Upper Los Angeles River Area Watermaster

City of Los Angeles vs. City of San Fernando, et al.

Case No. 650079 – County of Los Angeles

WATERMASTER SERVICE

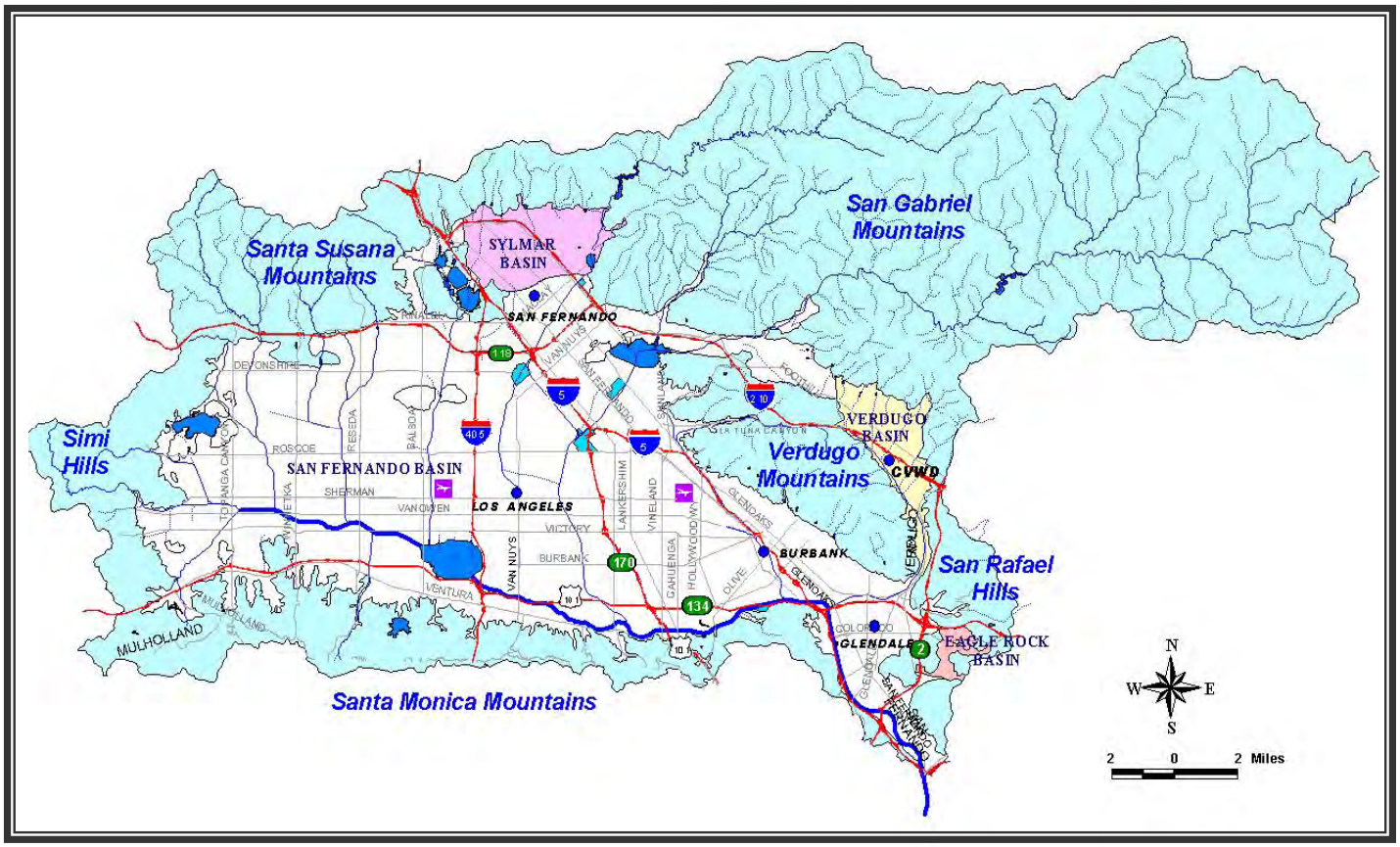
IN THE

UPPER LOS ANGELES RIVER AREA

LOS ANGELES COUNTY, CALIFORNIA

2007-08 WATER YEAR

OCTOBER 1, 2007 – SEPTEMBER 30, 2008



MAY 2009

ANNUAL REPORT
UPPER LOS ANGELES RIVER AREA WATERMASTER

RE: CITY OF LOS ANGELES VS. CITY OF SAN FERNANDO, ET AL.
CASE NO. 650079 - COUNTY OF LOS ANGELES

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IN THE
UPPER LOS ANGELES RIVER AREA (ULARA)
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MAY 2009

FOREWORD

I am pleased to submit this Annual Watermaster Report for the 2007-08 Water Year in accordance with the provisions of the San Fernando Judgment dated January 26, 1979.

