

Note:

NH-02	NHOU Groundwater Well (Table 1-1)
38.5*	Hexavalent Chromium Concentration (µg/L)
10/20/2009	Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
No Maximum Contaminant Level (MCL) is applicable to Hexavalent Chromium, however, the MCL for total chromium = 50 µg/L, and LADWP voluntary action level of 5 µg/L for hexavalent chromium.

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

** Concentration not used in contours, concentration is non-representative due to wells use in ongoing treatment evaluation.

N

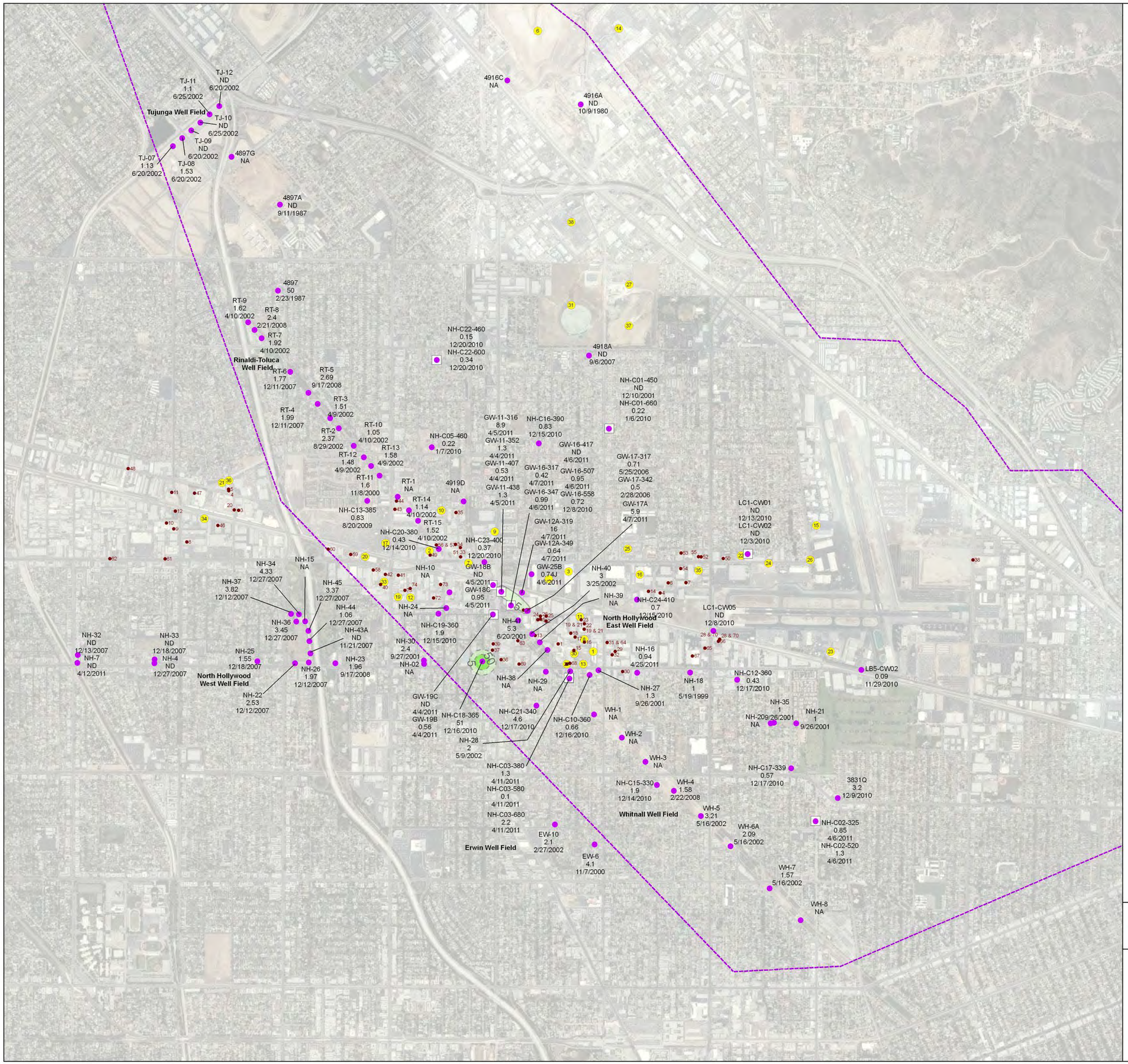
0 1,500 3,000 Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of Hexavalent Chromium in NHOU Groundwater Depth Region 1

Figure 4-6a



Legend

Wells (Depth Region 2, 280'-420' bgs)

Wells (Depth Region 3, 420'-660' bgs)

5 — Hexavalent Chromium Isoconcentration Contour in Micrograms per Liter (µg/L), dashed where inferred

Concentrations

5-50 µg/L

50-500 µg/L

Approximate San Fernando Valley Area I Superfund Site Investigation Area.

1 — NHOU Known Release (Table 5-1)

1 — NHOU Potential Release (Table 5-2)

Note:

NH-02	NHOU Groundwater Well (Table 1-1)
38.5*	Hexavalent Chromium Concentration (µg/L)
10/20/2009	Last Detected Date

ND Not Detected
NA Not Analyzed
? Not enough data to interpret further
No Maximum Contaminant Level (MCL) is applicable to Hexavalent Chromium, however, the MCL for total chromium = 50 µg/L, and LADWP voluntary action level of 5 µg/L for hexavalent chromium.

*Groundwater concentration reported during most recent available sampling event, up to 2nd quarter 2011. Isoconcentration contours reflect current groundwater data (2011). Older data (1980's-2008) were also considered.

N

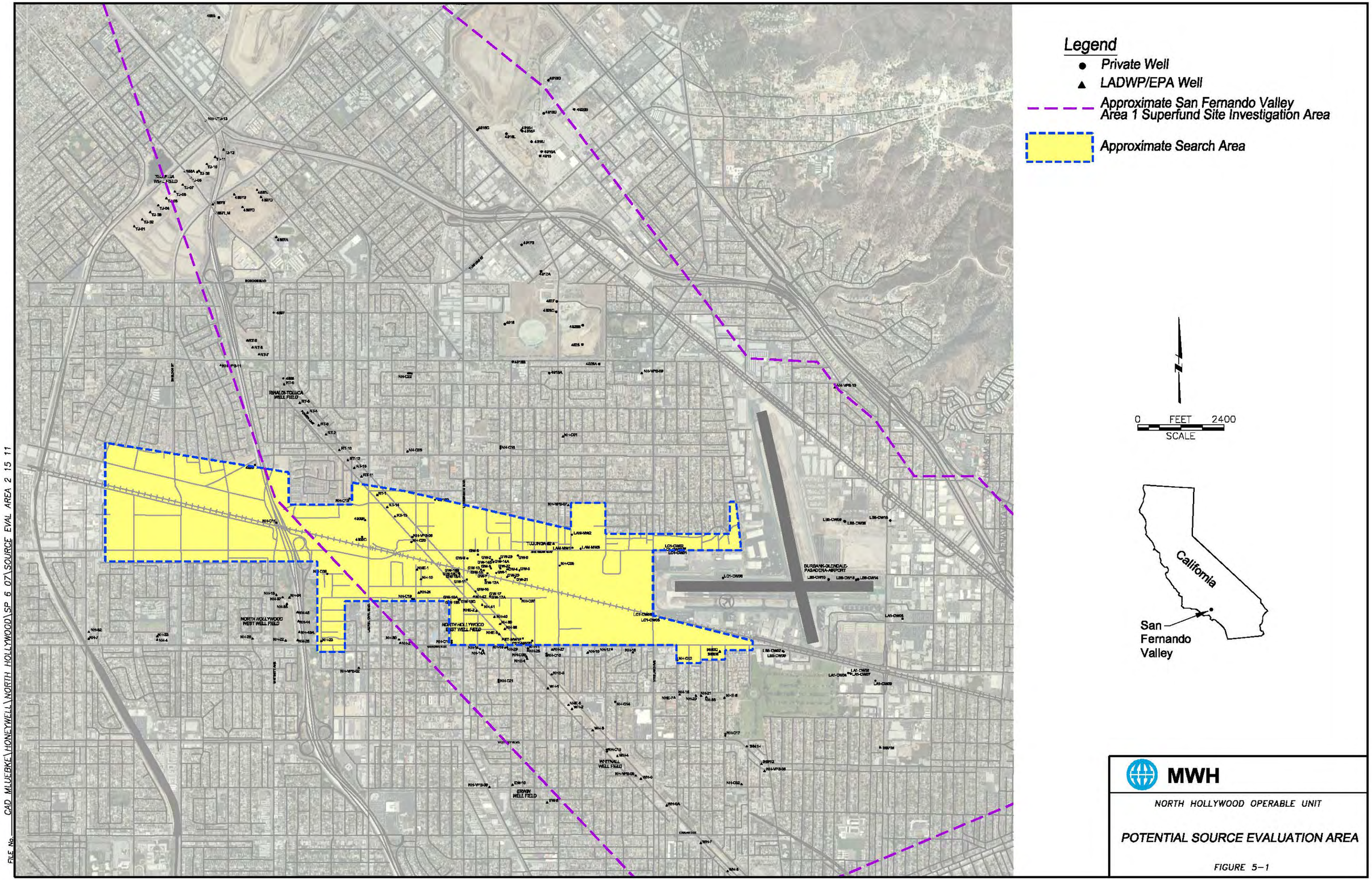
0 1,500 3,000 Feet

MWH

NORTH HOLLYWOOD OPERABLE UNIT

Distribution of Hexavalent Chromium in NHOU Groundwater Depth Region 2 and 3

Figure 4-6b


Legend
Private Well
LADWP/EPA Well
Approximate San Fernando Valley Area 1 Superfund Site Investigation Area
Approximate Search Area
0 FEET 2400
SCALE
California
San Fernando Valley
MWH
NORTH HOLLYWOOD OPERABLE UNIT
POTENTIAL SOURCE EVALUATION AREA
FIGURE 5-1
NORTH HOLLYWOOD WEST WELL FIELD
NORTH HOLLYWOOD EAST WELL FIELD
RINALDI-TOLUCA WELL FIELD
TUJUNGA WELL FIELD
ERWIN WELL FIELD
BURBANK-GLENDALE-PASADENA AIRPORT
CAD MLUEBKE\HONEYWELL\NORTH HOLLYWOOD\SP 6 07\SOURCE EVAL AREA 2 15 11
FILE No.

TABLES

TABLE 1-1
NHOU MONITORING WELLS
AND NON-DESTROYED PRODUCTION WELLS
North Hollywood Operable Unit

Well Name	Screen Interval (feet below ground surface)	Assumed Representative Depth Region[a]								
		Single Depth Region				Multiple Depth Regions				
		1	2	3	4	1,2	2,3	1,2,3	1,2,3,4	2,3,4
Honeywell										
GW-1	245-305	X								
GW-2	241-301	X								
GW-3	245-305	X								
GW-4	245-305	X								
GW-5	248-308	X								
GW-6	245-305	X								
GW-7	230-310	X								
GW-8	225-305	X								
GW-9	223-303	X								
GW-10	230-310	X								
GW-11-273	273-279	X								
GW-11-287	287-293	X								
GW-11-316	316-322		X							
GW-11-352	352-358		X							
GW-11-407	407-413		X							
GW-11-438	438-444			X						
GW-12A-284	284-287	X								
GW-12A-319	319-322		X							
GW-12A-349	349-352		X							
GW-14A	255-285	X								
GW-14B	285-312	X								
GW-15	245-330					X				
GW-16-277	277-283	X								
GW-16-317	317-323		X							
GW-16-347	347-353		X							
GW-16-417	417-423			X						
GW-16-507	507-513			X						
GW-16-588	558-560			X						
GW-17-282	282-288	X								
GW-17-317	317-323		X							
GW-17-342	342-348		X							
GW-17A	320-350		X							
GW-18A	230-330					X				
GW-18B	400-450						X			
GW-18C	480-500			X						
GW-19A	230-330					X				
GW-19B	400-450						X			
GW-19C	480-500			X						
GW-20	245-315	X								
GW-21	245-315	X								
GW-22	245-315	X								
GW-23	245-315	X								
Lockheed Monitoring Wells										
LB5-CW02	340-350					X				
LB5-CW03	211-231	X								
LC1-CW01	481-491							X		
LC1-CW02	382-392					X				
LC1-CW03	259-280	X								
LC1-CW05	376-385					X				
LC1-CW06	232-252	X								
LC1-CW08	NA					X				
US Environmental Protection Agency Monitoring Wells										
NH-VPB-01	125-145	X								
NH-VPB-02	240-260	X								
NH-VPB-03	200-220	X								
NH-VPB-04	160-180	X								
NH-VPB-05	185-205	X								
NH-VPB-06	287-307	X								
NH-VPB-07	270-290	X								
NH-VPB-08	205-225	X								
NH-VPB-09	270-290	X								
NH-VPB-11	300-320	X								

TABLE 1-1
NHOU MONITORING WELLS
AND NON-DESTROYED PRODUCTION WELLS
North Hollywood Operable Unit

Well Name	Screen Interval (feet below ground surface)	Assumed Representative Depth Region[a]								
		Single Depth Region				Multiple Depth Regions				
		1	2	3	4	1,2	2,3	1,2,3	1,2,3,4	2,3,4
NH-VPB-12	140-160	X								
NH-VPB-13	356-375	X								
NH-VPB-14	91-112	X								
NH-C01-325	275-325	X								
NH-C01-450	400-450		X							
NH-C01-660	630-660			X						
NH-C01-780	740-780				X					
NH-C02-220	170-220	X								
NH-C02-325	275-325		X							
NH-C02-520	470-520			X						
NH-C02-681	641-681				X					
NH-C03-380	340-380		X							
NH-C03-580	540-580			X						
NH-C03-680	640-680			X						
NH-C03-800	760-800				X					
NH-C04-240	210-240	X								
NH-C04-375	210-375		X							
NH-C04-560	510-560			X						
NH-C05-320	270-320	X								
NH-C05-460	390-460		X							
NH-C06-160	110-160	X								
NH-C06-285	235-285		X							
NH-C06-425	365-425			X						
NH-C07-300	240-300	X								
NH-C08-295	245-295	X								
NH-C09-310	250-310					X				
NH-C10-280	220-280	X								
NH-C10-360	310-360		X							
NH-C11-295	235-295					X				
NH-C12-280	210-280	X								
NH-C12-360	310-360		X							
NH-C13-385	335-385		X							
NH-C14-250	200-250	X								
NH-C15-240	180-240	X								
NH-C15-330	270-330		X							
NH-C16-320	270-320	X								
NH-C16-390	340-390		X							
NH-C17-255	185-255	X								
NH-C17-339	279-339					X				
NH-C18-270	220-270	X								
NH-C18-365	305-365		X							
NH-C19-290	230-290	X								
NH-C19-360	300-360		X							
NH-C20-380	320-380		X							
NH-C21-260	210-260	X								
NH-C21-340	280-340					X				
NH-C22-360	300-360	X								
NH-C22-460	390-460		X							
NH-C22-600	550-600			X						
NH-C23-310	250-310	X								
NH-C23-400	340-400		X							
NH-C24-305	245-305	X								
NH-C24-410	360-410		X							
NH-C25-290	240-290	X								
Other Monitoring Wells										
4918B	160-369	X								
4918A	230-240, 300-320, 480-490		X							
4918	164-365	X								
4928A	225-433					X				
4928B	161-362	X								
4928C	160-375	X								
4927	174-375	X								
4916	155-364	X								
4916A	200-350, 370-398, 454-464		X							

TABLE 1-1
NHOU MONITORING WELLS
AND NON-DESTROYED PRODUCTION WELLS
North Hollywood Operable Unit

Well Name	Screen Interval (feet below ground surface)	Assumed Representative Depth Region[a]								
		Single Depth Region				Multiple Depth Regions				
		1	2	3	4	1,2	2,3	1,2,3	1,2,3,4	2,3,4
4916C	300-500		X							
4916D	220-230	X								
4916F	169-254	X								
4916G	192-367	X								
4916H	176-341	X								
4916J	150-310	X								
4916L	138-223, 233-238	X								
4926B	180-320	X								
4909F	138-348					X				
4909C	230-240, 290-300, 390-400					X				
PST-MW1P	207-287	X								
PST-MW2P	204-284	X								
LA-MW1	NA	X								
LA-MW2	NA	X								
LA-MW3	NA	X								
PA1-MW3	220-280	X								
4887B	60-80, 130-150, 290-330	X								
4887L	NA	X								
4887M	NA	X								
4897A	60-75, 90-105, 130-145, 180-370		X							
4897B	60-80, 100-120, 180-200	X								
4897C	NA	X								
4897D	NA	X								
4897G	370-500		X							
4897	190-192, 217-255, 275-435		X							
4898	250-330	X								
4899	120-286	X								
4917A	160-358	X								
4917B	160-375	X								
4928	NA									
4948	0-247, 247-297, 297-302	X								
4949C	0-222, 222-272, 272-277	X								
3830Q	NA	X								
3830S	218-258	X								
3831Q	NA		X							
3841H	144-154, 210-220	X								
3852F	125-175	X								
4919D	230-240, 290-300, 390-400, 480-490		X							
LA Department of Water and Power - NHOU Extraction Wells										
NHE-1	190-276	X								
NHE-2	190-300	X								
NHE-3	190-286	X								
NHE-4	180-280	X								
NHE-5	180-266	X								
NHE-6	180-378					X				
NHE-7	180-270	X								
NHE-8	180-280	X								
LA Department of Water and Power - Erwin Wellfield										
EW-10	204-214, 270-303, 355-380						X			
EW-6	212-288, 254-308, 314-347, 380-399, 420-433, 500-518, 638-694								X	
LA Department of Water and Power - North Hollywood East Wellfield										
NH-02	105-135, 172-276, 282-309, 318-374					X				
NH-10	160-535							X		
NH-11	108-261, 303-396	X								
NH-13	NA					X				
NH-14	110-149	X								
NH-14A	120-149, 155-181, 185-214, 230-265, 320-387					X				

TABLE 1-1
NHOU MONITORING WELLS
AND NON-DESTROYED PRODUCTION WELLS
North Hollywood Operable Unit

Well Name	Screen Interval (feet below ground surface)	Assumed Representative Depth Region[a]								
		Single Depth Region				Multiple Depth Regions				
		1	2	3	4	1,2	2,3	1,2,3	1,2,3,4	2,3,4
NH-16	144-168, 168-236, 315-400					X				
NH-17	145-185, 230-273, 287-406					X				
NH-18	145-197, 197-265, 308-401					X				
NH-19	145-268, 308-388					X				
NH-20	146-241, 252-270, 308-408							X		
NH-21	149-173, 197-280, 311-394					X				
NH-24	206-246, 260-283, 318-338, 338-410, 464-508, 514-534							X		
NH-27	210-742 (13 Screen intervals)								X	
NH-28	250-258, 292-392, 535-607								X	
NH-29	215-254, 315-371, 415-434, 490-502, 562-622, 655-664						X			
NH-30	255-275, 318-390, 573-583, 645-675							X		
NH-35	260-400, 573-600, 600-695							X		
NH-38	300-426, 473-510, 565-625, 650-692, 736-795									X
NH-39	300-305, 333-395, 423-484, 490-515, 550-620, 670-700, 762-804, 810-830									X
NH-40	308-323, 328-407, 418-425, 435-448, 514-575, 575-613									X
NH-41	248-276, 280-346, 358-400, 480-520, 550-570, 590-610								X	
LA Department of Water and Power - North Hollywood West Wellfield										
NH-4	195-210, 234-244, 279-312, 360-378							X		
NH-7	151-170, 201-216, 260-310, 398-427, 468-496, 510-535							X		
NH-15	126-136, 210-267, 284-306, 315-368, 434-460							X		
NH-22	166-460							X		
NH-23	222-298, 432-460							X		
NH-25	160-187							X		
NH-26	198-340, 348-376, 412-445, 465-540							X		
NH-32	264-272, 280-310, 385-415, 485-497, 510-520, 575-590, 623-672								X	
NH-33	130-210, 274-310, 335-350, 450-466, 470-490, 520-568, 572-594, 630-642, 645-655, 672-732								X	
NH-34	202-263, 280-290, 308-398, 430-462, 494-505, 510-561, 563-574, 608-642, 675-720							X		
NH-36	265-370, 432-462, 502-648, 700-720							X		
NH-37	230-260, 278-390, 430-460, 505-550, 620-640, 700-720, 850-860, 875-910								X	
NH-43A	280-370, 380-390, 420-460, 475-496							X		
NH-44	340-730									X
NH-45	340-780									X
LA Department of Water and Power - Rinaldi-Toluca Wellfield										
RT-01	360-780						X			
RT-02	370-600, 640-780						X			
RT-03	370-600, 630-670, 700-770						X			
RT-04	370-600, 630-670, 700-770						X			
RT-05	370-600, 620-670, 700-770						X			
RT-06	370-770						X			
RT-07	370-590, 640-780						X			
RT-08	360-620, 645-665, 680-780						X			

TABLE 1-1
NHOU MONITORING WELLS
AND NON-DESTROYED PRODUCTION WELLS
North Hollywood Operable Unit

Well Name	Screen Interval (feet below ground surface)	Assumed Representative Depth Region[a]								
		Single Depth Region				Multiple Depth Regions				
		1	2	3	4	1,2	2,3	1,2,3	1,2,3,4	2,3,4
RT-09	370-580, 640-665, 680-780						X			
RT-10	360-460, 480-660						X			
RT-11	370-590, 620-640, 670-770						X			
RT-12	370-470, 490-510, 530-590, 640-789						X			
RT-13	370-590, 630-780						X			
RT-14	360-540, 550-670, 700-770						X			
RT-15	360-600, 610-750						X			
LA Department of Water and Power - Tujunga Wellfield										
TJ-07	400-420, 440-460, 600-660, 690-780						X			
TJ-08	400-460, 480-670, 690-740, 750-780						X			
TJ-09	400-780						X			
TJ-10	400-460, 480-580, 610-670						X			
TJ-11	400-460, 480-580, 600-610, 630-780						X			
TJ-12	370-470, 490-510, 530-590, 640-780						X			
LA Department of Water and Power - Whitnall Wellfield										
WH-1	150-185, 185-204, 232-274, 294-369, 501-509					X				
WH-2	162-203, 232-252, 312-371, 442-455							X		
WH-3	170-189, 212-244, 286-349, 429-442							X		
WH-4	150-175, 285-330, 385-390, 412-430, 440-460, 478-504						X			
WH-5	150-170, 193-208, 229-234, 284-316, 377-388, 402-414, 434-459, 465-492							X		
WH-6A	268-314, 320-330, 360-375, 380-395, 412-472, 515-544, 645-660, 716-735, 751-766, 780-789, 820-844, 852-894									X
WH-7	253-269, 277-300, 379-418, 537-546, 564-572, 660-670, 673-710, 715-735, 762-772, 788-794, 800-815, 822-842								X	
WH-8	224-260, 290-305, 322-370, 444-461							X		

Notes:

[a] Representative depth regions are based on a comparison of the perforated or screened intervals of each well versus the elevations of the SFBFS-B model layer boundary elevations at each well's location, excluding depth regions with less than 5 percent of a well's total perforated or screened intervals.

NA - Not available

TABLE 1-2
CHRONOLOGY OF NORTH HOLLYWOOD OPERABLE UNIT EVENTS
North Hollywood Operable Unit

Period	Key Event
1979	Final judgment of 1924 water rights in the Upper Los Angeles River Area (ULARA) completed; Los Angeles County Superior Court Appoints ULARA Watermaster.
1979	Organic Chemicals were found in the groundwater within the San Gabriel Valley, east of San Fernando Valley (SFV). CDPH (formerly the California Department of Health Services) requested all major groundwater users to test for industrial chemicals.
1980	Congress enacted Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The CDPH detected trichloroethene (TCE), tetrachloroethene (PCE), and other volatile organic compounds (VOCs) at concentrations that ceded the Maximum Contaminant Level (MCLs) in a large number of production wells in the SFV; those wells were removed from service. An alternative water supply was obtained from the Metropolitan District (MWD) where needed.
1981	Los Angeles Department of Water and Power (LADWP) and Southern California Association of Governments began a 2-year study funded by U.S. Environmental Protection Agency (USEPA) titled Groundwater Management Plan – San Fernando Valley Basin.
1982	LADWP conducted depth-specific packer sampling at Well Number 24. Results indicated that TCE concentrations were 50 times greater in the upper zone than in all other zones.
Jul-83	Groundwater Management Plan – San Fernando Valley Basin completed. The study found widespread VOC contamination in the eastern SFV and also located a contaminant plume migrating to the southeast at 300 feet per year.
1984	Four SFV Superfund Sites proposed for listing on the National Priority List (NPL).
1985	Groundwater samples from 27 of 38 of LADWP's most active wells in the North Hollywood Well Fields had a concentration of TCE greater than the MCL; four wells had PCE concentrations greater than the MCL. LADWP shut down several contaminated wells in the eastern portion of the well field.
Jul-86	The SFV Area 1 Superfund Site was placed on the NPL. LADWP commissioners approved a Negative Declaration for the North Hollywood Operable Unit (NHOU) project.
Aug-86	The South Coast Air Quality Management District (SCAQMD) issued a permit to construct and operate the air stripper for the NHOU treatment system.
Oct-86	The CDPH issued an amended water system permit for the NHOU treatment system.
Nov-86	The LADWP completed the Operable Unit Feasibility Study for the North Hollywood Well Field Area of the North Hollywood-Burbank NPL Site, San Fernando Valley Groundwater Basin, which was the basis for selection and design of the current NHOU treatment system.
1987	LADWP signed a cooperative agreement with EPA providing Federal funds for a baseline RI. The SFV Areas 1 and 2 were subdivided into operable units to provide a discrete interim remedy for each operable unit.
	Regional Water Quality Control Board (RWQCB) issued CAO 87-171 to Lockheed Martin for investigation and cleanup of properties in the SFV including Plants B5 and C1, which are located within the NHOU.
Sep-87	Record of Decision (ROD) signed for the NHOU; groundwater remedy includes extraction and treatment.
Mar-89	Construction of the NHOU treatment system was completed.
Dec-89	Operation of the NHOU treatment system began.
Mar-91	Lockheed entered into a consent decree with the EPA relating to the former Plant C1, which was located within the NHOU, on property that is now the Burbank Airport.
Dec-92	An SFV basinwide RI was completed. A basinwide groundwater monitoring program was established, including sampling of 84 RI wells.
Jul-93	First NHOU 5-year review (USEPA, 1993) completed.
Jul-98	Second NHOU 5-year review (USEPA, 1998) completed.
Jan-99	USEPA initiated chromium source investigation by providing funds to RWQCB to investigate 4,040 potential chromium sources in the SFV.
Feb-99	The Office of Environmental Health Hazard Assessment (OEHHA) of the California Environmental Protection Agency formally adopted a public health goal (PHG) for total chromium of 2.5 micrograms per liter (µg/L). The PHG assumed a concentration of 0.2 µg/L for hexavalent chromium.
Nov-01	OEHHA withdrew its PHG of 2.5 µg/L after a study of the Chromium Toxicity Review Committee concluded that the state total chromium CL of 50 µg/L is protective.
Aug-02	The RWQCB completed Chromium Investigation: San Fernando Valley Phase 1; Inspections Final Report, further assessment was recommended for 105 sites. The RWQCB issued four Consent Agreement Orders (CAOs) to parties throughout the San Fernando groundwater basin.
Feb-03	The RWQCB issued CAO No. R4-2003-0037 to Honeywell International Inc. for chromium requiring that Honeywell "assess, cleanup, and abate the effects of contaminants discharged to soil and groundwater."
Sep-03	Third NHOU 5-year review (USEPA, 2003) completed.
2003 – 2004	Legislative deadline for hexavalent chromium PHG to be established by OEHHA, and subsequent MCLs to be issued by the CDPH passes. The hexavalent chromium PHG and MCl were not established.
Sep-04	The RWQCB issued a letter to Honeywell International Inc., which revised the February 2003 CAO to include VOCs as part of the CAO investigation and cleanup.
Jan-06	USEPA completed the NHOU Chromium Evaluation.
Dec-06	Chromium concentration at NHOU well NHE-2 reaches 200 µg/L.
Jan-07	The concentration of total chromium in the NHOU treatment system discharge (point of compliance) reached 33.7 µg/L, slightly more than 60 percent of the MCL for chromium (50 µg/L).
Feb-07	CDPH advised LADWP to shut down well NHW-2 or divert the water extracted by that well to a nonpotable use.
Apr-07	The RWQCB issued two CAO amendments to Honeywell to (1) expedite chromium treatment and conduct a comprehensive soil and groundwater assessment at the Honeywell facility and (2) replace water lost because of the closure of well NHW-2 due to elevated chromium concentrations.

TABLE 1-2
CHRONOLOGY OF NORTH HOLLYWOOD OPERABLE UNIT EVENTS
North Hollywood Operable Unit

Period	Key Event
May-07	Honeywell submitted a work plan to RWQCB and USEPA for wellhead treatment of chromium and 1,4-dioxane at extraction well NHE-2.
Sep-07	Site assessment at Honeywell began following work plan review and approval by SFV agencies. Honeywell submits permit applications for wellhead treatment at well NHE-2 and chromium treatment at the Honeywell facility.
Sep-08	Well NHE-2 returned to service following modifications completed by Honeywell to extract the groundwater and discharge the effluent to the city sewer system.
Jan-09	Construction of in situ treatment for chromium groundwater contamination at the Honeywell facility in North Hollywood was completed under the supervision of the RWQCB.
Jul-09	USEPA Focused Feasibility Stufy publication
Sep-09	USEPA 2nd Interim ROD publication

Note:

Source: (USEPA, 2009a)

TABLE 2-1
2009-2010 NHOU ADDITIONAL GROUNDWATER MONITORING WELL CONSTRUCTION DETAILS
North Hollywood Operable Unit

Location	Well ID	Total Depth Drilled (ft bgs)	Assumed Depth Region	Well Diameter (inches)	Screened Interval (ft bgs)	Screen Length (feet)	Screen Slot Size (inches)	Screen Type	Filter Type	Survey Information				
										Northing	Easting	Elevation		
												TOR	FS	TOC
NH-C07	NH-C07-300	301.0	1	4	240-300	60	0.020	Sch 80 PVC	#2/12 sand	1894516.63	6445964.27	729.27	729.25	729.01
NH-C08	NH-C08-295	302.0	1	4	245-295	50	0.020	Sch 80 PVC	#2/12 sand	1895430.98	6447077.61	737.19	738.34	737.88
NH-C09	NH-C09-310	312.0	1	4	250-310	60	0.020	Sch 80 PVC	#2/12 sand	1895202.90	6440630.07	737.10	737.04	736.83
NH-C10	NH-C10-280	285.0	1	4	220-280	60	0.020	Sch 80 PVC	#2/12 sand	1892972.08	6446697.84	710.23	710.24	710.04
	NH-C10-360	421.5	2	4	310-360	50	0.020	Sch 80 PVC	#2/12 sand	1892981.57	6446697.72	710.40	710.47	710.15
NH-C11	NH-C11-295	300.5	1	4	235-295	60	0.020	Sch 80 PVC	#2/12 sand	1896638.41	6439177.06	731.42	731.42	730.86
NH-C12	NH-C12-280	282.0	1	4	210-280	70	0.020	Sch 80 PVC	#2/12 sand	1892855.63	6450354.12	705.50	705.52	705.35
	NH-C12-360	420.0	2	4	310-360	50	0.020	Sch 80 PVC	#2/12 sand	1892861.15	6450354.27	705.70	705.44	705.31
NH-C13	NH-C13-385	420.0	2	4	335-385	50	0.020	Sch 80 PVC	#2/12 sand	1897301.46	6441182.67	760.77	760.97	760.47
NH-C14	NH-C14-250	304.0	1	4	200-250	50	0.020	Sch 80 PVC	#2/12 sand	1891651.84	6448636.34	694.71	694.64	694.20
NH-C15	NH-C15-240	242.0	1	4	180-240	60	0.020	Sch 80 PVC	#2/12 sand	1890257.23	6448365.58	679.49	679.49	679.04
	NH-C15-330	420.0	2	4	270-330	60	0.020	Sch 80 PVC	#2/12 sand	1890250.24	6448365.55	679.35	679.28	679.11
NH-C16	NH-C16-320	325.0	1	4	270-320	50	0.020	Sch 80 PVC	#2/12 sand	1898736.79	6445438.34	777.79	777.80	777.29
	NH-C16-390	420.0	2	4	340-390	50	0.020	Sch 80 PVC	#2/12 sand	1898728.49	6445438.51	777.64	777.73	777.33
NH-C17	NH-C17-255	260.0	1	4	185-255	70	0.020	Sch 80 PVC	#2/12 sand	1890658.97	6451694.47	676.03	676.33	675.61
	NH-C17-339	420.0	2	4	279-339	60	0.020	Sch 80 PVC	#2/12 sand	1890669.04	6451694.41	676.57	676.21	675.77
NH-C18	NH-C18-270	270.0	1	4	220-270	50	0.020	Sch 80 PVC	#2/12 sand	1893308.70	6444038.73	718.28	718.22	717.87
	NH-C18-365	420.0	2	4	305-365	60	0.020	Sch 80 PVC	#2/12 sand	1893317.05	6444038.73	718.32	718.17	717.96
NH-C19	NH-C19-290	310.0	1	4	230-290	60	0.020	Sch 80 PVC	#2/12 sand	1894501.13	6442936.37	732.45	732.48	732.23
	NH-C19-360	421.5	2	4	300-360	60	0.020	Sch 80 PVC	#2/12 sand	1894500.78	6442945.71	732.38	732.51	732.08
NH-C20	NH-C20-380	420.0	2	4	320-380	60	0.020	Sch 80 PVC	#2/12 sand	1896106.78	6442958.73	749.75	749.73	749.34
NH-C21	NH-C21-260	262.0	1	4	210-260	50	0.020	Sch 80 PVC	#2/12 sand	1892217.97	6445374.28	705.25	705.25	704.85
	NH-C21-340	422.0	2	4	280-340	60	0.020	Sch 80 PVC	#2/12 sand	1892224.53	6445374.34	705.34	705.32	705.06
NH-C22	NH-C22-360	365.0	1	4	300-360	60	0.020	Sch 80 PVC	#2/12 sand	1900799.25	6442917.41	802.87	802.86	802.34
	NH-C22-460	465.0	2	4	390-460	70	0.020	Sch 80 PVC	#2/12 sand	1900798.95	6442908.42	802.98	802.85	802.62
	NH-C22-600	660.0	3	4	550-600	50	0.020	Sch 80 PVC	#2/12 sand	1900798.88	6442900.08	803.01	802.99	802.50
NH-C23	NH-C23-310	310	1	4	250-310	60	0.020	Sch 80 PVC	#2/12 sand	1895833.41	6444032.35	745.84	745.84	745.50
	NH-C23-400	431.5	2	4	340-400	60	0.020	Sch 80 PVC	#2/12 sand	1895834.10	6444019.32	745.89	745.89	745.49
NH-C24	NH-C24-305	305	1	4	245-305	60	0.020	Sch 80 PVC	#2/12 sand	1894848.18	6447976.55	731.91	731.71	731.44
	NH-C24-410	420	2	4	360-410	50	0.020	Sch 80 PVC	#2/12 sand	1894849.42	6447963.08	731.96	731.48	731.48
NH-C25	NH-C25-290	290	1	4	240-290	50	0.020	Sch 80 PVC	#2/12 sand	1895189.46	6452103.61	725.94	725.92	725.70

Notes:

ft bgs - Feet below ground surface

FS - Finished Surface

PVC - Polyvinylchloride

Sch - Schedule

TOC - Top of Casing

TOR - Top of Rim of vault

TABLE 3-1
ESTIMATED AQUIFER TRANSMISSIVITY AND HYDRAULIC CONDUCTIVITY IN THE VICINITY OF THE NORTH HOLLYWOOD WELL FIELD
North Hollywood Operable Unit

Well	A	B	C			D	E		F	
	Estimated Transmissivity[a]	Modeled Transmissivity[b]	Perforated/ Screened Interval			Approx. Saturated Thickness Opposite Range of Perforated/ Screened Intervals[c]	Estimated Hydraulic Conductivity[d]			
							Estimated Saturated Thickness (col. D)		Assumed 300-ft Effective Saturated Thickness	
			Top	Bot	Range		Estimated *T* (col. A)	Modeled *T* (col. B)	Estimated *T* (col. A)	Modeled *T* (col. B)
	ft^2/day		ft bgs			ft	ft/day			
NH-4	110,210	47,000	195	378	183	128	860	370	370	160
NH-7	146,910	55,000	151	535	384	285	520	190	490	180
NH-13	64,840	65,000	110	392	282	142	460	460	220	220
NH-14A	110,340	65,000	120	387	267	137	810	470	370	220
NH-27	161,110	61,000	210	742	532	492	330	120	540	200
NH-29	100,250	65,000	215	664	449	414	240	160	330	220
NH-33	71,160	47,000	130	732	602	482	150	100	240	160
WH-4	40,270	56,000	150	504	354	254	160	220	130	190
Avg	100,600	57,600	160	542	382	292	440	260	340	190
Min	40,270	47,000	110	378	183	128	150	100	130	160
Max	161,110	65,000	215	742	602	492	860	470	540	220

Notes:

[a]Source: SFV Basinwide RI (JMM/LADWP/EPA, 1992). The quality of these estimates has not been reviewed

[b]Source: CH2M HILL/EPA, 1994, San Fernando Basin Groundwater Model Documentation

[c]Assumes 250-ft average depth to water

[d]Hydraulic conductivity (*K*) equals transmissivity (*T*) divided by the effective saturated thickness (*b*).

Two alternative assumptions for saturated thickness:

1. Range of saturated perforated or screened intervals; may include low-*K* zones within range, but ignores partial penetration of deeper aquifer.
2. Uniform effective aquifer thickness of 300 ft.

ft - Feet

TABLE 3-2
NHOU-AREA GROUNDWATER PRODUCTION
(OCTOBER 2009-SEPTEMBER 2010)
North Hollywood Operable Unit

Well	(acre-ft)
LADWP Tujunga Well Field	
TJ-01	2,242
TJ-02	1
TJ-03	202
TJ-04	3
TJ-05	4
TJ-06	6,845
TJ-07	6,096
TJ-08	4
TJ-09	320
TJ-10	1
TJ-11	4
TJ-12	825
Sum	16,547
LADWP Rinaldi-Toluca Well Field	
RT-1	5
RT-2	1,361
RT-4	1,346
RT-5	4,631
RT-6	2,700
RT-7	982
RT-8	4,588
RT-9	4,399
RT-10	6
RT-11	5
RT-12	189
RT-13	6
RT-14	5
RT-15	0
Sum	20,223
LADWP North Hollywood Well Field	
NH-4	1,528
NH-7	184
NH-22	1,644
NH-23	3
NH-25	1,570
NH-26	932
NH-32	1,415
NH-33	2
NH-34	1,723
NH-36	1,791
NH-37	3
NH-43A	557
NH-44	76
NH-45	1,008
Sum	12,436

Well	(acre-ft)
LADWP Erwin Well Field	
EW-6	649
EW-10	585
Sum	1,234
LADWP Whitnall Well Field	
WH-4	1,098
WH-5	660
WH-6A	1,345
Sum	3,103
NHOU Remedial Wells	
NHE-2	154
NHE-3	114
NHE-4	35
NHE-5	36
NHE-6	397
NHE-7	398
NHE-8	198
Sum	1,332
Burbank Operable Unit (October 2008-June 2009)	
VO-1	984
VO-2	1,172
VO-3	691
VO-4	1,242
VO-5	675
VO-6	2,388
VO-7	1,226
VO-8	1,665
Sum	10,043

Note:

ft - Feet

Source: ULARA Watermaster

TABLE 3-3
SPREADING BASIN RECHARGE UPGRADIENT OF THE NHOU AREA, Water Years 1969-2010
(ac-ft/year)
North Hollywood Operable Unit

Water Year	ULARA Hill and Mountain Precip.	Native Runoff					Import			Total		
		Branford	Hansen	Pacoima	Tujunga	Subtotal	Pacoima	Tujunga	Subtotal	Pacoima	Tujunga	Total
1969	43.00	461	32,464	14,262	13,052	60,239	0	3,676	3,676	14,262	16,728	63,915
1970	14.30	674	11,927	1,577	2,380	16,558	0	0	0	1,577	2,380	16,558
1971	19.33	507	11,657	4,049	0	16,213	0	399	399	4,049	399	16,612
1972	10.64	161	1,932	1,113	0	3,206	0	0	0	1,113	0	3,206
1973	25.93	1,271	9,272	6,343	2,274	19,160	0	0	0	6,343	2,274	19,160
1974	19.93	672	6,287	2,378	0	9,337	0	0	0	2,378	0	9,337
1975	19.14	681	5,423	2,476	0	8,580	0	9,221	9,221	2,476	9,221	17,801
1976	18.98	470	3,128	1,308	0	4,906	0	5,500	5,500	1,308	5,500	10,406
1977	17.77	377	2,656	1,943	0	4,976	0	16	16	1,943	16	4,992
1978	51.83	2,142	28,123	20,472	12,821	63,558	0	18,247	18,247	20,472	31,068	81,805
1979	25.48	301	24,697	12,036	0	37,034	0	31,945	31,945	12,036	31,945	68,979
1980	35.76	397	31,087	15,271	0	46,755	312	19,931	20,243	15,583	19,931	66,998
1981	14.06	245	14,470	3,169	0	17,884	0	9,020	9,020	3,169	9,020	26,904
1982	22.05	345	14,317	5,495	0	20,157	0	0	0	5,495	0	20,157
1983	50.06	883	35,192	22,972	10,580	69,627	0	32,237	32,237	22,972	42,817	101,864
1984	11.90	213	10,410	1,342	0	11,965	2,203	24,115	26,318	3,545	24,115	38,283
1985	14.50	244	13,274	3,375	0	16,893	76	5,496	5,572	3,451	5,496	22,465
1986	24.54	290	18,188	6,704	0	25,182	0	1,433	1,433	6,704	1,433	26,615
1987	8.86	0	7,311	467	0	7,778	0	33	33	467	33	7,811
1988	23.06	352	17,252	4,520	0	22,124	0	0	0	4,520	0	22,124
1989	13.21	255	3,844	1,306	0	5,405	0	0	0	1,306	0	5,405
1990	10.38	327	2,029	1,330	0	3,686	378	0	378	1,708	0	4,064
1991	19.02	509	11,489	3,436	2,487	17,921	504	0	504	3,940	2,487	18,425
1992	33.86	653	15,461	12,411	9,272	37,797	503	0	503	12,914	9,272	38,300
1993	-	389	26,186	17,001	19,656	63,232	0	0	0	17,001	19,656	63,232
1994	-	462	12,052	3,156	4,129	19,799	0	0	0	3,156	4,129	19,799
1995	-	585	35,137	14,064	18,236	68,022	0	0	0	14,064	18,236	68,022
1996	-	345	8,232	4,532	7,767	20,876	0	0	0	4,532	7,767	20,876
1997	-	415	9,808	5,768	6,406	22,397	0	51	51	5,768	6,457	22,448
1998	-	641	28,129	20,714	11,180	60,664	0	77	77	20,714	11,257	60,741
1999	-	547	8,949	696	3,934	14,126	0	0	0	696	3,934	14,126
2000	-	468	7,487	2,909	2,664	13,528	0	0	0	2,909	2,664	13,528
2001	-	562	11,694	3,826	1,685	17,767	0	0	0	3,826	1,685	17,767
2002	-	460	1,342	761	101	2,664	0	0	0	761	101	2,664
2003	-	932	9,427	3,539	1,914	15,812	0	0	0	3,539	1,914	15,812
2004	-	444	6,424	1,731	1,322	9,921	0	0	0	1,731	1,322	9,921
2005	-	1,448	33,301	17,394	21,115	73,258	0	0	0	17,394	21,115	73,258
2006	-	576	20,840	7,346	14,895	43,657	0	0	0	7,346	14,895	43,657
2007	-	532	5,762	436	1,200	7,930	0	0	0	436	1,200	7,930
2008	-	570	10,517	5,025	4,892	21,004	0	0	0	5,025	4,892	21,004
2009	12.58	706	0	2,000	7,233	9,939	0	0	0	2,000	7,233	9,939
2010	20.55	535	16,766	9,080	12,849	39,230	34	7,509	7,543	9,114	20,358	46,773
AVERAGE	22.41	549	13,834	6,357	4,419	25,159	97	3,937	4,033	6,454	8,356	29,193

Notes:

Source: ULARA Watermaster annual reports and SFBFS-B model input files.

ac - Acre

ft - Feet

ULARA - Upper Los Angeles River Area

TABLE 3-4
NHOU-AREA GROUNDWATER LEVELS, DECEMBER 2010-JANUARY 2011
North Hollywood Operable Unit

Well	Top of Casing (ft msl)	Depth to Water (ft bgs)	Groundwater Surface Elevation Reported Value
USEPA NHOU Cluster Monitoring Wells			
NH-C01-325	781.4	291.0	490.4
NH-C02-220	657.1	182.6	474.5
NH-C03-380	708.2	222.8	485.4
NH-C05-320	772.4	282.9	489.5
NH-C07-300	729.0	239.0	490.0
NH-C08-295	737.9	248.3	489.6
NH-C09-310	736.8	245.9	490.9
NH-C10-280	710.0	222.3	487.7
NH-C11-295	730.9	238.2	492.7
NH-C12-280	705.4	222.4	483.0
NH-C13-385	760.5	268.1	492.4
NH-C14-250	694.2	210.1	484.1
NH-C15-240	679.0	195.0	484.0
NH-C16-320	777.3	283.8	493.5
NH-C17-255	675.6	196.4	479.2
NH-C18-270	717.9	227.9	490.0
NH-C19-290	732.2	241.5	490.7
NH-C20-380	749.3	257.6	491.7
NH-C21-260	704.9	216.5	488.4
NH-C22-360	802.3	306.9	495.4
NH-C23-310	745.5	254.3	491.2
NH-C24-305	731.4	243.2	488.2
NH-C25-290	725.7	242.6	483.1
USEPA NHOU Vertical Profile Boring Monitoring Wells			
NH-VPB-02	710.0	223.4	486.6
NH-VPB-03	676.2	192.3	483.9
NH-VPB-05	656.7	182.3	474.4
NH-VPB-06	746.4	258.5	487.9
NH-VPB-07	755.8	267.2	488.6
NH-VPB-08	668.7	188.4	480.3
NH-VPB-09	794.8	276.7	518.1
NH-VPB-11	789.9	296.8	493.1
NH-VPB-13	855.1	355.2	499.9
Others			
4899	769.0	270.2	498.8
4909F	758.0	264.6	493.4
4917A	832.0	335.5	496.5
4917B	848.6	350.7	497.9
Lockheed Monitoring Wells			
3830Q	700.0	221.9	478.1
3831Q	660.0	185.7	474.3
LB5-CW03	694.9	221.0	473.9
LC1-CW03	737.9	254.1	483.8
LC1-CW06	718.5	236.6	481.9
LC1-CW08	729.0	248.1	480.9
LAUSD Wells			
LA-MW1	741.6	256.9	484.7
LA-MW2	745.8	253.0	492.8