This Annual Report describes the water rights in each of the four groundwater basins within the Upper Los Angeles River Area (ULARA) and indicates the water in storage to the credit of each party as of October 1, 2008. This report also provides: background information on the history of the San Fernando case; information regarding the four groundwater basins in ULARA with respect to water supply; groundwater extractions; groundwater levels; change in storage; imported water use; recharge operations; water quality; and other pertinent information for the 2007-08 Water Year.

The most significant long-term challenges in ULARA continue to be: the long-term decline in groundwater storage; the accumulation of stored water credits in the San Fernando Basin; and ongoing contamination of groundwater in the San Fernando and Verdugo groundwater basins.

Following more than two years of discussions with the Watermaster, the Cities of Glendale, Burbank, and Los Angeles entered into a 10-year agreement to reverse the long-term decline in stored groundwater and the concurrent accumulation of a large quantity of unsupported stored water credits in the San Fernando Basin. The agreement contains several important provisions: restrictions on pumping stored water credits; a commitment by Los Angeles to develop projects with the County of Los Angeles to increase recharge of stormwater runoff; and deduction of future losses from the basin due to rising groundwater and underflow. Most importantly, the agreement provided for the re-evaluation of the original safe yield study of the San Fernando Basin which had originally been performed in 1964-65. The new agreement and the currently ongoing safe yield re-evaluation study by a private consultant selected by the Administrative Committee is oriented to curtailing the long-term decline in stored groundwater, and to hopefully and eventually enable the basin to supply the groundwater demands that were placed upon it by the 1979 San Fernando Judgment. This ongoing safe yield re-evaluation study is being conducted by Stetson Engineers and is being guided by Mr. Melvin Blevins, special consultant to the Administrative Committee.

Groundwater contamination with volatile organic compounds (VOCs) and hexavalent chromium continues to be a serious problem in the eastern San Fernando Basin. One municipal-supply water well has been shut down due to excessive chromium levels in the North Hollywood Operable Unit that treats the groundwater for VOCs. The Cities of Los Angeles, Burbank, and Glendale are seeking relief with the assistance of enforcement agencies including the United States Environmental Protection Agency and the Los Angeles Regional Water Quality Control Board. In addition, various gasoline components are currently threatening water wells in Verdugo Basin.

To provide groundwater management for the four ULARA groundwater basins, the Watermaster and the Administrative Committee continued to meet on a quarterly basis during 2007-08. As provided in Section 5.4 of the ULARA Policies and Procedures, the ULARA Groundwater Pumping and Spreading Plan was completed and filed with the Court in July 2008 by the previous ULARA Watermaster, Mr. Mark Mackowski.

On December 1, 2008 Judge Susan Bryant-Deason of the Superior Court of Los Angeles County, with the support of the Administrative Committee, named Richard C. Slade, Principal Groundwater Geologist for a private consulting firm, as the new ULARA Watermaster, effective January 1, 2009. Mr. Slade replaced Mr. Mark Mackowski of LADWP, who had been Watermaster since the 2003-04 Water Year. I want to thank Mr. Mackowski for his five years of technical expertise while serving as Watermaster and for his efforts in identifying and trying to remedy the ongoing decline in groundwater levels in the San Fernando Basin.

As the new Watermaster, I will be making various editorial and/or technical changes to this text over time. Further, I also will be proposing that modifications be made to certain figures and tables in the Annual Report. For example, I will be proposing that new maps be created to show the boundaries of, and active water wells in, each of the four ULARA groundwater basins. However, because my appointment became effective after the close of the 2007-08 Water Year for this current Watermaster report, there have been too many work tasks to be performed to permit all proposed changes/modifications in the current report.