Well	Top of Casing (ft msl)	Depth to Water (ft bgs)	Groundwater Surface Elevation Reported Value
Former Bendix Site Monitoring Wells			
GW-1	742.1	252.6	489.5
GW-2	741.1	251.5	489.6
GW-3	739.0	249.5	489.5
GW-4	743.0	254.0	489.0
GW-5	742.4	253.0	489.4
GW-6	745.1	255.8	489.3
GW-7	737.0	247.5	489.5
GW-8	744.3	254.3	490.0
GW-9	743.1	253.0	490.1
GW-10	739.9	250.2	489.7
GW-14A	741.6	249.8	491.8
GW-15	738.8	249.1	489.7
GW-17A	729.5	240.5	489.0
GW-18A	737.8	248.1	489.7
GW-19A	728.6	239.2	489.4
GW-20	742.6	252.9	489.7
GW-21	742.3	252.9	489.4
GW-22	742.6	253.0	489.6
GW-23	743.3	253.8	489.5
LADWP Wells			
4897	818.1	312.2	505.9
4898	788.6	298.2	490.4
EV-05B	893.0	387.1	505.9
EV-06B	878.9	374.8	504.1
NH-16	707.2	220.1	487.1
NH-30	718.6	219.4	499.2
RT-05	786.3	290.7	495.6
RT-07	799.4	302.0	497.4
RT-08	801.3	303.7	497.6
RT-09	803.3	305.2	498.1
RT-12	772.5	278.8	493.7
4919D	764.2	277.8	486.4
4897G	843.7	334.0	509.7
4884	946.4	442.3	504.1
4885	895.7	391.0	504.7
4885A	850.0	354.2	495.8

Notes:

Contours smooth some of the data variability that may be attributable to differences measurement date and well completion.

bgs - Below ground surface
ft - Feet
msl - Mean Sea Level
NHOU - North Hollywood Operable Unit
USEPA - U.S. Environmental Protection Agency

TABLE 4-1
CONSTITUENTS OF CONCERN TYPICAL USAGES
North Hollywood Operable Unit

CONSTITUENT OF CONCERN	COMMERCIAL AND INDUSTRIAL USES
Trichloroethene (TCE)	Used as an industrial solvent, used in adhesives, paint removers, dry cleaning, dyestuffs, textiles, and spot removers
Tetrachloroethene (PCE)	Used to dry clean fabrics, used as a solvent to clean grease from metals, or used to make chemical products.
Total Chromium	Used in metal plating operations and aerospace/aviation parts manufacturing
Hexavalent Chromium	Used in metal plating operations and aerospace/aviation parts manufacturing and used as a corrosion inhibiter in cooling towers
1,4-Dioxane	Used as a stabilizer in chlorinated solvents, such as TCE and trichloroethane (TCA). Commonly found in some paint strippers, dyes, greases, waxes, varnishes, antifreeze, and aircraft deicing fluids

TABLE 5-1
NHOU FACILITIES WITH KNOWN CONSTITUENT OF CONCERN RELEASES TO THE SUBSURFACE[a]
North Hollywood Operable Unit

	NHOU Facility Information	Company or Entity Name	Company or Entity Address	Operating History	Known Impacts to Subsurface
1	AAA Metal Plating (aka Joe's Metal Polishing) 11417 - 11423 Vanowen Street, Units 29 - 31, North Hollywood, CA 91605	Extra Space of Vanowen Street, LLC	2795 East Cottonwood, Ste. 400, Salt Lake City Utah 84221, Charles Allen (owner as of 2003) Prior -Davis-Cohen Investments, LLC (Jean David Cohen, 5636 Valview Street, Turner, Oregon 97392	Plating operations (1960 to present) 27 other units within this industrial center historically for aerospace manufacturing.	Several violations of hazardous waste discharge. Soil - chromium (total) (8 to 43 mg/kg). Concrete (186 mg/kg). Removal action conducted (DTSC Voluntary Cleanup Agreement).
2	Aerostrar Moving and Shipping (Current) Nickel Solution Recycling, Inc. (Former) 11940 Sherman Road, North Hollywood, CA 91605	Nickel Solution Recycling, Inc.	11940 Sherman Road North Hollywood, CA 91605 Bernard Toplitzky 15048 Delano St., Van Nuys CA 91411 also operated Prescious Metals Refining Corp., 12015 Vose St., North Hollywood, CA	Metals recycling facility.	No Water Board or DTSC files found - 1983 - EPA SI, Discovery, and Preliminary Assessment; 1983 - Removal Action; 1984 - Section 107 Litigation and Consent Agreement (Administrative); 1990 - Expanded SI; NFA. 1992 - DTSC SI; 1996 - SSI Reassessment. EPA - NFA.
3	Avibank Mfg Inc 11500 Sherman Way, North Hollywood, CA 91605	Precision Castparts Corp., Avibank Mfg. Inc, SPS Fastener Division	4650 SW Macadam Avenue Suite 440 Portland, Oregon 97239-4262	Manufacture of bolts, fasteners since 1945. Work includes plating, heat treating, painting. Generates chromium as a waste, wastewater treatment sludges from electroplating. Approximately 0.13 tons photoprocessing waste, 0.13 tons alkaline solution with metals. 1,800 lbs chromium waste in 2005. Received some violations after a May 2007 audit.	Mitigation of unknown contaminant listed as completed in 1990.
4	Barry Controls 11150 Gault Street, North Hollywood, CA 91605	Hutchinson Group Company, Aerospace-Industry Division	2 rue Balzac, 75008 Paris, France, or Barry Controls, 4510 Vanowen St Burbank, CA 91505	Barry Controls is a manufacturer of shock vibration and isolation systems (manufacturing sheet metal and rubber molded products). Operations at the site until 1991 involved chromate conversion coating and passivation. A vapor degreaser was also used at the site until 1991. A tank line was used to prepare machine and steel parts from bonding to rubber. Chemicals used at the site included 1,1,1-TCA, MEK, Oaklite droxidize, and Oaklite chromicoat.	The results of a preliminary site investigation performed in June 1992 indicated the highest chromium concentration of 6 mg/kg in samples collected at 2'. The 5' samples were not analyzed. No VOCs were detected in soil samples.
5	Bendix Facility 11600 Sherman Way, North Hollywood, CA 91605	Honeywell International Inc.	101 Columbia Road, Morristown, NJ 07962	From 1941 to 1982 the site was operated by the Bendix Corporation. In 1982, Allied Signal, Inc. acquired Bendix and operated the site till 1992. Operations at this site consisted of manufacturing, testing, painting and plating hydraulic and pnuematic valves.	Since the early 1980's, many subsurface investigations and remedial actions have been conducted at this site. Groundwater monitoring began in 1991 and currently there are over 20 wells on- and off-site. VOC and chromium concentrations in groundwater as of 4Q09 are as follows: TCE and PCE as high as 1,000 ppb, chromium (total)as high as 10,000 ppb and hexavalent chromium (Cr+6) as high as 10,000 ppb.. In early 2009, a soil and groundwater remediation system was installed and started. The system includes an infiltration basin for the insitu remediation of Cr+6, four groundwater extraction wells, and seven other injection locations. Extracted groundwater is treated through a series of ion exchange vessels (for Cr+6 removal), followed by a series of GAC vessels for VOC removal.
6	Bradley Landfill and Recycling Center 9227 Tujunga Ave., Sun Valley, CA 91352	Waste Mgmt. Recycling & Disposal Services of CA, Inc.	1001 Fannin Street, Ste. 4000, Houston, TX 77002	1978 to present - Class III Landfill	Maximum concentrations TCE (50 mg/L), PCE (35 μg/L), and Chromium (174 μg/L)

TABLE 5-1
NHOU FACILITIES WITH KNOWN CONSTITUENT OF CONCERN RELEASES TO THE SUBSURFACE[a]
North Hollywood Operable Unit

	NHOU Facility Information	Company or Entity Name	Company or Entity Address	Operating History	Known Impacts to Subsurface
7	Caravan Fashion (Current) Microdot Kaynar Aerospace Fastening Systems/Mercury Aerospace Fasteners (Former) 11800 Sherman Way, North Hollywood, CA 91605	Property owner Mr. Irving Berken and Mr. Ralph Woodhouse	809 South Bundy Dr. Los Angeles CA and 10452 Via Cantabria San Juan Capistrano, CA	Machined fasteners for the aerospace industry 1972 - 1987. TCA degreaser.	1984 spill and L.A. DHS reports multiple discharges. Soil: chromium (total) (320 to 1,350 mg/kg). RWQCB inspected and further assessment was recommended. 2004, property owners consultant stated no chromium plating ever performed. 2004, RWQCB issues NFA..
8	Case De Chrome 6868 Farmdale Avenue, North Hollywood, CA 91605	Casa de Chrome	Thomas Oya property owner deceased.	1974 to 1992 - copper, nickel and chromium, electroplating. Including chemical stripping, mechanical polishing, acid dipping and repair.	1994 limited site investigation during RWQCB Well Investigation Program. Low levels of chromium (total) (less than 10 mg/kg) and hexavalent chromium (non-detect)
9	CWH, Co. 7303 LankershimNorth Hollywood, CA 91605	Mark and Madelin Waco	10042 Sylvia Ave., Northridge, CA	1968 - 1980 - Rytyron Co.and 1980 - 1982 - Trimm manufacturing plating operations. No other information on these operations.	Soil: chromium (total) (non-detect to 76 mg/kg) and hexavalent chromium (non-detect)
10	Electromatic, Inc. 7351 Radford Avenue, North Hollywood, CA 91605	Wilke Family Trust -1989 Living Trust,	789 South Kellog Avenue, Goleta, CA 93117	Since 1977 - Electropolishing and passivation of alloy resistant steel parts. Wastewater treatment chrome reduction and sodium hydroxide pH adjustment precipitation.	Soil of TCE (142 µg/kg) and 1,1,1-TCA (83 µg/kg), and hexavalent chromium (0.11 to 1.74 mg/kg)
11	EM Coating Services 6940 Farmdale Avenue, North Hollywood, CA	Metal Improvement Company	Global Headquarters 80 Route 4 East, Suite 310 Paramus, NJ 07652	Everlube Corporation 1953-1985, E/M Corporation 1985-2003, EM Coating Services - through 2008. Manufactures high performance coating product line, solid film lubricants, electronic shielding materials, highly corrosive resistant coatings. Chemicals included are 1,1,1-TCA, 1,4-Dioxane, PCE, various solvent mixtures, acids (chromic). No Water Board file for review.	PCE in soil (9 to 80 µg/kg)
12	F&H Plating, Inc. 12023 Vose Street, North Hollywood, CA 91605	Luis Lanier, Lanier Investments	16216 Kittridge Street, P.O.Box 1, Van Nuys, CA 91408	1984 to present - Metal Plating - Cyanide (copper, potasium, sodium, zinc), Acids (chromic, muratic, sulphuric, nitric, boric), electro-cleaner x-cel 133, various solvents, lacquer thinner, baking enamel, TCA, water displacement thinner, selenium and copper salts, inorganic acids K-stanate, Brass and Tinglo Culmo Brightener. Stopped chrome plating in 1993.	2004, soil - chromium (total) (58 mg/kg) and hexavalent chromium (0.91 to 2.4 mg/kg). 2005, Soil - chromium (total) (39.6 mg/kg), no hexavalent chromium analysis.
13	Fleetwood Machine Products 11447 Vanowen Street, North Hollywood 91605	The Millwood and Mildred Cooke Trust/Amended Cooke Family Trust - Mr. William L. Cooke/ Mr. Jerry Conrow Trustees	23871 Madison Street, Torrance, CA 90505	Metal machining shop (since 1953), TCA and various solvents used. Appeared on 1960 Sanborn map as "Aircraft Parts Mach. Shop"	1992 soil - PCE (16,000 µg/kg) and TCA (16,000 µg/kg)
14	Gregg Pit/Benz Dump Sun Valley,CA 91352	Pick-Your-Part- Auto Wrecking	1301 East Orangewood Ave., Anaheim, CA 92805	Unknown	Maximum concentrations TCE (14 µg/L), PCE (280 µg/L), and Chromium (ND)
15	Hangar 22 Burbank-Glendale-Pasadena Airport 7300 Block on Clyborne Ave, North Hollywood, CA	Lockheed Martin Corporation	6801 Rockledge Drive. Bethesda, Maryland 20817	The site is approximately 2.6 acres and consists of a rectangular hangar building (Hangar 22) located on the western portion of the site, which was constructed in the mid 1950's. In 1937 a sand and gravel quarry was identified north and east of the current Hangar 22. In 1942, the areas appeared to be disturbed and excavated. Airport personnel have stated the excavated areas could have been used as burn pits. In early 2003 buried debris was discovered in this area during improvements to thhe property. The Hangar 22 building has always been utilized for aircraft storage and minor maintenance activities.	In 2003, during renovations for a new tenant, buried debris were tested and shown to contain cadmium, copper, lead, and zinc. Additional testing indicated the waste did not contain petroleum hydrocarbons or VOCs. However, the buried debris was tested for metals and showed total chromium concentrations of 226 mg/kg and 114 mg/kg in two of the seven samples collected. Hexavalent chromium was detected as high as 760 µg/kg .

TABLE 5-1
NHOU FACILITIES WITH KNOWN CONSTITUENT OF CONCERN RELEASES TO THE SUBSURFACE[a]
North Hollywood Operable Unit

	NHOU Facility Information	Company or Entity Name	Company or Entity Address	Operating History	Known Impacts to Subsurface
16	Hawker Aerospace 11310/11240 Sherman Way Sun Valley CA, 91352	Hawker Pacific Aerospace	11310/11240 Sherman Way Sun Valley CA, 91352	Since 1966, aircraft parts manufacturing and refurbishing. Chromium plating and TCA degreasing.	VOCs in soil of PCE (550 mg/kg), chromium (total) (2 to 180 mg/kg), and hexavalent chromium (5 to 34 mg/kg)
17	Hewitt Pit 7245 - 7361 Laurel Canyon Rd.	CalMat Company dBA Vulcan Materials Company, Inc.	Vulcan Materials Company, Inc. 1200 Urban Center Drive Birmingham, AL 35242	Hewitt Landfill -1962 to 1975 Class II Landfill.	1987 the highest TCE in groundwater (45 µg/L) and PCE (200 µg/L) concentrations in the on-site upgradient well. Downgradient well during the same year were TCE (71 µg/L and PCE (6 µg/L). After 4 rounds of sampling (1989) these wells were non-detect for VOCs
18	Holchem Facility (aka Chase Chemical Facility) 13540 and 13546 Desmond Street, Pacoima, CA	Chase Chemical Company - a dissolved California Corporation (former Holchem facility)	Unknown	1967 to 1987 - Chase Chemical Company, stored industrial chemicals (USTs/ASTs). 1987 Holchem, Inc leased the property. 1988 20 USTs removed. 1999 Holchem purchased property.	No file review performed. Following information found at www.crala.net/internet-site/search-results.cfm. Soil and groundwater impacted. Groundwater conc.TCE (51 µg/L), PCE (13 µg/L). Draft Remedial Design as of Dec. 2007.
19	J S Screw Mfg Co. 7040 Laurel Canyon Blvd, North Hollywood, CA 91605	J. Schwartzman Mfg.	7040 Laurel Canyon Blvd, North Hollywood, CA 91605	The company was previously J. Schwartzman Mfg and then became J S Screw Mfg, a division of J Schwartzman Mfg. The facillity manufactured screws, bolts, and fasteners since 1947. The facility was listed as an large quantity generator in 1986. Plating operations took place at this facility. 1969 Sanborn Maps show oil tanks. 1960, 1963, 1966, 1969 Shanborn Maps show a manchine shop conducting nut, bolt, and screw manufacturing at this address.	A limited subsurface investigation was performed at this facility as part of the RWQCB chromium study. Chromium (3 to 12 mg/kg) at 4 locations. The faciltiy was granted NFA in 2005.
20	LADPW North Hollywood Fleet Services 12201 Sherman Way, North Hollywood, CA 91605	City of Los Angeles, Department of General Services, Fleet Services	City of Los Angeles, Department of General Services, 200 North Main Street, Room 800, Los Angeles, CA 90012	L.A. City property since 1960. Appears on 1960 Sanborn map. Automotive repair and maintenance. Motor oil, used motor oil, hydraulic oil, mineral spirits, transmission fluid, anti-freeze, diesel fuel, gasoline stored on-site.	In 1988, the City of Los Angeles performed a subsurface investigation near a chemical storage area and storm drain without the RWQCB's approval. The City's field, sampling and laboratory standards were in question by the RWQCB. A second investigation was conducted with RWQCB staff approval, but with the same deficiencies. Soil concentrations were moderately low, PCE and TCA were less than 100 µg/kg. An Oct. 1991 letter from the RWQCB outlined the deficiencies in the investigation, but also grants a no further subsurface investigation. Apr. 1997, RWQCB issues formal NFA letter to the City of Los Angeles
21	LADWP East Valley District Hq. and Yard 12730 Saticoy Street, North Hollywood, CA 91605	City of Los Angeles, Department of Water and Power	111 North Hope Street, Los Angeles, CA 90021	This facility has been in operation since 1951. It houses personnel and transportation and construction equipment used to service the East Valley District water mains, services, hydrants, and meters. The automotive shop services all construction and transportation equipment. All fueling, cleaning, repairs and tuneups are conducted in several buildings in the automotive section.	In September 1988, the RWQCB inspection of this facility identified chemical spills, damaged asphalt, on-site wastewater treatment and disposal in various facility locations, an under drain system which collects maintenance waste, and a 25-inch deep seepage pit. In April 1990, a subsurface soil investigation was performed and included 13 borings sampled from depths of 6' to 80'. PCE in soil (590 µg/kg at 2' and non-detect at 5' and 10'), chlorobenzene (93 µg/kg at 2' and non-detect in 8 samples collected to 57'), 1,2-dichlorobenzene (21 µ g/kg at 2' and non-detect in 8 samples collected to 57'), and 1,4-dichlorobenzene (63 µg/kg at 2').

TABLE 5-1
NHOU FACILITIES WITH KNOWN CONSTITUENT OF CONCERN RELEASES TO THE SUBSURFACE[a]
North Hollywood Operable Unit

	NHOU Facility Information	Company or Entity Name	Company or Entity Address	Operating History	Known Impacts to Subsurface
22	Lockheed Building 528 10811 Sherman Way, Sun Valley, CA	Lockheed Martin Corporation Building 528	6801 Rockledge Drive. Bethesda, Maryland 20817	1951 through 1988, building restricted to office space for the Flying Tiger Line, Inc. and Lockheed Air Terminal, Inc. No hazardous waste reported used or stored on-site.	1,4-dioxane in soil (7,100 µg/kg)
23	Lockheed Plant B-5 Empire Avenue and Clybourne Avenue, Burbank, CA	Lockheed Martin Corporation Plant B-5	6801 Rockledge Drive. Bethesda, Maryland 20817	1949 through 1979, aircraft assembly and parts finishing. Metal degreasing, cleaning and coating operations were conducted within the plant. A 1,200-gallon TCA degreaser, two 50-gallon PCE degreasers and a 2,900-gallon chromic acid tank existed.	No known impacts
24	Lockheed Plant C-1 10780 Sherman Way, Burbank, CA	Lockheed Martin Corporation Plant C-1	6801 Rockledge Drive. Bethesda, Maryland 20817	1948 through 1990, aircraft fabrication, metal machining and finishing, aircraft part testing, warehousing, hazardous materials and waste materials storage. There was no mention of specific chemicals used other than "solvents".	VOCs in soil: TCA (0.4 to 100 µg/kg), TCE (6 to 50 µg/kg), and PCE (9.3 to 210 µg/kg)
25	Los Angeles Unified School District Sun Valley Garage 11247 Sherman Way North Hollywood, CA 91605	Los Angeles Unified School District	11247 Sherman Way North Hollywood, CA 91605	School district fueling facility for school buses and district automobiles. Bus Maintenance since 1967.	VOCs in groundwater PCE (7.3 µg/L) and benzene (6.7 µg/L),and 1.4-dioxane 1.8 µg/L and low levels of Cr+6 (less than 1 µg/L).
26	Martin Aviation Burbank-Glendale-Pasadena Airport Leases 4B, 4C, and 4D 300 North Clybourn Avenue, Burbank, CA	Media Aviation	300 North Clybourn Avenue, Burbank, CA	Since approx. 1946, this site has been developed with several buildings used by a variety of corporate aviation tenants for freight, aircraft maintenance/modification, painting, and washing, office space, airport terminal services, and a refueling station. The space has been leased by Martin Aviation Burbank, Ltd since 1984, currently Media Aviation, with similar operations. Three lease areas (4B, 4C, 4D) comprise total of 12 buildings, incl. 220,000 sf of hangar space	Lease 4B: VOCs (< 15 µg/L) reported in soil gas near Bldg 22. Lease 4C: Bldg 31 with large paint booth (used by Ameriflight), industrial wastewater clarifier (IWC), and UST. Soil impacted by 1,1,1 TCA (88 µg/kg at 5') near paint booth. Stockpiled soil from UST removal impacted by TCE (16 mg/kg). Inside Bldg. 29, soil vapor samples reported PCE (2.3 µg/L). Highest total chromium (12.8 mg/kg) in samples collected at 3' in Buildings 28, 29, 34, and 35; at other areas ranged from 4.4 to 10.3 mg/kg. Lease 4D: VOCs, TPH not detected in shallow soil samples
27	Newberry Landfill Sun Valley, CA , 91352	L.A. By-Products, Co.	4053 Katella Ave., Ste. 209, Los Alamitos, CA 90720	Newberry Landfill - 1948 to 1955 Class II Landfill.E57	PCE in groundwater (1 to 6.4 µg/L) and hexavalent chromium (0 to 0.79 µg/L)
28	Nupla Plastics Corporation 11912 Sheldon St., Sun Valley, CA 91754	Jac-Nup Corporation former Nupla Plastics Corporation	11912 Sheldon St., Sun Valley, CA 91754	Manufacturer of fiberglass handles for tools since 1940.	VOCs in soil TCA (24 mg/kg) and TCE (351 mg/kg)

TABLE 5-1
NHOU FACILITIES WITH KNOWN CONSTITUENT OF CONCERN RELEASES TO THE SUBSURFACE[a]
North Hollywood Operable Unit

	NHOU Facility Information	Company or Entity Name	Company or Entity Address	Operating History	Known Impacts to Subsurface
29	Pacific Metal Stampings, Inc. 11489 Vanowen, North Hollywood, CA 91605	Mr. Niels Bruun-Anderson-Trustee of the Else Bruun-Anderson Trust (Trust reported as terminated).	Pacific Metal Stampings 28415 Witherspoon Parkway, Valencia, CA. 91355	Metal tooling and stamping, heat treating, anodizing, and plating (including chrome plating) was performed at this facility. Based on a the RWQCB Chromium VI site inspection report dated October 31, 2001, the former Pacific Metal Stamping fabricated metal products at the site since 1967, until the late 1990s. A chlorinated solvent tank and a four-stage clarifier were used at the site.	A limited subsurface investigation was performed at this facility in 1991. 3 soil borings to 10' were sampled. No VOC detections were reported. Total chrome was reported ranging from 3 to 9 mg/kg. Hexavalent chrome was not detected. On June 28, 1995, the RWQCB issued a letter indicating "no further action" is required at the site with respect to the WIP. On December 23, 2003, the RWQCB issued a letter to Pacific Metal Stamping regarding "No Further Requirements for Chromium VI Investigation".
30	Pacific Steel Treating 6829 Farmdale Avenue North Hollywood, 91605	Mr. Niels Bruun-Anderson-Trustee of the Else Bruun-Anderson Trust (Trust reported as terminated).	Unknown	Steel treating operation. PCE, TCA, TCE used. Three clarifiers in operation.	PCE in soil (9,600 to 28,000 µg/kg), 1,1,1-TCA (300 to 500 µg/kg). SVE system has operated on-site
31	Penrose Landfill Sun Valley, CA , 91352	L.A. By-Products, Co.	4052 Katella Ave., Ste. 209, Los Alamitos, CA 90720	Penrose Landfill - 1958 to 1985 Class II Landfill.	PCE in groundwater (1 to 36 µg/L), chromium (total) (10 to 20 µg/L), and 1,4-dioxane (1 to 5 µg/L)
32	Price Pfister Facility 13500 Praxton, Pacoima CA 91331	Price Pfister	19701 Da Vinci Foothill Ranch, California 92610	Unknown	Active RWQCB site: hexavalent chromium (1,500 µg/L) and 1,4-dioxane (1,400 µg/L). www.crala.net/internet-site/search-results.cfm
33	Raintree Buckles and Jewelry 7115 Laurel Canyon, North Hollywood, CA 91605	Marvin M. Chalek Fourth Amended Intervivos Trust (purchased property 1987)	Global Outfitters, Inc., 7115 Laurel Canyon, North Hollywood, CA 91605	1987 - 1996 - TCA used on-site.	VOCs in soil: PCE (1,200 mg/kg) and TCA (17 mg/kg). 8-inch diameter stormwater diversion hole on-site.
34	Remo, Inc. 12804 Raymer Street	Remo, Inc.	28101 Industry Drive Valencia, CA 91355	Manufacturing of drumheads and percussion instruments. No RWQCB file for review.	VOCs in soil: PCE (2.5 to 371 µg/kg) and 1,1,1-TCA (4.1 to 775 µg/kg). EPA NFA before further investigation was performed.
35	Skipower Plating Works 7131 Vineland Avenue, North Hollywood, CA 91605	Vineland Partnership Property Managers - Carnahan & Assoc.	20121 Ventura Blvd Ste 203 , Woodland Hills 91364	Since 1972 - Electroplating of antimony, copper, cadmium, indium, mercury, nickel, lead	Soil: chromium (total) (less than 10 mg/kg) and hexavalent chromium (non-detect)
36	Sprayco, Inc. 12600 Saticoy Street, North Hollywood, CA 91605	Hansen Distributing Company	Mark Ziv 8238 Lankershim, North Hollywood, CA 91605	1982-1991 - Transglobe Imports/ Sprayco, Inc (In 1991 Sprayco filed for bankruptcy & moved to Simi Valley operating under the name of Royal Coding Metals, Neville Isaacson, P.O. Box 8059 Northridge, CA 91237). TCA degreaser on-site. Sprayco was either a plating or painting contractor (one doc says plating another says painting).	1990 - L. A. County DHS Hazmat responded to a complaint from the neighbor of Sprayco about "leaking and fuming drums". When the responders arrived on-site there was a large pool of grayish liquid on the southern property line. The liquid resulted from washing painted parts after dipping in a stripper drum. The comment from a Sprayco representative was "we always do it that way". The RWQCB performed an inspection of the site a couple months later and ordered Sprayco to issue a subsurface investigation workplan. Sprayco filed for bankruptcy in 1991 and the property owner was left to implement the work. Chromium (total) (4 to 81 mg/kg) reported in soil. 2001 RWQCB chromium inspection recommended NFA.
37	Strathern Landfill Sun Valley, CA , 91352	L.A. By-Products, Co.	4051 Katella Ave., Ste. 209, Los Alamitos, CA 90720	Strathern Landfill - 1992 to Present Class II Landfill.	PCE in groundwater (1 to 15 µg/L) and chromium (total) (10 to 20 µg/L)
38	Tuxford Landfill 11590 Tuxford Street, Sun Valley, CA 91352	California Car Hikers L.A. By-Products, Co.	11590 Tuxford Street, Sun Valley, CA 91352 4050 Katella Ave., Ste. 209, Los Alamitos, CA 90720	1948 to 1961 - Class II Landfill	VOCs in groundwater: TCE (0 to 98 µg/L) and PCE (0 to 12 µg/L), chromium (total) (4.2 to 12 µg/L), and 1,4-dioxane (1 to 5 µg/L)

Notes:
[a] Facilities that have a history or using constituents of concern and have documented impacts to soil and groundwater as determined by review of publicly available documents, including RWQCB files and Sanborn Fire Insurance Maps.

AST - Aboveground storage tank
DHS - Department of Health Services
DTSC - Department of Toxic Substance Control
EC - Emerging chemicals
SVE - Soil vapor extraction
TCA - Trichloroethane
TCE - Trichloroethene
TPH - Total petroleum hydrocarbons

TABLE 5-1
NHOU FACILITIES WITH KNOWN CONSTITUENT OF CONCERN RELEASES TO THE SUBSURFACE[a]
North Hollywood Operable Unit

	NHOU Facility Information	Company or Entity Name	Company or Entity Address	Operating History	Known Impacts to Subsurface

EPA - U.S. Environmental Protection Agency
mg/kg - Milligrams per kilogram
NFA - No further action
PCE - Tetrachloroethene
RWQCB - California Regional Water Quality Control Board
UST - Underground storage tank
µg/kg - Micrograms per kilogram
µg/L - Micrograms per liter
VOCs - Volatile organic carbons
WIP - Well Investigation Program

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
1	2	6858 Beck Ave, North Hollywood, CA 91605	General Wax & Candle Co	Candle-making	Company was founded in 1949. Company website lists current address as 6863 Beck Ave. Company is also listed at 6850 Beck Ave. http://www.generalwax.com/	1962	HAZNET LUST (Geotracker lists cleanup for LUST site as "case closed" in 2003, with a gasoline spill affecting soil.) Cortese EMI WIP UST SWEEPS UST CA FID UST FINDS	Not known.	Approximately 16.85 tons organic solids, 1.83 tons unspecified solvent mixture waste, 1.14 tons unspecified organic liquid mixture, 1.51 tons organics, 0.22 tons tank treatment, 0.22 tons oxygenated solvents
2	2	6927 Beck Ave., North Hollywood, CA 91605	Greg Kukta, Owner of Ben-Ko Engineering and Manufacturing	Not known.	Not known. 1960 Sanborn Maps show a machine shop at this address.	Johnson Chemical 1950	HAZNET	Not known.	4.37 tons "Waste oil and mixed oil"; 0.63 tons "Off-specification, aged, or surplus organics"; 0.42 tons "Other organic solids"
2	2	6927 Beck Ave., North Hollywood, CA 91605	Johnson Chemical & Products Co.	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
3	2	7324 Bellaire Ave., North Hollywood, CA 91605	Bellaire Metals	Not known.	Appears to be located in Woodland Hills, CA.	1970-85	Not listed.	Not Known.	Not Known.
3	2	7324 Bellaire Ave., North Hollywood, CA 91605	H & R Metal Products	Not known.	Not known.	1970-80	Not listed.	Not Known.	Not Known.
4	2	7405 Bellaire Ave., North Hollywood, CA 91605	Aircraft Components Division of Whittaker Corp	Not known.	Possibly a division of Whittaker Controls, a manufacturer of controls for aircraft.	1975-91	Not listed.	Not Known.	Not Known.
5	2	7409 Bellaire Ave., North Hollywood, CA 91605	Reliable Capacitor Co	Not known.	Not known.	1970-80	Not listed.	Not Known.	Not Known.
6	2	7101 Case Ave., North Hollywood, CA 91605	Cooper Laboratories Inc.	Not known.	Appears that the company is now CooperVision.	1975-1981	Not listed.	Not Known.	Not Known.
6	2	7101 Case Ave., North Hollywood, CA 91605	Oral B Lab	Oral Care Manufacture	Company manufacturing oral care and dental products. http://www.oralb.com/	1986-1990	Not listed.	Not Known.	Not Known.
6	2	7101 Case Ave., North Hollywood, CA 91605	Hoshino (USA), Inc.	Wholesale Musical Instruments	Started in 1972. Distributor for Hoshino. Wholesale for Musical Instruments (Percussion, Guitars, Electronics and Accessories) and Market Research. Headquarters in Bensalem, PA. http://www.manta.com/coms2/dnbcompany_dk0w8j	Cooper Laboratories Inc 1975-1981	HAZNET WIP	Not known.	1.2 tons “Unspecified solvent mixture Waste”; 0.21 tons “Aqueous solution with less than 10% total organic residues”; Unspecified amount of “Waste Category: Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)”
7	2	7104 Case Ave., North Hollywood, CA 91605	Architectural Plywood Inc.	Plywood manufacturing	Started in 1973. Manufactures hardwood or hardwood faced plywood products. http://www.manta.com/coms2/dnbcompany_dkd67l	1975-1995	RCRA-SQG FINDS HAZNET WIP CA WDS	Not Known.	Not Known.
8	2	7240 Coldwater Canyon Ave., North Hollywood, CA 91605	Teaero Corp.	Metal Coating SIC code 3479	Teaero Corp. also is listed in the EDR report at 7244 Coldwater Canyon Ave.	1990	RCRA-SQG FINDS EMI	Not Known.	Not Known.
8	2	7240 Coldwater Canyon Ave., North Hollywood, CA 91605	Vickers Airline Service Center	Not known.	LQG in 1987, SQG in 1996	Not known.	RCRA-SQG FINDS	Not Known.	Not Known.
8	2	7240 Coldwater Canyon Ave., North Hollywood, CA 91605	Steben Aircraft Products	Not known.	Other companies listed at this address are included on RCRA-SQG and FINDS.	1970-75	Not listed.	Not Known.	Not Known.
9	2	7317 Coldwater Canyon Ave., North Hollywood, CA 91605	Reno Metal Products Inc	Not known.	Not known.	1971-06	Not listed.	Not Known.	Not Known.
10	2	7333 Coldwater Canyon Ave, North Hollywood 91609	Alen Mold & Engineering Co.	Not known.	Not known.	1957-80	Not listed.	Not Known.	Not Known.
10	2	7333 Coldwater Canyon Ave, #5, North Hollywood 91609	Duro Shine	Roofing, Siding, and Insulation Materials SIC code 5033	Not known.	1990 Solano Polishing listed in 1995, Allen Mold and Engineering listed in 1957-1981	HAZNET EMI	Not known.	Approximately 0.63 tons "Aqueous solution with 10% or more total organic residues"
10	2	7333 Coldwater Canyon Ave, North Hollywood, CA 91609	Solano Polishing	Not known.	Not known.	1995	Not listed.	Not Known.	Not Known.
10	2	7333 Coldwater Canyon Ave., #37, North Hollywood, CA 91609	Tri Hart Fiberglass, Inc. (also Tri-Hart Fiberglass Inc)	Not known.	Not known.	Solano Polishing listed in 1995, Allen Mold and Engineering listed in 1957-1980	RCRA-SQG FINDS WIP	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
10	2	7333 Coldwater Canyon Ave., North Hollywood, CA 91605	Mida Metal Stamping	Not known.	Not known.	1980-95	Not listed.	Not Known.	Not Known.
10	2	7333 Coldwater Canyon Ave., North Hollywood, CA 91609	Blaney Sheet Metal	Not known.	Not known.	1975-95	Not listed.	Not Known.	Not Known.
11	2	7439 Coldwater Canyon Ave., North Hollywood, CA 91605	Humont Screw Production	Not known.	Address listed in EDR as "Far East Auto"	1962-86	Not listed.	Not Known.	Not Known.
12	2	7349 Coldwater Canyon Ave/ 7348 Coldwater Canyon Ave, North Hollywood, CA 91609	Gasca Metal Polishing	Not known.	Plating/Polishing Service.	1991-1995	Not listed.	Not Known.	Not Known.
12	2	7349 Coldwater Canyon Ave., North Hollywood, CA 91605	Foster Tooling Co	Not known.	Not known.	1959-80	Not listed.	Not Known.	Not Known.
13	2	11602 Dehougne Street, North Hollywood, CA 91605	Aero Sheet Metal Inc.	Sheet Metal and Tube Bending	Aero Sheet Metal is a division of Aero Bending Co, which specializes in tube bending and sheet metal fabrication. Located in North Hollywood before moving to Lancaster in 1977. The company has been conducting operations for 50 years. http://www.aerobendingco.com/History.html	1985-1995	WIP	Not Known.	Not Known.
13	2	11602 Dehougne Street, North Hollywood, CA 91605	VE Borne Lab	Not known.	Not known. 1963 Sanborn Maps show a chemical lab at this address.	1962-1980	Not listed.	Not Known.	Not Known.
14	2	7101 Fair Ave. (adjacent to 7101 Case Ave)	Abex Display System	Exhibit display pieces manufacture	Manufacturer of exhibit display modular pieces/systems. Abex panels are of aluminum. Also listed at 7118 Fair Ave. www.abex.com/	Cooper Laboratories Inc 1975-1982	HAZNET WIP	Not known.	1.4 tons "Unspecified organic liquid mixture"; 0.27 tons "Off-specification, aged, or surplus organics"' 0.22 tons "Unspecified solvent mixture Waste"; 0.21 tons "Hydrocarbon solvents (benzene, hexane, Stoddard, etc.)"
15	2	6837 Farmdale Ave, North Hollywood, CA 91605 previously listed 1980-1990 as 6829 Farmdale Ave, North Hollywood, CA 91605	Pacific Magnetic & Penetrant Co	Aerospace	Also listed at 6837 Farmdale. Cleaning, etching, testing for aerospace industry. Has been cited for exceeding wastewater discharge limits. http://www.pacificmagnetic.com/ http://eng.lacity.org/docs/dpw/agendas/2007%2F200704%2F20070418/san/20070418_ag_br_san_1_tr.pdf Cleaning, etching, testing for aerospace industry. Metalworking machinery. 1969 Sanborn Maps show deburring at this address. http://www.pacificmagnetic.com/	1980-1990	RCRA-SQG FINDS HAZNET EMI	None known.	Approximately 1.8 tons metal sludge, 0.68 tons oxygenated solvents, 0.02 tons organics
16	2	6860 Farmdale Ave., North Hollywood, CA 91605	D Cark Tool Co	Not known.	Not known.	1991	Not listed.	Not Known.	Not Known.
16	2	6860 Farmdale Ave., North Hollywood, CA 91605	Nobur Cleveland Twist Drill Co Nobur Mfg Go Tools	Machining	Machining and metal cutting. Also listed on EDR as "Nobur Manufacturing Co." 1966 Sanborn Maps show tool manufacturing at this address. 1960 Sanborn Maps show tool manufacturing and a machine shop.	1958-1995	HAZNET WIP RCRA-SQG FINDS	Not known.	Approximately 0.5 tons other organic solids, 6.0 tons unspecified organic liquid mixture.
17	2	6873 Farmdale Ave., North Hollywood, CA 91605	Ingalls Specialty Mfg Co	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
17	2	6873 Farmdale Ave., North Hollywood, CA 91605	JP Grinding Co.	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
17	2	6873 Farmdale Ave. 6868 Farmdale Ave., North Hollywood, CA 91605	H&H Grinding Co	Not known.	Also listed at 6868 Farmdale. 1969 Sanborn Maps show metal grinding at this address. 1960 Sanborn Maps show a machine shop at this address.	1962-1970 1956	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	Aero Precision Deburring	Not known.	Not known. 1969 Sanborn Maps show welding and deburring at this address.	1991-1995	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., Unit 7, North Hollywood, CA 91605	Al-Tec Machine Co	Machine Shop	Appears to be Al-Tec Machine Co. Al-Tec Machine Co. is listed at 6887 Farmdale in EDR.	2001	HAZNET WIP	Not known.	Approximately 0.4 tons unspecified solvent mixture waste, 0.38 other organic solids.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	B & C Sheet Metal	Sheet Metal	Appears to have moved to Sun Valley.	1995-2001	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	Special Design Sheet Metal	Not known.	Likely associated with B&C Sheet Metal	1980-1985	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	Valley Metal Marking & Rubber Stamp Co	Not known.	"A Valley Marking Company" is still located in North Hollywood at present.	1970	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	W S K Machine Products Co	Not known.	Not known.	1980	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	General Tool & Die	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	McDaniel Tool Co	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	Saftig E C Tanner C L Co Valve Mfg	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	Aero Weld	Not known.	Not known.	1970-1991	Not listed.	Not Known.	Not Known.
18	2	6887 Farmdale Ave., North Hollywood, CA 91605	Blast off Abrasive cleaning	Not known.	Not known.	1970-1980	Not listed.	Not Known.	Not Known.
19	2	6910 Farmdale Ave., North Hollywood, CA 91605	E&R Mach & Mfg Co	Not known.	Not known. 1966 Sanborn Maps list "machine shops" at this address. 1960 Sanborn Maps also list a machine shop at this address.	1956-1970	Not listed.	Not Known.	Not Known.
19	2	6910 Farmdale Ave., North Hollywood, CA 91605	Federal Manufacturing Corporation	Aerospace parts	Aerospace fasteners, parts, platings, and coatings. http://www.federalmanufacturing.com/products.html 1960 Sanborn Maps show a machine shop at this address. Jet Sets also is listed at this address. HAZNET - oxygenated solvents	1951-1990	WIP RCRA-LQG LA Co. Site Mitigation "Federal Manufacturing Corp" at 6910 Farmdale is listed as: WIP RCRA-LQG LA Co. Site Mitigation	Contamination listed as abated in 1990.	Per year, records show use of: 2,802 L motor oil, 1,802 L Safety Kleen, waste oil 600 L, antifreeze 120 L, solvent for cleaning parts 180 L, lacquer thinner 400 L, paint 50 L, waste solvent 55 L, coolant 50 L.
20	2	7326 Bellaire Ave., North Hollywood, CA 91605							
21	2	6910 Farmdale Ave., North Hollywood, CA	Fowler Mfg Inc.	Not known.	Not known. 1966 Sanborn Maps list "machine shops"	1958	Not listed.	Not Known.	Not Known.
21	2	6910 Farmdale Ave., North Hollywood, CA 91605	Oakman Tool Co	Not known.	Not known. 1966 Sanborn Maps list "machine shops" at this address. 1960 Sanborn Maps also list a machine shop at this address.	1950	Not listed.	Not Known.	Not Known.
22	2	6926 Farmdale Ave., North Hollywood, CA 91605	Machine Products Co	Not known.	Not known.	1956-1958	Not listed.	Not Known.	Not Known.
22	2	6926 Farmdale, North Hollywood, CA 91605	Superior Thread Rolling Co	Metal parts	processing. The company began in 1952 and was bought from the original owners in 1983. It is a supplier to the aircraft industry. http://www.superiorthread.com/ http://www.efunda.com/processes/metal_processing/thread_rolling.cfm	1976	RCRA-SQG HAZNET FINDS WIP	Not known.	Approximately 0.84 tons inorganic solid waste, 0.28 tons liquids with halogenated organic compounds, 0.36 tons hydrocarbon solvents
23	2	6938 Farmdale Ave., North Hollywood, CA 91605	ABC Enameling Co.	Not known.	Not known. 1966 Sanborn Maps show a spray paint booth and enameling at this address.	1956-1970	Not listed.	Not Known.	Not Known.
24	2	6940 Farmdale Ave, North Hollywood, CA 91605	Therm-o-lag Corp Thermo Lab Corp	Paints	Thermo-lag is a paint developed to withstand very high temperatures and fire. It has been in use since at least 1962. 1969 Sanborn maps show "Thermo Lab" at 6928 Farmdale.	1956-1980	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
24	2	6940 Farmdale Ave, North Hollywood, CA 91605	Ano-Brite Inc, King of Trim, LLC	Metal finishing, triple chrome plating, chroming on plastics.	Founded in 1990, metal finishing industry, with unique printing techniques on aluminum with high resolution and unlimited number of colors and shades. http://www.anobrite.com/about.html	1990	HAZNET CHMIRS ERNS	Not known.	Approximately 28 tons liquids with ph<2 with metals
25	2	11540 Hart St., North Hollywood, CA 91605	OSA Steel Fabrication	Not known.	Not known.	1970-1986	Not listed.	Not Known.	Not Known.
26	2	11552 Hart St., North Hollywood, CA 91605	Automotive Chemicals Inc	Not known.	Not known. 1960 and 1966 Sanborn Maps show metal working at this address.	1962-1970	Not listed.	Not Known.	Not Known.
26	2	11552 Hart St., North Hollywood, CA 91605	Karseal Corp	Seal/wax manufacturer	Automobile seal/wax manufacturer. Appears to be out of business.	1956-1995	RCRA-SQG FINDS HAZNET CA FID UST SWEEPS UST HIST UST WIP	Not known.	Approximately 0.8 tons oxygenated solvents, 0.4 tons hydrocarbon solvents, 0.005 tons unspecified organic liquid mixture, 0.6 tons liquids with pH<2,
27	2	11611 Hart, North Hollywood, CA 91601	Bobrick Corporation Bobrick Aero Missile Products	Washroom equipment (current), Aircraft parts (historical)	The company moved to a North Hollywood location in 1966, but began in 1906. They currently manufacture washroom equipment but have historically manufactured a variety of products including soap dispensers and aircraft parts during WWII. 1970 City Directories list the company as "Bobrick Aero Missile Products". Liquids with halogenated compounds >1000 mg/l, photochemicals/photoprocessing waste, aqueous solution with <10% organic residues Honeywell Allied Signal N Hollywood is also listed at this address, with wastes of chromium, tetrachloroethylene, trichloroethylene, and not included in this list. Honeywell is listed on the FINDS and RCRA-LQG data bases. No violations found. http://www.bobrick.com/Bobrick/BobrickHi	1970-present	RCRA-SQG FINDS HAZNET EMI SLIC (Status: site listed as open. LARWQCB listed as lead agency, groundwater impacted.) WIP CA-WDS	Listed on SLIC data base as "Bobrick Washroom Equipment, Inc.", with VOCs listed as a potential contaminant of concern and aquifer used for drinking water supply listed as the potential media affected. The site was opened in 1987.	Approximately 0.17 tons liquids with halogenated organics, 0.13 tons photochemicals/photoprocessing waste, 0.39 tons aqueous solution with organic residues, 0.2 tons alkaline solution without metals
27	2	11301 Hartland St. North Hollywood, CA 91601	Scraper Rings Co	Not known.	Not known.	1967-1991	Not listed.	Not Known.	Not Known.
27	2	11301 Hartland St. 11201 Hartland St., North Hollywood, CA 91601	Lucas Machine Co	Aerospace parts	Small metal parts for the aerospace industry 1953-1991. 1966 Sanborn Maps show "many machine shops" listed at this address. https://www.entrepreneur.com/tradejournals/article/10675020.html	1953-1991 1967-91 1962-1991	RCRA-SQG FINDS WIP	Not Known.	Not Known.
28	2	6850 Vineland Ave., North Hollywood, CA 91601							

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
29	2	11312 Hartland St., North Hollywood, CA 91601	Aceto Chemical Co of California	Sanitation goods manufacturing and wholesaling	Also listed at 6850 Tujunga Ave. Same address is listed in EDR as "Westco Chemical". Aceto was, in 1970, supplying its clients with pharmaceutical, cosmetic, and veterinary chemicals; chemicals for the color and photographic fields; textile and rubber chemicals; plastics and paint chemicals; agricultural chemicals; and industrial organic acids, including phenylpropanolamine, a substance used in cold tablets (banned by the FDA in 2000). In 2000, in terms of profit, industrial chemicals accounted for 29 percent; organic intermediates and colorants, 23 percent; pharmaceutical biochemicals and nutritionals, 20 percent; agrochemicals, 12 percent; pharmaceutical intermediates and custom manufacturing, 8 percent; and institutional sanitary supplies and other, 8 percent. 1963 Sanborn Maps show a chemical warehouse at this address. http://www.fundinguniverse.com/company-histories/Aceto-Corp-Company-History.html http://www.aceto.com/	1967	Not listed.	Not Known.	Not Known.
29	2	11312 Hartland St., North Hollywood, CA 91601	Azoplate Corp	Chemical	Appears to be the Azoplate division of Hoeschst-Celanese Corp, which is now Celanese Corp. 1963 Sanborn Maps show a chemical warehouse at this address. www.celanese.com/	1967-1971	Listed as Westco Chemical	Not Known.	Not Known.
29	2	11312 Hartland St., North Hollywood, CA 91601	DESMO Chemical Corp	Chemical	Appears to be associated with Westco Chemical 1963 Sanborn Maps show a chemical warehouse at this address. http://www.westcochemicals.com/default.htm	1976	Listed as Westco Chemical	Not Known.	Not Known.
29	2	11312 Hartland St., North Hollywood, CA 91601	Enco Printing Plates	Printing	Not known.	1967-1971	Not listed.	Not Known.	Not Known.
29	2	11312 Hartland St., North Hollywood, CA 91601	Hoechst Pharmaceutical Co Hoechst Polymer Corp	Chemical	"Carbic Hoechst Corp" listed at 6850 Tujunga Ave. Hoechst has been involved in many types of chemical manufacturing, including agricultural, industrial, polymers, dyes, pharmaceuticals, engineering services. Many divisions of the company have been bought and sold to other companies. http://www.fundinguniverse.com/company-histories/Hoechst-AG-Company-History.html	1971-1996	Listed as Westco Chemical; American Hoechst Western Dst Co listed at 10703 Vanowen St.	Not Known.	Not Known.
29	2	11312 Hartland St.., North Hollywood, CA 91601	Westco Chemical Inc	Chemical distrubutor	Also listed at 6850 Tujunga. Wholesale chemical distributor to the United States. Website lists current headquarters as 12551 Saticoy, North Hollywood. Supplies chemicals to food, industrial, pharmaceutical, personal care, pharmaceutical industries. http://www.westcochemicals.com/	1967-1995	WIP	Not Known.	Not Known.
30	2	11312 Vanowen St., North Hollywood, CA 91601							
31	2	6850 Tujunga Ave., North Hollywood, CA 91601							

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
32	2	11342 Hartland St., North Hollywood, CA 91601	Dowell Aluminum Foundry Inc.	Aluminum Foundry SIC Code 3365	Facility specializes in aluminum sand castings, providing aluminum primary alloy ingots and floor molded castings and aluminum permanent molded castings. Additionally, they provide nonferrous metal foundry, foundry machines and equipments, foundry blowers, foundry burners, core drying ovens, foundry crucibles, converters, casting machines, sizing or embossing presses, foundry mold machine, foundry supplies, foundry dies and tooling. 1966 Sanborn Maps show steel welding and working at this address. http://www.processregister.com/Dowell_Aluminum_Foundry_Inc/Supplier/sid94733.htm	1958-2006	HAZNET WIP CA WDS EMI	Not known.	0.27 tons "Photochemicals/photoprocessing waste"
33	2	7224 Hinds Ave, North Hollywood, CA	Airmis Manufacturing Inc.	Machine shop, Aerospace/Defense	Machine shop operated between 1962 and 1987, and is known to have had painting operations between 1967 and 1987. The facility used various chemicals including cutting oil, Soluble-S-500, cleaning solvent, cutting oil.	1962-Present	HAZNET WIP	Not known.	Approximately 55 gallons cutting oil; 5 gallons Soluble-500; 15 gallons clean solvent (120 gallons/year); less than 5 gallons cutting oil (110 gallons/year) Liquids with halogenated organic compounds>1000mg/l (0.44 ton); waste oil and mixed oil (0.29 ton) Approximately 0.25 tons liquids with halogenated organic compounds
34	2	7237 Hinds Ave., North Hollywood, CA 91605	Aero Aircraft Mfg Co	Not known.	Not known.	1970-1976	Not listed.	Not Known.	Not Known.
35	2	7353 Hinds Ave., North Hollywood, CA 91605	Wilshire Precision Products	Metal Parts	Cutting, casting, assembly and testing for aerospace, automotive, oil/gas, alternative power industries. One UST, installed in 1979. http://www.wilshireprecision.com/index.html	1986-1995	SWEEPS UST HAZNET HIST UST (Lists 1 "Waste" UST installed in 1979) WIP	Not known.	4.1 tons "Aqueous solution with less than 10% total organic residues"; 0.86 tons "Liquids with halogenated organic compounds > 1000 mg/l"; 0.33 tons "Off-specification, aged, or surplus organics"; 0.73 tons "Liquids with halogenated organic compounds > 1000 mg/l"; 0.20 tons "Organic liquids with metals - Alkaline solution (pH <UN-> 12.5) with metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc)"; 3.5 tons "Waste oil and mixed oil"; 0.96 tons "Oil/water separation sludge"; 3.5 tons "Unspecified oil-containing waste"
36	2	6814 LankershimBlvd., North Hollywood, CA 91605	Engel Geo Mach Shop	Not known.	Not known. 1960 Sanborn Maps show a machine shop and welding at this address.	1962-1970	Not listed.	Not Known.	Not Known.
37	2	6845 Lankershim Blvd., North Hollywood, CA 91605	North Hollywood Machine Shop	Not known.	Not known.	1930-1935	Not listed.	Not Known.	Not Known.
38	2	6909 and 6853 Lankershim Blvd, North Hollywood, CA 91605	Pacific Airmotive	Aerospace parts Maintenance & Storage	An ENVIROSTOR site due to washing of aircraft parts. Discovery in 1983 and 1981 respectively, NFRAP in 1984. Not on NPL. NFA from DTSC. RWQCB semiannual inspection plating facility and engine shop.. Plating operation sold to Lockheed in 1980. http://anygivensundry.blogspot.com/2008/03/pacific-airmotive-corp-monday-3172008.html	Metal plating operations began in 1945 to 1981. Decommissioned in late 1990's.	ENVIROSTOR CERC-NFRAP HAZNET LUST (Status: clean-up site open 5/31/1999 (gasoline)) CA FID UST Los Angeles Co. HMS Hist UST WIP (Status: Active) SWEEPS UST (Status: Active) EMI CORTESE	Listed on LUST data base.	Organic solids with halogens (0.6 ton). Liquid waste management since 1981 to Class I landfill. PCE 3,636 lb in 2005. Waste oil an mixed oil (0.4 ton), inorganic solid waste (0.3 tons), liquids with PCB >50mg/l (0.0385 ton),
39	2	2940 N Hollywood Way, Burbank, CA							
40	2	7103 Laurel Canyon Blvd, North Hollywood, CA 91605	Arnold Enterprises	Manufacturer of circuit boards	The site is located south of the Raintree Buckles and Jewelry property. From 1958-1965 the site was used for storage buildings and industrial use. From 1965-1985, the site was used for light manufacturing. From 1985-1993, the site was used as an auto and repair shop with a paint booth. Arnold was possibly a manufacturer of circuit boards for 25 years until 1984.	1959-1984	Not listed.	Not known.	Per year, records show use of: 2,802 L motor oil, 1,802 L Safety Kleen, waste oil 600 L, antifreeze 120 L, solvent for cleaning parts 180 L, lacquer thinner 400 L, paint 50 L, waste solvent 55 L, coolant 50 L.
41	2	7116 Laurel Canyon Blvd, North Hollywood, CA 91605	E & J Machine Shop	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Golden State Mold Co	Not known.	Golden State Machine is listed in EDR report at 8256 San Fernando Rd.	1962-1970	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	M & H Machine Co	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	McPheeters Mach Prod	Not known.	Not known.	1956-70	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Orbitform Co	Not known.	Not known.	1970-75	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Parts Rework Co	Not known.	Not known.	1970-75	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Quality Machine	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Verbeck Machine Products	Not known.	Not known.	1970-75	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Voisan Parts Rework Co	Not known.	Not known.	1970-75	Not listed.	Not Known.	Not Known.
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	All Star Automotive	Automotive Repair SIC code 7538	Appears to be Automobile Repair & Service.	Supreme Metal Polishing Co 1950 - 1956	EMI HAZNET	Not known.	0.28 tons "Aqueous solution with less than 10% total organic residues"; 0.125 tons "Aqueous solution with less than 10% total organic residues"; 0.23 tons "Waste oil and mixed oil"; 0.05 tons "Organic liquids with metals Alkaline solution (pH <UN-> 12.5) with metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc)"
41	2	7116 Laurel Canyon Blvd., North Hollywood, CA 91605	Electrofilm Inc Also listed as Electrofilm Corp and Electroform Products Hall E R Process Div Electrofilm Corp	Not known.	Electrofilm Inc. is also listed at 12021 Vose St. 1960 and 1963 Sanborn Maps show a machine shop and burring at this address. 12021 Vose St: 1960, 1963, 1966, 1969 Sanborn Maps show aircraft parts manufacturing.	1950-1975	Not listed. Electrofilm Inc. is listed on Geotracker at 12021 Vose St.	Not Known.	Not Known.
42	2	7119 Laurel Canyon Blvd, North Hollywood, CA	MW Machine Shop	Manufacturer of metal parts	The site is adjacent (north) of the Raintree Buckles and Jewelry site. MW Machine shop manufactured metal parts for the military between 1984 and 1990. Information reviewed suggested that PCE was likely used at the site. Additionally, a septic tank and cesspool were present on-site. According to Building Department records between 1965-1972, the site was occupied by industrial garages. From 1972-1984, the site was used for light manufacturing (auto repair, auto body shop).	1984-1991	Not listed. Super Plex is listed in the EDR report Orphan list at 7119 Laurel Canyon Blvd. Suite 7.	Not known.	Approximately 10 gallons 4,4-isoprylolphenol resin, 10 gallons acetone, 40 gallons green foam, 12 gallons Krylon enamel, 15 gallons polymeric anonatrisocyanate polyol.
43	2	7360 Laurel Canyon Blvd, North Hollywood, CA 91605	United Aeronautical Corp	Aircraft Parts SIC code 3444	The property was previously owned by Consolidated Aeronautical Corporation. http://www.unitedaero.com/home.htm	1987-present	WIP CA FID UST EMI SWEEPS UST	Not Known.	Not Known.
43	2	7360 Laurel Canyon, North Hollywood, CA 91605	Consolidated Aeronautics Corporation Consolidated Aeronautics Corp	Aircraft Manufacture	The facility was listed as a LQG in 1986. Consolidated Aeronautics also is listed in the EDR report at 11640 Hart St.	1970-1995	RCRA-SQG FINDS HAZNET CA FID UST EMI SWEEPS UST	Not known.	0.20 tons "Hydrocarbon solvents (benzene, hexane, Stoddard, etc.)"; 0.30 tons "Off-specification, aged, or surplus inorganics"; 1.0 tons "Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)"; 0.51 tons "Laboratory waste chemicals"; 0.075 tons "Other organic solids"; 1.25 tons "Waste oil and mixed oil"; 0.36 tons "Oil/water separation sludge"; 1.4 tons "Other inorganic solid waste"; unknown quantity "Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)"; unknown quantity "Liquids with mercury > 20 mg/l"
44	2	7412 Laurel Canyon Blvd. North Hollywood, CA 91605	Exquisite Motors	Automotive Dealership	Present	Present	HAZNET	Not known.	0.43 tons "Oxygenated solvents (acetone, butanol, ethyl acetate, etc.)"
44	2	7412 Laurel Canyon Blvd, North Hollywood, CA 91605	G&H Industrial Precision Machining	Not known.	Not known.	1985-91	Not listed.	Not Known.	Not Known.
44	2	7412 Laurel Canyon Blvd., North Hollywood, CA 91605	A-S Precision Machining AS Precision Machining	Machining	Manufacturer of precision machined components, precision welding. Moved to Panorama City? http://asprecision.com/	1991-1995	WIP page 940	None known. WIP Status: Historical	Not Known.
44	2	7412 Laurel Canyon Blvd. North Hollywood, CA 91605	California Technical Plating Inc	Not known.	A-S Precision Machining is listed in the EDR report at this address. Current location of a company with the same name is at 11533 Bradley Ave., San Fernando, CA. Provides corrosion-resistant coatings for aerospace and military applications since 1972. http://www.caltechplating.com/	1970-1975	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
45	2	6942 Lemp Ave., North Hollywood, CA 91605	Lomel Wire Products	Steel wire	Manufacturing Steel Wire and Related Products. Also listed at 6924 Lemp.	1991-1995	Not listed.	Not Known.	Not Known.
45	2	6942 Lemp Ave., North Hollywood, CA 91605	Keystone Plating & Mfg Co	Not known.	A 1963 newspaper article shows that arson investigators probed for the cause of a fire that destroyed the Keystone Plating Co. at 13245 Sherman Way. 1963 Sanborn Maps show metal working at this address.	1950	Not listed.	Not Known.	Not Known.
46	2	12750 Raymer St. Unit 3, North Hollywood, CA 91605	Nycote Laboratories / Penn Engineering Components	Machined parts/Aerospace coatings SIC code: 2821	Nycote Laboratories-modified nylon liquid protective coatings for aerospace industry. Manufacture of plastic materials/resins. Started in 1975. http://www.nycote.com/ Penn Engineering Components: waveguide components, machined parts, prototypes, other electronic components http://www.pennengineering.com/	1980-2006	HAZNET WIP CA WDS	Not known.	Approximately 0.22 tons organics, 0.46 tons solvent waste mixture, waste oil and mixed oil, unspecified solvent mixture
47	2	12838 Saticoy St, North Hollywood, CA 91605	Whittaker Controls	Aerospace parts	Acquired by Meggitt plc. in 1999. A designer and manufacturer of fluid control devices and systems for commercial and military aircraft. Has received informal written notices of violation in 2007. Was a Large Quantity Generator as recently as 2004. http://www.fundinguniverse.com/company-histories/Whittaker-Corporation-Company-History.html	1965-1985	RCRA-SQG FINDS HAZNET EMI WIP CA WDS	Not known.	Approximately 1.2 tons organic solids, 0.46 tons liquids with chromium VI >500mg/L, 0.17 tons alkaline solution without metals, 0.8 tons organic monomer waste, 2.21 tons alkaline solution with metals, 1.36 tons hydrocarbon solvents, 5.16 tons unspecified solvent mixture waste, 2.59 tons hydrocarbon solvents, 0.52 tons liquids with halogenated organics, 0.1 tons liquids with pH <2, 0.0041 tons liquids with mercury >0.20 mg/L, 0.2 tons soils or solids with halogenated organics
48	2	13068 Saticoy 6708 Lankershim Blvd., North Hollywood, CA 91605	Republic Chemical Co	Metal Finishing Chemicals	Republic Chemical was founded in 1980 as a supplier of high performance pretreatment chemicals to the metal finishing industry. It is a full service provider of metal finishing chemicals and offers waste treatment products, die etch chemicals and cooling tower inhibitors. Contact address is in New Jersey. A similar search result, Republic Chemicals Industries refers to a Filipino chemical company; no reference to a California location was found.	1962-1975 1980	Not listed.	Not Known.	Not Known.
49	2	11939 Sherman Rd., North Hollywood, CA 91605	Trimm WH Mfg Co Sheet Metal	Electronics	Also listed at 7303 Lankershim Blvd. Manufacture optimum peripheral enclosures and electronic packaging for today's sophisticated computer systems (integrators hot-swap wide-SCSI modules with Trimm's RAID-ready enclosures) privately held subsidiary of Robroy Industries Inc. acquired by JMR Electronics Inc. 1/18/02 site is now NBC Studios	1975-96	RCRA_SQG (formerly LQG) FINDS HAZNET listed as Trimm Industries, Inc.	Not known.	Approximately \0.66 tons Unspecified solvent mixture Waste 1.35 tons Latex waste 0.24 tons Other organic solids 0.4587 tons Alkaline solution without metals (pH > 12.5) 14.6 tons Unspecified aqueous solution 0.25 tons Degreasing sludge 0.9174 tons Waste oil and mixed oil
50	2	10931 Sherman Way., North Hollywood, CA 91605	Twentieth Century Aircraft Co	Not known.	Not known.	1967-75	Not listed in EDR.	Not Known.	Not Known.
51	2	11017 Sherman Way., North Hollywood, CA 91605	Valley Friction Materials	Automobile parts	Braking systems for automobile and industrial purposes.	1962-1995	Listed at 11811 and 11817 Sherman Way on: HAZNET RCRA-SQG FINDS	Not known.	Approximately 33.71 tons other organic solids, 0.69 tons aqueous solution with <10% organic solids, 0.45 tons landfill disposal, 0.13 tons organic liquids with metals, 6.25 tons tank bottom waste,
52	2	11023 Sherman Way, North Hollywood, CA 91605	Eagle Aircraft Parts Corp	Not known.	Not known.	1971-1986	WIP	Not Known.	Not Known.
53	2	11115 Sherman Way/ 11128 Sherman Way, North Hollywood, CA 91605	Flamemaster Corp Amer Chemseal Division	Fire-resistant coatings	Fire-resistant chemical coatings and sealants for aerospace , defense, energy, and transportation industries. Appears to be associated with the 11120 Sherman Way address. http://www.flamemaster.com/	2001 1995	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
54	2	11120 Sherman Way, North Hollywood, CA 91605	Chem Seal Corp Flamemaster Corp Chem Seal Corp of America Chem Seal Corp of America Sun Valley Chem Seal Division of Flamemaster Corp	Fire-resistant coatings	Fire-resistant chemical coatings and sealants for aerospace , defense, energy, and transportation industries. Appears to be associated with the 11115 Sherman Way address. The company was founded in 1942. MSDSs and specifications for most products are available on the company website, and include epoxies, electrically conductive sealants, plastics primers, electric cable coating, salt water resistant coating. http://www.flamemaster.com/	1945-present	CHMIRS RCRA-SQG FINDS HAZNET CA WDS	CHMIRS records show that 1,000 gallons of a water-based resin was released which was mostly contained within the facility building, but a portion went to a storm drain.	Approximately 0.23 tons liquids with pH <2, 0.23 tons polymeric resin waste, 2.8 tons aqueous solution with >10% organic residues
55	2	11817 Sherman Way, North Hollywood, CA 91605	Valley Friction Materials	Brake manufacture	Braking systems for automobile and industrial purposes. Wholesale And Rebuilds Automotive Brakes And Clutches Wholesales automotive brakes; manufactures motor vehicle brake systems & parts Electrical braking systems, Air or pneumatic braking systems, Hydraulic braking systems, Mechanical braking systems, Braking clutch assemblies, Industrial braking systems	1957-present	RCRA-SQG FINDS HAZNET WIP	Not known.	9.591 tons Unspecified oil-containing waste 0.688 tons Aqueous solution with less than 10% total organic residues 1.6 tons Other inorganic solid waste 6.25 tons Tank bottom waste 3.336 tons Waste oil and mixed oil 0.1292 tons Organic liquids with metals Alkaline solution (pH <UN-> 12.5) with metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc)
56	2	11921 Sherman Way, North Hollywood, CA 91605	Fortin Industries, Inc. Fortin Laminating Division Monogram Industries Inc	Rubber and Plastics manufacture	Plastics and resins. The company previously had numerous chemical waste storage tanks in 80's and 90s. The company appears to be owned by Six-Eleven Inc, manufacturer of bathroom fixtures. http://www.findownersearch.com/owner/fortin-laminating-corporation/2024030/	1967-1970	HAZNET LUST (cleanup site - Waste oil: motor, hydraulic, and lubricating oil. Completed, case closed, 10/10/1987.) CA FID UST HIST UST CA WDS SWEEPS UST FINDS	Case closed RWQCB LUST site, hydraulic oil, soil only.	Approximately 8.24 tons inorganic solid waste
56	2	11921 Sherman Way, North Hollywood, CA 91605	Six-Eleven Limited, Inc.	Bathroom Fixture Manufacture SIC code: 3281	Manufacturer of marble bathroom fixtures; founded in 1993. Cut stone and stone products.	Spectrolabs listed in 1963	FINDS EMI	Not Known.	Not Known.
57	2	11921 Sherman Way, North Hollywood, CA 91605	Spectrolabs Inc Spectrolab Inc Multilayer Optical Coating	Photovoltaics Manufacture	Appears to be a manufacturer of solar panels and cells. Founded in 1956 and currently located in Sylmar. Also manufacture illumination products and sensors. A research paper from 1964 indicates that Spectrolab Inc. is the corporate author. Based on the name, it appears that optical coating research was taking place at this location. http://www.spectrolab.com/ http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=AD0601	1962	Not listed.	Not Known.	Not Known.
58	2	12134 Sherman Way, North Hollywood, CA 91605	Somers & Elmore Metal Polishing/Plating Somers & Elmore Metal Polishing Somers & Elmore Plating	Electroplating	Plating, electroplating, polishing, anodizing, coloring. RCRA-Non Generators - 1980 http://metals.zibb.com/profile/somers+&+elmore+inc/us/california/north+hollywood/916012908/21295109	1975	FINDS RCRA-NonGen	Not Known.	Not Known.
59	2	12251 Sherman Way, North Hollywood, CA 91605	Williams Ike Lab City Bug R	Not known.	Lised in EDR as "Los Angeles City Street Maintenance" and "Asphalt Plant Number 2".	1930	Not listed.	Not Known.	Not Known.
60	2	12323 Sherman Way, North Hollywood, CA 91605	JMF Investment Group Marfred Industries Folding Carton Division California Decorated Glass Co.	Carton Manufacture	Manufacturing of folding cartons since 1982. No Water Board file for review. California Decorated Glass Co. also listed at this address. FINDS, CERC-NFRAP (not on NPL), RCRA-Non Generator (1995) Marfred Industries Folding Carton Division also listed at this address: RCRA-SQG, FINDS, HAZNET, CA FID UST, HIST UST, EMI, WIP, SWEEPS UST	1982	Not listed.	Not known.	Marfred Industries: Photochemicals/photoprocessing waste, unspecified solvent waste, unspecified organic liquid mixture
61	2	12955 Sherman Way, North Hollywood, CA 91605	R&R Tool and Die Corp R & R TooL & Die & Fourside Corp	Tool and Die	Tool and die. Northwood Floors Inc is also listed at 12955 Sherman Way, Unit #B in the EDR Orphan list	1958-1986	HAZNET CA FID UST SWEEPS UST	Not known.	Approximately 2.54 tons unspecified aqueous solution, 0.23 tons unspecified sludge waste, 0.03 tons liquids with pH <2, 0.42 tons unspecified solvent mixture waste

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
62	2	13165 Sherman Way, North Hollywood, CA 91605	Brooktronics Chemical Co	Brush Plating	Company with similar name, Brookstone Chemicals is located at 12937 Sherman Way. Brootronics Engineering specializes in brush plating industry, brush anodizing, electrofinish. Since 1960. Contact address is in Valencia, California. It appears to sell diverse chemicals for the industry. http://www.brooktronics.com/brooktronic/chemicals/alloy.htm	1985	Not listed.	Not Known.	Not Known.
62	2	13165 Sherman Way, North Hollywood, CA 91605	V O Mfg Co Chemicals	Not known.	Not known.	1958-1976	Not listed.	Not Known.	Not Known.
63	2	6880 Troost Ave, North Hollywood, CA 91605	Matcon Div of Wells Industries Corp	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
63	2	6880 Troost Ave, North Hollywood, CA 91605	Arrow Thompson Metals Arrow Thompson Metals Corp Arrow Metals Company	Metal parts	Arrow Metals was purchased by Thompson Steel Company in 1986 and became Arrow Thompson metals. 1969 Sanborn Maps show Metal Working Welding Shop & Woodworking. http://www.thompsonsteelco.com/page159.html http://www.thompsonsteelco.com/page159.html http://www.thompsonsteelco.com/page105.html	1969-present	HAZNET WIP	Not known.	Approximately 6.0 tons "Waste oil and mixed oil"
64	2	6850 Tujunga Ave., North Hollywood, CA 91605	Aceto Chemical Co of California	Sanitation goods manufacturing and wholesaling	Also listed at 11312 Hartland. Website lists current headquarters as 12551 Saticoy, North Hollywood. Supplies chemicals to food, industrial, pharmaceutical, personal care, pharmaceutical industries.	1958-1962	Not listed.	Not Known.	Not Known.
64	2	6850 Tujunga Ave., North Hollywood, CA 91605	Carbic Hoechst Corp	Not known.	"Hoechst Pharmaceutical" listed at 11312 Hartland.	1962	Not listed.	Not Known.	Not Known.
64	2	6850 Tujunga Ave., North Hollywood, CA 91605	Hostachem Corp	Not known.	Historical information from 1964 Vertebrate Pest Control Conference lists Hostachem Corp at 11312 Hartland. http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1000&context=vpc2	1962	Not listed.	Not Known.	Not Known.
64	2	6850 Tujunga Ave., North Hollywood, CA 91605	Kolker Chemical Corp	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
64	2	6850 Tujunga Ave., North Hollywood, CA 91605	Sunland Chemical Co	Not known.	Not known.	1958	Not listed.	Not Known.	Not Known.
64	2	6850 Tujunga, North Hollywood, CA 91605	Almore Dye House Almost Dye House	Textiles dyeing	Dyeing and finishing of textiles. 1960 Sanborn Maps show chemical supplies and a gas tank at this address.	1985-2001	SLIC HAZNET DRYCLEANERS EMI FINDS CA FID UST WIP CA WDS SWEEPS UST FTTS HIST FTTS	Open SLIC Case with VOCs listed on Geotracker as contaminant of concern. LARWQCB is lead agency.	Approximately 0.24 tons aqueous solution with organics
65	2	6845 Vineland, 6849 VinelandAve., North Hollywood, CA 91605							
66	2	6850 Vanowen St., North Hollywood, CA 91605	GMW Co Mach Shop	Not known.	Not known.	1975-1985	Not listed.	Not Known.	Not Known.
67	2	11041 Vanowen St., North Hollywood, CA 91605	Greg's Automotive	Automotive	Not known.	Not known.	LUST Cortese WIP	LUST: Solvent impacts to other ground water, solvents, case closed	Several USTs of diesel fuel and "chemical"
67	2	11041 Vanowen St., North Hollywood, CA 91605	Alco Gravure Inc	Not known.	Printing house (circulars, inserts). Has had some OSHA violations.	1960s-1987	EMI listed as CAL ROTOGRAVURE, DIV ALCO-GRAV at 11031-41 VAN OWEN	Not Known.	Not Known.
67	2	11041 Vanowen St., North Hollywood, CA 91605	Alco Metalube Alco Metallub	Lubricant manufacture	Lubricant grease manufacturer, heavy duty hydrocarbons and additives, metallic film, lithium thickener Manufactured heavy-duty lubricating grease http://www.alco-metalube.com/	1985	Not listed.	Based on CHMIRS listing, it appears that gasoline was dumped to a storm drain. It appears that the incident is associated with Alco Metalube.	Not known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
67	2	11041 Vanowen St., North Hollywood, CA 91605	Maxwell Communication Corporation	Not known.	Possibly associated with Alco Gravure, Inc.	1964-1975	CA FID SWEEPS UST RCRA-SQG FINDS Hist UST	11 tanks for "chemical". Tanks installed in 1964, 1966 or 1975.	: 2 -2,000 gal of ALHL; 1 -2,000 gal of SOLV; 1 -6,000 gal of WASTE; 3 -10,000 gal of SOLV; 1 -20,000 gal of SOLV; 2 - 25,000 gal diesel; 1 -250 gal diesel.
68	2	11477 Vanowen St., North Hollywood, CA 91605	Mathews Tool & Mfg Co	Not known.	Not known.	1950-1980	Not listed.	Not Known.	Not Known.
68	2	11477 Vanowen St., North Hollywood, CA 91605	Polishing & Plating	Not known.	Likely associated with AAA Metal Polishing, listed at the same address.	2001	Not listed.	Not Known.	Not Known.
68	2	11477 Vanowen St., North Hollywood, CA 91605	Weise Larry E Printing	Printing	Appears to be Larry Weise Printing, which is now located in Tarzana.	1958-1962	Not listed.	Not Known.	Not Known.
69	2	11643 Vanowen, North Hollywood CA, 91605	Allan Aircraft Supply Co	Aircraft fittings	Manufacturer of hydraulic aircraft fittings and some fittings for other industries. The company was started in 1952. http://www.allanaircraft.com/	1986-present	HAZNET WIP SLIC EMI	Open SLIC Case with VOCs listed on Geotracker as contaminant of concern. LARWQCB is lead agency	Approximately 0.13 tons organic liquids with metals, 0.13 tons halogenated solvents, 5.62 tons unspecified aqueous solutions
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Astro Blast Abrasing Cleaning Astro Blast Abrasive Cleaning	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Barwood Electronics	Electronics	The company appears to be currently located at 10182 Tujunga Canyon Blvd, Tujunga, CA. Founded in 1952, manufactures electronic coils, transformers and other inductors.	Arwood Precision Casting Corp 1958	WIP	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	M & J Metal Products	Not known.	Not known. 1966 Sanborn Maps show "many machine shops" listed at this address.	1975	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	M& J Metal Products	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Micro Sheen Deburring	Not known.	Appears to be currently located in Arleta, CA.	1975-1985	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Micro Specialities	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Regal Precision Machine Co	Not known.	Not known. 1966 Sanborn Maps show "many machine shops" listed at this address.	1985	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Reliable Tool & Mfg Co	Not known.	Not known. 1966 Sanborn Maps show "many machine shops" listed at this address.	1971	Not listed.	Not Known.	Not Known.
70	2	6850 Vineland Ave., North Hollywood, CA 91605	Val Cast Inc	Not known.	Numerous other facilities, including: Special Effects Technologies; Thomas Gregor Assoc; Flying Salmon; Sandy Rose Rauso; J. Finnin Assoc; General Machine Works; Levity Distributor; H.E. Douglass Engineering Sales; J. Tanner; Applecrate Inc; Alder Services; Barwood Electronics; Jerred Press; Ontario Noto Tech; are listed at this address. 1969 Sanborn Maps show anodizing at this address. 1966 Sanborn Maps show chemical supplies, anodizing and metal work at this address. 1963 Sanborn Maps show a machine shop and plating at this address.	1958	Not listed.	Not Known.	Not Known.
71	2	11815 Vose, North Hollywood, CA 91605	Jack C Drees Grinding Co Inc	Metal parts	Metal parts. http://goliath.ecnext.com/coms2/product-compint-0000031963-page.html	1962-2006	RCRA-SQG FINDS HAZNET WIP	Not known.	4.7 tons "Liquids with halogenated organic compounds > 1000 mg/l"; 4.6 tons "Waste oil and mixed oil"; 0.45 tons "Unspecified oil-containing waste"; 0.07 tons "Aqueous solution with less than 10% total organic residues"
72	2	11919 Vose St, North Hollywood, CA 91605	Catalina Paints also named Catalina Chem Co.; Catalina Industries Inc.	Paint manufacture	Paints manufacturing. http://www.catalinapaint.com/ Catalina Paints is also listed at 7101 Radford Ave. 1966 and 1969 Sanborn Maps show aircraft parts manufacturing at this address.	1986-present	FINDS HAZNET SWEEPS UST CA WDS WIP EMI CA FID UST	None known.	Approximately 4.17 tons aqueous solution with less than 10% organic residues
73	2	7107 Radford Ave., North Hollywood, CA 91605							