Richard C. Slade
Watermaster

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1. INTRODUCTION

1. INTRODUCTION

1.1 Background

The Upper Los Angeles River Area (ULARA) encompasses the entire watershed of the Los Angeles River and its tributaries above a point in the river designated as Los Angeles County Department of Public Works (LACDPW) Gaging Station F-57C-R, near the junction of the Los Angeles River and the Arroyo Seco (Plate 1, "ULARA Location Map"). ULARA encompasses a total of 328,500 acres of hill and mountain areas and intervening valley-fill areas. Of this total watershed area, there are 122,800 acres of valley-fill areas (comprised by four groundwater basins), and 205,700 acres of tributary hills and mountains in the watershed. ULARA is bounded on the north and northwest by the Santa Susana Mountains; on the north and northeast by the San Gabriel Mountains; on the east by the San Rafael Hills, which separate ULARA from the San Gabriel Groundwater Basin; on the south by the Santa Monica Mountains, which separate it from the Los Angeles Coastal Plain; and on the west by the Simi Hills.

Four distinct groundwater basins have been identified within the valley-fill areas of ULARA: the San Fernando, Eagle Rock, Sylmar and Verdugo basins. The groundwater reservoir comprising each of these basins is separated from the others and is considered to be replenished by the following sources: deep percolation from direct rainfall; infiltration of surface water runoff; and infiltration of a portion of the water that is delivered for use within these basins. Artificial recharge also occurs in the San Fernando Basin via the use of spreading basins when excess rainfall and runoff are available.

The four ULARA groundwater basins are:

THE SAN FERNANDO BASIN (SFB), the largest of the four basins, consists of 112,000 acres and comprises 91.2 percent of the total valley fill in ULARA. It is bounded on the east and northeast by the San Rafael Hills, Verdugo Mountains, and San Gabriel Mountains; on the north by the San Gabriel Mountains and the eroded south limb of the Little Tujunga syncline which separates it from the Sylmar Basin; on the northwest and west by the Santa Susana Mountains and Simi Hills; and on the south by the Santa Monica Mountains.

THE SYLMAR BASIN, in the northerly part of ULARA, consists of 5,600 acres and comprises 4.6 percent of the total valley fill in ULARA. It is bounded on the north and

east by the San Gabriel Mountains; on the west by a topographic divide in the valley fill between the Mission Hills and the San Gabriel Mountains; on the southwest by the Mission Hills; on the east by the Saugus Formation along the east bank of the Pacoima Wash; and on the south by the eroded south limb of the Little Tujunga syncline, which separates it from the SFB.

THE VERDUGO BASIN, north and east of the Verdugo Mountains, consists of 4,400 acres and comprises 3.6 percent of the total valley fill in ULARA. It is bounded on the north by the San Gabriel Mountains; on the east by a groundwater divide separating it from the Monk Hill Subarea of the Raymond Groundwater Basin; on the southeast by the San Rafael Hills; and on the south and southwest by the Verdugo Mountains in ULARA.

THE EAGLE ROCK BASIN, the smallest of the four basins, is in the extreme southeast corner of ULARA. It consists of 800 acres and comprises 0.6 percent of the total valley fill.

1.2 History of Adjudication

Water rights in ULARA were established by the JUDGMENT AFTER TRIAL BY COURT in Los Angeles County Superior Court Case No. 650079, entitled The City of Los Angeles, a Municipal Corporation, Plaintiff, vs. City of San Fernando, et al., Defendants, signed March 14, 1968, by the Honorable Edmund M. Moor, Judge of the Superior Court. Numerous pre-trial conferences were held subsequent to the filing of the action by the City of Los Angeles in 1955 and also before the trial commenced on March 1, 1966.

On March 19, 1958, an Interim Order of Reference was entered by the Court directing the State Water Rights Board (now known as the State Water Resources Control Board, SWRCB) to study the availability of all public and private records, documents, reports, and data relating to a proposed Order of Reference in the case. On June 11, 1958, the Court subsequently entered an "Order of Reference to State Water Rights Board to Investigate and Report upon the Physical Facts (Section 2001, Water Code)".

A Final Report of Referee was approved on July 27, 1962 and filed with the Court. The Report of Referee provided the results of a study of the surface and subsurface geology, the occurrence and movement of groundwater, aquifer characteristics, and the surface

hydrology. In addition, investigations were made of the history of: channels of the Los Angeles River and its tributaries; the general directions of groundwater flow within the area; the groundwater quality and the historic extractions of groundwater in ULARA; and all sources of water, whether they be diverted, extracted, imported, etc within the ULARA basins. The Report of Referee served as the principal basis for the geological, hydrogeological and hydrological facts for the original Trial Court Judgment in 1968, the Decision of the Supreme Court in 1975 (14 Cal 3d 199, 123 Cal Rept 1), and the Trial Court Final Judgment on remand on January 26, 1979.

The Trial Court issued its opinion on March 15, 1968. The City of Los Angeles filed an appeal from the Judgment of the Trial Court with the Court of Appeal, whereafter the City of Los Angeles conducted a hearing on November 9, 1972, and then issued its opinion on November 22, 1972. The opinion prepared by Judge Compton and concurred with by Judges Roth and Fleming, provided a reversal, with direction, of the original judgment handed down by Judge Moor on March 14, 1968. In essence, this reversed opinion gave rights to the City of Los Angeles for all water in ULARA, including the use of the groundwater in the local groundwater basins, along with some limited entitlements to others. The defendants, however, were given the right to capture "import return water", which was considered to be that portion of the water purchased from (and imported to the area by) the Metropolitan Water District of Southern California (MWD) that percolates back into the local groundwater basin.

A petition for rehearing was filed on December 7, 1972, but this petition was denied by the Court of Appeal. On January 2, 1973, the defendants filed a petition for hearing with the State Supreme Court. The Court on March 2, 1973 advised the parties it would hear the case, and the appeals hearing began on January 14, 1975.

On May 12, 1975, the California Supreme Court filed its opinion on the then-current 20 year-long San Fernando Groundwater Basin litigation. This opinion, which became final on August 1, 1975, upheld the Pueblo Water Rights of the City of Los Angeles to all groundwater in the SFB derived from precipitation (infiltration of direct rainfall plus surface water runoff) within ULARA. The Pueblo Water Rights of Los Angeles were not allowed to extend to and/or include the groundwater in the Sylmar, Verdugo, or Eagle Rock groundwater basins. However, all surface and groundwater underflows from these adjoining groundwater basins were considered to be a part of the Pueblo Water Rights of the City of Los Angeles.

The California Superior Court opinion also provided the City of Los Angeles with rights to all groundwater in the SFB that was derived from water imported by the City from outside ULARA that was eventually spread or delivered within the SFB. The Cities of Glendale and Burbank were also given rights to all SFB groundwater derived from water that each imports from outside ULARA and delivered within ULARA. Because the City of San Fernando was not a member of MWD until the end of 1971, and because that City had never imported any water from outside ULARA prior to 1971, the City of San Fernando was given no return flow rights based on a March 22, 1984 stipulation between the Cities of Los Angeles and San Fernando.

The Supreme Court reversed the principal judgment of the March 15, 1968 Trial Court opinion and remanded the case back to the Superior Court for further proceedings consistent with the Supreme Court's opinion. On remand, the case was assigned to the Honorable Harry L. Hupp, Judge of the Superior Court of Los Angeles County. The Final Judgment (Judgment), signed by Judge Hupp, was entered on January 26, 1979; copies of this Judgment are available from the ULARA Watermaster support staff at LADWP. Importantly, the water rights set forth in the Judgment are generally consistent with the opinion of the Supreme Court as described above, with the exception of a provision regarding the calculation of Import Return Credit. That is, contrary to the Supreme Court opinion, the cities of Los Angeles, Burbank, and Glendale in 1978 agreed to use all delivered water, instead of only imported water, in the calculation of Import Return Credit. This agreement among these cities has had a significant adverse impact on storage in the San Fernando Basin, as described later in this report.

In addition, the Judgment includes provisions and stipulations regarding water rights, storage of water, stored water credits, and arrangements for physical solution water for certain parties as recommended by the Supreme Court.

A separate stipulation was filed in Superior Court on January 26, 1979 appointing Mr. Melvin L. Blevins as the original ULARA Watermaster under the Judgment in this case. On September 1, 2003, Mr. Mark G. Mackowski was appointed ULARA Watermaster by the Superior Court, succeeding Mr. Blevins after his 24 years of service. On January 1, 2009, Mr. Richard C. Slade of Richard C. Slade and Associates LLC, Consulting Groundwater Geologists, was appointed and currently serves as the ULARA Watermaster, thereby succeeding Mr. Mark Mackowski after his 5 years of service.