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
74	2	12017 Vose St, North Hollywood, CA 91605	R & H Machine Co	Not known.	Not known. 1960, 1963, 1966, 1969 Sanborn Maps show a machine shop at this address, while 1963 Sanborn Maps also show aircraft research.	1962-1995	WIP	Not Known.	Not Known.
75	2	12027 Vose St, Unit 12, North Hollywood, CA 91605	Bassett Mach Products	Not known.	Not known.	1970-75	Not listed.	Not Known.	Not Known.
75	2	12027 Vose St, Unit 12, North Hollywood, CA 91605	P & M Screw Mach Products PM Screw P&M Screw Machine	Not known.	Appears to be currently in operation at the same address. 1960, 1963, 1966, 1969 Sanborn Maps show machine shops at this address.	1962-2006	RCRA-SQG FINDS HAZNET WIP	Not known.	Approximately 0.25 tons liquids with halogenated organic compounds
75	2	12027 Vose St, Unit 12, North Hollywood, CA 91605	S & M Swiss Screw Mach Products	Not known.	Possible duplicate misspelling of P&M Screw Products	1967-76	Not listed.	Not Known.	Not Known.
76	1	6819 Beck Ave., North Hollywood, CA 91605	Kinetic Die Casting Co.	Not known.	Not known.	2006	Not listed.	Not Known.	Not Known.
77	1	6842 Beck Ave., North Hollywood, CA 91605	Aero Mart Inc.	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
77	1	6842 Beck Ave., North Hollywood, CA 91605	United Aircraft Products Inc.	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
78	1	6887 Beck Ave., North Hollywood, CA 91605	Atlantic Steel Company	Not known.	Not known.	2006	Not listed.	Not Known.	Not Known.
78	1	6887 Beck Ave., North Hollywood, CA 91605	Fabricating	Not known.	Not known.	2001	Not listed.	Not Known.	Not Known.
78	1	6887 Beck Ave., North Hollywood, CA 91605	Pacific Iron Steel	Not known.	Not known.	2001	Not listed.	Not Known.	Not Known.
79	1	6900-6918 Beck Ave., North Hollywood, CA 91605	Stantron Division of Wyco Metal Products Stantron, Division of Zero Corp. Wyco Metal Products	Electronics Manufacturing	EDR lists the facility as 6900-6918 Beck St. and 6921 Beck St. The 6900 address is additionally listed on the FINDS data base. The 6921 address is additionally listed on the WIP data base. The building was sold from the Stantron Division of Zero Corp in 1999, so that the facility could move to Pacoima. The company appears to have produced electronics, and may have been purchased in the late 1990's by Applied Power Inc. Also listed as Stranton. CDL: Abandoned Drug Lab Waste - location away from an actual illegal drug lab where drug lab waste or equipment were abandoned. 1960 and 1969 Sanborn Maps show a Metal and Steel metal shop.	1958-1985	EMI FINDS WIP CDL	Not Known.	Not Known.
79	1	6918 Beck Ave., North Hollywood, CA 91605	Kinetic Diecast Kinetic Die	Die casting foundry	See Stantron, a Division of Zero Corp., 6900-6918 Beck Ave. Established in 1994. Aluminum die casting foundry. http://www.kineticdiecasting.com/	2006	Not listed. Address is listed under: CDL	Not Known.	Not Known.
80	1	7323 Coldwater Canyon Ave, North Hollywood 91609	Klune Industries Inc (also Kiune Industries Inc.)	Aerospace	Engineering and manufacturing company-produces assembled components for the military and commercial aerospace sectors sheet metal forming, precision machining, laser cutting and welding, and assembly http://www.klune.com/default.htm Klune Industries also is listed in the EDR report at 7327-B Coldwater Canyon: EMI - 2006, SIC code 3728	1991-present	RCRA-SQG FINDS HAZNET WIP	Not known.	Approximately 9.92 tons waste oil and mixed oil, 6.88 tons oil water separation sludge.
81	1	7449 Coldwater Canyon Ave., North Hollywood, CA 91609	Quality Finishing Co	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Abarza Machine Shop	Machine Shop	Appears to still be in operation at the address in North Hollywood.	1991-95	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	AF Machining Co	Machine Shop	Not known.	1985-91	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Alex Machining	Machine Shop	Not known.	1991	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Ed Mir Precision	Not known.	Appears to be currently located in Sun Valley.	1985-91	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Enterprise Metal Polish	Not known.	Not known.	2001	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Iliew Machine & Tool Co	Not known.	Not known.	1991	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	JAH Machine Co	Not known.	Not known.	1991-95	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Machining Co Hap	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Sun Tool Mold & Machining	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Taica Machine Shop	Not known.	Not known.	1991	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Torremec Precision Machining	Not known.	Not known.	1985-91	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	W South Precision	Not known.	Not known.	1985-01	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Hames Machine Products	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	LIA Precision Machining	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Metrolic Precision Maching	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
82	1	7361 Ethel Ave., North Hollywood, CA 91605	Modern Chemical Co	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
83	1	6914 Farmdale Ave., North Hollywood, CA 91605	Dunkle Tool & Die Co.	Not known.	Not known.	1957-1970	Not listed.	Not Known.	Not Known.
84	1	6921 Farmdale Ave., North Hollywood, CA 91605	North Hollywood Sheet Metal	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
84	1	6921 Farmdale 11823 Sherman Way, North Hollywood, CA 91605	P & K Sheet Metal Co	Not known.	Not known.	1985-1986 1975	Not listed.	Not Known.	Not Known.
84	1	6921 Farmdale Way Ave., North Hollywood, CA 91605	Global Metal Products	Not known.	Not known.	1985 1975	Not listed.	Not Known.	Not Known.
85	1	11823 Sherman Way Ave., North Hollywood, CA 91605							
86	1	6921 Farmdale Ave., North Hollywood, CA 91605	Intense Finishing, Inc.	Industrial Powder Metal Parts Manufacturers	Not known.	2006	Not listed. Zero Corp - Stantron Unit is listed at this address.	Not Known.	Not Known.
87	1	11626 Higgins St., North Hollywood, CA 91601	Progars Auto Body	Auto body	Not known.	1980-1985	Not listed.	Not Known.	Not Known.
87	1	11626 Higgins St., North Hollywood, CA 91601	Fourslide Industries Electronic Contact Mfg	Not known.	Design and manufacturing of clips and contacts for a wide variety of applications in the electronic and connector industries, both commercial and military. Currently located in Westlake Village http://www.4slide.com/	1970	Not listed.	Not Known.	Not Known.
88	1	7220 Hinds Ave., North Hollywood, CA 91605	Don Haig Grinding Corp	Not known.	Not known.	1962-1976	Not listed.	Not Known.	Not Known.
89	1	7221 Hinds Ave., North Hollywood, CA 91605	Amrstrong Machine Metal Spraying	Not known.	Not known.	1970-76	Not listed.	Not Known.	Not Known.
90	1	7246 Hinds Ave., North Hollywood, CA 91605	California Aircraft Bearing Co	Not known.	Not known.	1975-76	Not listed.	Not Known.	Not Known.
91	1	7250 Hinds	Glasco Stamping	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
92	1	7254 Hinds	Aero Space Thread Rolling Inc	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
93	1	6868 Lankershim Blvd., North Hollywood, CA 91605	Custom Wheel Refinishing	Not known.	Auto Hub Caps & Wheel Covers. Also appears to be located at 6872 Lankershim. Listed in EDR as "Fashion Wheels Inc" on RCRA-SQG and FINDS. Fashion Wheels Inc also is listed at this address: RCRA-SQG FINDS	1985-1991	HAZNET EMI WIP	Not known.	Approximately 2 tons other organic solids, 6.7 tons unspecified aqueous solution, 0.92 tons unspecified solvent mixture waste, 0.46 tons liquids with pH <2 13.3 tons "Unspecified aqueous solution"; 5.6 tons "Other organic solids"; 0.92 tons "Unspecified solvent mixture Waste"; 0.46 tons "Liquids with pH <UN-> 2"
94	1	7319 Lankershim Blvd., North Hollywood, CA 91605	Herline Metal Products Inc	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
94	1	7319 Lankershim Blvd., North Hollywood, CA 91605	Herman Bros Sheet Metal Controls	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
94	1	7319 Lankershim Blvd, North Hollywood, CA 91605	Modern Aire Mfg. Corp Modern Aire Ventilating Inc Modern Aire Cyclone Corp Modern-Aire Mfg Corp	Kitchen ventilation systems SIC code 3444	Kitchen ventilation systems http://www.modernaire.com/ Custom range hood manufacturer using stainless steel, solid copper, solid brass, hand rubbed finishes and most other materials available. Available material options and applications are polished, antiqued and hammered versions. Powder Coated finishes are also available .	1956-present	RCRA-SQG FINDS EMI WIP HAZNET	Not known.	Approximately 9.38 tons organic liquid mixture, 0.22 tons latex waste, 0.45 tons unspecified oil containing waste, 0.22 waste oil and mixed oil, 532 tons organic solids
95	1	7110 Laurel Canyon Blvd, North Hollywood, CA 91605	Bentleys Custom Iron and Wood Works	Not known.	Not known. 1960, 1963, 1966, 1969 Sanborn Maps show a machine shop and metal working at this address.	1975	Not listed.	Not Known.	Not Known.
95	1	7110 Laurel Canyon Blvd, North Hollywood, CA 91605	Casey Metal Woodwork	Not known.	Not known. 1960, 1963, 1966, 1969 Sanborn Maps show a machine shop and metal working at this address.	1980	Not listed.	Not Known.	Not Known.
95	1	7110 Laurel Canyon Blvd, North Hollywood, CA 91605	Kee-Dee Precision Sheet Metal	Not known.	Not known. 1960, 1963, 1966, 1969 Sanborn Maps show a machine shop and metal working at this address.	1970	Not listed.	Not Known.	Not Known.
95	1	7110 Laurel Canyon 7114 Laurel Canyon Blvd, North Hollywood, CA 91605	United Metal Stamping Co	Not known.	Appears to still be in operation at the same address. Precision short run metal stampings (MIL-1-45208A), explosive formed components, stampings and sheet components, stamped components, welded components, punched components, draw formed components, hydro formed components, spin formed components, roll formed components, stretch formed components. 1960, 1963, 1966, 1969 Sanborn Maps show a machine shop and metal working at this address.	1985-2001 1980	Not listed.	Not Known.	Not Known.
96	1	7401 Laurel Canyon Blvd, North Hollywood, CA 91605	Bobs Tool & Die	Tool & Die	A precision CNC machine shop for aerospace, military, and industrial needs. Deal in such areas as precision high speed CNC machined parts and conventional machined parts for commercial and aerospace industries, sheet metal parts, component panels, engraved and painted panels and assemblies. Also manufacture a wide range of precision dies (single and progressive), tools, jigs and fixtures, along with 5 ton to 60 ton punch presses for both tool proofing and production runs. Also provide excellent die resharpening and repair services with quick turn around times. http://www.bobstooldie.com/	1980-2006	Not listed.	Not Known.	Not Known.
97	1	7404 Laurel Canyon Blvd, North Hollywood, CA 91605	Laurel Sheet Metal Products	Metal Products	Sheet metal contractor. Appears to be currently in operation.	1950-present	HAZNET	Not known.	Approximately 9.0 tons waste oil and mixed oil
98	1	7437 Laurel Canyon Blvd., North Hollywood, CA 91605	Beryllium Unlimited	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
99	1	6924 Lemp Ave. 6940 Lemp Ave., North Hollywood, CA 91605	Lomel Wire Products	Steel wire	Manufacturing Steel Wire and Related Products. Also listed at 6942 Lemp.	1967-1995	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
99	1	6924 Lemp Ave. 6940 Lemp Ave., North Hollywood, CA 91605	Seal Kote Corp	Not known.	Not known.	1956	Not listed.	Not Known.	Not Known.
99	1	6924 Lemp Ave. 6940 Lemp Ave., North Hollywood, CA 91605	Ben Ko Engineering and Mfg Co	Not known.	Also listed at 6940 Lemp. 1963 Sanborn Maps show a machine shop at this address.	1956-1995 1950-80	Not listed.	Not Known.	Not Known.
100	1	7358 Radford Ave., North Hollywood, CA 91605	Bee Machine Co	Not known.	Not known.	1975-76	Not listed.	Not Known.	Not Known.
100	1	7358 Radford Ave., North Hollywood, CA 91605	Apex Manufacturing Co	Gasket, packing, and sealing device manufacture	The company relocated from North Hollywood to Sun Valley in 2005. http://articles.latimes.com/2005/sep/07/local/me-chopper7 http://www.governmentcontractswon.com/department/defense/apex_manufacturing_co_inc_043878248.asp?yr=07	1991-2001	HAZNET	Not known.	Approximately 1.66 tons solvent waste, 0.2 tons liquids with halogenated organics
101	1	13052 Raymer	Metal Form Products Co Sheet Metal	Sheet Metal	Appears to still be in operation in North Hollywood.	1976-95	Not listed.	Not Known.	Not Known.
102	1	12721 Saticoy St, Unit B, North Hollywood, CA 91605	Spira Manufacturing Corp	Interference equipment	Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI) equipment http://www.spira-emi.com/	1985	RCRA-SQG HAZNET FINDS WIP	Not known.	Approximately 0.12 tons hydrocarbon solvents, 0.91 tons aqueous solution with less than 10% organic residues, 0.21 tons oxygenated solvents
103	1	12926 Saticoy St, North Hollywood, CA 91605	Arce Machine Shop	Not known.	Not known.	1985-1991	Not listed.	Not Known.	Not Known.
103	1	12926 Saticoy St, North Hollywood, CA 91605	Zac Tool Manufactures	Not known.	Zac Tool Manufacturers manufactures a variety of shovels. http://www.zactool.com/aboutus.html	1986	Not listed.	Not Known.	Not Known.
103	1	12926 Saticoy St, North Hollywood, CA 91605	Golden State Metal Spinning co	Not known.	Not known.	1962-85	Not listed.	Not Known.	Not Known.
104	1	13143 Saticoy St, North Hollywood, CA 91605	Navy Brand Manufacturing Co Chemicals	Not known.	Established in 1907, is a St. Louis based manufacturer of specialty chemicals. http://www.navybrand.com/	1962	Not listed.	Not Known.	Not Known.
104	1	13143 Saticoy St, North Hollywood, CA 91605	Sanico Chemicals Co. Also listed as "Samco" Chemical Co., which appears to be a typing error.	Janitorial/Cleaning chemicals	Appears to be a janitorial and cleaning chemicals company. http://www.truckloadrate.com/shipper_detail.htm?dot_num=406201 An online search also identifies a Sanico Printing at 13143 Saticoy. http://listings.allpages.com/ca-0018815906-north-hollywood.html	1970-1980	Not listed.	Not Known.	Not Known.
105	1	13156 Saticoy St, North Hollywood, CA 91605	APL Chemicals LTD	Not known.	Not known.	1970-1991	Not listed.	Not Known.	Not Known.
106	1	12011 Sherman	Universal Metal Marking	Metal Marking	Etching, engraving, peening, embossing, stamping, printing. Services include electrochemical etching. Currently located in Paramount, CA. http://www.universalmarking.com/	1976	Not listed.	Not Known.	Not Known.
106	1	12011 Sherman Rd, North Hollywood, CA 91605	Valley Screen Printing, Inc.	Screen Printing	Not known.	Not known.	HAZNET	Not known.	Approximately 0.2 tons solvent mixture waste
107	1	11034 Sherman Way, Sun Valley, CA 91325	Columbia Showcase & Cabinet Co.	Woodworking and finishing SIC code 2431, 2541	Conducts milling, fabrication, finishing of wood cabinets, showcases, etc. Columbia Moulding Inc. also is listed in the EDR report at 11034 Sherman Way. Southwest Moulding Inc. also is listed in the EDR report at 11034 Sherman Way. FINDS (AFS, RCRAInfo). RCRA-LQG (SQG in 1986, 1996) Southwest Mill & Lumber also is listed in the EDR report at 11034 Sherman Way. HAZNET (unspecified solvent mixture). http://www.columbiashowcase.com/home/	1986	RCRA-SQG FINDS HAZNET CA FID UST EMI WIP CA WDS	Not known.	Approximately 8.02 tons of Unspecified Solvent Mixture Waste; 1.84 tons of oxygenated solvents Historical USTs on site: two tanks for storage of regular product
108	1	11310 Sherman Way, North Hollywood, CA 91605	Arwood Precision Casting Corp	Not known.	Not known.	1958	Not listed	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
109	1	11645 Sherman Way, North Hollywood, CA 91605	Peerless Building Maintenance Peerless Chemical Coatings Inc	Not known.	Not known.	1985	WIP	Not Known.	Not Known.
110	1	11819 Sherman Way, North Hollywood, CA 91605	Hydraulic Fitting & Grinding Co	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
111	1	11823 Sherman Way, North Hollywood, CA 91605	Aero Aircraft Jack Co	Not known.	Not known.	1967-76	Not listed.	Not Known.	Not Known.
112	1	12055 Sherman Way, North Hollywood, CA 91605	K Wanatabe Corp.	Auto Engine Rebuilding & Exchange	Suspected to have used TCE, PCE, aqueous solutions, photoprocessing wastes	Not known.	RCRA-SQG FINDS HAZNET	Not known.	Approximately 0.06 tons photoprocessing waste, 3.16 tons aqueous solutions. Solvent quantities unknown.
113	1	12130 Sherman Way, North Hollywood, CA 91605	R & K Machine Products	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
113	1	12130 Sherman Way, North Hollywood, CA 91605	Simpson Geo Mfg Co Stamping & Routing	Not known.	Not known.	1958-1962	Not listed.	Not Known.	Not Known.
114	1	12937 Sherman Way, North Hollywood, CA 91605	Brockstone Chemical Co	Not known.	Company with similar name, Brookstone Chemicals is located at 13165 Sherman Way.	1967-1981	Not listed.	Not Known.	Not Known.
114	1	12937 Sherman Way, North Hollywood, CA 91605	Valley Roller & Chemical	Not known.	Appears to be a printing supply company currently located in Studio City.	1975-1991	Not listed in EDR	Not Known.	Not Known.
114	1	12937 Sherman Way, North Hollywood, CA 91605	Var Chem Products Inc Eureka Div	Varnish Manufacture	Appears to be a manufacturer of varnish materials for printing ink.	1985-1995	Not listed.	Not Known.	Not Known.
115	1	8431 Telfair Street, North Hollywood, CA 91605	City of Los Angeles, Department of Transportation, Valley Parking Enforcement	Not known.	Not known.		RCRA-SQG FINDS HAZNET	Not known.	Wastes include approximately 0.12 tons unspecified organic liquid mixture, 0.96 tons liquids with halogenated organic compounds > 1000 mg/l, 0.13 tons unspecified organic liquid mixture, 1.05 tons aqueous solution with less than 10% total organic residues.
116	1	6707 Troost Ave., North Hollywood, CA 91605	Harwood Silversmiths	Not known.	Not known.	1956	Not listed.	Not Known.	Not Known.
117	1	6813 Troost Ave., North Hollywood, CA 91605	Earley R G Machine Co	Not known.	Not known.	1975-1980	Not listed.	Not Known.	Not Known.
118	1	6819 Troost Ave., North Hollywood, CA 91605	Angor Precision Products	Not known.	Not known.	1956-1962	Not listed.	Not Known.	Not Known.
119	1	6859 Troost Ave., North Hollywood, CA 91605	Applied Spec Enameling Inc	Not known.	Not known.	1980	Not listed.	Not Known.	Not Known.
119	1	6859 Troost Ave., North Hollywood, CA 91605	Creative Finishes Inc Creative Finishing Inc	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
120	1	6855 Tujunga Ave	"Factory &"	Not known.	Address listed in EDR as "Associated Ind" on the EMI data base.	1970	Not listed.	Not Known.	Not Known.
121	1	6856 Tujunga Ave., North Hollywood, CA 91605	Borg Warner Corp Petro Mechanics Research Div	Automobile parts testing and development	Borg-Warner Corp. develops and patents technology for automobiles. Activities in the 1950's and 1960's included development of turbochargers, transmissions, friction plates, carburetors, http://www.borgwarner.com/about/history/	1958	Not listed.	Not Known.	Not Known.
122	1	6875 Tujunga Ave., North Hollywood, CA 91605	Gold Mark Furniture Manufacturing Inc	Not known.	Not known.	1970-1971	Not listed.	Not Known.	Not Known.
123	1	6908 Tujunga Ave., North Hollywood, CA 91605	King Bearing Inc Bearings Inc	Not known.	King Bearings was acquired in 1990 by Bearings, Inc. Business includes Bearings, Electric Motors, Power Transmission Equipment. http://www.answers.com/topic/bearings-inc	1991-2006	Not listed.	Not Known.	Not Known.
124	1	11910 Valerio St., North Hollywood, CA 91605	Corrosion Testing Lab	Not known.	Appears to be a testing lab associated with Catalina Industries/Catalina Paints.	1985	Not listed.	Not Known.	Not Known.
125	1	11934 Valerio St., North Hollywood, CA 91605	Kaufman & Kramer Fabrics	Not known.	Not known.	1971-81	Not listed.	Not Known.	Not Known.
125	1	11934 Valerio St., North Hollywood, CA 91605	Kay Chemicals	Not known.	Not known.	1970-1976	Not listed.	Not Known.	Not Known.
125	1	11934 Valerio St., North Hollywood, CA 91605	Watson Plumbing	Not known.	Appears to be a sewer/plumbing contractor.	Kay Chemicals 1970-1976	WIP	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
126	1	11936 Valerio St. North Hollywood, CA 91605	Allstar Print Inc	Printshop	Generated photoprocessing waste and solvents.	1991	RCRA-SQG FINDS HAZNET WIP	Not known.	Approximately 0.23 tons photoprocessing waste/year
127	1	6850 Vanowen St., North Hollywood, CA 91605	E & C Metal Products	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
127	1	6850 Vanowen St., North Hollywood, CA 91605	HFU Mfg Co	Not known.	Not known.	1975-1985	Not listed.	Not Known.	Not Known.
128	1	7121 Vanowen St., North Hollywood, CA 91605	M & L Machine Stamping Co	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
129	1	11031 Vanowen St.	Marquette Metal Products Div Metal Processing	Not known.	Not known.	1958	Not listed.	Not Known.	Not Known.
129	1	11031 Vanowen	Propeller Div	Not known.	Address is also listed in City Directories as "Marquette Metal Products Div".	1958	Not listed.	Not Known.	Not Known.
129	1	11031 Vanowen St., North Hollywood, CA 91605	Rotogravure Printers California Rotogravure Co Rotogravure Printers	Printing SIC code 2754	OSHA review Commission, on violations of the company at 11041 Vanowen St.; inspection conducted in Feb 1972. Open drums with solvents were observed. http://www.oshrc.gov/decisions/html_1975/668.html Appear to be the same company as California Rotogravure Co, Div Alco-Grav Rotogravure is the color printing technology that was perfected during the Art Deco period. A mass-production version of traditional copper-plate engraving ("gravure"), it involves wrapping the normally flat printing plate around a barrel-shaped drum in a "rotary" press that can then print an entire roll of paper continuously. This enabled newspapers to publish high-quality color pictures, typically in the "rotogravure" section of their Sunday editions. Appears to be the same as Rotogravure Printers, Div. of Alco-Grav; however there may be an error in the address, and should be 11031 Vanowen.	1971-1975 Listed on EMI data base in year 1987	EMI	Not Known.	Not Known.
130	1	11151 Vanowen St., North Hollywood, CA 91605	Bauman Weitz Furniture Inc	Furniture	Not known.	1975	Not listed.	Not Known.	Not Known.
130	1	11151 Vanowen St., North Hollywood, CA 91605	Mc Kesson & Robbins Inc Drug Div McKesson & Robbins Inc Chemical Dept	Medical Technology and Devices	Bought and changed name to McKesson Corporation. Manufactures medical devices and technology. http://www.mckesson.com/en_us/McKesson.com/	1956-1970	Not listed.	Not Known.	Not Known.
131	1	11255 Vanowen St, North Hollywood, CA 91605	Cadillac Plastic and Chemical Company	Not known.	Not known.	1975-1995	WIP	Not Known.	Not Known.
132	1	11312 Vanowen St., North Hollywood, CA 91605	Stein T Max Lithographic Printing Service	Printing	Not known.	1975	Not listed.	Not Known.	Not Known.
132	1	11312 Vanowen St., North Hollywood, CA 91605	Tri-Life Oil & Chemical	Not known.	Not known.	1970	Listed as Westco Chemical	Not Known.	Not Known.
133	1	11319 Vanowen St., North Hollywood, CA 91605	Polishing	Not known.	Appears to be located at 11319 Vanowen. Address is listed in EDR as "Cortez & Salinas Tool Co", on the WIP data base.	2006	Not listed.	Not Known.	Not Known.
133	1	11319 Vanowen St., North Hollywood, CA 91605	S & S Mfg Co	Not known.	Not known.	1980-85	Not listed.	Not Known.	Not Known.
133	1	11319 Vanowen St., North Hollywood, CA 91605	Speciality Mfg Joes Metal	Not known.	Based on online information, Joes Metal Polishing may have two separate locations: one at 11319 Vanowen and another at 11417-11423 Vanowen.	2006	Not listed.	Not Known.	Not Known.
134	1	11483 Vanowen St., North Hollywood, CA 91605	Haig Don Grinding Corp	Not known.	Not known.	1958	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
135	1	11607 Vanowen St., North Hollywood, CA 91605	Life Laboratories Drugs	Not known.	Not known.	1958-1962	Not listed.	Not Known.	Not Known.
135	1	11607 Vanowen St., North Hollywood, CA 91605	Marjan Laboratories	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
135	1	11607 Vanowen St., North Hollywood, CA 91605	Fain Mach Co	Not known.	Not known. 1960, 1963, 1966 Sanborn Maps show a machine shop at this address.	1962	Not listed.	Not Known.	Not Known.
136	1	11625 Vanowen St., North Hollywood, CA 91605	M & M Machine Co	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
136	1	11625 Vanowen St., North Hollywood, CA 91605	M & N Machine Co	Not known.	Not known.	1956-1991	Not listed.	Not Known.	Not Known.
137	1	11629 Vanowen St., North Hollywood, CA 91605	Aluminum Routing Co Routing Aluminum Co	Not known.	Not known. 1960 Sanborn Maps show machine shops at this address.	1956-1962	Not listed.	Not Known.	Not Known.
137	1	11629 Vanowen St., North Hollywood, CA 91605	Custom Tool Co	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
137	1	11629 Vanowen St., North Hollywood, CA 91605	Jarco Mfg Co	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
137	1	11629 Vanowen St., North Hollywood, CA 91605	Parsons-Olander Co Mach Shop	Not known.	Not known.	1956-1971	Not listed.	Not Known.	Not Known.
138	1	11631 Vanowen St., North Hollywood, CA 91605	Colortec Paint co	Not known.	Not known.	1980-1985	Not listed.	Not Known.	Not Known.
138	1	11631 Vanowen St., North Hollywood, CA 91605	Rainproof Technical Coating Systems	Not known.	AVIAID Metal Products Inc is listed at this address: RCRA-SQG FINDS	1980-1985	Not listed.	Not Known.	Not Known.
138	1	11631 Vanowen/ 11633 Vanowen St., North Hollywood, CA 91605	Aviaid Metal Products Aviad Metal Products	Metal cutting and plating	Also listed at 11633 Vanowen. Products range from standard types of fabricated metal and machined products such as chassis, brackets, faceplates, and enclosures to the unusual such as specialty flyboxes, oil pans, pumps for racing, and retractable bayonets for movie stunts. Processing operations include painting -liquid or powder coat, plating - CAD, zinc, oxide, electroless nickel, anodizing, chem film, silkscreening, heat treating, as well as machining, precision cutting, welding, etc. materials include steel, stainless steel, aluminum, brass, copper, plastic. http://www.aviaidmetal.com/	1991-1995 2001-2006	RCRA-SQG FINDS	Not Known.	Not Known.
139	1	6824 Vineland Ave., North Hollywood, CA 91605	Chemetal Corporation	Metal laminates and finishes	Metal laminate supplier and finisher which distributes all over the country. Headquartered in Easthampton, MA, while a distributor, located at 12110 Sherman Way, in North Hollywood sells the metal laminates. Finishes are primarily made of aluminum. http://www.chmetal.com/about.htm	1971	Not listed.	Not Known.	Not Known.
140	1	6824 Vineland Ave., North Hollywood, CA 91605	Mechanical Components Inc	Not known.	Not known.	1967	Not listed.	Not Known.	Not Known.
141	1	6840 Vineland Ave., North Hollywood, CA 91605	Super Weld Corporation	Not known.	Listed in EDR as "Americana Brass Bed Factory" on EMI and WIP. 1969 Sanborn Maps show "Superweld Corp" and depict deburring, steel fabrication, and a cooling tower. 1960 and 1966 Sanborn Maps show metal working and cooling towers. "Superweld Corp" is also listed at 6824 Vineland in 1966 and 1963 Sanborn Maps.	1958-1971	Not listed.	Not Known.	Not Known.
141	1	6840 Vineland Ave., North Hollywood, CA 91605	Western Carbide Corporation	Not known.	Not known.	1958-1962	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
141	1	6840 Vineland/ 6850 Vineland Ave., North Hollywood, CA 91605	Century Precision Metal Mfg Co	Not known.	Not known.	1976 1971-1976	Not listed.	Not Known.	Not Known.
142	1	7041 Vineland Ave., North Hollywood, CA 91605	Thermalloy Precision Foundries Inc	Not known.	Not known.	1971	Not listed.	Not Known.	Not Known.
143	1	7073 Vineland Ave., North Hollywood, CA 91605	Rubber & PVC Belting Mfg Co	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
144	1	7127 Vineland Ave., North Hollywood, CA 91605	Charman Metal Products	Not known.	Not known.	1958	Not listed.	Not Known.	Not Known.
144	1	7127 Vineland Ave., North Hollywood, CA 91605	T & G Die Casting	Not known.	Not known.	1971	Not listed.	Not Known.	Not Known.
145	1	7133 Vineland Ave., North Hollywood, CA 91605	Delta Micro Precision	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
145	1	7133 Vineland Ave., North Hollywood, CA 91605	Barrys Industrial Coatings	Not known.	Possibly associated with Trans Box Systems/Barry Controls at 11150 Gault Street.	1975	Not listed.	Not Known.	Not Known.
145	1	7133 Vineland.Ave., North Hollywood, CA 91605	Barrys Industrial Coatings	Not known.	Possibly associated with Trans Box Systems/Barry Controls at 11150 Gault Street.	1975	Not listed.	Not Known.	Not Known.
146	1	7145 Vineland Ave., North Hollywood, CA 91605	Just Rite Screw Products	Not known.	Not known.	1967	Not listed.	Not Known.	Not Known.
146	1	7145 Vineland Ave., North Hollywood, CA 91605	Relyon Precision Products Corp	Not known.	Not known.	1958	Not listed.	Not Known.	Not Known.
147	1	7200 Vineland Ave., North Hollywood, CA 91605	Teknol Labs Inc	Rubber Seal Product Manufacture	Appears to be manufacturing of rubber seal products.	1967	Not listed.	Not Known.	Not Known.
147	1	7200 Vineland Ave., North Hollywood, CA 91605	Jones J L & Co Mfg Chemists	Not known.	Not known.	1958-1967	Not listed.	Not Known.	Not Known.
148	1	11750 Vose St., North Hollywood, CA 91605	M & G Metal Products Co	Not known.	Not known.	1958-85	Not listed.	Not Known.	Not Known.
149	1	12010 Vose St., North Hollywood, CA 91605	Cast Alloys Inc	Not known.	Not known.	1970-1975	Not listed.	Not Known.	Not Known.
150	1	12016 Vose St., North Hollywood, CA 91605	Ochwatt Tooling co	Machine shop, Defense	Manufacturing Industrial and Commercial Machinery and Equipment, machine shop, Cutting Tool and Machine Tool Accessory Manufacturing Has some defense contracts.	1989-present	Not listed in EDR	Not Known.	Not Known.
151	1	12025 Vose St., North Hollywood, CA 91605	Mildren Machine Co	Not known.	Not known. 1960 Sanborn Maps show machine shop, midget race car assembly, print compounds, chem lab, 4 kilns, machine shops at this address. 1963, 1966, 1969 Sanborn Maps show machine shops at this address.	1956-80	Not listed in EDR	Not Known.	Not Known.
152	1	11803 Vose St., North Hollywood, CA 91605	A U A Grinders	Not known.	Listed in EDR as "A.U.A. Engine".	1980 1985-1991	WIP	Not Known.	Not Known.
153		6884 Lankershim Blvd, North Hollywood, CA 91605							
154	1	11815 Vose St., North Hollywood, CA 91605	Double Disc Grinding Inc	Not known.	Address listed in EDR as "Jack C. Drees Grinding Co"	1970-95	Not listed.	Not Known.	Not Known.
155	1	11811 Wyandotte St., North Hollywood, CA 91605	Campbell RayJon Grinding Co	Not known.	Not known.	1970-80	Not listed.	Not Known.	Not Known.
156	1	6841 Beck Ave., North Hollywood, CA 91605	Shorty's Body and Fender Repair	Automobile Repair	Not Known.	2006	Not listed.	Not Known.	Not Known.
157	1	6849 Beck Ave., North Hollywood, CA 91605	Information Machine Corp	Not known.	Not known.	1971	Not listed.	Not Known.	Not Known.
158	1	6879 Beck Ave., North Hollywood, CA 91605	Copeland Engineering Enterprises	Not known.	Not known. 1960 and 1963 Sanborn Maps show woodworking at this address.	1962	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
158	1	6879 Beck Ave., North Hollywood, CA 91605	Gary Little John Mfg Little John Murphy Mfg	Not known.	Not known. Also listed at 6881 Beck Ave. 1960 and 1963 Sanborn Maps show woodworking at this address.	1975-1980	Not listed.	Not Known.	Not Known.
159	1	6881 Beck Ave., North Hollywood, CA 91605	Little John Gary Mfg	Not known.	Not known. Also listed at 6880 Troost Ave.	1975-1980	Not listed.	Not Known.	Not Known.
159	1	6881 Beck Ave., North Hollywood, CA 91605	Marvay Salvage Co	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
159	1	6881 Beck Ave., North Hollywood, CA 91605	Pretige Auto Sales	Not known.	Address listed in EDR as "S&S Auto Parts".	2006	Not listed.	Not Known.	Not Known.
160	1	6900 Beck Ave., North Hollywood, CA 91605	North Hollywood Mfg Co	Not known.	Not known.	1962-1975	Not listed.	Not Known.	Not Known.
161	1	7256 Bellaire Ave., North Hollywood, CA 91605	Robdaken Tool and Die	Not known.	Not known.	1980-85	Not listed.	Not Known.	Not Known.
161	1	7256 Bellaire Ave., North Hollywood, CA 91605	Starlite Mold & Machining Co.	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
162	1	7272 Bellaire Ave., North Hollywood, CA 91605	S&P Sheet Metal	Not known.	Not known.	1985-91	Not listed.	Not Known.	Not Known.
162	1	7272 Bellaire Ave., North Hollywood, CA 91605	Sims Precision Sheet Metal Co.	Not known.	Not known.	1986-91	Not listed.	Not Known.	Not Known.
163	1	7525 Bellaire Ave., North Hollywood, CA 91605	Semiconductor Angelus Business	Not known.	Not known.	2000	Not listed.	Not Known.	Not Known.
164	1	7240 Coldwater Canyon Ave., North Hollywood, CA 91605	Accessory Overhaul Group	Aircraft Brake Systems	Company specializes in Aircraft Wheel & Brakes, Brake Overhaul, Wheel Repair/Overhaul, Starter/Generators, Blowers, Beacons. Locations in Atlanta, Phoenix and Honolulu. http://www.aogatlanta.com/site/Home/tabid/36/Default.aspx	Not known.	RCRA-SQG FINDS	Not Known.	Not Known.
165	1	7243 Coldwater Canyon Ave, North Hollywood, CA 91609	Great Western Chemical Company	Chemical manufacture	Chemical manufacture, based in Portland. Listed as a Large Quantity Generator (LQG) in 2002. Was awarded a government contract in 2000. Chemical company went bankrupt in 2001. http://www.bizjournals.com/portland/stories/2001/09/03/story2.html http://www.dashinet.com/chemicals/Ads/greatwestern/greatwestern.html	1991	FINDS RCRA-NonGen	Not Known.	Not Known.
166	1	7525 Coldwater Canyon Ave., North Hollywood, CA 91609	Advanced Semiconductor LNC	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
167	1	7230 Coldwater Canyon Ave, North Hollywood, CA 91609	Ontic Engineering & Manufacturing	Aerospace SIC code 3728	Aerospace manufacturing licenses http://www.ontic.com/	1990	HAZNET EMI FINDS	Not known.	Approximately 0.1 tons organics, 0.6 tons unspecified solvent mixture waste, 0.91 tons oxygenated solvents, 0.17 tons aqueous solution with less than 10% organic residues, 0.2 tons organic solids, 0.23 tons liquids with pH <2, 0.38 tons organic monomer waste, 0.24 tons alkaline solution without metals. Asbestos containing waste (8.43 ton); off-specification, aged, surplus organics (0.10 ton); unspecified solvent mixture waste (0.60 ton); oxygenated solvents (0.23 ton); aqueous solution with less than 10% organic residues (0.17 ton)
168	1	7118 Fair Ave., North Hollywood, CA	California Electro Fab Inc	Not known.	Not known.	1991	HAZNET	Not known.	Other inorganic solid waste (0.55 ton)
169	1	6822 Farmdale Ave., North Hollywood, CA	Mack Metals	Scrap Metal	Appears to be a division of Mack Company. Appears that operations are still being conducted as a scrap metal facility.	2006	Not listed.	Not Known.	Not Known.
169	1	6822 Farmdale Ave., North Hollywood, CA	Any Ford Auto Dismantlers	Not known.	Not known.	1980-1991	Not listed.	Not Known.	Not Known.
169	1	6822 Farmdale Ave., North Hollywood, CA	Nataby Auto Parts Dismantlers	Not known.	Not known.	1980-1985	Not listed.	Not Known.	Not Known.
170	1	6845 Farmdale Ave., North Hollywood, CA 91605	Dietel Ervin L Godlen Rule Lumber Co	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
171	1	6848 Farmdale Ave., North Hollywood, CA 91605	Commercial Products Co.	Not known.	Not known.	1950-1956	Not listed.	Not Known.	Not Known.
172	1	6850 Farmdale Ave., North Hollywood, CA 91605	C & S Metal	Not known.	Listed in EDR as "Valley Metals" and "Chang Soon Chung"	2006	Not listed.	Not Known.	Not Known.
172	1	6850 Farmdale Ave., North Hollywood, CA 91605	Valley Metals	Metal Recycling	Appears to be a scrap metal recycling site.	1995	HAZNET	Not known.	Approximately 0.5 tons other organic solids.
173	1	6857 Farmdale Ave., North Hollywood, CA 91605	Standard Masonry Co.	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
174	1	6869 Farmdale Ave., North Hollywood, CA 91605	Overnite Saw Service	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
175	1	6877 Farmdale Ave., North Hollywood, CA 91605	Casting Co Atlantis Industries	Not known.	Conducts micro electronics stamping.	2001-2006	Not listed.	Not Known.	Not Known.
176	1	6901 Farmdale Ave., North Hollywood, CA 91605	Proper Manufacturing Inc	Not known.	Not known.	1962-1990	Not listed.	Not Known.	Not Known.
177	1	6939 Farmdale Ave, North Hollywood, CA 91605	BTG Cosmetics	Cosmetic Manufacturer	Manufacturer and distributor of cosmetic products for the beauty and health industries. Changed name to Biopharmetics in 2006. May be out of business. 1969 Sanborn Maps show Metal working and metal coin newstands.	1998	HAZNET	Not known.	Approximately 11.4 tons solvent waste
178	1	11461 Hart St., North Hollywood, CA 91605	Construction Inc Elluottmetal	Entertainment Industry Installations	Architectural installations for the motion picture and commercial television industry http://www.elliottmetalfabrication.com/	2006	Not listed.	Not Known.	Not Known.
178	1	11461 Hart St., North Hollywood, CA 91605	Fabrication Powerhouse	Entertainment Industry Sets	Sets and props for entertainment industry. Mostly wood, steel, plastic, and paint. http://www.powerhousesets.com/	2006	HAZNET	Not known.	Approximately 3.1 tons oxygenated solvents.
179	1	11604 Hart St, North Hollywood, CA 91605	Abbot Industrial Supplies	Chemical producer	Appears to be a chemical producer for janitorial supplies	1986	HIST UST CA WDS CA FID UST EMI SWEEPS UST WIP	Not Known.	Not Known.
180	1	11606 Hart St, North Hollywood, CA 91605	New Vision Ironworks	Not known.	Fancy iron work for gates, fences, staircases	1995	Not listed in EDR	Not Known.	Not Known.
180	1	11606 Hart St, North Hollywood, CA 91605	Star City Iron works	Not known.	Fancy iron work for gates, fences, staircases	1995-present	Not listed in EDR	Not Known.	Not Known.
181	1	11608 Hart St, North Hollywood, CA 91605	Fabrication & Design	Not known.	Address is listed in EDR as "Abbot Industrial Supplies Inc.", which is listed on the WIP data base.	2001	Not listed.	Not Known.	Not Known.
182	1	11616 Hart St., North Hollywood, CA 91601	Med Machine & Mfg	Not known.	Precision sheet metal fabrication and CNC machine shop. Listed in EDR as "SDI Industries" and "Former Arte de Mexico".	1980	Not listed.	Not Known.	Not Known.
182	1	11616 Hart St., North Hollywood, CA 91601	Mel-Rod Mft Co	Not known.	Not known.	1956-1962	Not listed.	Not Known.	Not Known.
183	1	11650 Hart St., North Hollywood, CA 91601	Bennett JS Co Screw Inserts	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
184	1	12236 Hartland St., North Hollywood, CA 91601	Bright Pain Co.	Not known.	Not known.	2001	Not listed.	Not Known.	Not Known.
185	1	7210 Hinds Ave., North Hollywood, CA 91605	Bowers Magnesium Blowers	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.
186	1	7222 Hinds Ave, North Hollywood, CA 91605	D'S Printing	Printing	D's Printing and Graphics also is listed in the EDR report at 7586 San Fernando Rd, Sun Valley.	1980	WIP	Not Known.	Not Known.
187	1	7231 Hinds Ave., North Hollywood, CA 91605	The Sign Exchange, Inc.	Sign manufacture SIC code 3993	http://www.signexchangeinc.com/ The Sign Exchange Inc. also is listed in the EDR report at 7241 Hinds Ave., and is listed on the EMI data base. This is the current address, according to their web page.	1980	WIP EMI	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
188	1	7246 Hinds Ave., North Hollywood, CA 91605	McKay Products	Structural Metal Fabrication	Structural Metal Fabrication. McKay/Stine Products Inc also is listed in the EDR report at this address. HAZNET - Oil/water separation sludge (0.23 ton)	1990-1995	WIP HAZNET	Not known.	Not known. HAZNET lists 0.2293 tons of "oil/water separation sludge."
189	1	7240 Hines Ave., North Hollywood, CA 91605	Zip Aerosol Products	Not known.	Owned by Mitann Inc, DBA Zip Aerosol Products	1967-1971	Not listed in EDR	Not Known.	Not Known.
190	1	6708 Lankershim Blvd., North Hollywood, CA 91605	A&A Auto Electric	Not known.	Possibly associated with Mike's Place at 6941 Lankershim Blvd.	Republic Chemical in 1980	WIP	Not Known.	Not Known.
190	1	6708 Lankershim Blvd., North Hollywood, CA 91605	Garo's Foreign Auto	Not known.	Possibly associated with Mike's Place at 6941 Lankershim Blvd.	Republic Chemical in 1980	RCRA-SQG FINDS	Not Known.	Not Known.
191	1	6872 Lankershim Blvd., North Hollywood, CA 91605	Angelo Scioscia	Not known.	Angelo Scioscia also is listed at 6875 Troost Ave.	Not known.	CA FID UST SWEEPS UST	Not Known.	Not Known.
191	1	6872 Lankershim Blvd., North Hollywood, CA 91605	Atomic Sandblast Co North Hollywood	Not known.	Not known.	1980	Not listed.	Not Known.	Not Known.
191	1	6872 Lankershim 6880 Lankershim 6884 Lankershim Blvd., Ave., North Hollywood, CA 91605	Independent Leather Co	Not known.	Not known.	1950 1962-1975 1956	Not listed.	Not Known.	Not Known.
191	1	6872 Lankershim Blvd., North Hollywood, CA 91605	Refinishing	Not known.	Appears to be "Custom Wheel Refinishing", also located at 6868 Lankershim.	2006	Not listed.	Not Known.	Not Known.
192	1	6884 LankershimBlvd., North Hollywood, CA 91605	AUA Grinders	Not known.	Listed in EDR as "A.U.A. Engine".	1985-1991	WIP	Not Known.	Not Known.
193	1	6926 Lankershim Blvd., North Hollywood, CA 91605	Carcoa Auto Painting & Body Repair	Auto Painting & Body Repair	Not known.	1970-1980	Not listed.	Not Known.	Not Known.
194	1	7151 Lankershim Blvd, North Hollywood, CA 91605	Akers Brothers & Sister Printing	Printing	Akers Brothers & Sister Printing is listed in the EDR report at 6854 Lankershim Blvd. Geotracker lists cleanup for LUST site at this address under the name "Pacific Waste Management" as "case closed" in 2003, for a gasoline spill affecting soil.	1980	Not listed. Company is listed at 6845 Lankershim on: HAZNET WIP	Not Known.	Not Known.
195	1	7201 Lankershim Blvd., North Hollywood, CA 91605	Lerner Oil Co Inc	Not known.	Wells fargo Bank is listed in the EDR report at 7201 Lankershim Blvd.	1970	Company is not listed in EDR report	Not Known.	Not Known.
196	1	7222 Lankershim Blvd., North Hollywood, CA 91605	United Tool & Abrasive Co	Not known.	Not known.	1980	Not listed.	Not Known.	Not Known.
197	1	7261 Lankershim Blvd., North Hollywood, CA 91605	Armstrong Machine Metal-Spraying	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
198	1	7315 LankershimBlvd., North Hollywood, CA 91605	Hooker Materials Inc	Transportation	Trucking company bought by Trans American in 1969.	1970	Not listed.	Not Known.	Not Known.
199	1	7411 Laurel Canyon Blvd. North Hollywood, CA 91605	Admiral Coated Products Inc	Not known.	Not known.	1980-86	Not listed.	Not Known.	Not Known.
199	1	7411 Laurel Canyon Blvd. North Hollywood, CA 91605	S & T Electroforming	Not known.	Not known.	1995	Not listed.	Not Known.	Not Known.
199	1	7411 Laurel Canyon Blvd. North Hollywood, CA 91605	S&T Electroforming	Not known.	Not known.	1995	Not listed.	Not Known.	Not Known.
200	1	7421 Laurel Canyon Blvd, North Hollywood, CA 91605	AAA Aluminum	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
201	1	7433 Laurel Canyon Blvd, North Hollywood, CA 91605	Circle K Plastics	Plastics manufacturing	Appears to be currently located in Sun Valley at 11345 Penrose St. Plastics manufacturing.	1985	Not listed in EDR	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
202	1	7111 Radford Ave (adjacent to 7111 Laurel Canyon Blvd) North Hollywood, CA 91605	Guardian Chemical Co	Not known.	Address listed in EDR as "NHM Corp"	1976	Not listed in EDR	Not Known.	Not Known.
202	1	7111 Radford Ave (adjacent to 7111 Laurel Canyon Blvd) North Hollywood, CA 91605	NHM Corp.	Not known.	NHM Corp also is listed on 7121 Radford Ave: WIP	Guardian Chemical listed in 1976	HAZNET	Not known.	0.69 tons "Off-specification, aged, or surplus organics"
203	1	7300 Radford Ave., North Hollywood, CA 91605	Adjustable Bushing Corp	Not known.	Also listed at 11905 Vose and 8330 Lankershim. Fasteners manufacturing.	1980-81 1967-76	SWEEPS UST listed at 8330 Lankershim	Not Known.	Not Known.
203	1	7300 Radford Ave., North Hollywood, CA 91605	Hercules Wire & Metal Products	Not known.	Not known.	1986-91	Not listed.	Not Known.	Not Known.
203	1	7300, 7314 Radford Ave., North Hollywood, CA 91605	Titan Spring and Wire Products Titan Spring Co Inc	Spring and wire manufacture	Springs and wires for aerospace, medical, telecommunications, and electronics industries. http://www.titanspring.com/index.html	1985-present	Titan Spring Company at 7300 Radford is listed on: WIP HAZNET "Concept Lettering" at this address is listed on HAZNET.	Not known.	Approximately 0.01 tons Other inorganic solid waste
204	1	7311 Radford Ave., North Hollywood, CA 91605	Brook Aire	Not known.	Not known.	1962-76	Not listed.	Not Known.	Not Known.
205	1	7334 Radford Ave., North Hollywood, CA 91605	Quality Plastics	Not known.	California Quality Plastics is located in Ontario, CA.	1985-90	Not listed in EDR	Not Known.	Not Known.
206	1	7340 Radford Ave., North Hollywood, CA 91605	Mid Valley Grinding Company	Machined parts	Machined parts, precision grinding.	1980-1991	HAZNET EMI WIP	Not Known.	Not Known.
207	1	12730 Raymer St., North Hollywood, CA 91605	Alumaframe	Not known.	Company is included in list of "No Further Action": http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/b6be6c309683d7fa882573290078d1b6/7db1da800997557d882571840058906b/$FILE/nfa_list.pdf	1995	WIP	Not Known.	Not Known.
207	1	12730 Raymer St., North Hollywood, CA 91605	AlumaTex	Not known.	Not known.	1991	Not listed.	Not Known.	Not Known.
207	1	12730 Raymer St., North Hollywood, CA 91605	Crown Aluminum	Not known.	Not known.	1991	Not listed.	Not Known.	Not Known.
207	1	12730 Raymer St., North Hollywood, CA 91605	Eurotech Printing	Not known.	Not known.	Alumaframe 1995	WIP	Not Known.	Not Known.
208	1	13030 Raymer St, North Hollywood, CA 91605	Armorcast Products Co Inc	Protective enclosures	Protective enclosures for the utility industry. Currently located in North Hollywood on Saticoy Street. http://www.armorcastprod.com/technology.htm The address appears to be 13230 Saticoy St. Founded in 1966. Includes products of fiberglass, polymer concrete, rotocast (polymer concrete and polyethylene).	1991-1995	FINDS EMI TRIS HAZNET RCRA-Non-Generator	Not Known.	Not Known.
209	1	13006 Saticoy St, North Hollywood, CA 91605	ACI Sheet Metal Co	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Alpha Machines	Not known.	Not known.	1980-85	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Aram Precision Tool & Die	Tool and Die	Currently located in Chatsworth, CA. Designing & fabricating tools, gages, dies, jigs, R&D CNC Mill & lathe engineering & prototypes, providing high quality to all industries http://www.aramprecision.com/	1980-85	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Best Year Sheet Metal	Not known.	Intenet search indicates that the company creates sheet metal ductwork.	1985	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	BRS Machines	Not known.	Not known.	1985	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
209	1	13026 Saticoy St, North Hollywood, CA 91605	Castel Blanco Precision	Not known.	Not known.	1980	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	EDCO Precision	Not known.	Not known.	1985	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Kanas Machine Co	Not known.	Not known.	1980	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Minus AVI Machine Shop	Not known.	Not known.	1991	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Pete Machine	Not known.	Not known.	1980	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Precision Center	Not known.	Not known.	1985	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Profuture Machine Co	Not known.	Not known.	1991	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	RA Machine Co	Not known.	Not known.	1980-1991	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
209	1	13026 Saticoy St, North Hollywood, CA 91605	Tool Fast Inc	Not known.	Not known.	1991	Not listed. 13026 Saticoy is a 21,600 sq. ft. industrial building with at least 16 suites, built in 1974.	Not Known.	Not Known.
210	1	13050 Saticoy St, North Hollywood, CA 91605	Plastison Products	Not known.	Not known.	1970-76	Not listed in EDR	Not Known.	Not Known.
211	1	13051 Saticoy St, North Hollywood, CA 91605	Kleerpak Mfg Co	Not known.	"Clearpak Mfg Co" listed at 13061 Saticoy. "Sabin Construction (Kleerpak)" is identified as a PRP by EPA in the San Gabriel Valley. http://www.scorecard.org/env-releases/land/npl-prp.tcl?epa_id=CAD980677355	1970-86	Not listed in EDR	Not Known.	Not Known.
212	1	13061 Saticoy St, North Hollywood, CA 91605	Clearpak Mfg Co	Not known.	"Kleaepak Mfg Co" listed at 13051 Saticoy.	1958-86	Not listed in EDR	Not Known.	Not Known.
213	1	13123 Saticoy Blvd., North Hollywood, CA 91605	Viking Metal Products	Not known.	Not known.	1975-1981	Not listed.	Not Known.	Not Known.
214	1	13126 Saticoy Blvd, North Hollywood, CA 91605	Alco Products	Sign Manufacture	Company manufactures engraved signs, tactile/Braille (ADA) signs, products for the hospitality industry. Contact address is in Tennessee. http://www.alcoproducts.net/	1995	Not listed.	Not Known.	Not Known.
215	1	10755 Sherman Way., North Hollywood, CA 91605	Electroforming Intgrtd Access	Not known.	Not known.	2006	Not listed.	Not Known.	Not Known.
216	1	10901 Sherman Way., North Hollywood, CA 91605	Apollo European Auto Parts & Salvage	Not known.	Not known.	1995	Not listed	Not Known.	Not Known.
217	1	11004 Sherman Way.,North Hollywood, CA 91605	Johnson John Machine	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
218	1	11051 Sherman Way, North Hollywood, CA 91605	Tel Chem of California	Not known.	Not known.	1971	Not listed.	Not Known.	Not Known.
219	1	11101 Sherman Way, North Hollywood, CA 91605	El Cometa Store	Not known.	Address is listed on the ERNS data base for a release in 1990, but the facility name is not listed. The incident involved a structure fire and a spill of 50 gallons of hydrogenate teraphenols. The Department of Health supervised the cleanup.	2001	ERNS	Not Known.	Not Known.
220	1	11125 Sherman Way, North Hollywood, CA 91605	Plastic Qinco Molds	Not known.	Not known.	2001	Not listed in EDR	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
221	1	11130 Sherman Way, North Hollywood, CA 91605	Flightways Manufacturing Inc	Plastic aircraft components	Flightways was based in Van Nuys, California and manufactured and repaired high quality plastic replacement components for commercial aircraft seats and interiors. Seating components included food trays, latches, shrouds, panel armcaps, bumper strips and escutcheons. Other components were used in aircraft lavatories, galleys, cockpits, windows, overhead units and a variety of other subassemblies. The company became part of Field Aircraft Spares in 1998 and moved to Simi Valley. http://www.thefreelibrary.com/FLIGHTWAYS+MOVING+TO+SIMI+SITE%3B+RELOCATION+DESIGNED+TO+CONSOLIDATE...-a083828460	1995	Not listed.	Not Known.	Not Known.
222	1	11240 Sherman Way, North Hollywood, CA 91605	Booker Chemical	Agricultural chemicals	DBA Hormex. Maker of several rooting powders, fertilizers, etc. MSDSs for several products are available on the website. http://www.hormex.net/news.php	1995-present	SSTS	Not Known.	Not Known.
223	1	11401 Sherman Way, North Hollywood, CA 91605	Wrright Jas A Lab	Not known.	Not known.	1921	Not listed.	Not Known.	Not Known.
224	1	11500 Sherman Way, North Hollywood, CA 91605	Reynolds & Reynold Co The Printers	Not known.	Not known.	1967-1975	Not listed.	Not Known.	Not Known.
225	1	11767 Sherman Way, North Hollywood, CA 91605	S & L Auto Dismantling General Auto Parts & Dismantling	Auto Dismantling	Not known.	1986-1990	Not listed.	Not Known.	Not Known.
226	1	11801 Sherman Way, North Hollywood, CA 91605	Atlas Auto Parts & Salvage	Auto body and salvage	Auto Body and Salvage. Appears that the facility is still operating at this location.	1958-1975	HAZNET CA WDS WIP	Not known.	Approximately 0.23 tons aqueous solution with organics
227	1	11823 Sherman Way, North Hollywood, CA 91605	Superior Enameling Co	Not known.	Not known.	1958-1962	Not listed.	Not Known.	Not Known.
228	1	12126 Sherman Way, North Hollywood, CA 91605	DAE Chemical USA	Not known.	Not known.	2001	Not listed.	Not Known.	Not Known.
228	1	12126 Sherman Way, North Hollywood, CA 91605	Price Marking and Labeling Systems	Not known.	Not known.	DAE Chemical USA listed in 2001	WIP	Not Known.	Not Known.
229	1	12160, 12164 Sherman Way, North Hollywood, CA 91605	AD Industries Inc. (also AD Industrial of California)	Printing and packaging	The company began 1956 in Denver and expanded to California in the 1970's. Business printing: binders, index tabs, folios, seat cushions, specialty items etc. http://www.adind.com/	1995	HAZNET EMI WIP	None known.	Approximately 0.22 tons photoprocessing waste, 0.46 tons hydrocarbon solvents
230	1	12515 Sherman Way, North Hollywood, CA 91605	AAAA Screw Products	Not known.	"AAA Screw Products" is not listed in EDR. "AAA Metal Polishing" is listed at 11423 Vanowen on HAZNET, SLIC, WIP. In the orphan list, AAA Metal Polishing is listed on HAZNET and LA Co. Site Mitigation. Appears to be part of Van Owen Industrial Center (11417-11423 Vanowen), which is listed on VCP and ENVIROSTOR.	1985	Not listed in EDR	The Geotracker data base indicates that the AAA Metal site is an open SLIC case. A site assessment began in 1990 and chromium and VOCs were identified as contaminants of concern. The potential media affected is listed as an aquifer used for drinking water.	AAA Metal Polishing - Approximately 4.2 tons liquids with metals, 1.8 tons liquids with pH <2, 1.4 tons liquid with cyanides, 2.5 tons other inorganic solids, 1.1 tons liquid with chromium, 0.6 liquids with nickel, 0.23 unspecified aqueous solution, 0.7 tons metal sludge-alkaline solution with metals
231	1	12619 Sherman Way, North Hollywood, CA 91605	S & R Machine Inc	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
232	1	6816 Troost Ave., North Hollywood, CA 91605	Damians Cutting Service	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
233	1	6861 Troost, North Hollywood, CA 91605	Production Saw Works	Machine Tool Manufacture	Currently located in Sun Valley, performing metal cutting machine tools; motion picture & video production services, taped or motion picture performances, motion pictures, videotaped entertainment, drill carbide, drills high speed steel, hob cutter, knives and skives, pipe or tube cutter, reamer, shaper cutter, shaving cutter, solid milling cutter, taps.	1981-2006	HAZNET WIP	Not known.	Approximately 14.59 tons tank bottom waste
234	1	7212 Troost Ave., North Hollywood, CA 91605	Duborel Laboratory	Not known.	Not known.	1970	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
235	1	6831 Tujunga Ave., North Hollywood, CA 91605	Pacmaco Mfg	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
236	1	6835 Tujunga Ave	Zenith Sheet Metal Products	Not known.	Not known.	1950	Not listed.	Not Known.	Not Known.
237	1	6859 Tujunga Ave., North Hollywood, CA 91605	Franmar Mfg Inc	Machining	Currently located in Valencia, CA, performing machine shop, jobbing & repair services machining services, forming services, heat treatment services, welding and brazing and soldering services, machining and processing services, and coating services.	1985-1991	Not listed.	Not Known.	Not Known.
238	1	6912 Tujunga Ave., North Hollywood, CA 91605	Tujunga Finishing	Garment Finishing	Garment finishing company specializing in knit fabrics for the garment dye industry. Services include pattern making and digitizing, samples, cutting, sewing, pressing, or garment finishing. http://www.tujungafinishing.com/	2006	Not listed.	Not Known.	Not Known.
239	1	6916-6918 Tujunga Ave., North Hollywood, CA 91605 (very close to 6918 Beck Ave)	Orion Ornamental Iron, Inc.	Drapery Hardware	Since 1983, manufactures custom drapery hardware, iron drapery hardware, wood drapery hardware. http://www.ironartbyorion.com/ironart/default.asp	Kinetic Diecast 2008	HAZNET EMI ERNS	Not known.	Unspecified solvent mixture waste (1 ton).
239	1	6918 Tujunga Ave., North Hollywood, CA 91605 (very close to 6918 Beck Ave)	Praxis Film Works	Film Production	Multimedia film and visual effects production.	Kinetic Diecast 2006	ERNS WIP	ERNS Listing: 7/25/1990, release of approximately 800 gallons of "solvent, developer" due to "equipment failure"	Not known.
240	1	6920 Tujunga Ave., North Hollywood, CA 91605	Erect Easy Wire Co., Inc.	Not known.	Listed in EDR at 6912 Tujunga Ave on the WIP data base.	1985 Tujunga Finishing 2006	WIP	Not Known.	Not Known.
241	1	12030 Valerio Ave., North Hollywood, CA 91605	Premach Corp	Not known.	Not known.	1975-95	Not listed.	Not Known.	Not Known.
242	1	6850 Vanowen St., North Hollywood, CA 91605	North Hollywood Engraving	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
242	1	6850 Vanowen 7043 Vanowen St., North Hollywood, CA 91605	Schneiders Mfg Co	Not known.	Also listed at 7043 Vanowen.	1975	Not listed.	Not Known.	Not Known.
243	1	7067 Vanowen St., North Hollywood, CA 91605	Advanced Magnetic Products Inc	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
244	1	10703 Vanowen St., North Hollywood, CA 91605	Azo Plate	Not known.	Appears to be associated with the Azoplate division of Hoeschst-Celanese Corp located at 11312 Hartland, which is now Celanese Corp. www.celanese.com/	1985	Not listed in EDR.	Not Known.	Not Known.
245	1	10900 Vanowen St., North Hollywood, CA 91605	Intersky Precision Instruments Intersky Inc.	Aircraft parts maintenance	Cockpit instrument maintenance, repair, servicing. Established 1985 in North Hollywood and moved to Memphis is 1994. http://www.interskyinc.com/ http://www.portfolio.com/resources/company-profiles/Intersky-Precision-Instruments-Inc.633720	1986-1995	WIP	Not Known.	Not Known.
246	1	11127 Vanowen St., North Hollywood, CA 91605	Accurate Resins	Not known.	Not known.	1995	Not listed.	Not Known.	Not Known.
247	1	11129 Vanowen St., North Hollywood, CA 91605	A B C Enameling Co	Not known.	Not known.	1975-1980	Not listed.	Not Known.	Not Known.
248	1	11131 Vanowen St., North Hollywood, CA 91605	Metalsmithing Avitraditional & Silversmithing Heck of Supplies	Silver refinery	Silver refinery 1 UST, installed in 1982, used for product. No violations	2001-2006	Not listed. Commodity Refining Exchange Inc is listed at this address: FINDS CA FID UST Hist UST SWEEPS UST WIP RCRA-Non Gen	Not Known.	Not Known.
248	1	11131 Vanowen St., North Hollywood, CA 91605	Silversmithing Heckopc	Silversmithing	Appears to be associated with Avi Traditional Metalsmithing, also located at 11131 Vanowen	2001-2006	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
249	1	11133 Vanowen St., North Hollywood, CA 91605	Aero Power Engine Mfg Inc	Engine Manufacturing	Not known.	1985	Not listed.	Not Known.	Not Known.
250	1	11135 Vanowen St., North Hollywood, CA 91605	Liteco Mfg Co	Not known.	Not known.	1956	Not listed.	Not Known.	Not Known.
251	1	11212 Vanowen St., North Hollywood, CA 91605	Southland Furniture Refinishing	Furniture Repair and Refinishing	Appears that the location is still conducting furniture repair and refinishing business.	1995 - present	Not listed.	Not Known.	Not Known.
252	1	11214 Vanowen St., North Hollywood, CA 91605	Artist Piano Refinishing & Tuning	Piano tuning and refinishing	Listed in EDR as "Artist Piano, Larry Mack DBA"	1985	EMI	Not known.	EMI lists 1 ton of organic hydrocarbon gases and 1 ton of reactive organic gases
253	1	11218 Vanowen St., North Hollywood, CA 91605	Merry X Ray Chemical Corp	X-ray and Medical Imaging Equipment	X-ray medical device corporation started in 1958 in San Diego. Create x-ray and other medical imaging equipment, protective clothing, etc. http://merryxray.com/webapp/wcs/stores/servlet/AboutUsView?langId=-1&storeId=10051&catalogId=11202	1985	Not listed.	Not Known.	Not Known.
254	1	11323 Vanowen St., North Hollywood, CA 91605	Refinishing	Piano refinishing	Listed in EDR as "Burbank Piano Refinishing" at 11323 1/2 Vanowen and "Pacific Piano Supply" at 11323 Vanowen. Burbank Piano Refinishing is listed on FINDS and RCRA-SQG and Pacific Piano Supply is listed on EMI and WIP.	2006	FINDS RCRA-SQG EMI WIP	Not Known.	Not Known.
255	1	11333 Vanowen St., North Hollywood, CA 91605	Fabri Tron Inc Mfg	Not known.	Not known. 1960, 1963, 1966 Sanborn Maps show a sheet metal shop at this address.	1956-1980	Not listed.	Not Known.	Not Known.
256	1	11439 Vanowen St., North Hollywood, CA 91605	Allied Precision Products	Not known.	Not known.	1958-1967	Not listed.	Not Known.	Not Known.
257	1	11449 Vanowen St., North Hollywood, CA 91605	T & T Tool Grinding Serv	Not known.	Not known.	1962	Not listed.	Not Known.	Not Known.
258	1	11471 Vanowen St., North Hollywood, CA 91605	Sterilometer Labs Inc	Not known.	Not known. 1969 Sanborn Maps show chemical storage and combustibles at this address. 1966 Sanborn Maps show chemical storage at this address.	1956-1962	Not listed.	Not Known.	Not Known.
259	1	11477 Vanowen St., North Hollywood, CA 91605	Chemcraft	Not known.	Not known.	2006	Not listed.	Not Known.	Not Known.
260	1	11505 Vanowen St., North Hollywood, CA 91605	Ensotech Inc Certified Lab	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
260	1	11505 Vanowen St., North Hollywood, CA 91605	Scientific Engineering & Mfg Co Inc	Not known.	Not known.	1975-1985	Not listed.	Not Known.	Not Known.
261	1	11609 Vanowen St., North Hollywood, CA 91605	Devon Tool and Speciality Co	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
261	1	11609 Vanowen St., North Hollywood, CA 91605	H & R Metal Products	Not known.	Not known.	1985	Not listed.	Not Known.	Not Known.
262	1	11615 Vanowen St., North Hollywood, CA 91605	Fila Auto Body & Painting	Not known.	Address is listed in EDR as "B&K Auto Service" and "GLS Honda Service", which is listed on the WIP data base, and "R&R Auto Works" listed on the HAZNET data base.	1991	Not listed.	Not Known.	Not Known.
263	1	11651 Vanowen St., North Hollywood, CA 91605	Drug Aid Inc Wholesale Pharmaceutical	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
264	1	11710 Vanowen St., North Hollywood, CA 91605	Franks Body Shop	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
265	1	6818 Vineland Ave., North Hollywood, CA 91605	North Hollywood Mfg Co	Not known.	Not known.	1958-1967	Not listed.	Not Known.	Not Known.
265	1	6818 Vineland Ave., North Hollywood, CA 91605	Packard Tool & Engineering Inc	Not known.	Not known.	1971-1976	Not listed.	Not Known.	Not Known.