On August 26, 1983, the original ULARA Watermaster (Mr. Blevins) reported to the Court, pursuant to Section 10.2 of the Judgment, that the Sylmar Basin was in a condition of overdraft. In response to the Watermaster's letter and a Minute Order of the Court, the Cities of Los Angeles and San Fernando responded by letter to the Court, agreeing with the Watermaster's report on overdraft in the Sylmar Basin. On March 22, 1984, Judge Hupp signed a stipulation ordering, effective October 1, 1984, that the Cities of Los Angeles and San Fernando would be limited in their pumping in the Sylmar Basin in order to bring their total groundwater extractions within the safe yield of this basin, including any rights exercised by private parties.

Pursuant to Judgment Section 8.2.10, the Watermaster in 1996 increased the safe yield of the Sylmar Basin on a temporary basis, from 6,210 acre-feet per year (AF/Y) to 6,510 AF/Y. On October 1, 2005 this temporary increase expired, and the Watermaster again re-evaluated the safe yield of the Sylmar Basin. Based on that re-evaluation, a recommendation was made in 2006 to increase the total safe yield of this basin to 6,810 AF/Y (3,405 AF/Y for each City), subject to certain conditions and requirements, including the construction of a number of groundwater monitoring wells to help determine the amount of groundwater outflow from the basin. Another re-evaluation of the safe yield of this basin is required within five years. The Court approved the new stipulation after its hearing on December 13, 2006.

In September 2007, the Cities of Los Angeles, Burbank, and Glendale entered into a 10-year Stipulated Agreement to address the long-term decline in stored groundwater in the San Fernando Basin (see Section 2.9 of this report, and Appendix G). This 10-year interim agreement restricts the pumping of Stored Water Credits, helps account for basin losses, and provides City of Los Angeles support for enhancing the recharge of native water. It also provided for a re-evaluation of the safe yield of the San Fernando Basin; this study is currently in-progress by Stetson Engineers.

Table 1-1, “Judges of Record,” lists the judges (and their respective date of appointment) who have succeeded the original Superior Court Judge (Judge Hopp); it was Judge Hopp who signed the Final Judgment in this case as Judge of Record for the San Fernando Judgment in 1979.

TABLE 1-1: JUDGES OF RECORD

Judge	Date Appointed
Vernon G. Foster	April 30, 1985
Miriam Vogel	January 16, 1990
Sally Disco	May 25, 1990
Jerold A. Krieger	April 16, 1991
Gary Klausner	December 9, 1991
Ricardo A. Torres	January 1, 1993
Susan Bryant-Deason	January 1, 1999

1.3 Extraction Rights

The extraction rights under the January 26, 1979 Judgment and the separate August 26, 1983 Sylmar Basin Stipulation are as follows:

San Fernando Basin

Native Water

The City of Los Angeles has an exclusive right to extract and utilize all the native safe yield water in this basin; this native safe yield was originally determined to be an average of 43,660 AF/Y. This represents the Pueblo Water Right of the City of Los Angeles under the Judgment.

Import Return Water

The Cities of Los Angeles, Glendale, and Burbank each have a right to extract the following amounts of groundwater from the SFB.

Los Angeles: 20.8 percent of all delivered water, including reclaimed water, to the valley fill land of the SFB.

Burbank: 20.0 percent of all delivered water, including reclaimed water, to the valley fill land of the SFB and all of its tributary hill and mountain areas.

Glendale: 20.0 percent of all delivered water, including reclaimed water, to the valley fill land of the SFB and all of its tributary hill and mountain areas.

Physical Solution Water

Several parties are granted limited entitlement to extract groundwater chargeable to the rights of others upon payment of specified charges. Table 1-2 "Physical Solution Parties," lists the various pumping parties and their maximum physical solution pumping volumes in units of acre feet per year (AF/Y).