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
266	1	6840 Vineland Ave., North Hollywood, CA 91605	Demico Sheet Metal	Not known.	Not known.	1995-2001	Not listed.	Not Known.	Not Known.
267	1	6845 Vineland Ave., North Hollywood, CA 91605	MED Machine Mfg Co M E D Machine Manufacturing Co	Precision sheet metal fabrication	Precision sheet metal fabrication and CNC machine shop. Listed in EDR as "SDI Industries" and "Former Arte de Mexico".	1975-1985	Not listed.	Not Known.	Not Known.
267	1	6845 Vineland Ave., North Hollywood, CA 91605	Production Heat Treating Co	Not known.	Not known.	1958-1971	Not listed.	Not Known.	Not Known.
267	1	6845 Vineland, North Hollywood, CA 901605	SDI Industries	Material handling systems	Material handling systems including sortation systems, conveyor systems, warehouse and equipment services. http://www.sdiindustries.com/	1986-present	RCRA-SQG FINDS HAZNET	Not known.	Approximately 0.3 tons solvent waste
268	1	6855 Vineland Ave., North Hollywood, CA 91605	Morley-Div of Tel-Ray Electronics Mfg Co Inc	Sound equipment	Morley and Tel-Ray are now owned by Sound-Enhancements, Inc. Based on information from a Vintage Effects forum, "Tel-Ray Electronics officially became Morley in 1972. Tel-Ray was started by the Lubow brothers because they fixed televisions and radios, and eventually began making a rotating device that Ray had come up with that worked off a dialectic oil and had this rotating box in the back of the pedal. Their products initially were all rotating devices in a box format, like a mini amp head. He adapted not only the dialectic oil and rotating capacitor in a disk, but also optical circuitry for the pedals. Throughout the seventies, the Lubow brothers maintained a fairly small staff, located in North Hollywood, and then in Burbank. Everything was done by hand, not with a lot of sophiticated machinery. And they certainly did their share of voodoo engineering, if you will, where they kind of changed designs based on what was available. They were almost a small custom shop." http://forums.gibson.com/Default.aspx?g=posts&m=190848	1981-1985	Not listed.	Not Known.	Not Known.
269	1	7049 Vineland Ave., North Hollywood, CA 91605	Fae Machine	Custom Builder	Custom Builder/Fabricator. Appears to be located at 7049 1/2 Vineland.	2006	Not listed.	Not Known.	Not Known.
270	1	7051 Vineland Ave., North Hollywood, CA 91605	Custom Color Services Cobery Peter Custom Color Lab	Not known.	Not known.	1975-1976	Not listed in EDR	Not Known.	Not Known.
271	1	7055 Vineland Ave, North Hollywood, CA 91605	Sota Corp	Aerospace Parts	Manufacturer of aircraft windshields, aircraft shock mounts, aircraft slip ring assemblies, aircraft environmental control systems and components, aircraft accumulators, erospace systems and components and equipment, aircraft fuselage and components, aerospace location and navigation systems and components, flight communications related systems.	1984-2006	HAZNET WIP	Not known.	Approximately 0.54 tons Off-specification, aged or surplus organics
272	1	7057 Vineland Ave., North Hollywood, CA 91605	Electro Signal Lab Inc	Not known.	Not known.	1975	Not listed.	Not Known.	Not Known.
273	1	7071 Vineland Ave., North Hollywood, CA 91605	STC Metal Works	Not known.	Not known.	1991	Not listed in EDR	Not Known.	Not Known.
274	1	11556 Vose St., North Hollywood, CA 91605	Phillips Ben Name Plate Die Casting	Metal nameplates SIC code: 3993	A company with this name is located at 9930 San Fernando Rd, Pacoima, CA. Founded in 1952. Signs and advertising specialties. Manufacturer of Die Cast process Name Plates	1956	Not listed.	Not Known.	Not Known.
275	1	11726 Vose St., North Hollywood, CA 91605	Arts Precision Machining	Not known.	Not known.	1995-06	Not listed.	Not Known.	Not Known.
276	1	11821 Vose St, North Hollywood, CA 91605	Phyllis Morris Originals	Furniture Manufacturer	Furniture design. http://www.phyllismorris.com/ 1963, and 1966 Sanborn Maps show formica & paint warehouse, grinding and machine shop at this address.	1953-present	HAZNET FINDS	Not known.	Approximately 0.87 tons solvent waste

TABLE 5-2
NHOU POTENTIAL RELEASE SITES[a, b]
North Hollywood Operable Unit

Site IDs	Tier[c]	Facility Address	Company or Entity Name	Types of Operations	Operating History	Period of Operation	Regulatory Status	Impacts	USAGE
277	1	12016 Vose St., North Hollywood, CA 91605	Lenques Machine Co	Not known.	NFA letter 8/25/95	1980	WIP	Not Known.	Not Known.
278	1	11818 Vose St., St., North Hollywood, CA 91605	LR Metal	Not known.	Not known.	1995	Not listed in EDR	Not Known.	Not Known.
279	1	11915 Vose., St., North Hollywood, CA 91605	Aerospace fastening systems	Fasteners	Internet search reveals that the company has patents for several types of locks.	1991	Not listed.	Not Known.	Not Known.
280	1	12025 Vose., St., North Hollywood, CA 91605	P & F Manufacturing Co	Not known.	Not known. 1960 Sanborn Maps show Machine shop, midget race car assembly, Print compounds, chem lab, 4 kilns, machine shops at this address. 1963, 1966, 1969 Sanborn Maps show machine shops at this address.	1985-91	Not listed in EDR	Not Known.	Not Known.
281	1	7225 Whitsett Ave., North Hollywood, CA 91605	Prime Devleopment Co Machine Shop	Not known.	Not known.	1980-85	Not listed.	Not Known.	Not Known.

Notes:

[a]Sites were chosen based on a number of varying criteria. These criteria included the following:

1. Environmental Data Resources (EDR) database listings report dated January 19, 2009. The various regulatory database listings were reviewed to identify sites with possible emerging contaminant (EC) use, related operating history, or potential EC-containing waste generation.
2. Land Use Zoning Map, dated March 2008.
3. City directories obtained from EDR at 1-year intervals from 1920-2006, focusing on addresses that lie within the industrially zoned areas of the March 2008 land use map.
4. Sanborn Maps obtained from EDR.
5. Regional Water Quality Control Board (RWQCB) Geotracker website, which includes regulatory data base listings, as well as reports and site investigation data for sites under RWQCB jurisdiction.
6. Internet search of company websites or other reasonably ascertainable information.
7. Review of professional organization publications and or website information.

[b] The following assumptions of constituent of concern (COC) usage were made based on historical business operations:

1. Hexavalent Chromium – metals finishing and plating processes, aircraft assembly (zinc chromate putty), and conversion coating (chromate film for paint bonding).
2. 1,4-Dioxane – Stabilizer in 1,1,1-trichloroethane (1,1,1-TCA) and TCE (after 1960), common in vapor degreasers associated with plating pre-1989, and in photographic film cleaning post 1970 (when carbon tetrachloride [CCl4] was banned).
3. 1,2,3-TCP – varnish/paint stripping, electronics (conformal coating removal), cross-linking hardener in polysulfone production (plastics), and pesticide production.
4. NDMA – weapons and rocket fuel manufacturing and disposal, rubber and tire manufacturing, tanneries, circuit board manufacturing.
5. Perchlorate – weapons and rocket fuel manufacturing and disposal, fertilizer, flash powder for photography, brass and copper etching.

[c]The NHOU potential release area facilities were then coded based on the following information:

Tier 1:
- -Type of operation (i.e., manufacturing, machining or aircraft support services, chemical product manufacturing or usage)
- -The facility was in operation during the period when VOCs, ECs or chromium was widely used

Tier 2 (higher likelihood of potential release):
- -Tier 1 information
- -Facility operation duration of 5 or more years, if known during the search
- -Evidence of chemical usage

Regulatory Database Abbreviations:

CERCLIS: The Comprehensive Environmental Response, Compensation and Liability Information System
CERCLIS-NFRAP: As of February 1995. CERCLIS sites designated "No Further Remedial Action Planned"
ERNS: Emergency Response Notification System - U.S. EPA
CAL-SITES: Known and potential hazardous substance sites. The source is the California Department of Toxic Substance Control.
CHMIRS: California Hazardous Material Incident Report System
CORTESE: This database identifies public drinking water, hazardous substance sites selected for remedial action, sites with known toxic material identified wells with detectable levels of contamination, through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migrati
SWF/LF: The Solid Waste Facilities/Landfill Sites
WMUDS/SWAT: The Waste Management Unit Database System
LUST: The Leaking Underground Storage Tank Incident Reports
UST: The Underground Storage Tank database
VCP: DTSC database that contains low threat level properties with either confirmed or unconfirmed releases.
CA FID: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.
HIST UST: Historical UST Registered Database
HMIRS: The Hazardous Materials Incident Report System contains hazardous material spill incidents reported to the Department of Transportation. The source of this database is the U.S. EPA.
WIP - RWQCB Well Investigation Program
SLIC - RWQCB Spills,Leaks, Investigation, Cleanup sites

TABLE 7-1
IDENTIFIED POTENTIAL SOURCES WITHIN THE NHOU
North Hollywood Operable Unit

Site	VOC	1,4-Dioxane	Cr+6
Western Sector -- western portion			
Aircraft Components (4)			X
Federal Manufacturing Corp. (19)			X
Hewitt Pit (17)	X	x	
LADPW (20 & 21)	X	x	
Raintree (33)	X	x	
Sprayco (36)			X
Total	3	3	3
Western Sector -- eastern portion			
AAA Metal Plating (1)			X
Allan Aircraft Co. (69)	X		
Avibank Manufacturing (3)	X	X	X
Caravan Fashion (7)		X	
Casa de Chrome (8)			X
EM Coatings (11)	X		X
Federal Manufacturing Corp. (20)	X		
Fleetwood Machine Products (13)	X		
General Wax and Candle Co. (1)	X		
Pacific Airmotive (38)	X		
Pacific Magnetics (15)	X		X
Pacific Steel Treating (30)	X	X	
Total	9	3	5
Eastern Sector -- LC1-CW06 area			
Almore Dye House (64)	X	x	
Barry Controls (4)	X	x	
Burbank Airport (15)	X	x	
Greg's Automotive 67)	X	x	
Hawker Pacific (16)	X	x	
Los Angeles Unified School District (25)	X	x	
Skipower Plating Works (35)	X	x	
Valley Friction Materials (51 & 55)	X	x	
Total	8	8	0
Eastern Sector -- LC1-CW08 area			
Burbank Airport Hanger 22 (15)	X	x	X
Lockheed Building 528 (former) (22)	X	x	X
Lockheed Facility Plant B-5 (former) (23)	X	x	
Lockheed Facility Plant C-1 (former) (24)	X	x	X
Lucas Machine Co. (27)			X
Martin Aviation (former airport operator) (26)	X	x	X
Total	5	5	5
Northern Sector			
Benz Dump (14)		X	
Bradley Landfill (6)		X	
Greg Pit (14)		X	
Newberry Landfill (27)	X	x	
Penrose Landfill (31)	X	x	
Strathern Landfill (37)	X	x	
Tuxford Landfill (38)	X	x	
industrial corridor west of landfills		X	
Total	4	8	0

Notes:

X = named in report specific to this COC

x = report says same as list of VOC sites

(3) - See Table 5-1 or 5-2 for Site ID references

APPENDIX A

HYDROSTRATIGRAPHIC INTERPRETATION

APPENDIX A
HYDROSTRATIGRAPHIC INTERPRETATION

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
FS	Feasibility Study
LADWP	Los Angeles Department of Water and Power
msl	mean sea level datum
NHOU	North Hollywood Operable Unit
RI	remedial investigation
SFB	San Fernando Basin
SFBFS	San Fernando Basin Feasibility Study
SFV	San Fernando Valley
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency

APPENDIX A

NHOU HYDROSTRATIGRAPHY

A.1 INTRODUCTION

This appendix presents an analysis of the alluvial hydrostratigraphy of the North Hollywood Operable Unit (NHOU) of the San Fernando Valley (SFV) Superfund Site, Los Angeles, California. This conceptualization is critical to the accurate characterization, monitoring, and modeling of three-dimensional groundwater in the SFV groundwater basin (SFB). The significance of three-dimensional groundwater flow is heightened by the predominantly shallow occurrence of contaminants and the downward vertical gradients imposed by pumping wells drawing from predominantly deep zones.

Boring logs for the 31 NHOU additional groundwater monitoring wells constructed within the NHOU during 2009 and 2010 (MWH, 2011) have significantly added to the geologic data base. The purpose of this analysis is to evaluate the consistency of the expanded NHOU geologic data base with the hydrostratigraphic conceptual model established by the United States Environmental Protection Agency (USEPA) for its basinwide Feasibility Study (FS) of SFV groundwater contamination. USEPA's hydrostratigraphic conceptual model provides the basis for layering its basinwide groundwater flow model, the current version of which is being used by USEPA (2009) and others to evaluate potential contaminant transport within the NHOU.

A.2 HYDROSTRATIGRAPHIC CONCEPTUAL MODEL

The hydrogeology of the SFB was studied extensively to support the 1955-1979 litigation and adjudication of water rights in the Upper Los Angeles River Area. This work was presented in the Report of Referee (California State Water Rights Board, 1962) and later summarized by Brown (1975) and the California Department of Water Resources (2004), from which the following is adopted:

> SFB groundwater occurs in three principal water-bearing formations: the Pleistocene Saugus Formation, Late Quaternary older alluvium, and Holocene alluvium.
>
> The water-bearing portion of the Saugus Formation consists of loosely consolidated conglomerate and coarse sandstone deposited as fluvatile and alluvial fan sediments. Layers and lenses of clayey gravel have been formed by weathering of the original materials in place. Although the water-bearing properties of the Saugus Formation are generally considered to be less favorable than those of the overlying alluvium, it is generally not possible to distinguish between these units when inspecting well logs.
>
> The Upper Pleistocene older alluvium consists of poorly sorted detritus from drainages and source areas similar to those of present-day streams. The topography is believed to have been similar to today, although stream gradients may have been slightly gentler. In eastern SFB, where the NHOU is located, alluvium accumulated along the coalescing alluvial fans of ancestral Pacoima, Big Tujunga, Little Tujunga, and Verdugo creeks, which drain the metamorphic and granitic rock terrain of the San Gabriel Mountains. Extensive weathering took place during periods of reduced deposition, resulting in paleo-soil horizons with higher clay content. The older alluvium is poorly consolidated and only

locally cemented. The water-bearing characteristics of eastern SFB are considerably greater than those of western SFB, where the alluvium derives from the finer-grained sedimentary rocks of the surrounding hills.

Holocene alluvium up to approximately 100 feet thick overlies the older alluvium. It is generally unsaturated in the NHOU area where depths to groundwater typically exceed 200 feet.

Several faults influence the occurrence and flow of SFB groundwater. The Verdugo Fault follows San Fernando Road immediately northeast of the NHOU.

A pre-development map of SFB presented in the Report of Referee (California State Water Rights Board, 1962) shows a distributary network of washes originating from the Tujunga and Pacoima drainages that deposit predominantly coarse-grained sediment from the San Gabriel Mountains in coalescing alluvial fans across the eastern half of SFB. These deposits converge with Los Angeles River alluvium in southeastern SFB. Sediments west of these fans tend to be finer-grained.

Since the 1980s, hydrogeologic investigations have been driven by the detection of contaminants in SFB groundwater. The SFV basinwide Remedial Investigation (RI) constructed numerous monitoring wells and generated a series of 10 cross sections that showed a maximum alluvial thickness of about 1,200 feet in the NHOU area (JMM, LADWP, and USEPA, 1992).

The hydrogeologic conceptual model established to support groundwater modeling for the San Fernando Basin Feasibility Study (SFBFS) subdivided the alluvial hydrostratigraphy into four depth regions (CH2M HILL, 1994). The depth regions were separated along relatively fine-grained zones interpreted in part from depth intervals least likely to be targeted by well perforations and screens. Figure A-1 shows profiles of the average incidence of well perforations and screens with depth for seven wellfield groups in the eastern SFB. Depth region boundaries were interpolated on and between these profiles and various interpreted cross sections in order to define four layers in a basinwide numerical groundwater flow model. Figures A-2a through A-2d are contour maps of the bottom elevation of each depth region (i.e., model layer) in the NHOU area. Figures A-3a through A-3d are isopach maps of depth-region thickness. In the NHOU area, Depth Region 1 typically consists of about 200 feet or more of vadose zone and 100 feet or less of saturated zone below the water table. The oldest production wells and shallowest monitoring wells are perforated in this zone. Depth Region 2 ranges between about 100 and 150 feet thick across most of the NHOU area and contains one or more productive zones screened by most production wells. Depth Region 3 is between 200 and 300 ft thick and contains several zones targeted by deep production wells. Depth Region 4 is 200 to 600 ft thick, screened by few wells, and extends to the interpreted base of water-bearing basin deposits.

Within each depth region, the SFBFS conceptual model inferred a distribution of channel alluvium and proximal, medial, distal, and outer alluvial fan deposits. The proximal fan deposits emerge directly from the tributary canyons. Although predominantly coarse grained, their permeability is moderated by poor sorting and clays from *in situ* weathering. Well-sorted and highly permeable sands and gravels are associated with the medial fan and channel deposits. Distal and outer fan deposits have relatively low-to-moderate permeabilities. This inferred lateral zonation of alluvial materials provided the basis for

zoning aquifer properties in the SFBFS groundwater flow model (CH2M HILL, 1994). Additionally, the SFBFS interpreted a zone that extended northwest from the Los Angeles River Narrows into the southern portion of the NHOU area where the tendency for relatively fine-grained deposits along the boundary between Depth Regions 1 and 2 is notably weak or absent.

A.3 HYDROSTRATIGRAPHIC ANALYSIS

This section evaluates the SFBFS hydrostratigraphic conceptualization for NHOU by analyzing 16 lithologic logs for the recently constructed monitoring wells (MWH, 2011), 46 other logs associated with monitoring and remediation, and driller logs and well completions for 89 NHOU-area production wells. Tables A-1 through A-4 list these wells.

Local groupings of 57 NHOU-area borings, logged to an average depth of approximately 400 feet (Table A-1) using the Unified Soil Classification System (USCS), average 50 to 65 percent clean sand and gravel, with the remaining depths consisting of varying amounts of sand, gravel, silt, and clay. Figure A-4 is a histogram of the thicknesses of individual lithologic intervals described in these logs. About 75 percent of all logged intervals are less than or equal to 20 feet thick. This high downhole lithologic variability provides minimal support for interpolating the alluvial stratigraphy between boring logs that are typically many hundreds to thousands of feet apart.

Figure 3-1 in the main body of this report presents seven geologic cross sections constructed from existing and new NHOU boring logs. Superimposed on these cross sections are the depth-region boundary elevations defined in the SFBFS-B groundwater model (USEPA, 2009). Because of the detailed variability of the logs, it is difficult to confirm the suitability of the depth-region boundaries through inspection of these cross sections.

One alternative approach for evaluating large-scale hydrostratigraphic structures is to classify the lithology using binary indicators representative of aquifer versus aquitard characteristics. This method is illustrated schematically in Figure A-5, which shows a vertical profile of the mean aquifer-versus-aquitard indicator for a series of stacked search planes oriented along the predominant stratigraphic plane. The series of search planes, defined by dip, dip direction, and downhole discretization (e.g., 1 foot), intercept logs discretized with binary values representative of aquifer (indicator = 1) versus aquitard (indicator = 0) conditions. The mean value of indicators intercepted by each search plane is plotted relative to the search-plane elevation projected to a selected reference point. In the schematic illustration, the hydrostratigraphy is subdivided into two depth regions, A and B, each centered about a corresponding aquifer zone. This approach has been published in refereed journals (e.g., Johnson, 1995) and has been used successfully in a variety of research and applied studies (Johnson, 1998).

The layering of the SFBFS groundwater model relied on a similar approach (Figure A-1). In that case, the incidence of production-well perforations and screens was used as a depth-specific indicator of aquifer versus aquitard characteristics (i.e., indicator = 1 if perforated or screened). The justification for this approach included (a) the limited number and distribution of geotechnical and geophysical logs throughout SFB and (b) the selective placement of perforations and screens across from aquifer zones, particularly by older production wells. The groundwater basin was subdivided into four depth regions based on subarea profiles of the frequency of wells screened or perforated with depth. These depth

regions were translated directly into the four layers of the SFBFS groundwater flow model (CH2M HILL, 1994). USEPA has maintained this layering scheme in updated versions of the model tailored for detailed application in the NHOU area. The most recent version of this model is referred to as SFBFS-B (CH2M HILL, 2009).

The remainder of this appendix uses the indicator approach illustrated in Figure A-5 to evaluate the SFBFS hydrostratigraphic conceptual model in the NHOU area. Indicators are averaged for a stacked series of search planes oriented along the approximate stratigraphic plane inferred from the slope of the local land surface. Using the present-day orientation of the land surface as an approximation of the stratigraphic plane is justified by the similarity of the ancestral geomorphology, as described in Section A-2. Vertical profiles are constructed by projecting the mean aquifer-versus-aquitard indicator of each search plane to a corresponding elevation beneath a selected reference point near the center of the NHOU (Figure A-6). This analysis is performed in three-dimensional coordinates relative to sea level datum, whereas the profiles generated for the SFBFS conceptual model (Figure A-1) were relative to land-surface datum (i.e., depth below ground surface [bgs]).

Figure A-7 provides an illustration of the lithologic indicator approach used in this analysis. Shown are seven possible cutoffs among USCS lithologic descriptors, labeled A through G. For example, cutoff A distinguishes between pure clay and/or silt versus any other combination of sand, gravel, silt, and clay. Because the lithology is predominantly coarse grained, cutoff G, which distinguishes between clean sand and/or gravel versus all other textural combinations, provides the greatest articulation of the hydrostratigraphy and is used predominantly in this analysis.

The inspection and correlation of geophysical logs provides an additional approach for partitioning the stratigraphy. The distinctive inflection of marker beds seen in these logs can be used to help verify hydrostratigraphic correlations among the profiles of average lithology and well completion. Additional analysis using geophysical logs has also verified the overall correlation of the depth regions.

A.3.1 Vertical Profiles of Mean USCS Lithologic Indicator

Figure A-6 is a map of the NHOU area showing the location of 57 geotechnical lithologic logs coded with USCS descriptors (Table A-1), including 16 logs for the recently installed monitoring wells (MWH, 2011). These logs are grouped into four subareas for statistical analysis: (A) central (25 logs), (B) northern (12 logs), (C) southern (8 logs), and (D) southeastern (9 logs). Profiles constructed from these local groupings help identify common hydrostratigraphic patterns despite variations in the thicknesses of each hydrostratigraphic zone across NHOU. However, each grouping needs to be large enough to encompass a reasonable number of logs. Each profile shows the approximate SFBFS depth-region boundaries for the subarea projected to a corresponding elevation at the reference point (Figure A-6).

Figure A-8a is a vertical lithologic indicator profile for the 25 closely spaced logs in central subarea A. It shows an approximate 25-foot thick interval of finer-grained tendency along the boundary between Depth Regions 1 and 2 of the SFBFS conceptual model. Within this interval, approximately 50 percent of the logs indicate clean sand and gravel, whereas about 80 percent of the logs indicate clean sand and gravel within most intervals above and below this zone. Few of these wells extend deeper than the uppermost portion of Depth Region 2.

Figure A-8b is a lithologic indicator profile for 12 logs in northern subarea B (Figure A-6). Inflections between relatively fine- versus coarse-grained texture are roughly similar to the subarea A profile (Figure A-8a) and are consistent with the conceptual model depth regions. Compared to profiles for the other study subareas, this profile contains a higher amount of pure silt and clay (17 percent) and represents only 50 percent clean sand and gravel overall. This finding is consistent with an interpretation of less sorting and more clay from in-place weathering in the proximal fan area. The coarse-grained signature of Depth Region 2 is more evident using indicator cutoff D than cutoff G (see Figure A-7).

The indicator profile in Figure A-8c is constructed from eight relatively shallow boring logs in southern subarea C. As with several of the other profiles, the coarse-grained nature of Depth Region 2 is most prominent within the upper portion of this zone.

Figure A-8d is an indicator profile for nine logs in southeastern subarea D in the vicinity of the Erwin and Whitnall Well Fields. Close inspection of this profile indicates features in common with the other profiles, e.g., the aquitard zone that generally occurs between Depth Regions 1 and 2 and the coarse-grained zone near the top of Depth Region 2.

A MWH Americas, Inc. geologist who logged two of the new monitoring wells, NH-C18 in subarea C and NH-C20 in subarea A, noted a distinct change in drilling resistance and lithology that corresponded closely to the relatively fine-grained zone occurring along the Depth Region 1-2 boundary within each of these subareas. This horizon may represent pronounced weathering along a paleo-ground surface, such as described in Section A-2.

A.3.2 Lithologic Indicator Vertical Profiles of Wells Not Logged by USCS

Figure A-9 shows the location of 34 production wells with available driller logs. These lithologic descriptions are potentially less precise and consistent than USCS logs. Nevertheless, reasonable results were obtained by assigning approximate USCS descriptors to these logs. These logs are grouped into four subareas: (E) north, (F) west, (G) south, and (H) southeast.

Figure A-10a is an indicator profile constructed from 19 logs, primarily for the Rinaldi-Toluca well field. In this profile, Depth Region 2 and the upper portion of Depth Region 3 are fairly uniformly coarse-grained.

The profiles in Figures A-10b and A-10c reflect three to five drillers' logs from the western and eastern portions of the North Hollywood Well Field, respectively. Despite the small number of logs upon which these profiles are based, they exhibit hydrostratigraphic aspects consistent with the other profiles. The profile constructed from eight logs from the Whitnall and southern North Hollywood Well Fields (Figure A-10d) also exhibits consistent features.

A.3.3 Vertical Profiles of Production Well Screened and/or Perforated Intervals

The profiles of production-well perforated and screened intervals presented in the SFBFS conceptual model (CH2M HILL, 1994) have been recalculated using the approach described here for the five wellfield groupings shown in Figure A-11.

Figures A-12a and A-12b represent the screened intervals of the Tujunga and Rinaldi-Toluca well fields, respectively. These wells are screened entirely in Depth Regions 2 and 3. The placement of well screens is generally consistent with the most coarse-grained zones evident in the lithologic indicator profiles.

Figures A-12c, A-12d, and A-12e reflect the screened and/or perforated intervals of wells in the western and eastern portions of the North Hollywood Well Field and the Erwin and Whitnall Well Fields. These profiles are remarkably consistent with many of the hydrostratigraphic features observed in the lithologic indicator profiles. Many of the older production wells were completed in Depth Regions 1 and 2, and thus, are now inactive or destroyed due to groundwater contamination relatively prevalent in these zones.

Figure A-12f shows the occurrence of screened intervals among the NHOU remedial extraction wells. The screened interval of NHE-6 includes the upper portion of Depth Region 2, whereas all of the other NHE wells are screened entirely within Depth Region 1.

A.3.4 Vertical Profiles of Monitoring Well Screened Intervals

Figures A-13a through A-13e are profiles showing the occurrence of screened intervals in 60 NHOU-area monitoring wells (Table A-4) relative to the elevation of SFBFS depth region boundaries in central NHOU subarea A (Figure A-6). As shown, these wells monitor discrete intervals throughout all four depth regions.

A.4 CONCLUSIONS

The analyses presented above using lithologic descriptions (Figures A-8 and A-10) are generally consistent with the vertical subdivision of NHOU hydrostratigraphy into four depth regions as conceptualized previously for the SFBFS (CH2M HILL, 1994). The boundaries between depth regions tend to bisect relatively fine-grained zones. As indicated in the profiles, however, as many as half of the logs may exhibit clean sand and gravel within these intervals. Furthermore, comparison of the profiles to local values of model-calibrated hydraulic conductivity for each depth region suggest that the indicator profiles should not be overly interpreted in terms of inferred permeability. Lastly, the inspection and correlation of selected geophysical logs provided additional verification of this analysis.

This analysis also may be used to consider and support further hydrostratigraphic subdivision of the SFBFS-B groundwater model layers. A discrete aquitard zone could be inserted between Depth Regions 1 and 2, as opposed to the leakance term presently modeled along this boundary. Additionally, Depth Regions 2 and 3 each could be subdivided into additional aquifer zones, corresponding to intervals of mostly clean sand and gravel and depths where production wells tend to be screened. The vertical subdivision of Depth Region 2 may be particularly warranted given the proposed deepening of some NHE remedial extraction wells into the upper portion of this depth region.

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FIGURES

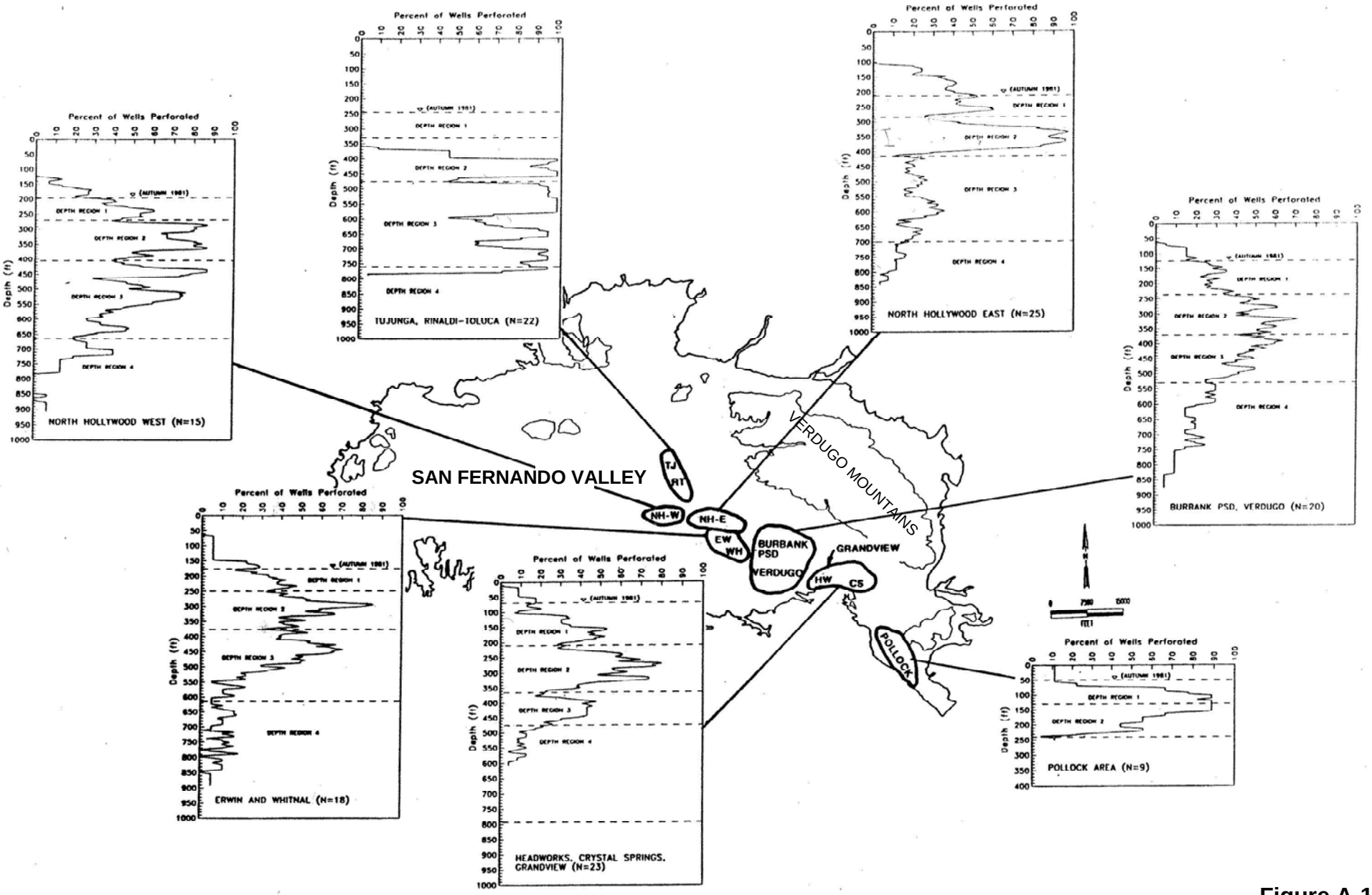


Figure A-1
Profiles of Wellfield Perforated and Screened Intervals Used to Infer Hydrostratigraphic Depth Regions for Layering of the USEPA SFBFS Groundwater Flow Model

Source: CH2M HILL, 1994

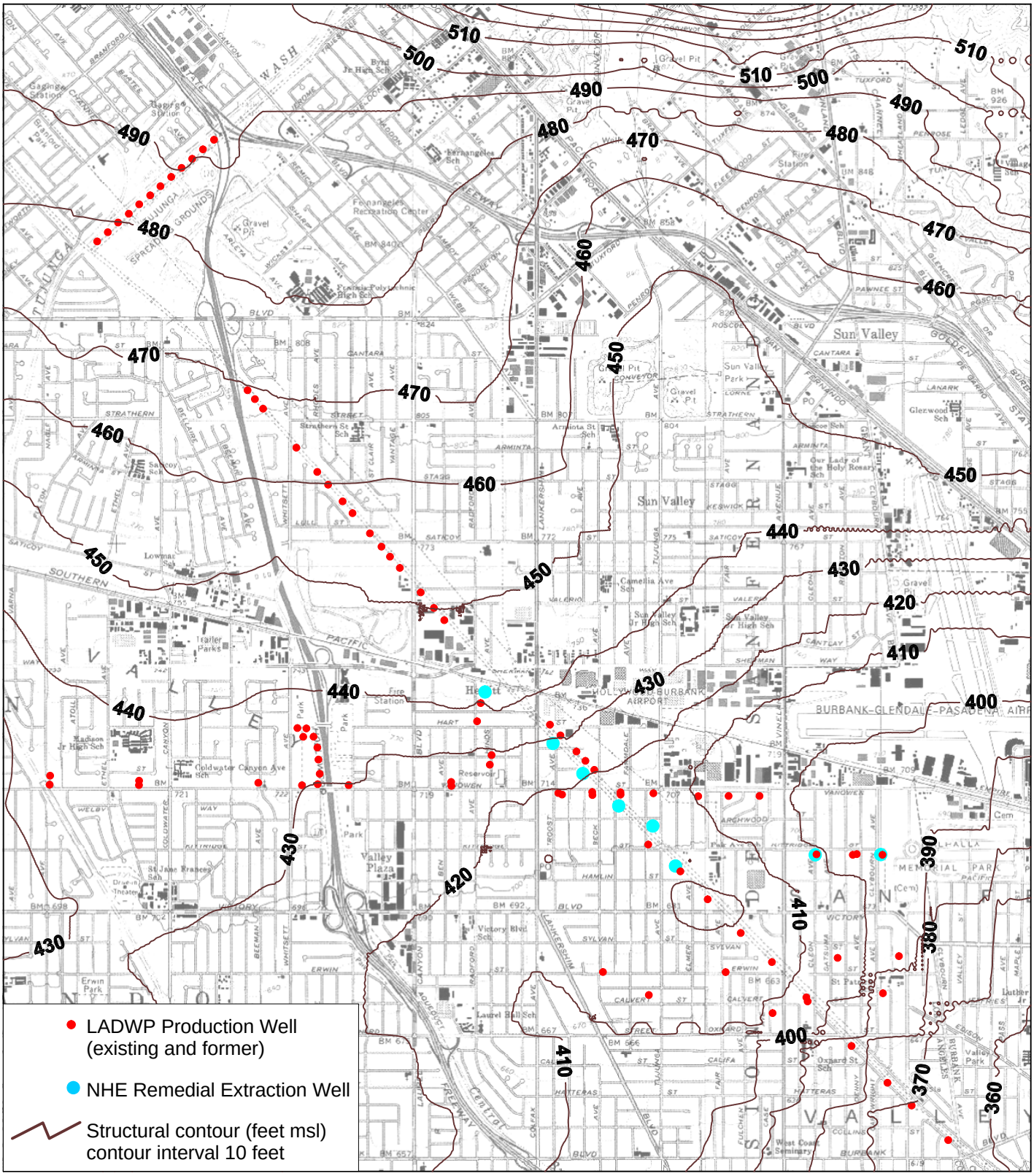


Figure A-2a
SFBFS Depth Region 1 Bottom Elevation
(bottom of SFBFS-B model layer 1)

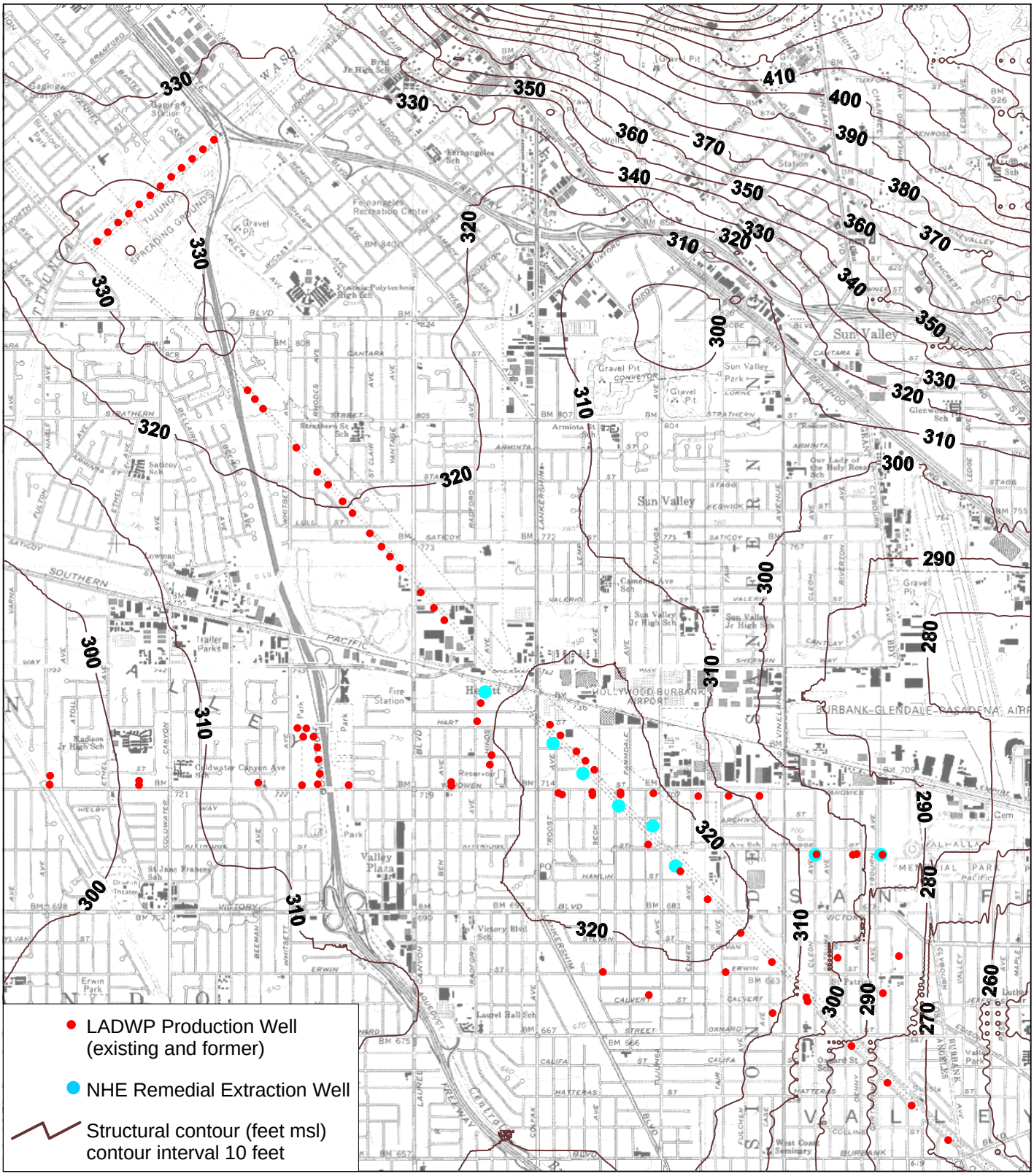
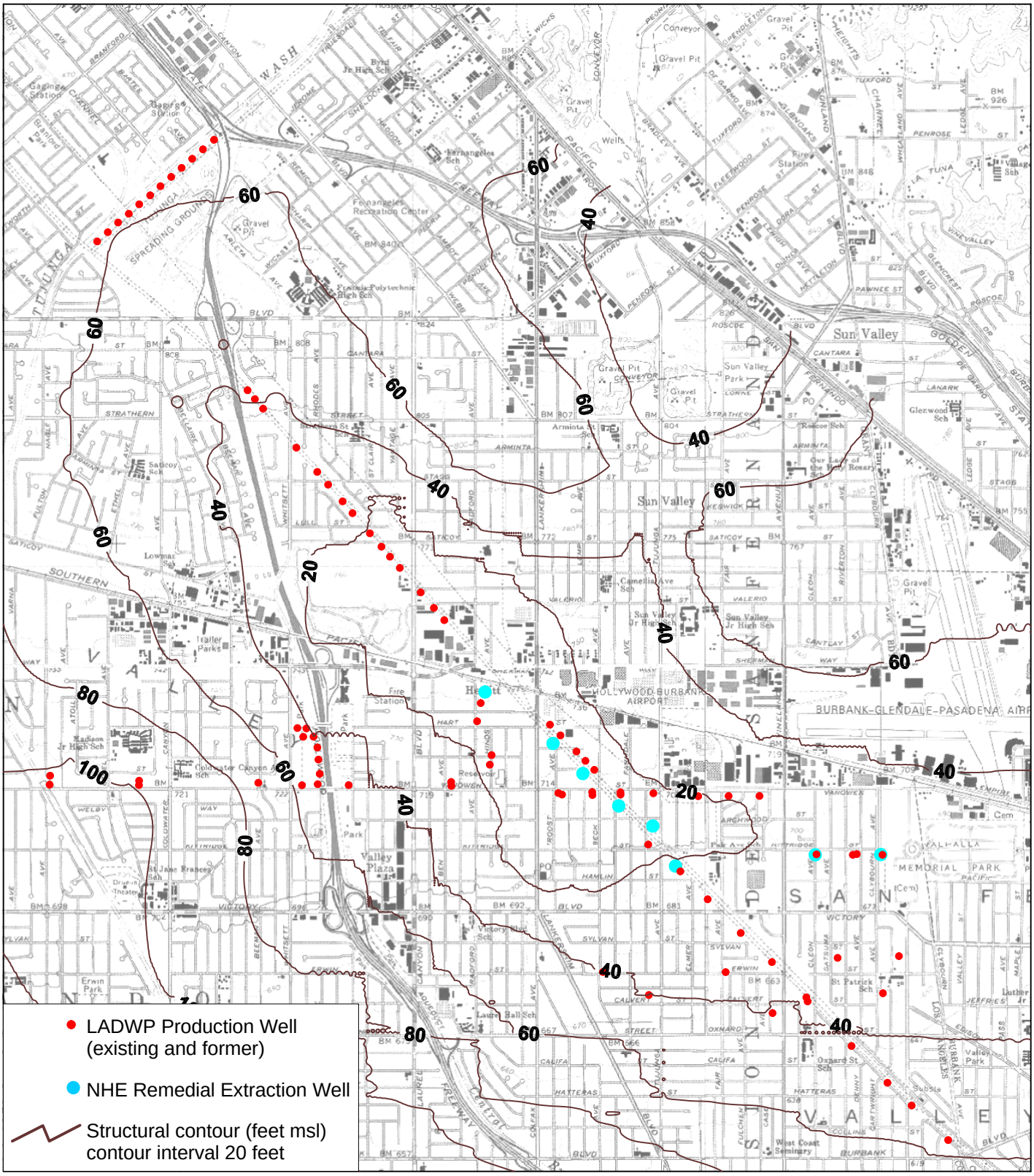


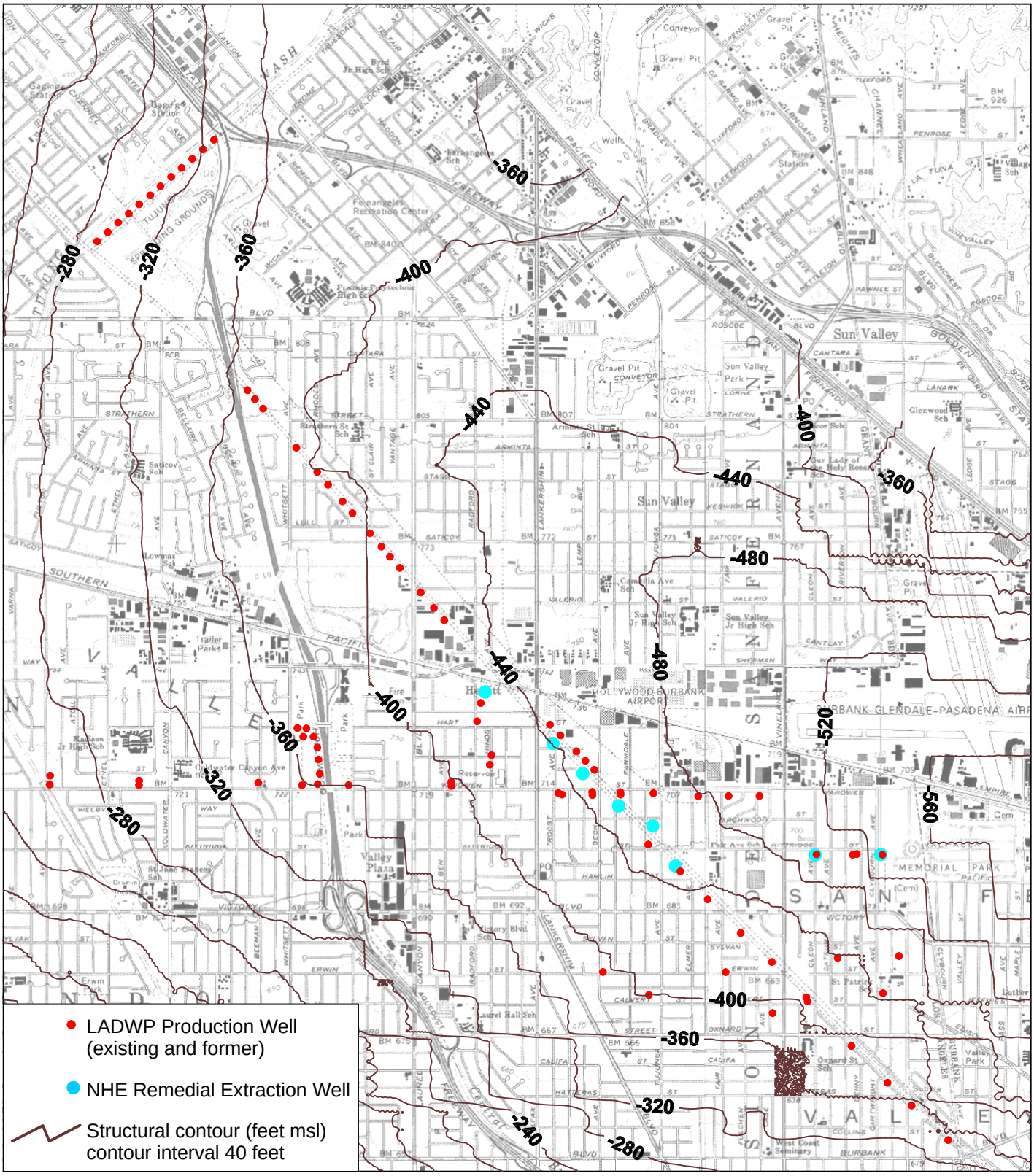
Figure A-2b
SFBFS Depth Region 2 Bottom Elevation
(bottom of SFBFS-B model layer 2)



N

0 0.5 1
MILES

Figure A-2c
SFBFS Depth Region 3 Bottom Elevation
(bottom of SFBFS-B model layer 3)



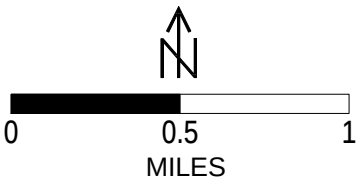
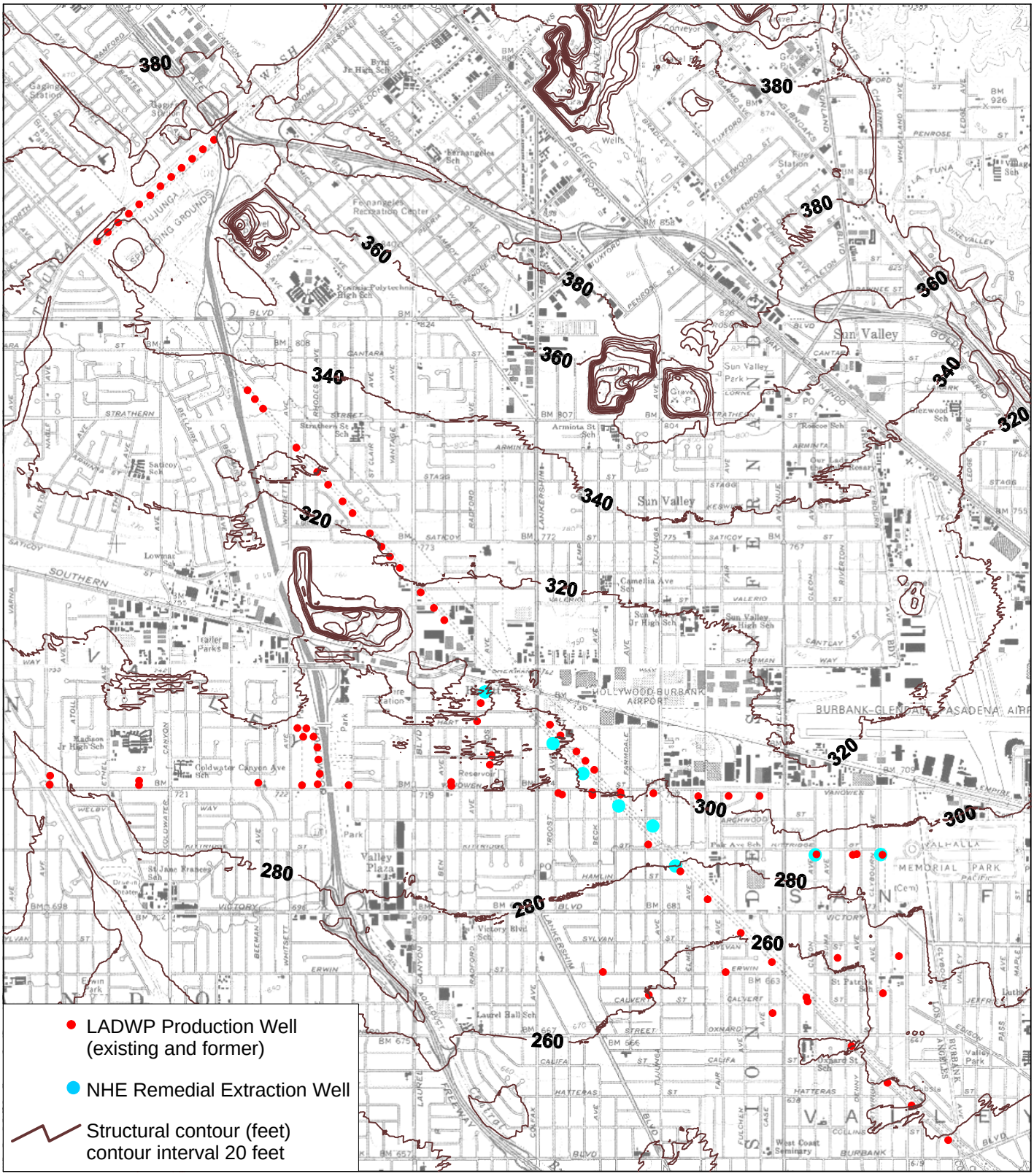


Figure A-2d
SFBFS Depth Region 4 Bottom Elevation
(bottom of SFBFS-B model layer 4)



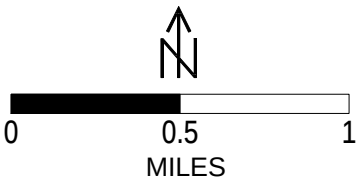
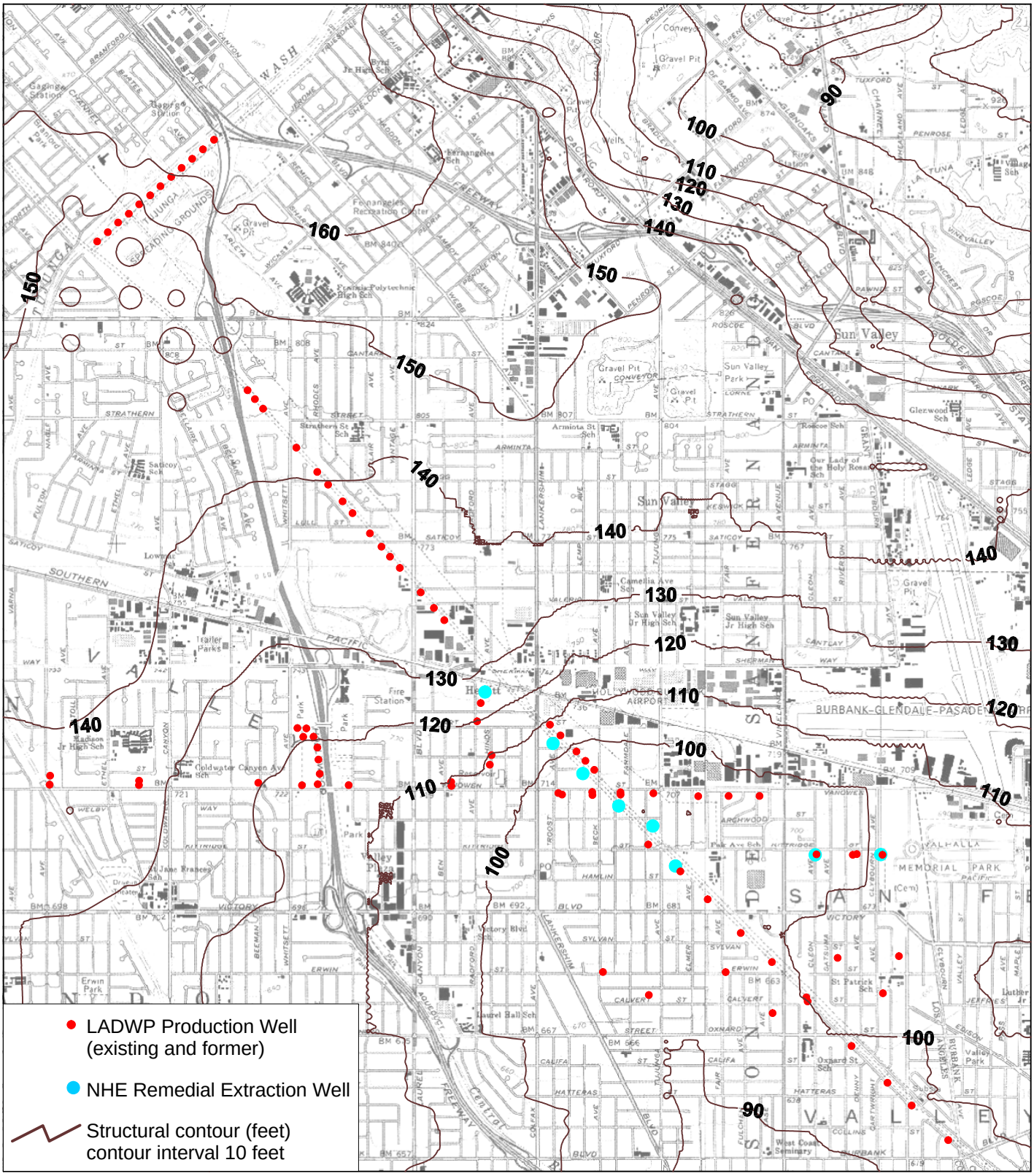


Figure A-3a
SFBFS Depth Region 1 Thickness
(includes vadose zone; thickness of SFBFS-B model layer 1)



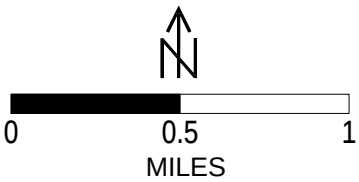


Figure A-3b
SFBFS Depth Region 2 Thickness
(thickness of SFBFS-B model layer 2)

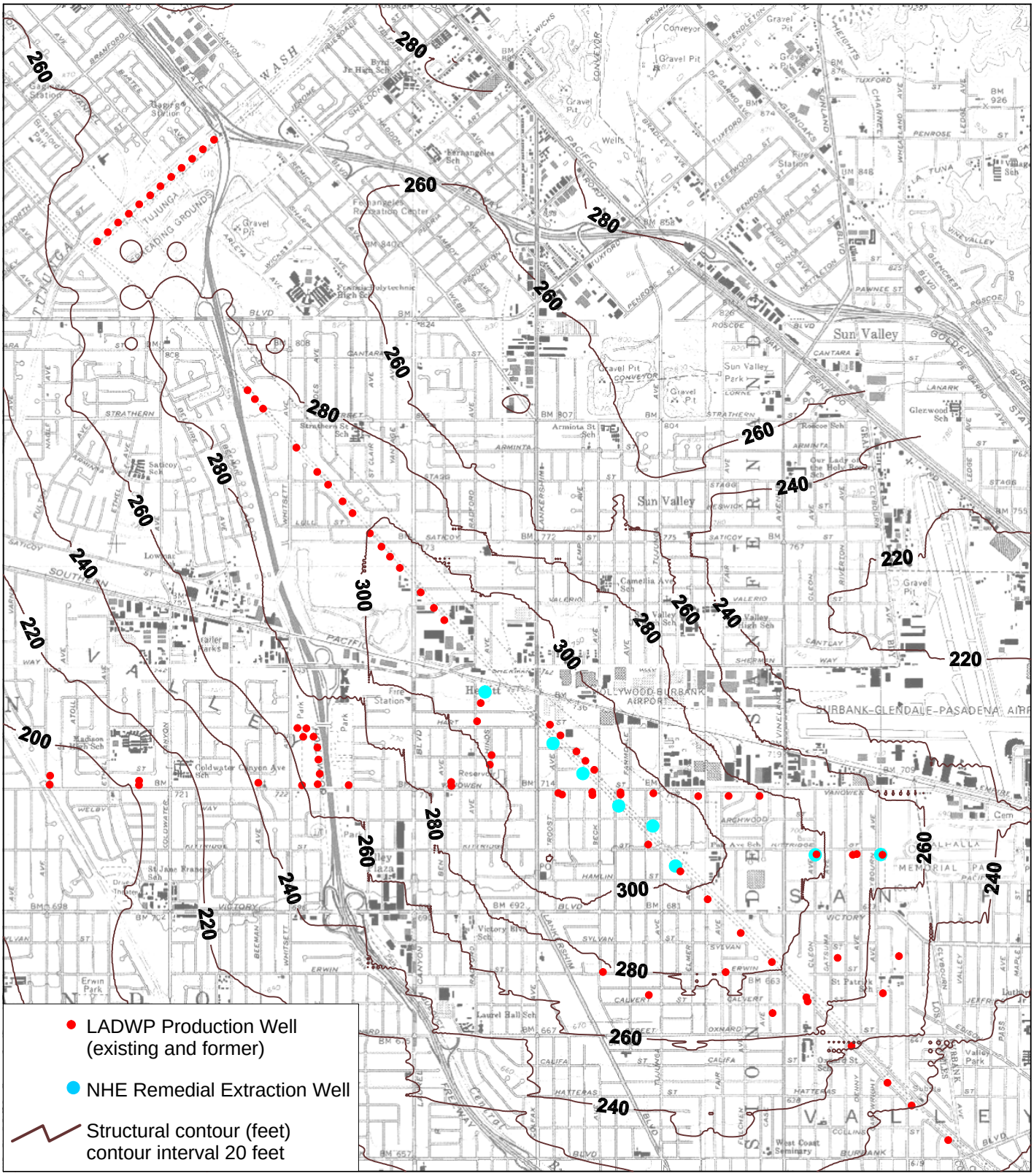
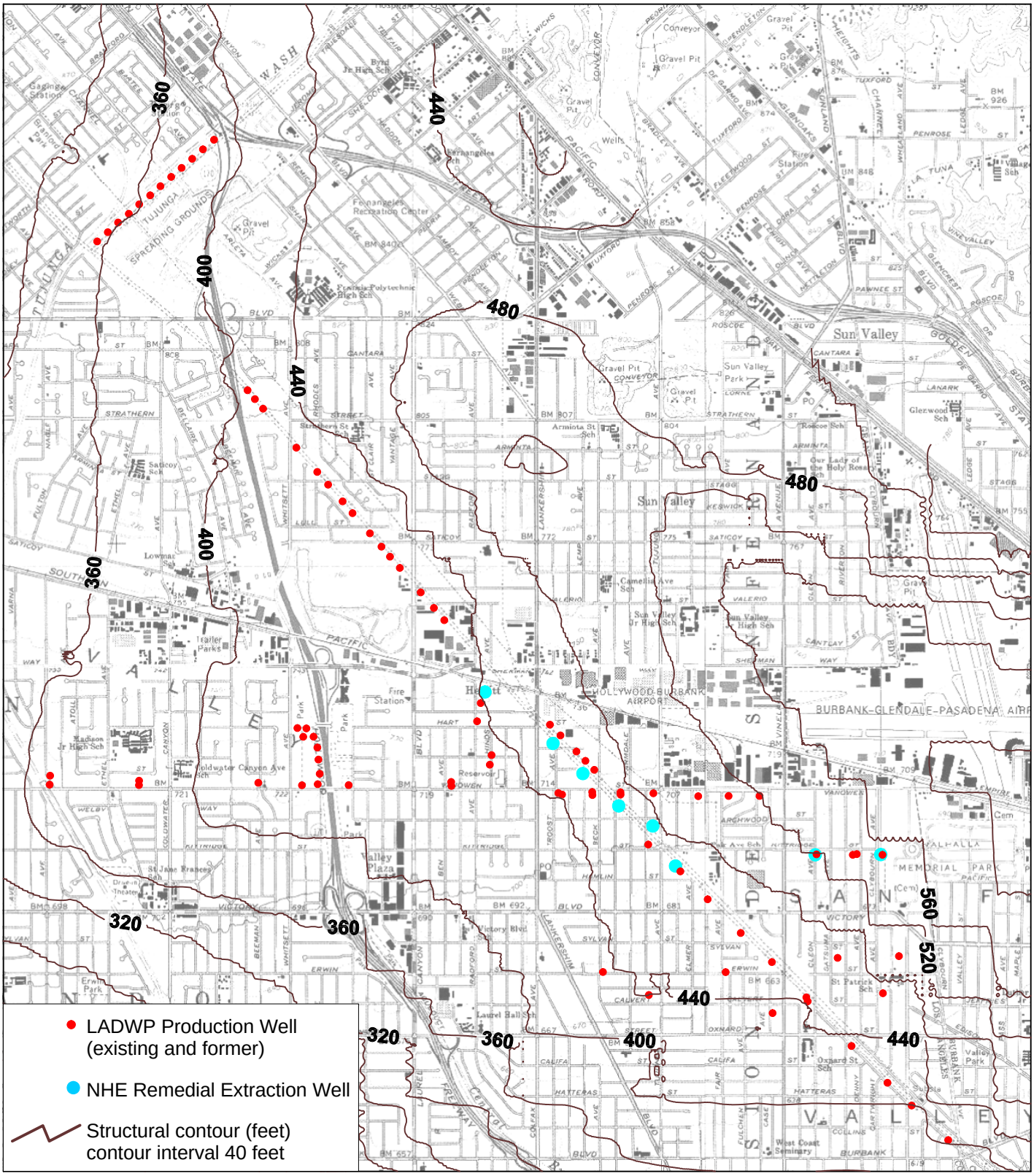


Figure A-3c
SFBFS Depth Region 3 Thickness
(thickness of SFBFS-B model layer 3)



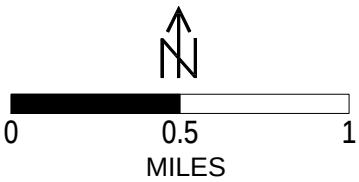
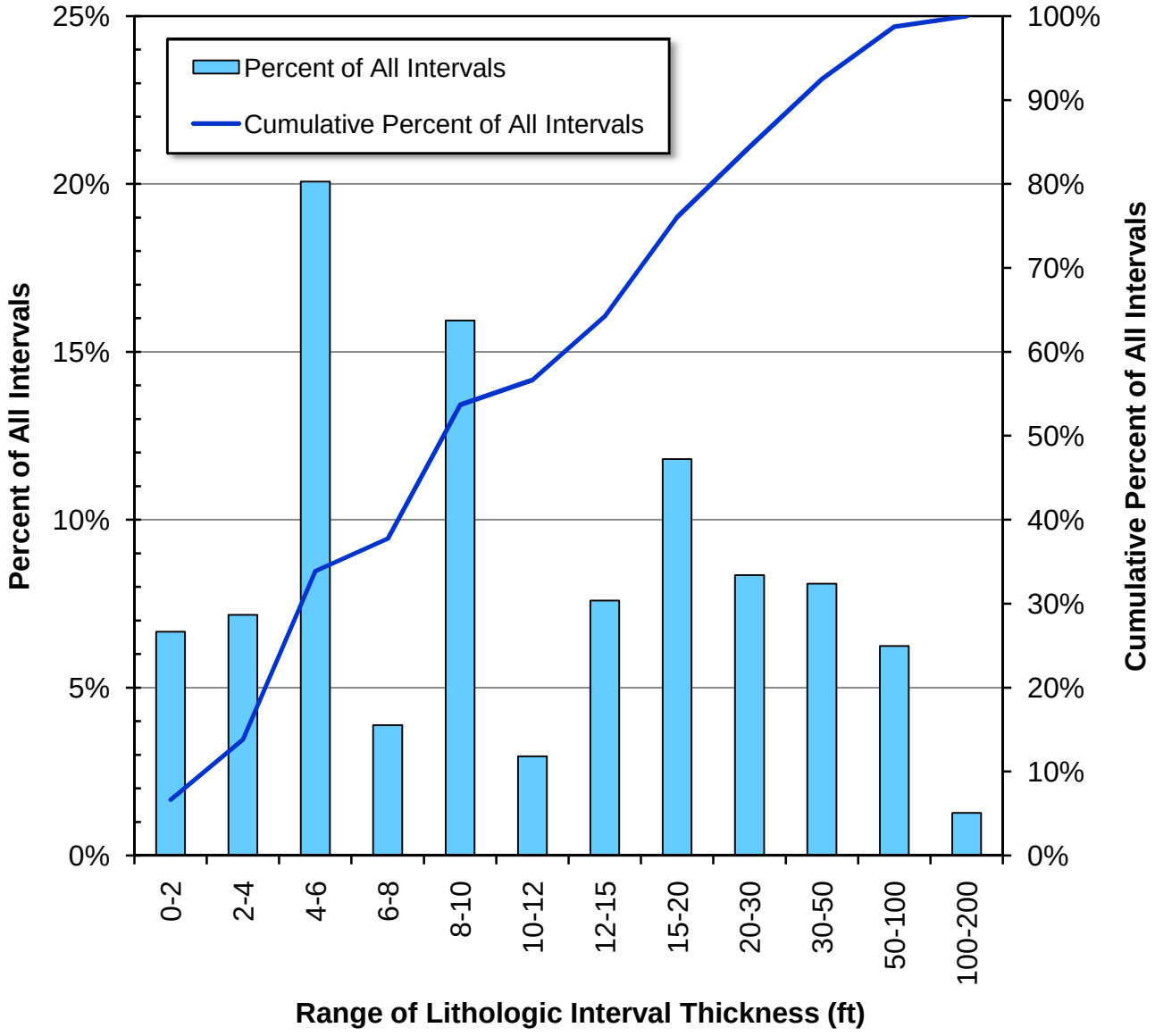
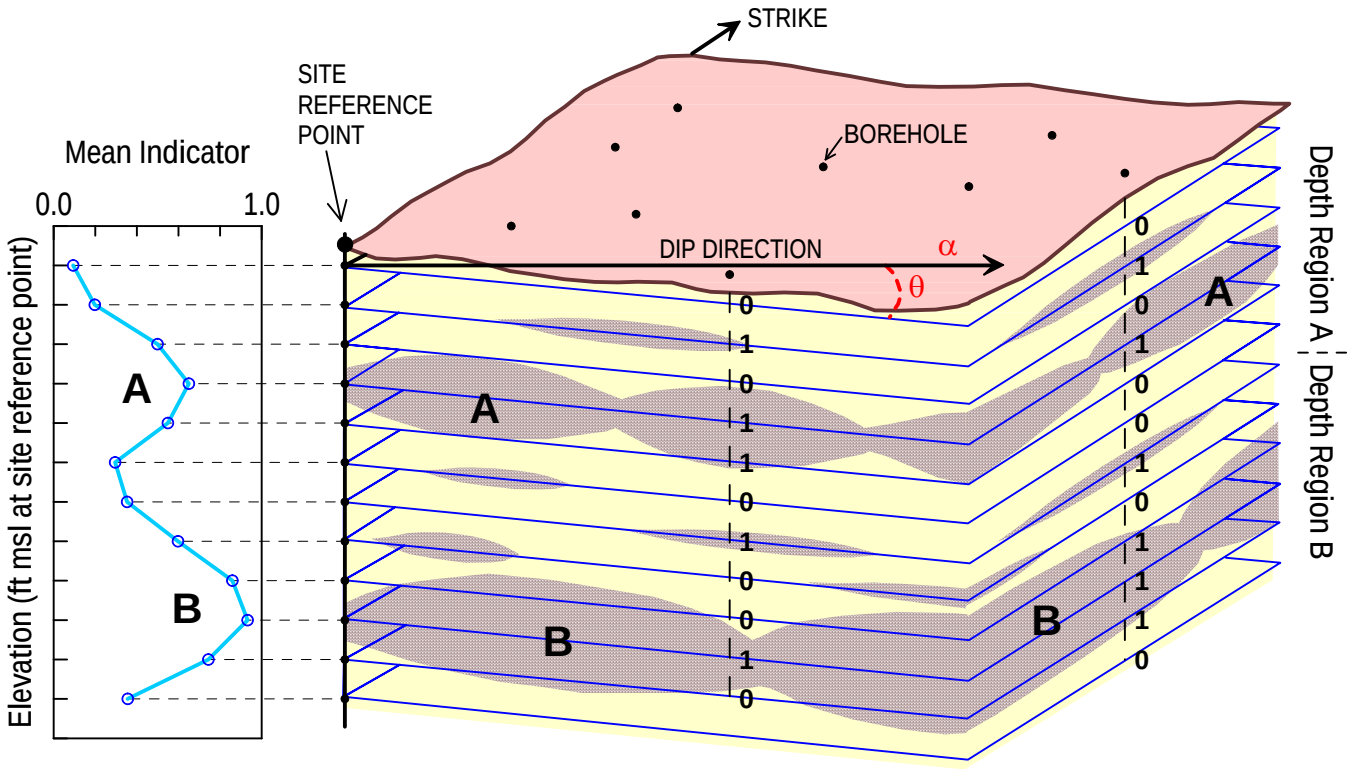


Figure A-3d
SFBFS Depth Region 4 Thickness
(thickness of SFBFS-B model layer 4)



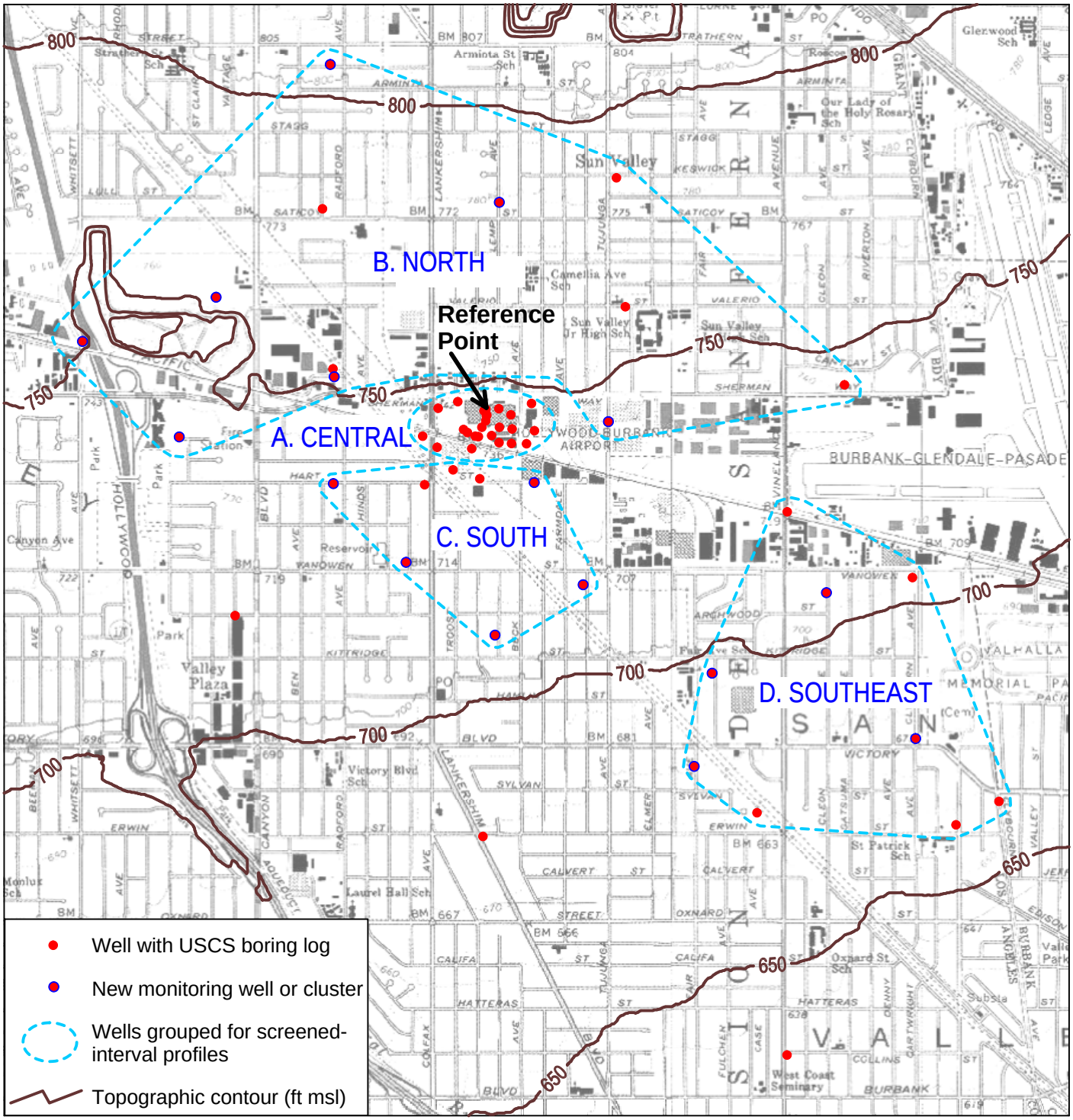
Source: 57 NHOU-area borings logged with USCS descriptors.

Figure A-4
Frequency of Boring Log Lithologic Interval Thicknesses



Boring logs are discretized with values of 1 and 0 representative of aquifer versus aquitard characteristics, respectively. The indicator mean of each planar subset is projected to the elevation of the search plane beneath a selected reference point. The series of search planes is defined by dip direction α, dip angle θ, and the vertical spacing of downhole discretization. Depth regions A and B are centered about schematic coarse-grained zones A and B (modified after Johnson, 1995).

Figure A-5
Schematic Vertical Profile of Mean Lithologic Indicator

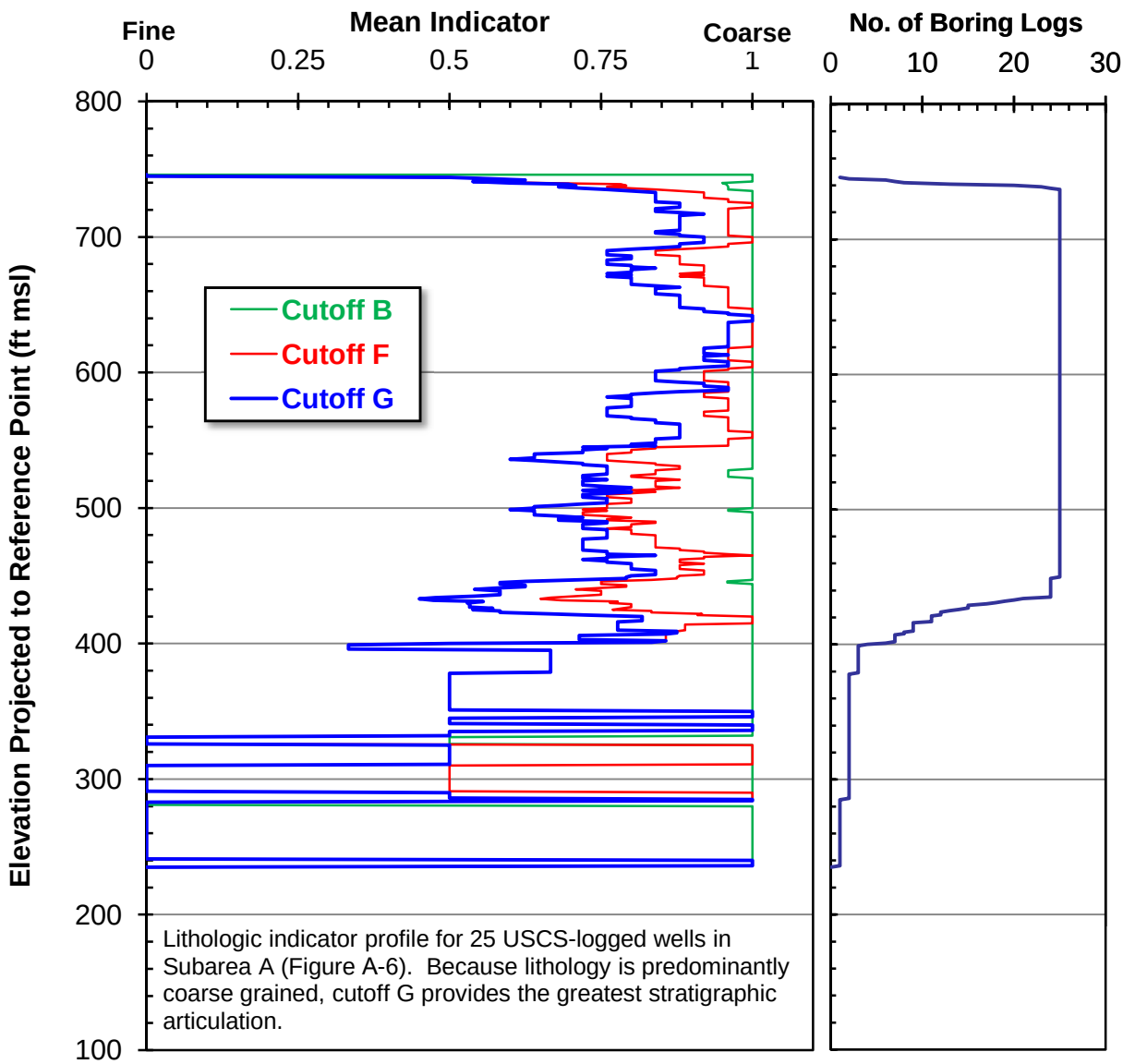


See Table A-1 for the list of wells in each subarea.

N

0 2000 4000
FEET

Figure A-6
USCS-Logged Wells Grouped for Lithologic-Indicator Profiles

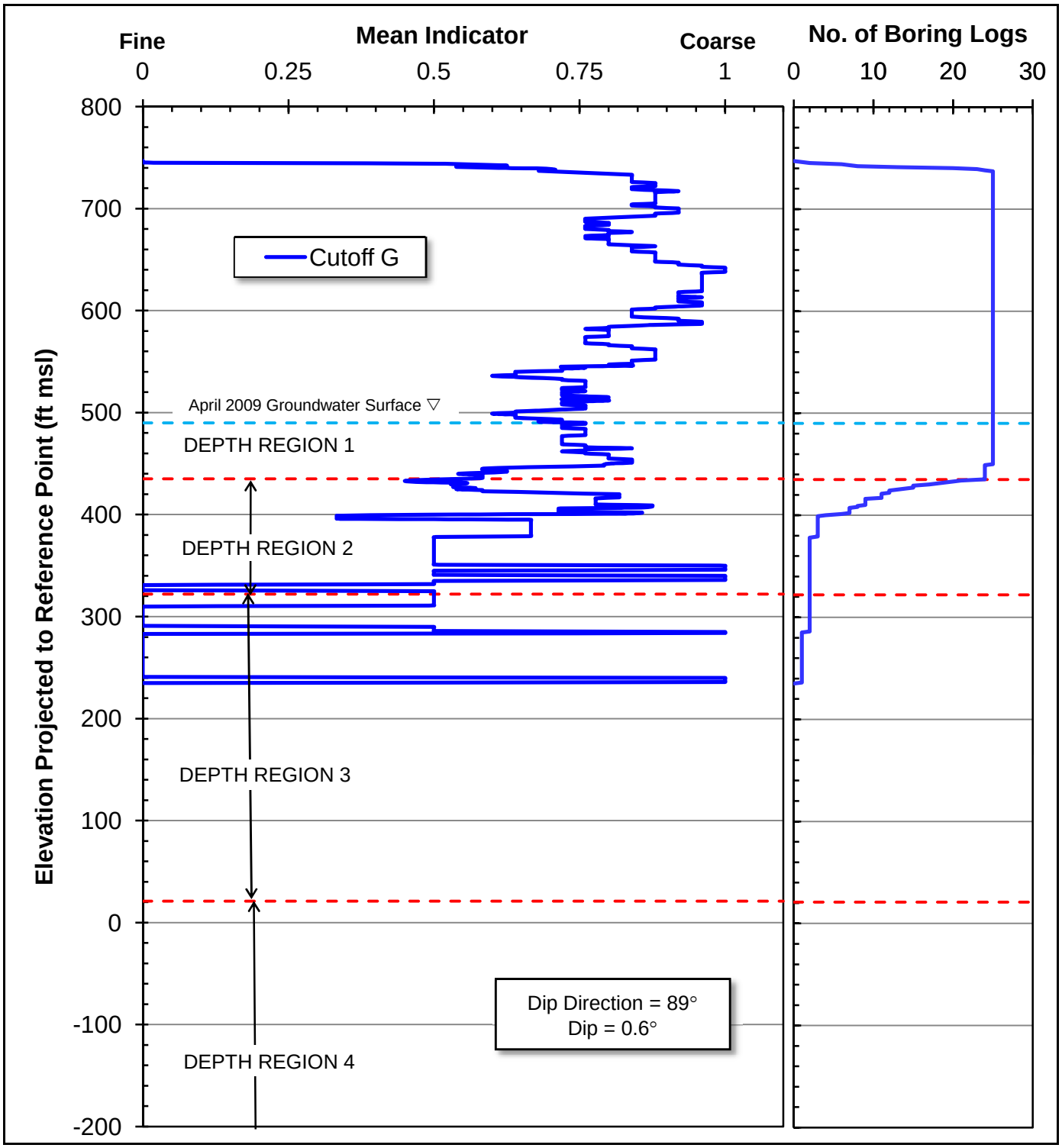


USCS Descriptions Used by 57 NHOU-Area Boring Logs							
0 ←							→ 1
Clay & Silt	Silt with Clayey Sand	Clayey Sand & Gravel Silt with Silty Sand	Silty & Clayey Sand & Gravel	Silty Sand & Gravel	Sand & Gravel with Clayey Sand & Gravel	Sand & Gravel with Silty Sand & Gravel	Sand & Gravel
CL	ML-SC	SC	SM-SC	SM	SP-SC	SP-GM	SP
ML		GC	GM-GC	GM	SW-SC	SP-SM	SW
CH-ML		ML-SM		SM-GM	GW-GC	SW-SM	GW
CL-ML					GW-SC	GW-GM	GP
					GW-GC	GP-SM	SW-SP
					GW-SC	GP-SM	GP-SP
							GW-SP
							GW-SW
	A	B	C	D	E	F	G
ALTERNATIVE INDICATOR CUTOFFS							

Each foot of boring log is assigned a value of 0 or 1 if lithologic descriptor is to the left or right, respectively, of a selected cutoff (USCS = Universal Soil Classification System).