TABLE 1-2: PHYSICAL SOLUTION PARTIES

Chargeable Party	Pumping Party	Allowable Pumping (AF/Y)
City of Los Angeles	City of Glendale	5,500
	City of Burbank	4,200
	Middle Ranch	50
	Hathaway	60
	Van de Kamp[1]	120
	Toluca Lake	100
	Sportsmen's Lodge	25
	Water Licenses	83
City of Glendale	Forest Lawn	400
	Angelica Healthcare[2]	75
City of Burbank	Valhalla	300
	Lockheed-Martin	25

1. Van de Kamp has never pumped its physical solution right.
2. Angelica Healthcare no longer pumps its physical solution rights.

Stored Water

Each of the Cities of Los Angeles, Glendale, and Burbank has a right to store groundwater and the right to extract equivalent amounts of groundwater from the SFB.

Sylmar Groundwater Basin

Native Water

The March 22, 1984 Stipulation assigned the Cities of Los Angeles and San Fernando equal rights to the total safe yield of the Sylmar Basin. On the recommendation of the Watermaster, and on July 16, 1996, the Administrative Committee approved a temporary increase in the safe yield of this basin from

6,210 AF/Y to 6,510 AF/Y for a 10-year period. The temporary 10-year period ended on October 1, 2005, and triggered a re-evaluation of the safe yield of this basin by the Watermaster. The Watermaster conducted the safe yield re-evaluation consistent with Section 8.2.10 of the Judgement. Another Stipulation approved by the Court on December 13, 2006 permitted a temporary increase in the safe yield of the Sylmar Basin to 6,810 AF/Y, beginning October 1, 2006.

The only potentially active private party with overlying rights within the Sylmar Basin is Santiago Estates, a successor to Meurer Engineering, M.H.C. Inc. The pumping of Santiago Estates is deducted from the safe yield of this basin and the Cities of Los Angeles and San Fernando are permitted to equally divide the remainder of the safe yield value of the Sylmar Basin. However, Santiago Estates has not pumped any groundwater since the 1998-99 Water Year.

Stored Water

Each of the Cities of Los Angeles and San Fernando has a right to store groundwater by in-lieu practices and a right to extract equivalent amounts of groundwater from the Sylmar Basin.

Verdugo Groundwater Basin

Native Water

The City of Glendale and the Crescenta Valley Water District (CVWD) have appropriative and prescriptive rights to extract 3,856 and 3,294 AF/Y of groundwater, respectively, from Verdugo Basin.

Import Return Water

The City of Los Angeles may have a right to recapture delivered imported water in this basin upon application to the Watermaster and on subsequent order after a hearing by the Court pursuant to Section 5.2.3.2 of the Judgment.

Stored Water

There are no storage rights for any party in the Verdugo Basin based on the Judgment.

Eagle Rock Basin

Native Water

The Eagle Rock Basin has only a small native safe yield.

Imported Return Water

The City of Los Angeles delivers imported water to lands overlying this groundwater basin, and return flow from this delivered water is considered to constitute the majority of the safe yield of the basin. Los Angeles has the right to extract, or allow to be extracted, the entire safe yield of this small groundwater basin.

Physical Solution Water

DS Waters (successor to Sparkletts and Deep Rock) has a physical solution right to extract groundwater from Eagle Rock Basin pursuant to a stipulation with the City of Los Angeles, and as provided in Section 9.2.1 of the Judgment.

Stored Water

There are no storage rights for any party in the Eagle Rock Basin, based on the Judgment.

1.4 Watermaster Service and Administrative Committee

In preparing this Annual Watermaster Report, the Watermaster support staff at LADWP continued to collect and record all information affecting and relating to the water supply, water use and disposal, groundwater levels, water quality, and the ownership and location of all new water-supply wells within ULARA. Groundwater pumpers are required to report their extractions on a monthly basis to the Watermaster. This allows the Watermaster staff at LADWP to update the Watermaster Water Production Accounts on a monthly basis, from which the allowable pumping by each party for the remainder of the year is determined.

Section 8.3 of the Judgment established an Administrative Committee for the purpose of advising the Watermaster in the administration of his duties. The duly appointed members of the Committee, as of May 1, 2009, are:

CITY OF BURBANK
Bill Mace (Vice-President)

CITY OF GLENDALE
Peter Kavounas (President)
Raja Takidin (Alternate)

CITY OF SAN FERNANDO
Ron Ruiz
Daniel Wall (Alternate)

CITY OF LOS ANGELES
Richard Harasick
Mark Aldrian (Alternate)

CRESCENTA VALLEY WATER DISTRICT
Dennis Erdman
David Gould (Alternate)

The Watermaster may convene the Administrative Committee at any time in order to seek its advice. Each year the Administrative Committee is responsible for reviewing and approving the proposed annual report prepared by the Watermaster. The Administrative Committee met on January 23, April 23, June 26, and September 17, 2008 of the 2007-08 Water Year. The Administrative Committee approved the 2007-08 Watermaster Report on _____.

1.5 Significant Events through April 2009

Groundwater System Improvement Study (GSIS)

In February 2009, LADWP entered into an agreement with Brown and Caldwell Consulting Engineers to provide LADWP with professional services for the GSIS to conduct an independent, expert, and comprehensive groundwater study of the San Fernando Basin in order to provide recommendations and assistance in developing and implementing programs and/or projects that will maximize the use of this groundwater supply. The work to date has involved a technical review of USEPA's Focused Feasibility Study for the North Hollywood Operable Unit.

Burbank Operable Unit (BOU)

The BOU, operated by Burbank under a contract with Southwest Water Company, formerly known as ECO Resources, Inc., and funded by Lockheed-Martin, removes volatile organic compounds (VOCs) from groundwater. The City of Burbank, in cooperation with the United States Environmental Protection Agency (USEPA) and Lockheed-Martin, continued with facility design improvements and operational changes to improve the mechanical reliability at the design capacity of 9,000 gallons per minute (gpm). During the 2007-08 Water Year, a total of 6,817 AF of groundwater was treated at the BOU. As a requirement of the Concent Decree, Burbank also reduces the levels of nitrate through its blending facility using imported supplies from MWD before delivery to the City of Burbank.

In 2004-05, the USEPA gave approval to modify the vapor-phase granular activated carbon (GAC) vessels at the BOU. Modifications to the vapor-phase GAC vessels were completed in 2008.

Montgomery Watson Harza (MWH) was hired by Burbank to perform a Well Field Performance Attainment Study that evaluated the well field and related facilities in an effort to increase production to 9,000 gpm. Recommendations included drilling additional wells and deflating the packers utilized in existing BOU wells.

Glendale Operable Unit (GOU)

The GOU removes VOCs and has the capability of treating up to a total of 5,000 gpm from the Glendale North and South OU well fields. Treated water is blended with imported MWD supplies to reduce nitrate and hexavalent chromium levels. The GOU treated a total of 7,347 AF during the 2007-08 Water Year.

In an effort to control hexavalent chromium levels, the GOU operates under an interim pumping plan approved by the USEPA that varies from the original Consent Decree. The interim plan allows reduced pumping from high-chromium wells, and increased pumping from low-chromium wells.

Several GOU wells are experiencing increasing hexavalent chromium levels. Because the discharge of the pumped water into the Los Angeles River is limited to 8 micrograms per liter [µg/L, which is equivalent to parts per billion, ppb] of hexavalent chromium,

routine activities, such as well maintenance and GAC backwashing, present a serious obstacle to the ongoing operation of the GOU.

Glendale has continued to pursue an aggressive research program to identify large-scale treatment technologies for the removal of hexavalent chromium. A study by McGuire Malcolm Pirnie was presented to an expert panel in October 2006 that identified two promising technologies: weak-base anion exchange (WBA) and reduction-coagulation-filtration. A weak-base anion exchange wellhead treatment system is expected to be installed in July 2009 on Well GS-3 to remove chromium. The facility has been named the WBA Chromium Removal Demonstration (WBA-CRD) Facility.

North Hollywood Operable Unit (NHOU)

The LADWP's NHOU, funded in part by a USEPA Consent Decree, is designed to remove VOCs at a rate of 2,000 gpm using a system of seven extraction wells and an air-stripping tower. The 15-year Consent Decree expired on December 31, 2004. The USEPA has stated that there are sufficient funds to continue operation and maintenance of the NHOU into 2012. However, the NHOU did not contain the VOC plume as expected, and some VOCs have been detected at nearby LADWP municipal-supply well fields. In addition, hexavalent chromium levels have increased significantly, forcing the closure of one of the NHOU wells. The USEPA, LADWP, and the Watermaster are currently evaluating remedial alternatives. A total of 1,038 AF of groundwater was treated during the 2007-08 Water Year.