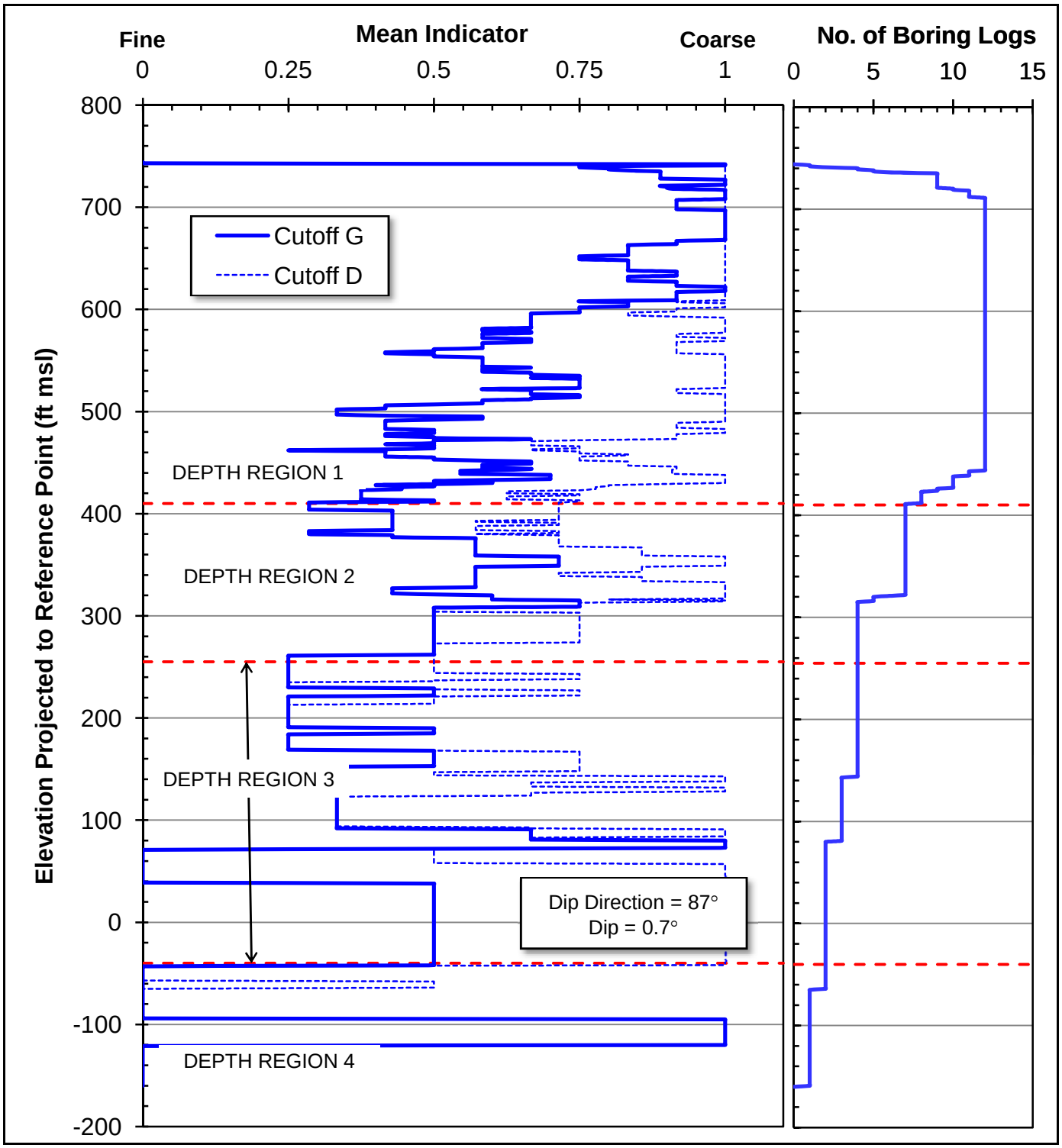
Figure A-7

Explanation of Lithologic Indicator Approach



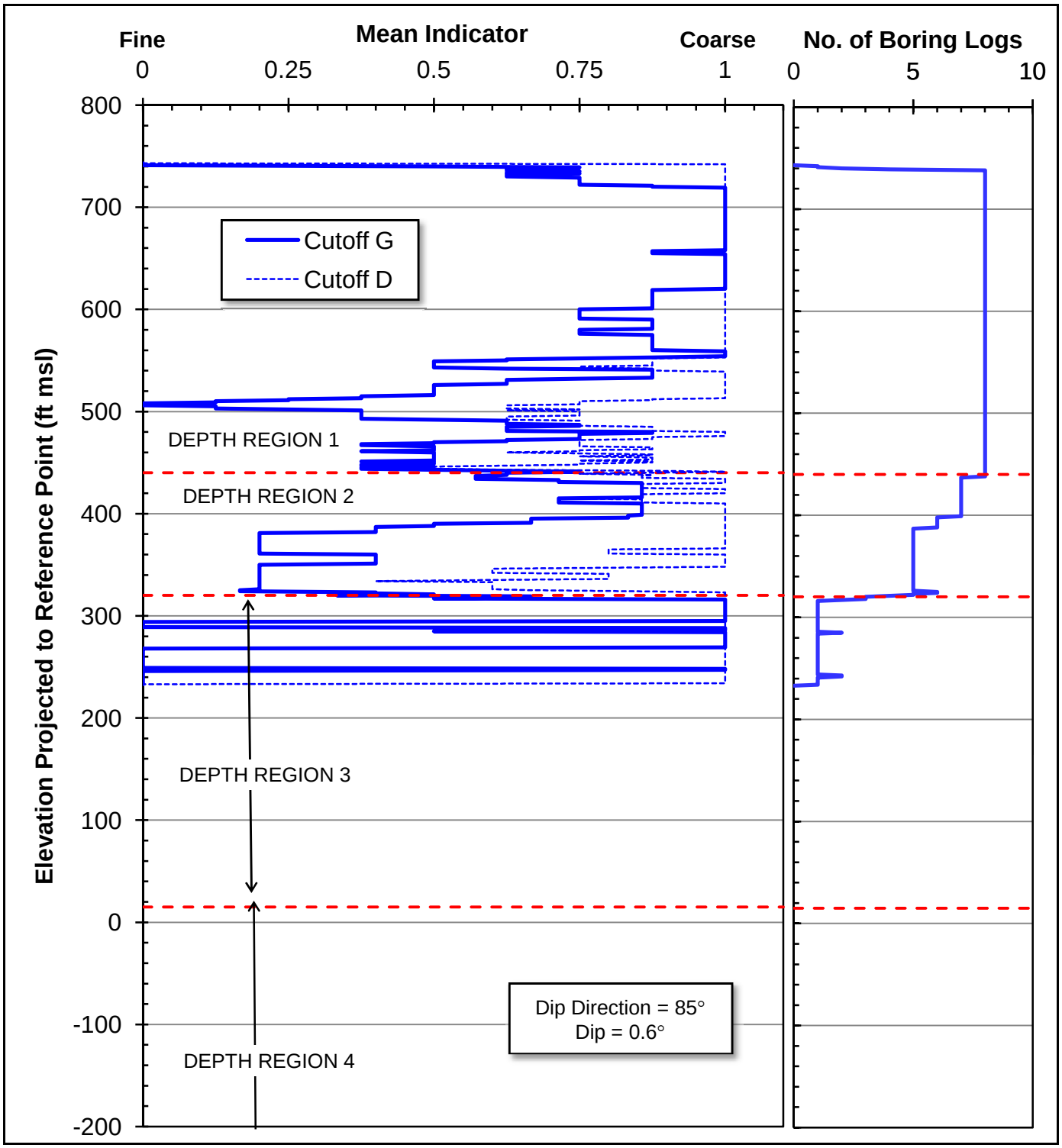
Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-6 for location of grouped logs and reference point.

Figure A-8a
Vertical Profiles of Mean USCS Lithologic Indicator
Subarea A: Central (25 logs)



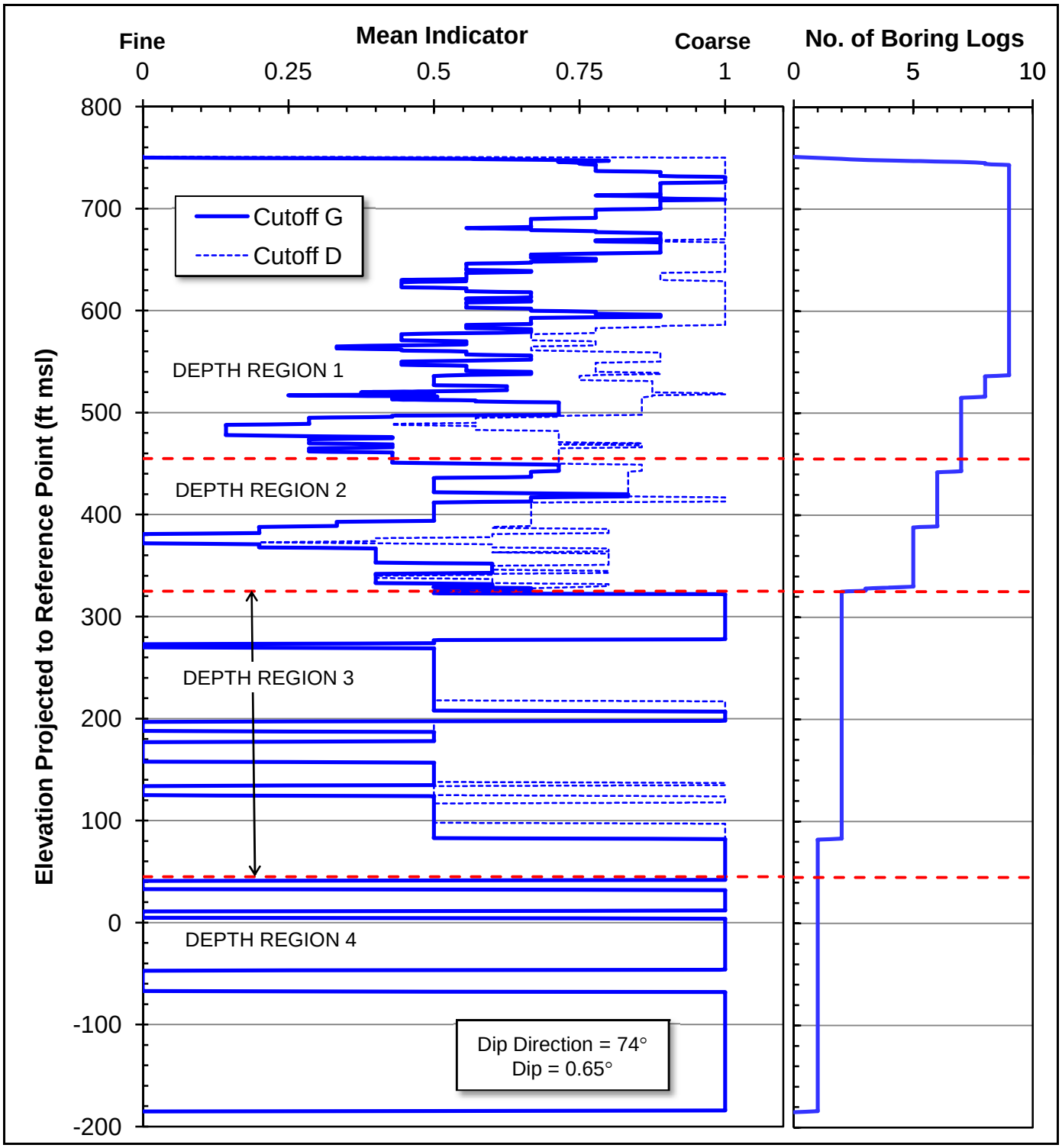
Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-6 for location of grouped logs and reference point.

Figure A-8b
Vertical Profiles of Mean USCS Lithologic Indicator
Subarea B: North (12 logs)



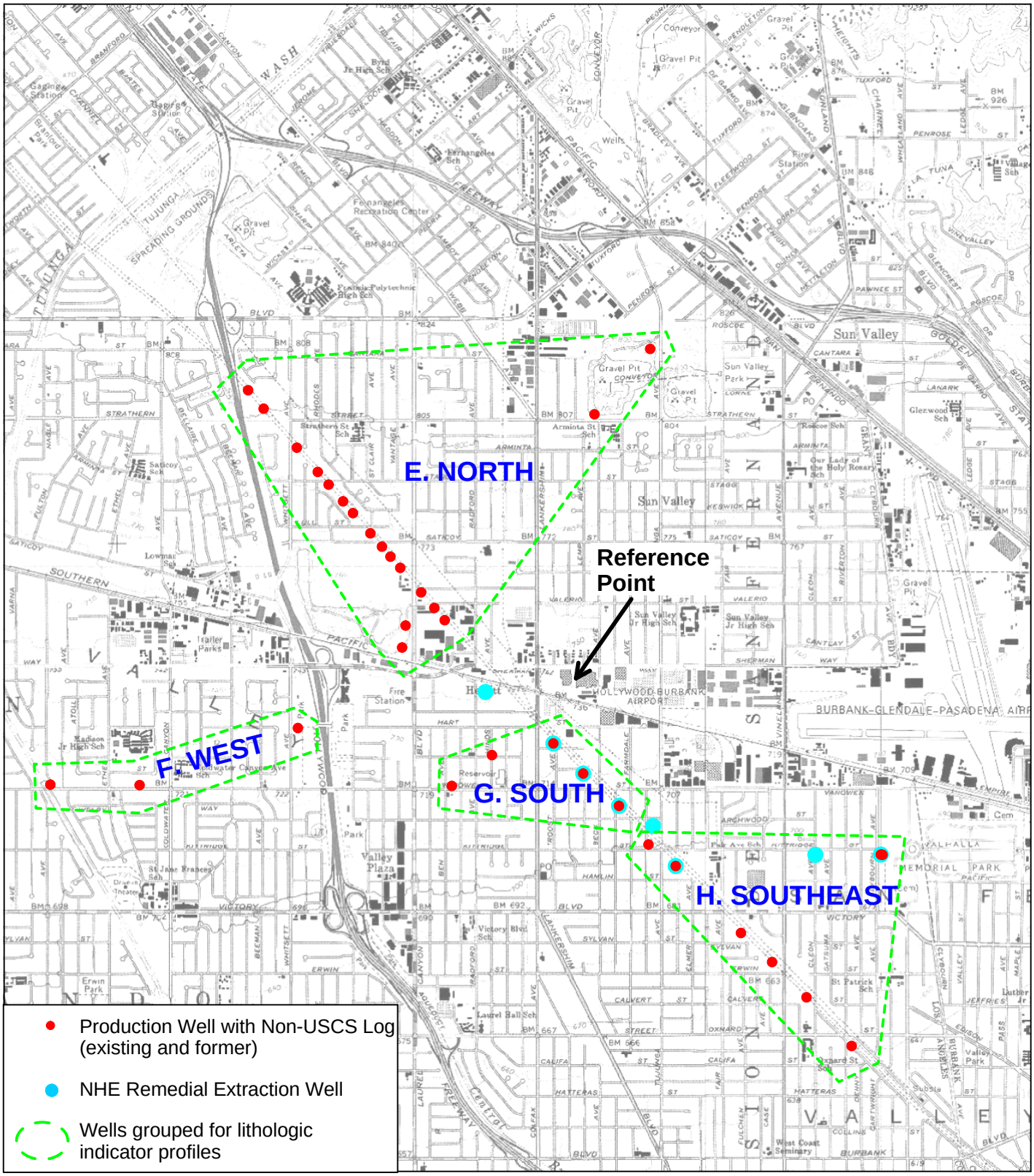
Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-6 for location of grouped logs and reference point.

Figure A-8c
Vertical Profiles of Mean USCS Lithologic Indicator
Subarea C: South (8 logs)



Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-6 for location of grouped logs and reference point.

Figure A-8d
Vertical Profiles of Mean USCS Lithologic Indicator
Subarea D: Southeast (9 logs)

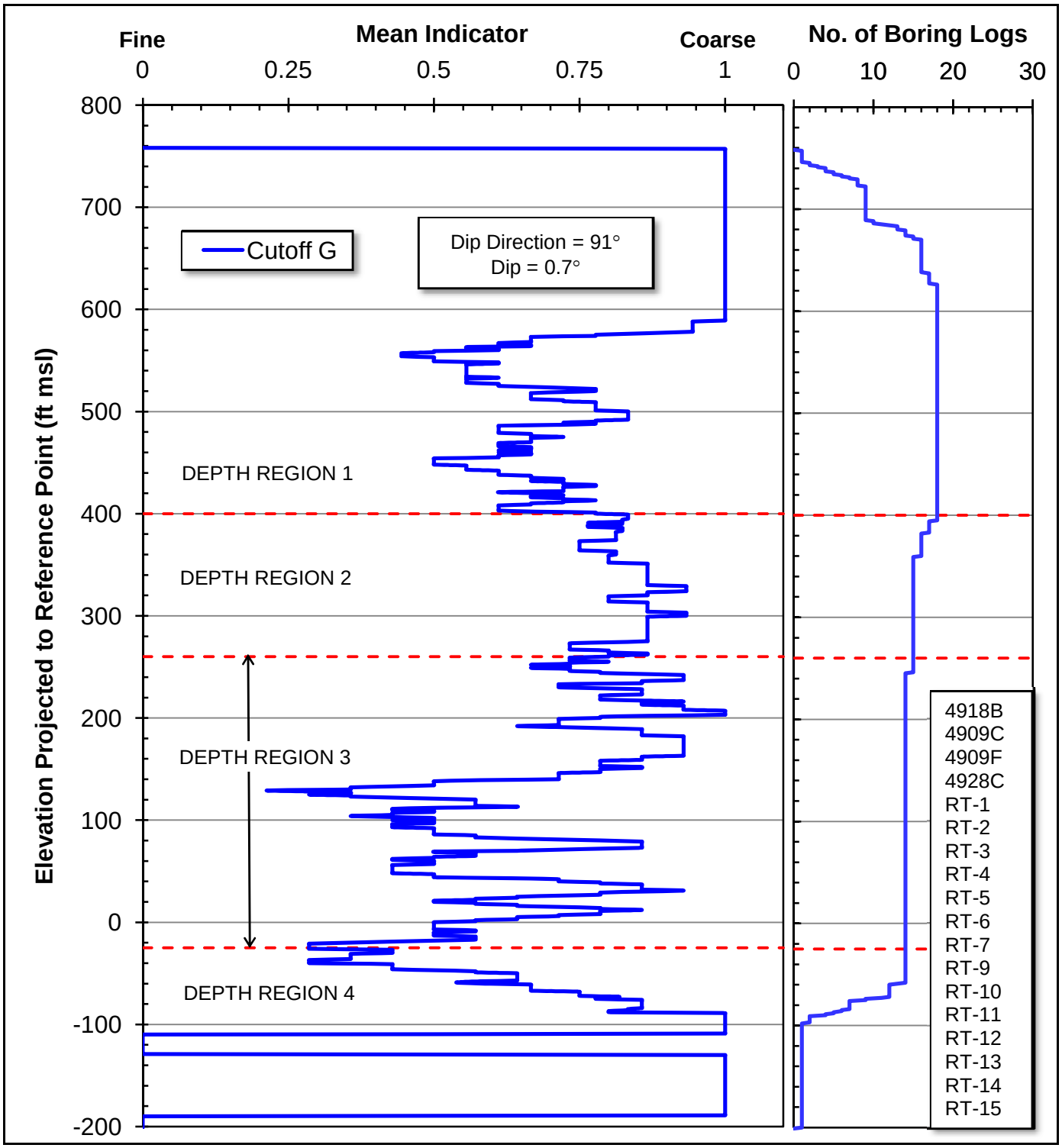


See Table A-2 for the list of wells in each subarea.

N

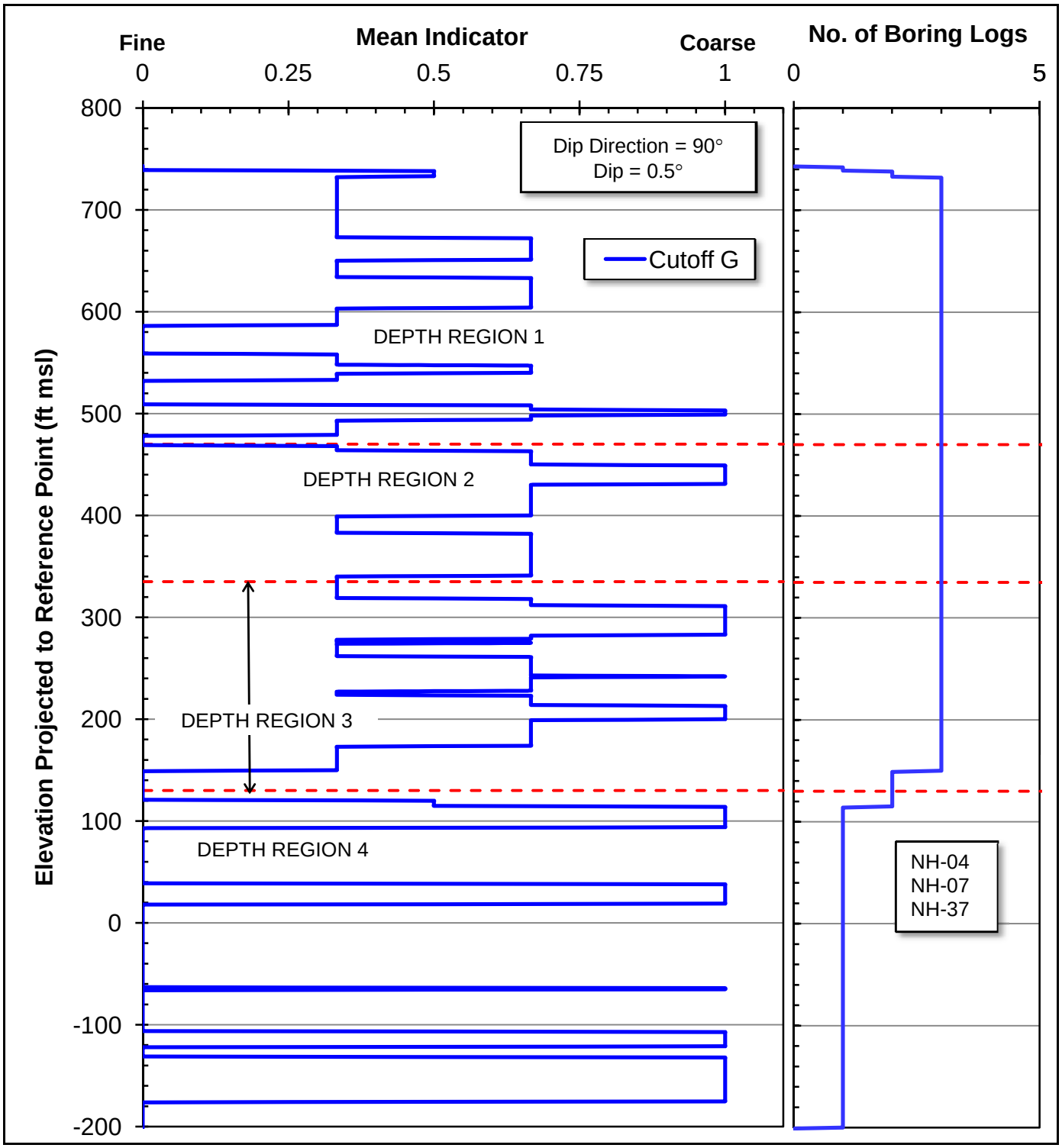
0 0.5 1
MILES

Figure A-9
Production Wells Grouped for Lithologic Indicator Profiles



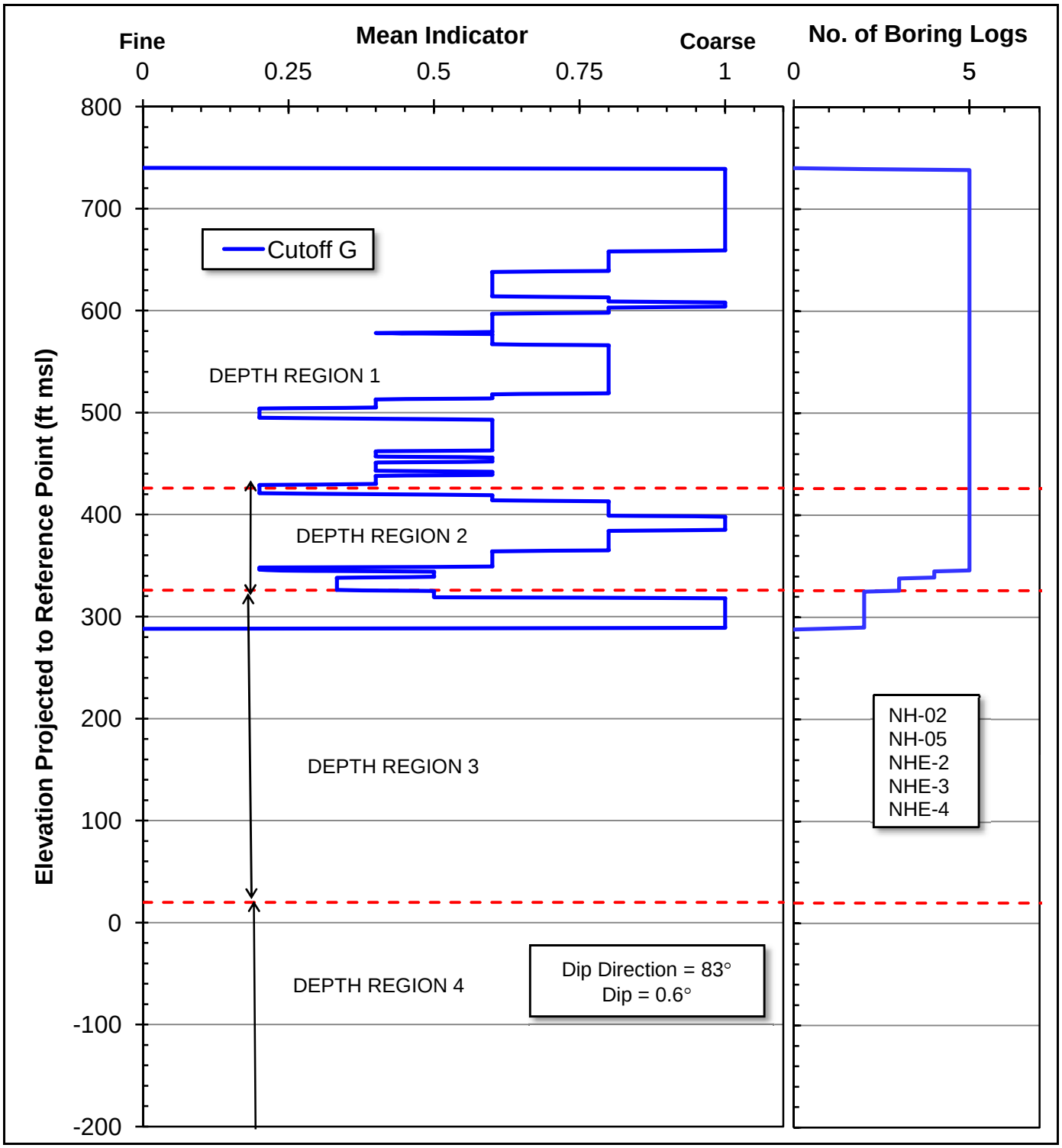
Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-9 for location of grouped logs and reference point.

Figure A-10a
Lithologic Indicator Vertical Profiles of Wells Not Logged by USCS
Subarea E: North (18 logs)



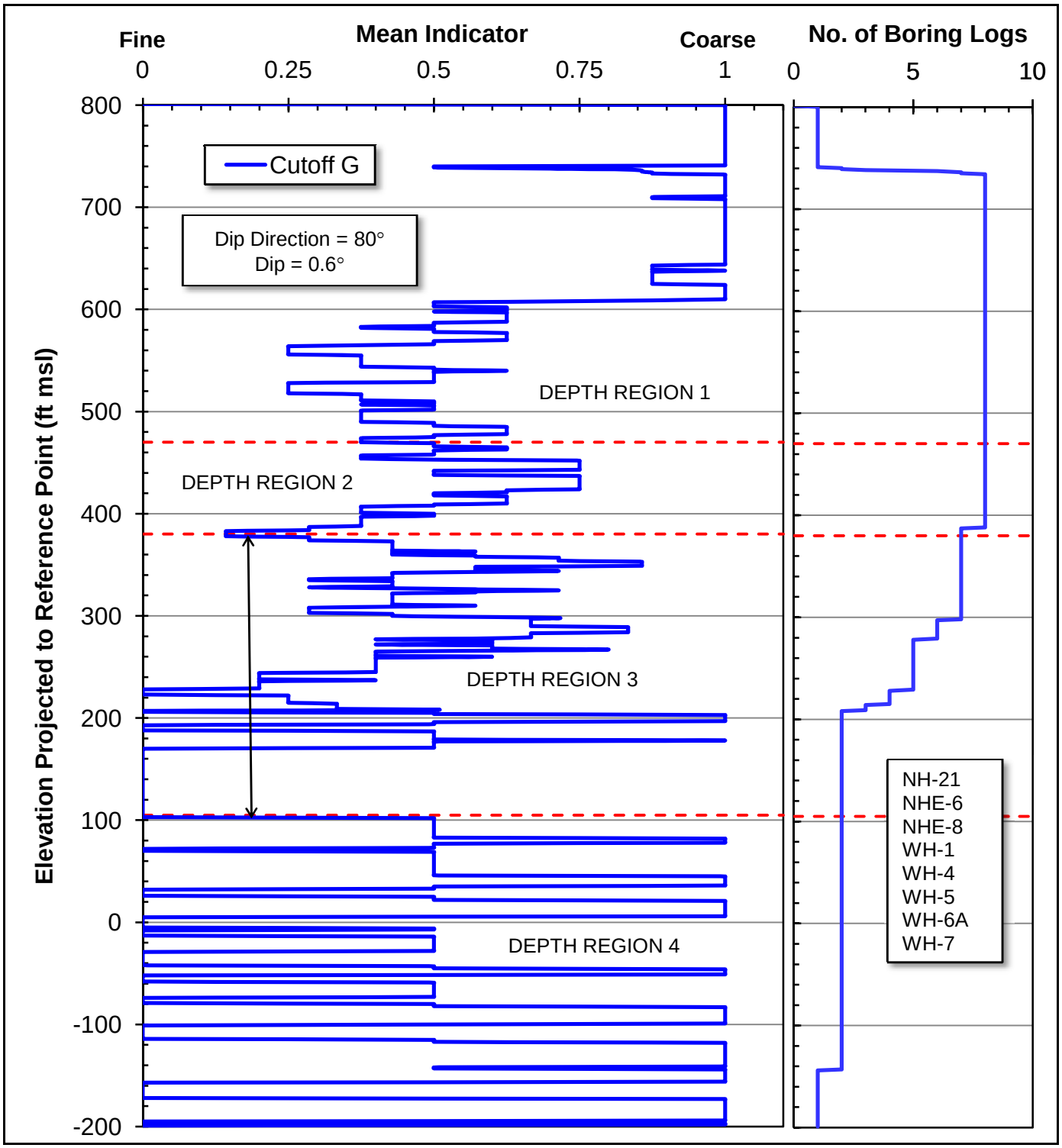
Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-9 for location of grouped logs and reference point.

Figure A-10b
Lithologic Indicator Vertical Profiles of Wells Not Logged by USCS
Subarea F: West (3 logs)



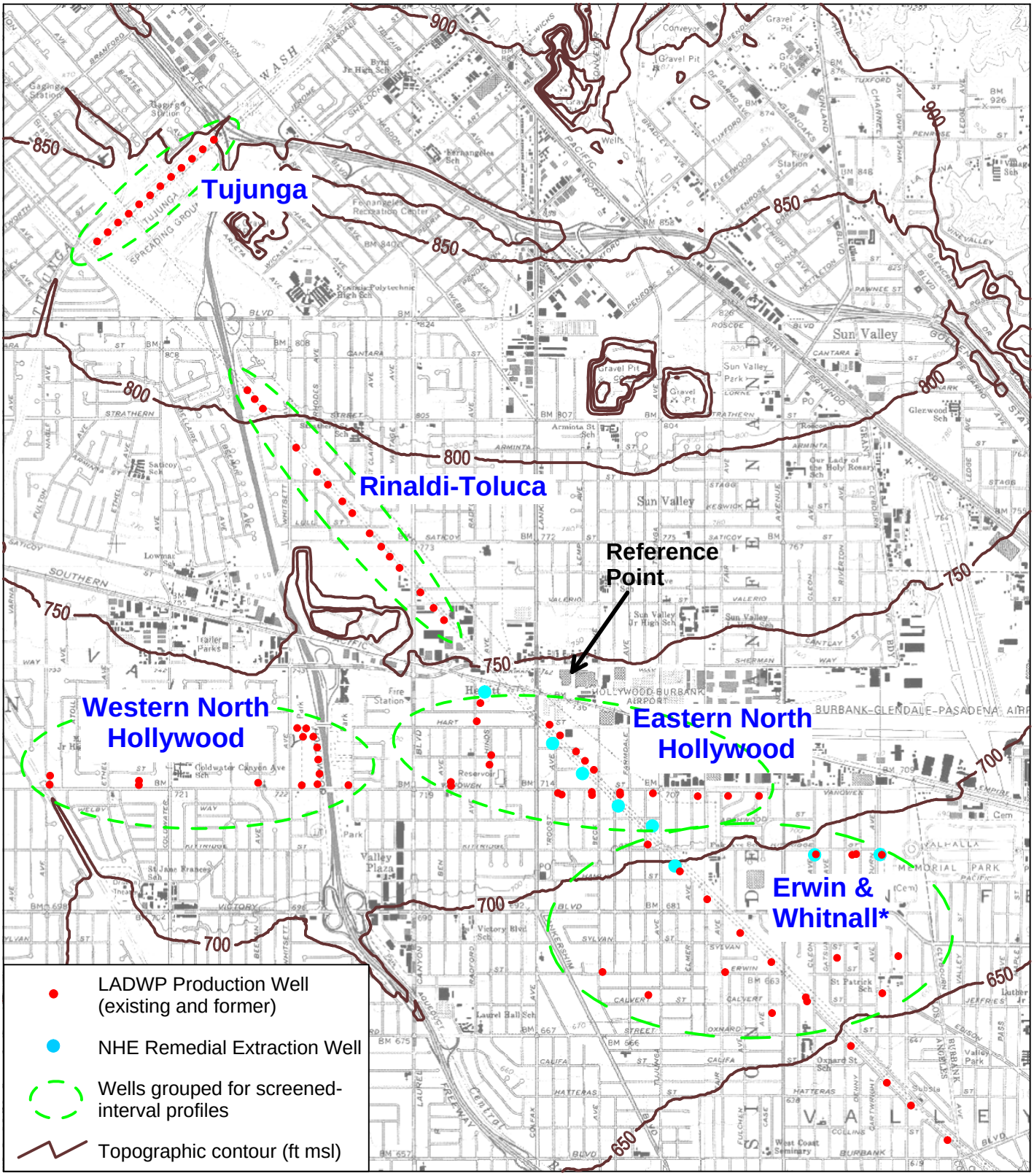
Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-9 for location of grouped logs and reference point.

Figure A-10c
Lithologic Indicator Vertical Profiles of Wells Not Logged by USCS
Subarea G: South (5 logs)



Mean lithologic indicator projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-9 for location of grouped logs and reference point.

Figure A-10d
Lithologic Indicator Vertical Profiles of Wells Not Logged by USCS
Subarea H: Southeast (8 logs)

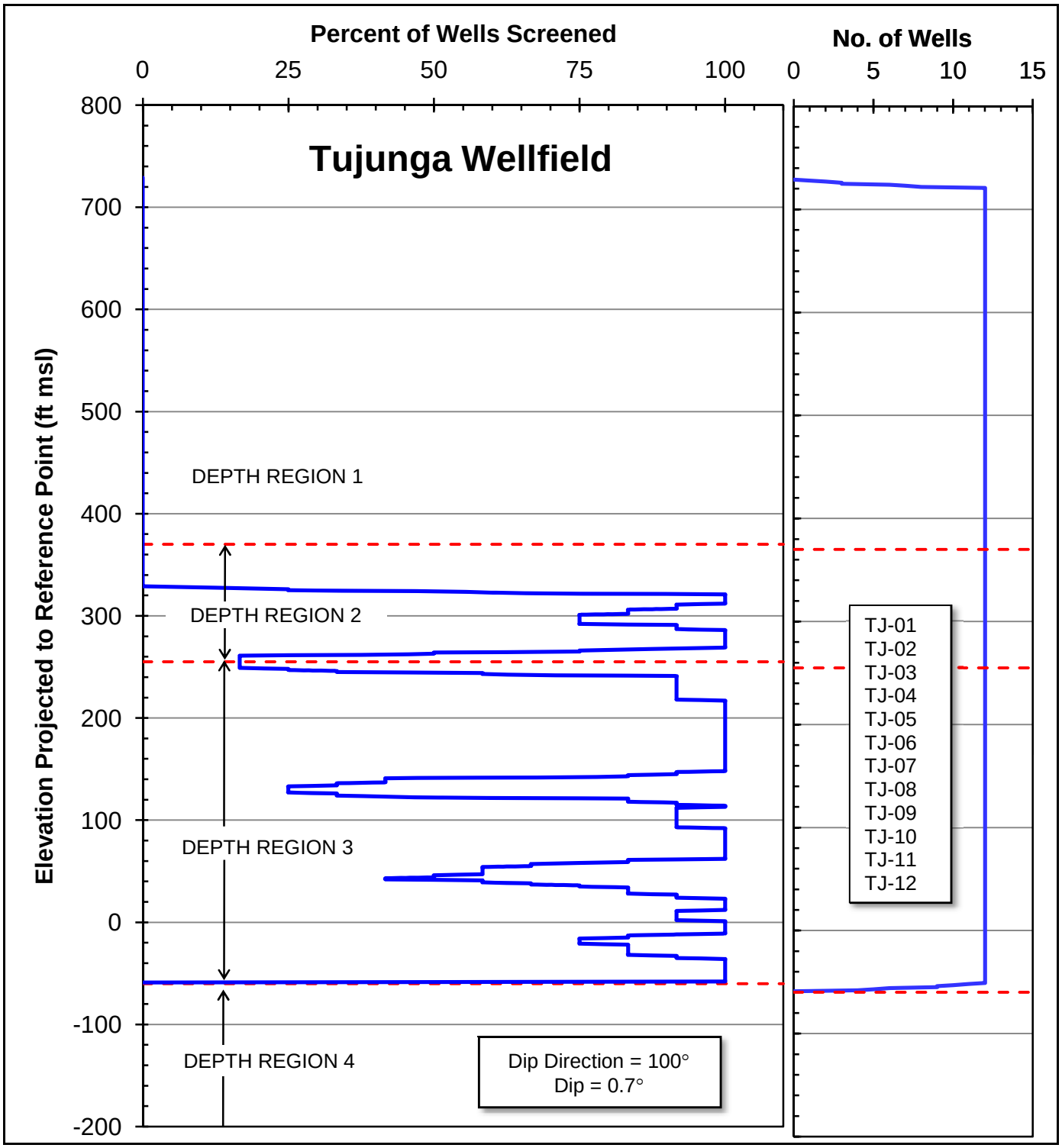


*Includes southeastern-most North Hollywood wells and exclues southern-most Whitnall wells.

N

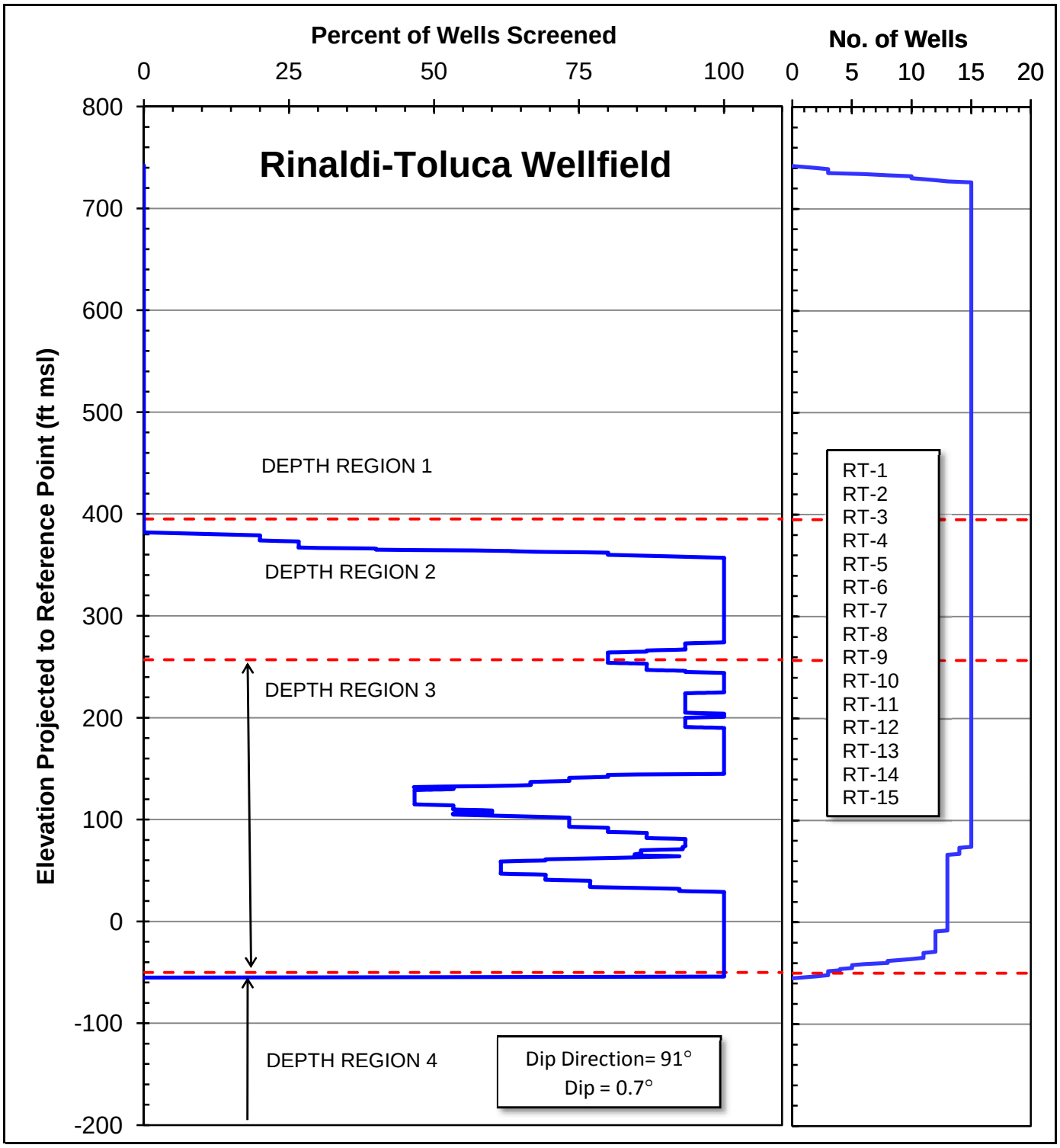
0 0.5 1
MILES

Figure A-11
LADWP Production Wells Grouped for Screened-Interval Profiles



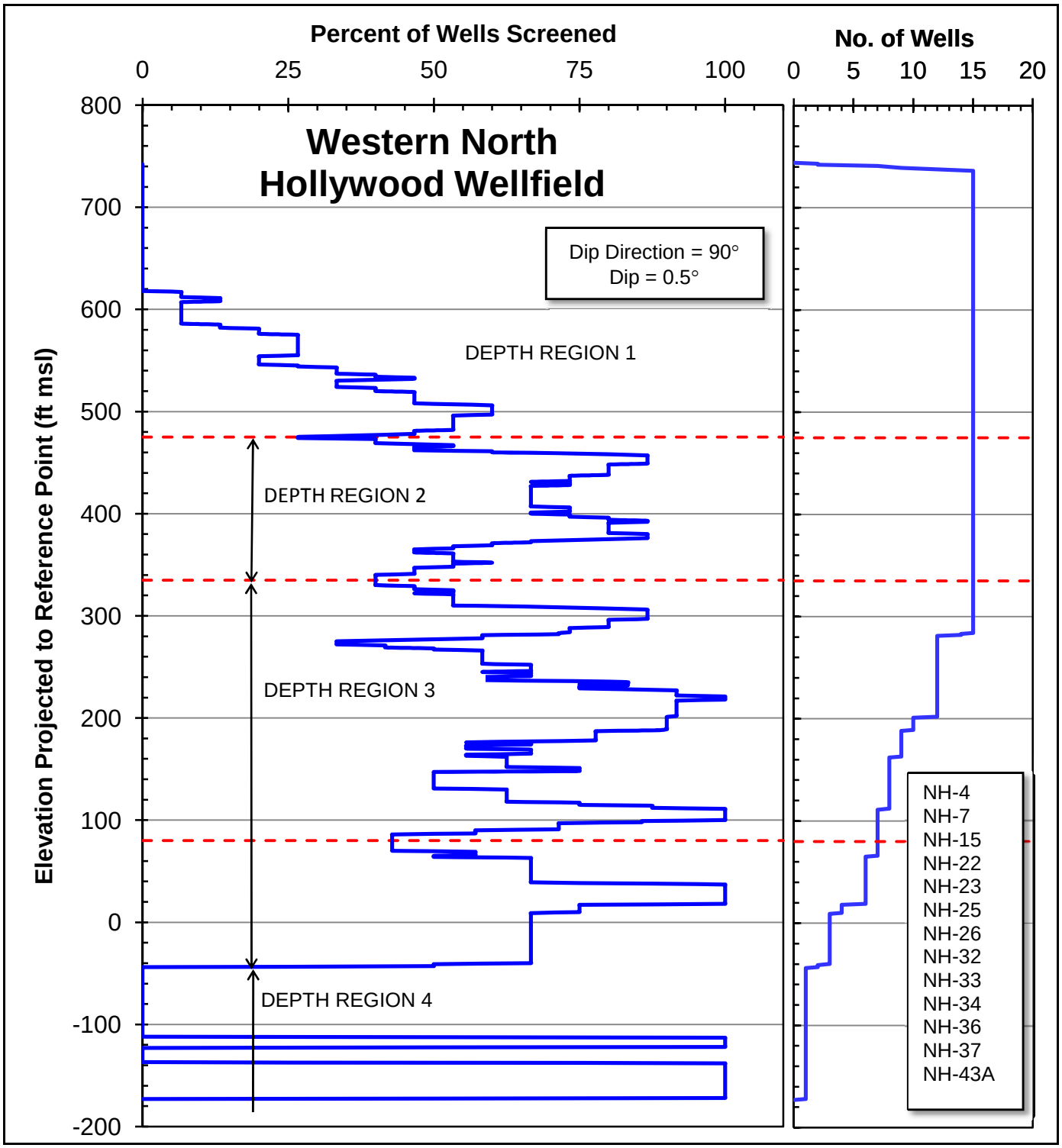
Incidence of well screens and/or perforations projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Reference point is near center of Subarea A. Dip direction measured clockwise from due east.
See Figure A-11 for location of grouped wells.

Figure A-12a
Vertical Profiles of Production Well Screened and/or Perforated Intervals
Tujunga Wellfield



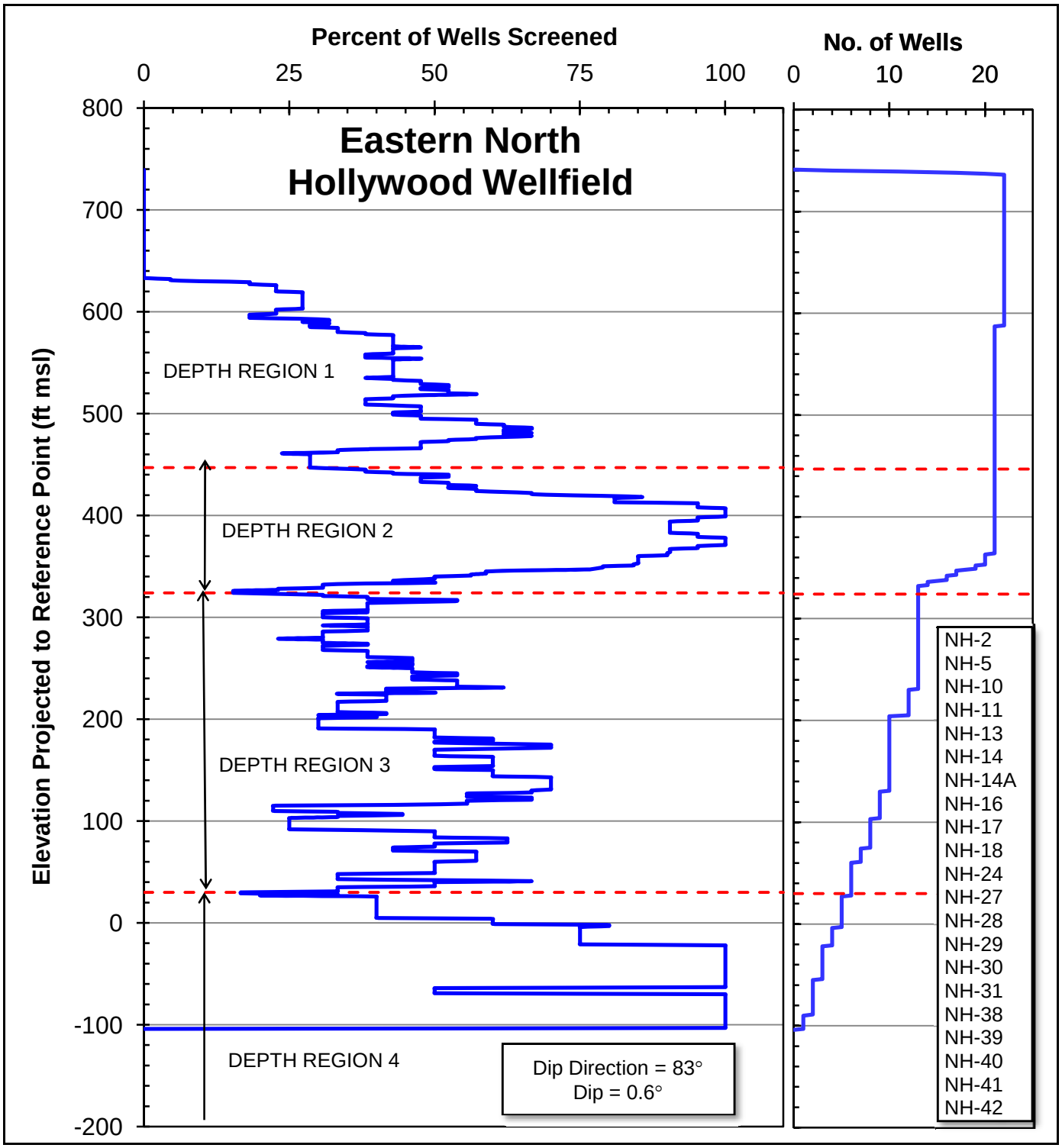
Incidence of well screens and/or perforations projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Reference point is near center of Subarea A. Dip direction measured clockwise from due east.
See Figure A-11 for location of grouped wells.

Figure A-12b
Vertical Profiles of Production Well Screened and/or Perforated Intervals
Rinaldi-Toluca Wellfield



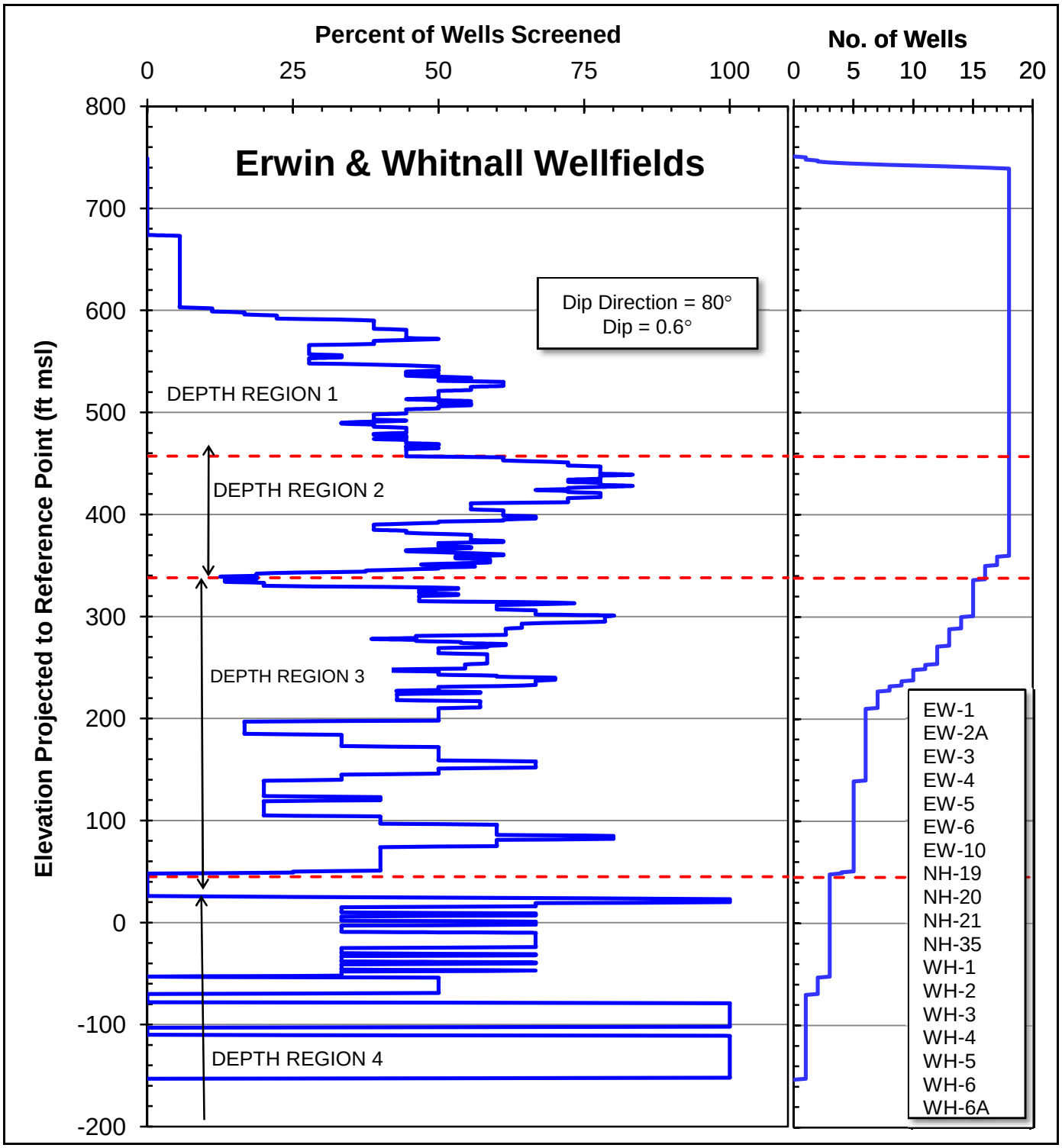
Incidence of well screens and/or perforations projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-11 for location of grouped logs and reference point.

Figure A-12c
Vertical Profiles of Production Well Screened and/or Perforated Intervals
Western North Hollywood Wellfield



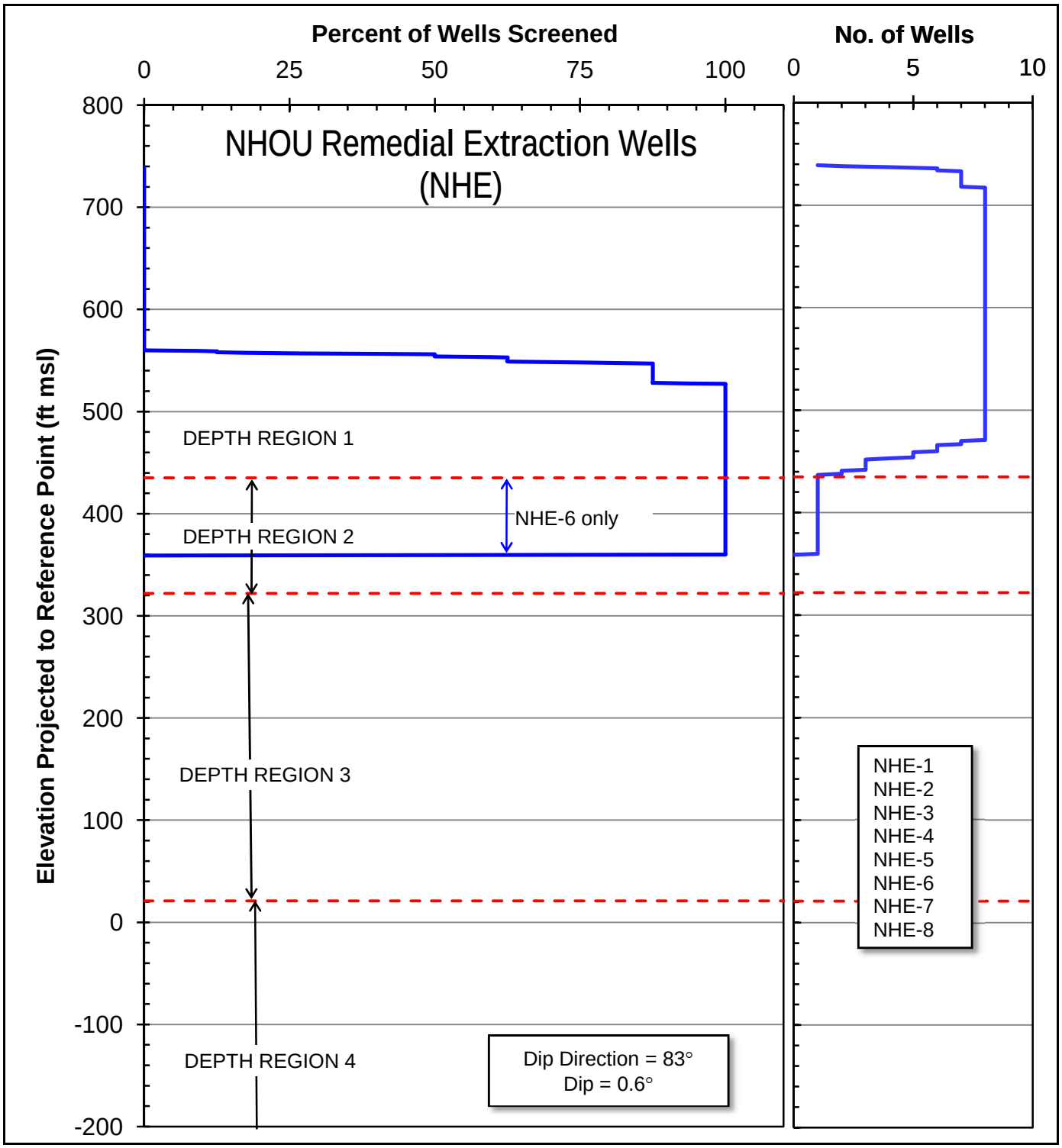
Incidence of well screens and/or perforations projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-11 for location of grouped logs and reference point.

Figure A-12d
Vertical Profiles of Production Well Screened and/or Perforated Intervals
Eastern North Hollywood Wellfield



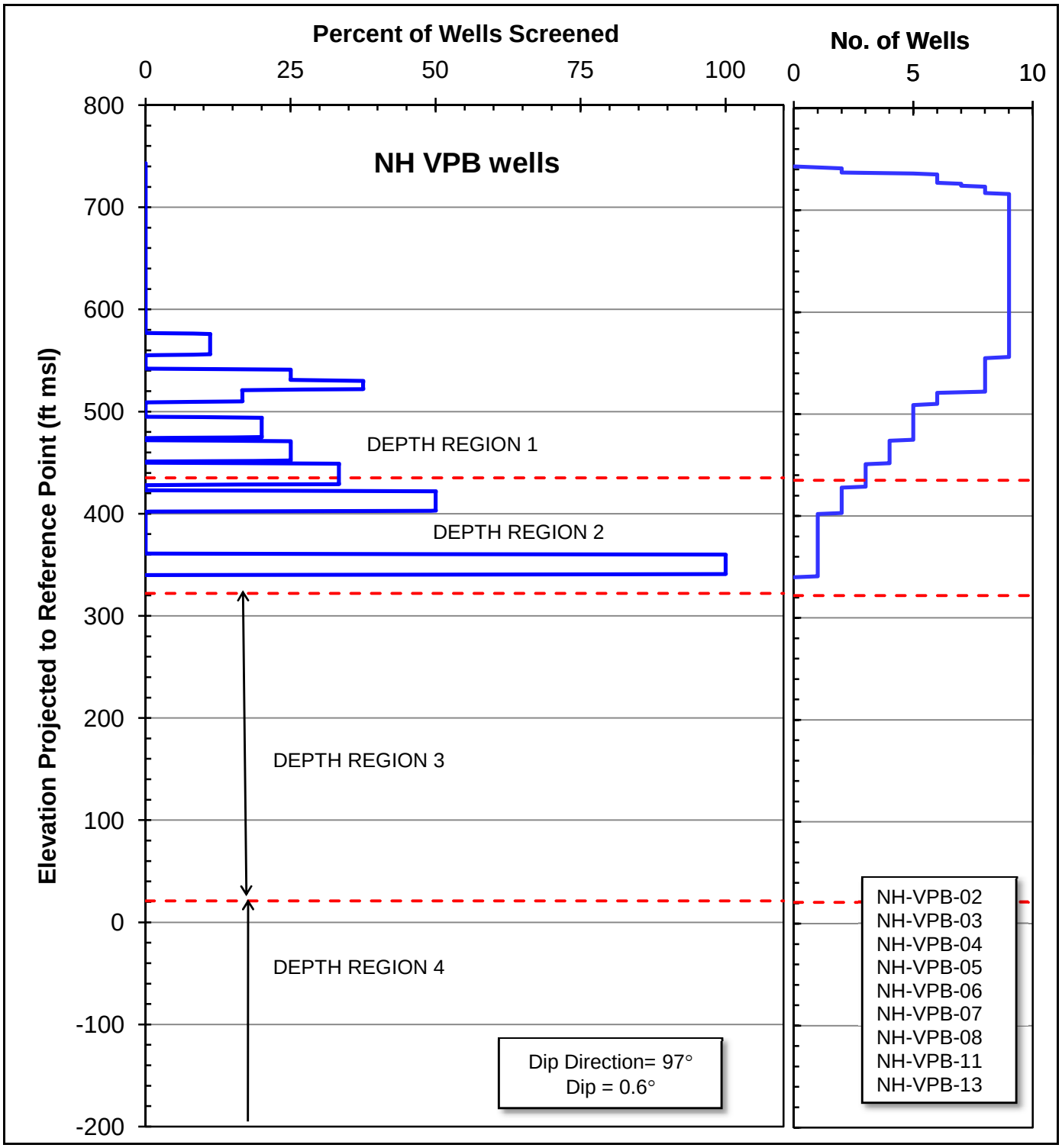
Incidence of well screens and/or perforations projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-11 for location of grouped logs and reference point.

Figure A-12e
Vertical Profiles of Production Well Screened and/or Perforated Intervals
Erwin and Whitnall Wellfields



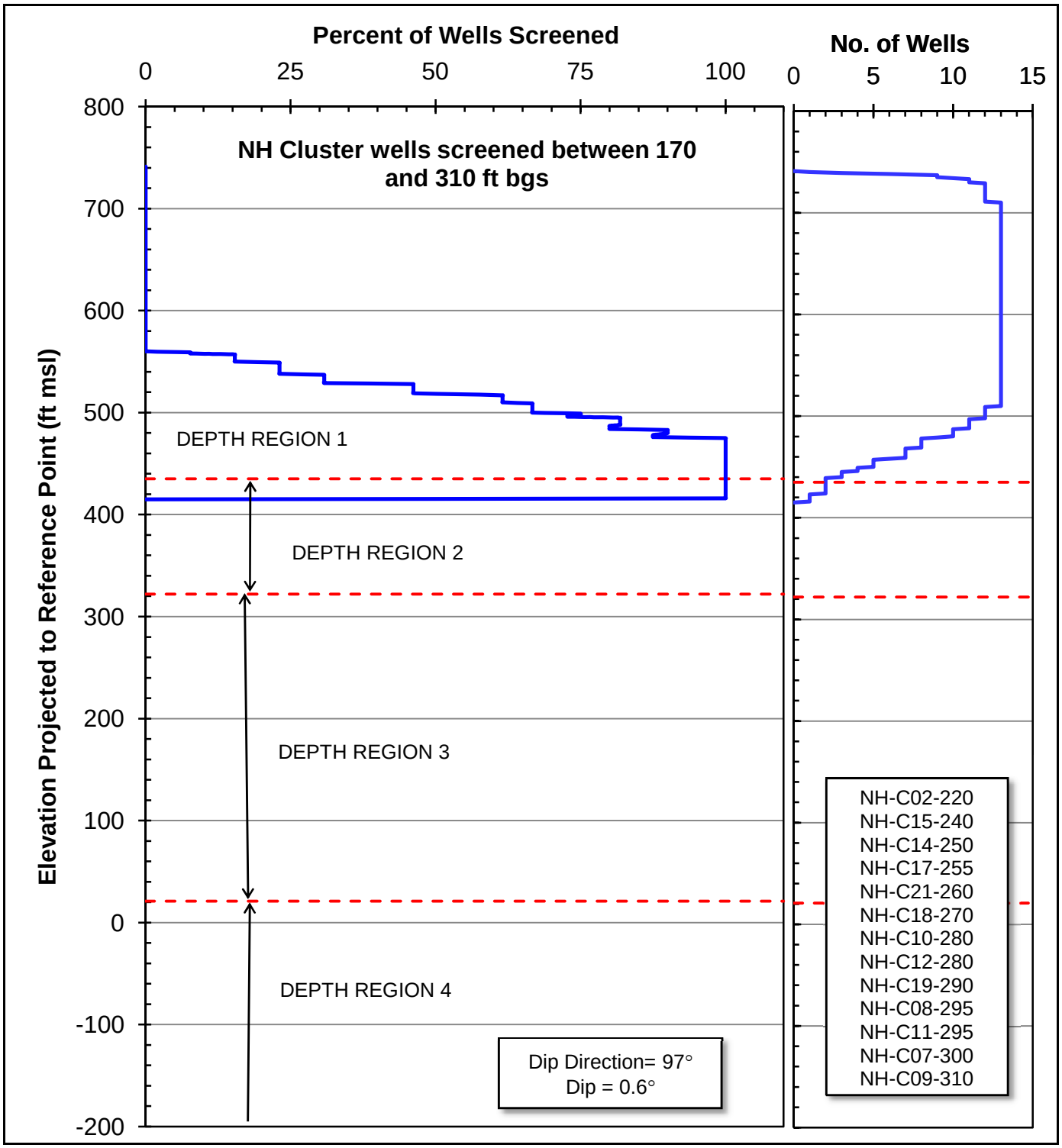
Incidence of well screens and/or perforations projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction measured clockwise from due east. See Figures A-5 and A-7 for explanation of method.
See Figure A-11 for location of grouped logs and reference point.

Figure A-12f
Vertical Profiles of Production Well Screened Intervals
North Hollywood Extraction (NHE) Wells



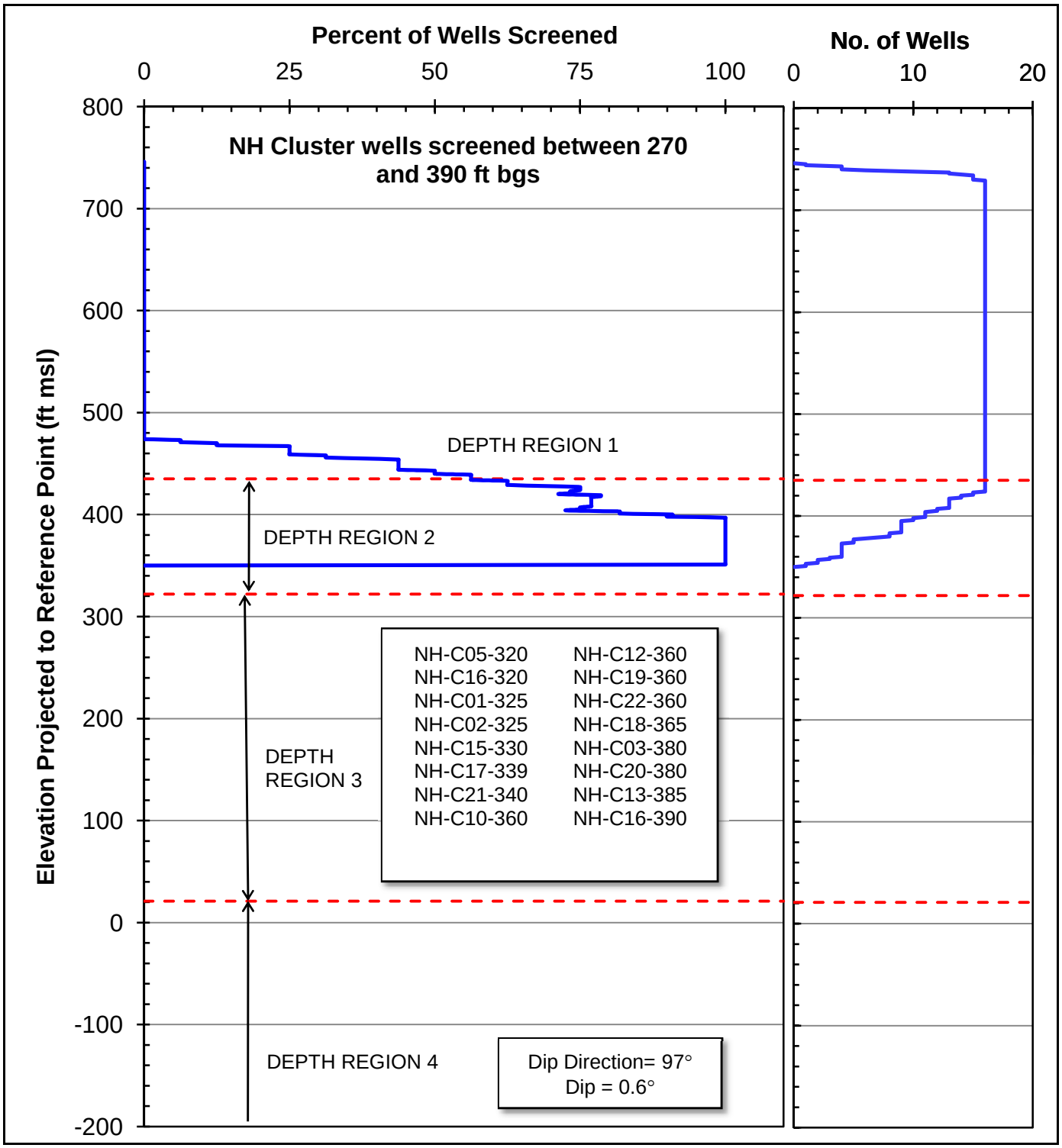
Incidence of well screens projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction is measured clockwise from due east.
See Figure A-11 for location of reference point.

Figure A-13a
Vertical Profiles of Monitoring Well Screened Intervals
NH-VPB Wells



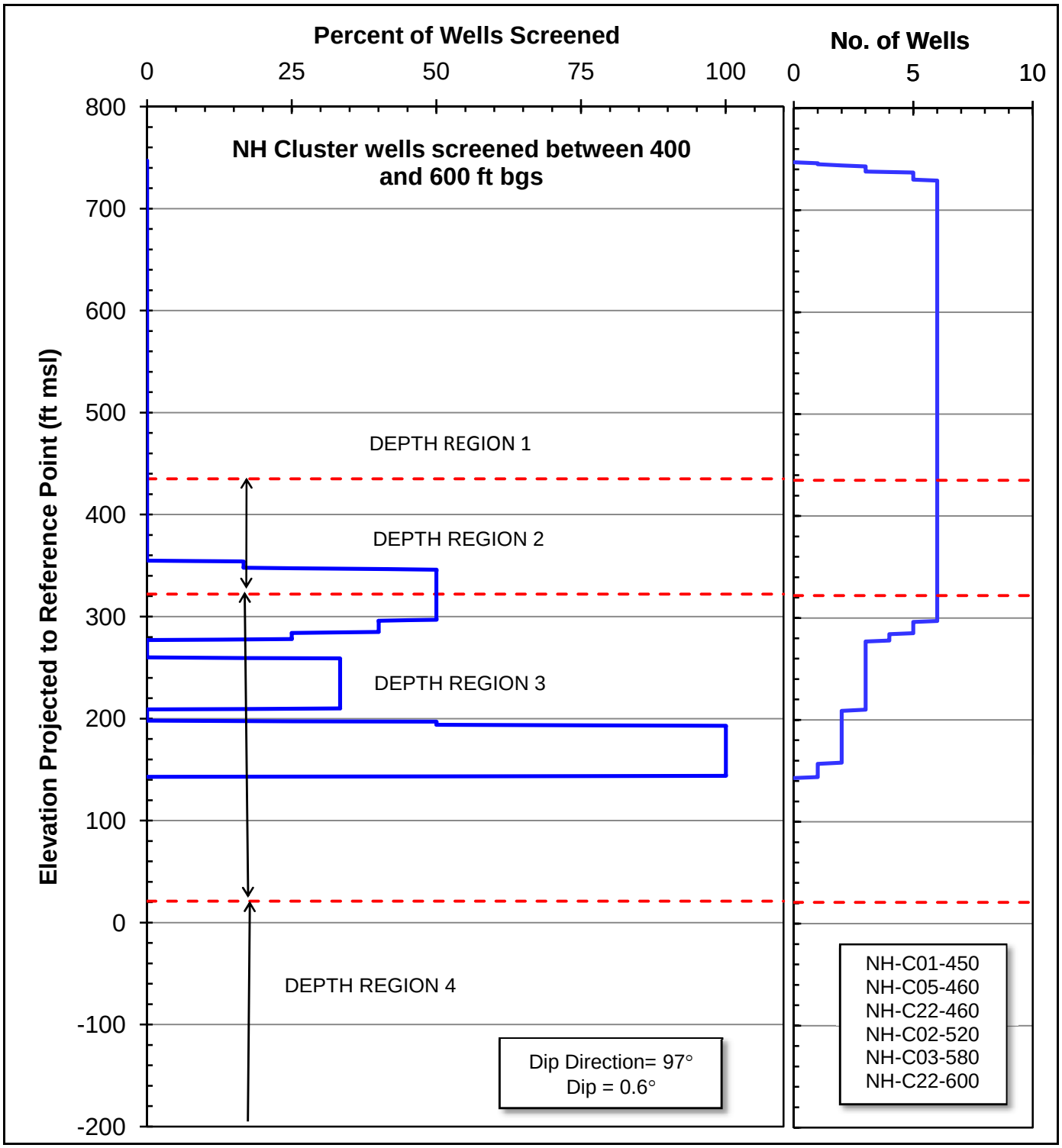
Incidence of well screens projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction is measured clockwise from due east.
See Figure A-11 for location of reference point.

Figure A-13b
Vertical Profiles of Monitoring Well Screened Intervals
Screen Depths Range 170 to 310 ft bgs



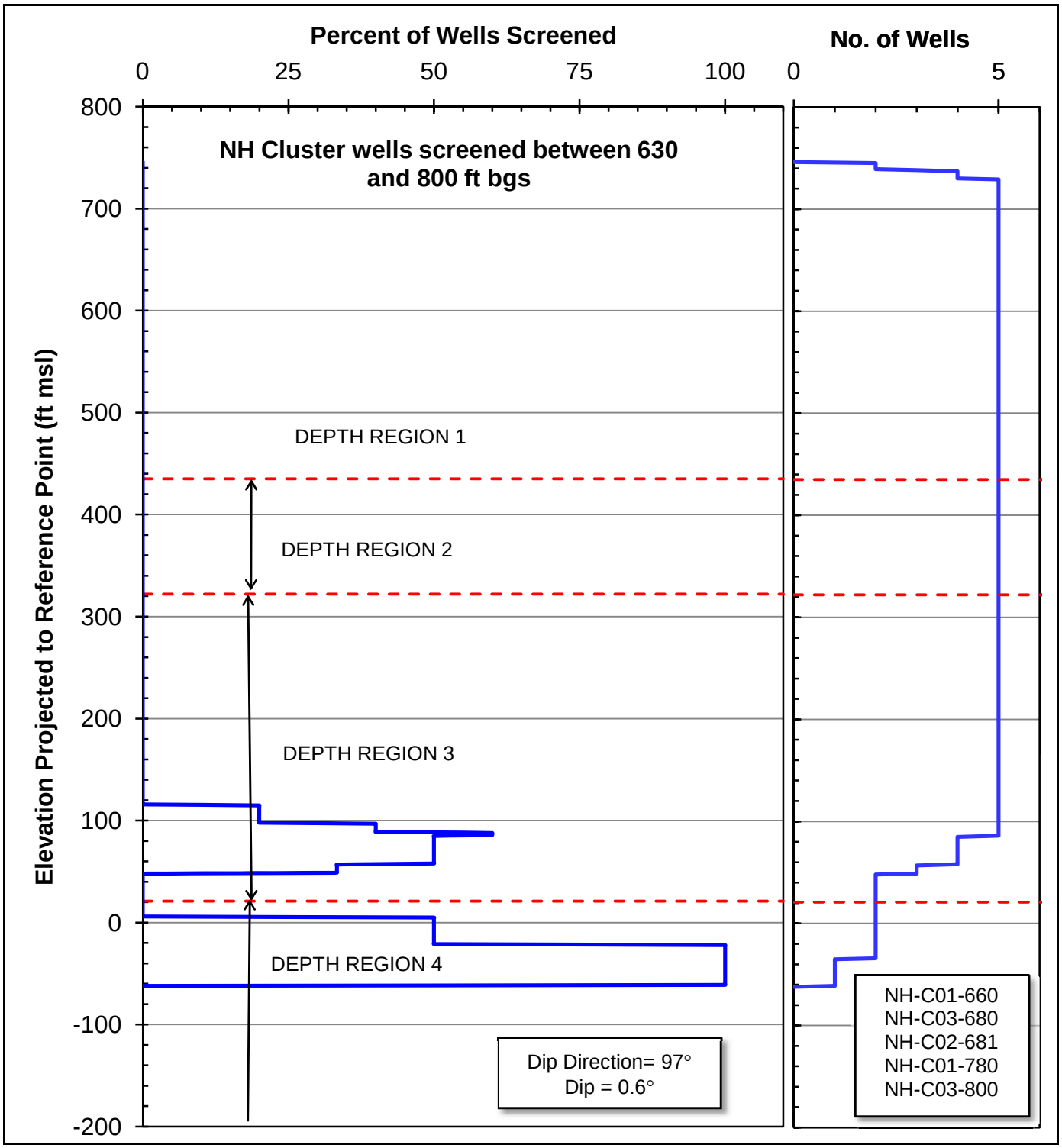
Incidence of well screens projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction is measured clockwise from due east.
See Figure A-11 for location of reference point.

Figure A-13c
Vertical Profiles of Monitoring Well Screened Intervals
Screen Depths Range 270 to 390 ft bgs



Incidence of well screens projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction is measured clockwise from due east.
See Figure A-11 for location of reference point.

Figure A-13d
Vertical Profiles of Monitoring Well Screened Intervals
Screen Depths Range 400 to 600 ft bgs



Incidence of well screens projected to beneath site reference point along orientation of approximate stratigraphic plane, estimated from current ground surface gradient.
Dip direction is measured clockwise from due east.
See Figure A-11 for location of reference point.

Figure A-13e
Vertical Profiles of Monitoring Well Screened Intervals
Screen Depths Range 630 to 800 ft bgs

TABLES

TABLE A-1
NHOU-AREA MONITORING WELLS LOGGED WITH USCS LITHOLOGIC DESCRIPTORS
North Hollywood Operable Unit

	Well	No. of Logged Intervals	Total Logged Depth (ft)
Subarea A: Central			
1	EW-1	25	339
2	EW-2	23	334
3	EW-3	14	338
4	EW-4	27	335
5	GW-1	5	310
6	GW-10	6	310
7	GW-11	22	454
8	GW-12A	12	360
9	GW-14A	17	292
10	GW-14B	15	324
11	GW-15	35	340
12	GW-18C	36	505
13	GW-2	10	310
14	GW-20	9	320
15	GW-21	6	320
16	GW-22	14	320
17	GW-23	7	325
18	GW-3	16	308
19	GW-4	10	310
20	GW-5	19	310
21	GW-6	11	308
22	GW-7	7	310
23	GW-8	7	320
24	GW-9	7	310
25	IW-3	19	340
Not Grouped			
	NH-VPB-02	21	264
	NH-VPB-03	17	223
	NH-VPB-04	13	188

Note:
ft - Feet

	Well	No. of Logged Intervals	Total Logged Depth (ft)
Subarea B: North			
1	LC1-CW01	14	575
2	NH-C01	18	902
3	NH-C05	21	800
4	NH-C08	17	302
5	NH-C09	30	312
6	NH-C11	18	300
7	NH-C13	27	420
8	NH-C16	26	420
9	NH-C20	24	420
10	NH-C22	33	660
11	NH-VPB-06	18	310
12	NH-VPB-07	21	295
Subarea C: South			
1	GW-16	25	605
2	GW-17	13	352
3	GW-19C	38	505
4	NH-C07	36	301
5	NH-C10	31	422
6	NH-C18	23	420
7	NH-C19	27	421
8	NH-C21	42	422
Subarea D: Southeast			
1	3830Q	18	362
2	LC1-CW04	16	665
3	NH-C02	45	932
4	NH-C12	42	420
5	NH-C14	16	304
6	NH-C15	48	420
7	NH-C17	42	420
8	NH-VPB-05	19	207
9	NH-VPB-08	13	231

TABLE A-2
NHOU-AREA WELLS WITH NON-USCS LITHOLOGIC LOGS
North Hollywood Operable Unit

Well		No. of Logged Intervals	Total Logged Depth (ft)
Subarea E: North			
1	4909C	6	500
2	4909F	5	348
3	4918B	5	375
4	4928C	11	377
5	RT-1	36	1000
6	RT-10	27	810
7	RT-11	32	811
8	RT-12	32	811
9	RT-13	44	811
10	RT-14	39	800
11	RT-15	33	800
12	RT-2	27	820
13	RT-3	27	820
14	RT-4	27	820
15	RT-5	14	820
16	RT-6	35	820
17	RT-7	34	800
18	RT-9	37	810

Well		No. of Logged Intervals	Total Logged Depth (ft)
Subarea F: West			
1	NH-04	13	593
2	NH-07	19	618
3	NH-37	32	942
Subarea G: South			
1	NH-02	8	393
2	NH-05	9	414
3	NHE-2	10	450
4	NHE-3	8	400
5	NHE-4	10	450
Subarea H: Southeast			
1	NH-21	23	509
2	NHE-6	11	460
3	NHE-8	7	350
4	WH-1	21	512
5	WH-4	26	528
6	WH-5	20	520
7	WH-6A	54	936
8	WH-7	48	884

Note:

ft - Feet

TABLE A-3
SCREENED AND/OR PERFORATED INTERVALS OF NHOU-AREA PRODUCTION WELLS
North Hollywood Operable Unit

Well	Ground Surface Elevation (ft msl)	Intervals		Interval 1		Interval 2		Interval 3		Interval 4		Interval 5		Interval 6		Interval 7		Interval 8		Interval 9		Interval 10		Interval 11		Interval 12		Interval 13	
		No.	Total Length (ft)	(ft bgs)																									
				Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
Tujunga Well Field																													
TJ-01	817	2	360	400	460	480	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-02	820	2	360	400	460	480	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-03	820	4	330	400	460	480	580	600	710	720	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-04	822	3	340	400	460	480	580	600	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-05	825	5	300	400	410	430	460	480	580	600	660	680	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-06	828	4	330	400	420	430	580	600	660	680	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-07	836	5	320	400	420	440	460	480	590	600	680	690	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-08	841	4	330	400	460	480	670	690	740	750	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-09	842	5	250	400	460	510	580	610	670	700	740	760	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-10	842	5	290	400	460	480	580	610	670	690	740	760	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-11	843	4	320	400	460	480	580	600	610	630	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TJ-12	847	3	350	400	590	600	680	700	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rinaldi-Toluca Well Field																													
RT-1	763	1	420	360	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-2	777	2	370	370	600	640	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-3	781	3	340	370	600	630	670	700	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-4	784	3	340	370	600	630	670	700	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-5	785	3	350	370	600	620	670	700	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-6	790	1	400	370	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-7	799	2	360	370	590	640	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-8	801	3	380	360	620	645	665	680	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-9	803	2	280	360	460	480	660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-10	773	2	280	360	460	480	660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-11	765	3	340	370	590	620	640	670	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-12	770	4	329	370	470	490	510	530	590	640	789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-13	768	2	370	370	590	630	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-14	760	3	370	360	540	550	670	700	770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RT-15	758	2	380	360	600	610	750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Hollywood Well Field																													
NH-2	718	4	217	105	135	172	276	282	309	318	374	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-4	722	4	276	195	210	234	244	279	312	360	578	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-5	726	4	228	110	142	162	221	245	288	297	391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-7	718	11	364	151	170	170	201	201	216	216	260	260	310	310	398	398	427	427	448	468	496	496	510	510	535	-	-	-	-
NH-10	738	1	375	160	535	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-11	713	2	246	108	261	303	396	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-13	715	3	237	110	225	245	302	327	392	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-14	712	1	39	110	149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-14A	715	5	196	120	149	155	181	185	214	220	265	320	387	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-15	734	5	168	126	136	210	267	284	306	315	368	434	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-16	709	3	177	144	168	168	236	315	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-17	709	3	202	145	185	230	273	287	406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-18	707	3	213	145	197	197	265	308	401	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-19	693	2	203	145	268	308	388	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-20	687	3	213	146	241	252	270	308	408	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-21	685	3	190	149	173	197	280	311	394	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-22	723	1	294	166	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE A-3
SCREENED AND/OR PERFORATED INTERVALS OF NHOU-AREA PRODUCTION WELLS
North Hollywood Operable Unit

Well	Ground Surface Elevation (ft msl)	Intervals		Interval 1		Interval 2		Interval 3		Interval 4		Interval 5		Interval 6		Interval 7		Interval 8		Interval 9		Interval 10		Interval 11		Interval 12		Interval 13	
		No.	Total Length (ft)	(ft bgs)																									
				Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
North Hollywood Well Field (continued)																													
NH-23	723	3	173	222	298	298	367	432	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-24	733	6	219	206	246	260	283	318	338	338	410	464	508	514	534	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-25	723	5	305	160	187	198	340	348	376	412	445	465	540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-26	725	4	219	220	262	275	370	418	452	507	555	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-27	712	13	228	210	220	240	250	252	262	312	334	334	340	360	378	460	466	483	490	518	560	595	608	608	650	696	708	712	742
NH-28	712	5	259	250	258	292	392	535	607	631	660	710	760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-29	713	6	195	215	254	315	371	415	434	490	502	562	622	655	664	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-30	718	4	133	255	275	318	390	573	583	645	676	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-31	724	8	187	205	222	250	280	327	389	405	413	422	433	440	487	508	514	630	636	-	-	-	-	-	-	-	-	-	-
NH-32	720	7	154	264	272	280	310	385	415	485	497	510	520	575	590	623	672	-	-	-	-	-	-	-	-	-	-	-	-
NH-33	723	11	339	130	210	274	310	335	350	450	466	470	490	490	510	520	568	572	594	630	642	645	655	672	732	-	-	-	-
NH-34	730	9	345	202	263	280	290	308	398	430	462	494	505	510	561	563	574	608	642	675	720	-	-	-	-	-	-	-	-
NH-35	688	3	202	260	400	573	600	660	695	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-36	729	4	301	265	370	432	462	502	648	700	720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-37	729	8	302	230	260	278	390	430	460	505	550	620	640	700	720	850	860	875	910	-	-	-	-	-	-	-	-	-	-
NH-38	721	5	324	300	426	473	510	565	625	650	692	736	795	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-39	723	8	315	300	305	333	395	423	484	490	515	550	620	670	700	762	804	810	830	-	-	-	-	-	-	-	-	-	-
NH-40	725	9	376	308	323	328	407	418	425	435	448	514	575	575	613	617	625	652	705	742	844	-	-	-	-	-	-	-	-
NH-41	729	7	250	248	276	280	346	358	400	420	454	480	520	550	570	590	610	-	-	-	-	-	-	-	-	-	-	-	-
NH-42	731	8	215	280	406	448	460	494	497	503	522	533	538	558	568	608	634	698	712	-	-	-	-	-	-	-	-	-	-
NH-43A	725	6	260	280	370	380	390	420	460	475	496	506	565	590	630	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-44	725	1	440	340	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NH-45	725	1	440	340	780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erwin Well Field																													
EW-1	672	12	265	205	240	273	334	346	359	400	408	422	430	436	519	592	599	627	631	727	735	741	753	781	791	804	820	-	-
EW-2A	659	8	166	205	222	255	274	292	305	320	332	345	350	375	400	410	465	470	490	-	-	-	-	-	-	-	-	-	-
EW-3	650	10	777	354	365	380	390	401	410	416	496	502	515	560	570	66	665	715	720	738	772	786	792	-	-	-	-	-	-
EW-4	669	6	146	207	230	276	309	367	376	392	402	427	479	495	514	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EW-5	660	4	185	230	252	290	352	414	448	465	532	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EW-6	671	7	266	212	288	254	308	314	347	380	399	420	430	500	518	638	694	-	-	-	-	-	-	-	-	-	-	-	-
EW-10	676	7	168	204	214	270	303	355	380	425	446	477	491	522	542	555	600	-	-	-	-	-	-	-	-	-	-	-	-
Whitnall Well Field																													
WH-1	702	5	169	150	175	185	204	232	274	294	369	501	509	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-2	696	4	133	162	203	232	252	312	371	442	455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-3	687	4	127	170	189	212	244	286	349	429	442	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-4	676	6	139	150	175	285	330	385	390	412	430	440	460	478	504	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-5	667	8	147	150	170	193	208	229	234	284	316	377	388	402	414	434	459	465	492	-	-	-	-	-	-	-	-	-	-
WH-6	656	4	166	194	227	271	314	360	392	411	469	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-6A	657	12	299	268	314	320	330	360	375	380	395	412	472	515	544	645	660	716	735	751	766	780	789	820	844	852	894	-	-
WH-7	643	12	213	253	269	277	300	379	418	537	546	564	572	660	670	673	710	715	735	762	772	788	794	800	815	822	842	-	-
WH-8	632	4	116	224	260	290	305	322	370	444	461	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-9	626	5	122	184	206	257	280	341	356	364	374	386	438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WH-10	615	4	91	290	295	309	330	395	420	450	490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

ft - Feet

msl - Mean Sea Level

bgs - Below Ground Surface

TABLE A-4
SCREENED INTERVALS OF NHOU-AREA MONITORING AND REMEDIAL EXTRACTION WELLS
North Hollywood Operable Unit

Well	Ground Surface Elevation (ft msl)	Screened Interval		
		Length (ft)	Top	Bottom
		(ft bgs)		
Depth Range 170-310 ft bgs				
NH-C02-220	657	50	170	220
NH-C07-300	729	60	240	300
NH-C08-295	738	50	245	295
NH-C09-310	737	60	250	310
NH-C10-280	710	60	220	280
NH-C11-295	731	60	235	295
NH-C12-280	705	70	210	280
NH-C14-250	694	50	200	250
NH-C15-240	679	60	180	240
NH-C17-255	676	70	185	255
NH-C18-270	718	50	220	270
NH-C19-290	732	60	230	290
NH-C21-260	705	50	210	260
NH-C23-310	745	60	250	310
NH-C24-305	731	60	245	305
NH-C25-290	725	50	240	290
Depth Range 270-390 ft bgs				
NH-C01-325	781	50	275	325
NH-C02-325	657	50	275	325
NH-C03-380	710	40	340	380
NH-C05-320	774	50	270	320
NH-C10-360	710	50	310	360
NH-C12-360	705	50	310	360
NH-C13-385	760	50	335	385
NH-C15-330	679	60	270	330
NH-C16-320	777	50	270	320
NH-C16-390	777	50	340	390
NH-C17-339	676	60	279	339
NH-C18-365	718	60	305	365
NH-C19-360	732	60	300	360
NH-C20-380	749	60	320	380
NH-C21-340	705	60	280	340
NH-C22-360	802	60	300	360
NH-C23-400	745	60	340	400
NH-C24-410	731	50	360	410
Depth Range 400-600 ft bgs				
NH-C01-450	782	50	400	450
NH-C02-520	657	50	470	520
NH-C03-580	710	40	540	580
NH-C05-460	774	70	390	460
NH-C22-460	803	70	390	460
NH-C22-600	802	50	550	600
Depth Range 630-800 ft bgs				
NH-C01-660	781	30	630	660
NH-C01-780	781	40	740	780
NH-C02-681	657	40	641	681
NH-C03-680	710	40	640	680
NH-C03-800	711	40	760	800
NHOU Remedial Extraction Wells				
NHE-1	718	86	190	276
NHE-2	725	110	190	300
NHE-3	718	96	190	286
NHE-4	711	100	180	280
NHE-5	703	86	180	266
NHE-6	694	198	180	378
NHE-7	692	90	180	270
NHE-8	687	100	180	280

Notes:

ft - Feet

msl - Mean Sea Level

bgs - Below Ground Surface