USEPA is working with stakeholders to upgrade the existing NHOU system. Recently, they released a draft of the Focused Feasibility Study to address the second interim remedy for NHOU. The study entails construction of approximately 37 monitoring wells to further characterize the water quality and hydrogeology of the area, the construction of three new extraction wells, and the rehabilitation of existing wells. Adding treatment for chromium and 1-4 dioxane is also to be provided.

Pollock Wells Treatment Plant

LADWP's Pollock Wells Treatment Plant treats groundwater pumped from two Pollock water wells and utilizes two wells and four liquid-phase GAC vessels to remove VOCs from the groundwater at a total design extraction rate of 3,000 gpm. The primary purpose of the facility is to prevent the loss of groundwater through the Los Angeles River Narrows due to rising groundwater outflow. An evaluation of the Pollock area was

performed in 1990 that showed an average of approximately 2,000 AF/Y of excess rising groundwater occurring in the Los Angeles River Narrows as a result of delivered water, precipitation, and percolation along the unlined portion of the river within the Narrows area. This is part of Los Angeles' water right, and it is lost from the SFB in the absence of pumping at the Pollock Wells.

During Water Year 2007-08, a total of 2,573 AF of groundwater was pumped and treated.

Verdugo Park Water Treatment Plant

The City of Glendale's Verdugo Park Water Treatment Plant (VPWTP) treats groundwater from the Verdugo Basin for turbidity and bacteria, and is operating significantly below the expected rate of 700 gpm. Methods to increase the treatment rate are being investigated. The City is not able to reach the treatment capacity for the VPWTP due to the lack of production capacity from the two Verdugo wells that were constructed in 1990. The reduced treatment rate may be causing an increase in rising groundwater leaving the Verdugo Basin (see Table 2-3). A total of 715.2 AF was treated in the 2007-08 Water Year.

Glenwood Nitrate Removal Plant

CVWD's Glenwood Nitrate Removal Plant uses ion exchange to remove nitrate from groundwater. The facility treated 660 AF during the 2007-08 Water Year.

CVWD Pumping in the Verdugo Basin

During the 2007-08 Water Year CVWD under-pumped its annual right of 3,294 AF by 15 AF. However, CVWD over-pumped its right in the 2006-07 Water Year by 12 AF without obtaining prior permission from the ULARA Administrative Committee or the Watermaster. CVWD promised to compensate Glendale for the over-pumping but no payment has been made as of the date of this report. CVWD and Glendale continue to work toward resolving the matter. The Watermaster cautions all parties not to exceed their annual rights without prior approval from the Watermaster.

Proposed Increase in Glendale's Pumping Capacity in the Verdugo Basin

Glendale has never pumped its full water right of 3,856 AF/Y from the Verdugo Basin. In the past two years, Glendale has been actively looking for new well sites to increase its groundwater production capacity from the Verdugo Basin. In 2007, Glendale drilled two pilot boreholes in the basin and conducted isolated aquifer zone testing in each borehole. Due to the poor results of the zone tests (i.e., the low flow rates), neither borehole was reamed out and casing was not installed at either drill site; both boreholes were permanently destroyed. In October 2007, Glendale began the rehabilitation of the Foothill Well. It is expected to be in service by 2010. Glendale also has planned to drill a third pilot hole in the Montrose area in early-2009. The outcome of the third pilot hole shall be addressed in the annual Watermaster Report for 2008-09 Water Year. The Watermaster appreciates Glendale's effort in drilling and testing exploratory boreholes and in rehabilitating existing wells to increase their pumping from the Verdugo Basin.

Mission Well Field Rehabilitation

LADWP has accrued 9,423 AF of Stored Water Credits in the Sylmar Basin as of October 1, 2008. In March 2006 the Watermaster expressed concern over the accumulation of a large amount of Stored Water Credits, and recommended that LADWP begin pumping these credits.

In response to the Watermaster's recommendation, LADWP has proposed a project to construct a new tank, wells, and appurtenant facilities at its Mission Well Field, which should enable LADWP to pump its full entitlement in the future. Phase 1 of the project includes construction of the new tank and appurtenant facilities and this work is scheduled to be completed by June 2009. Phase 2, which includes construction of three new wells and appurtenant facilities, is currently in the planning phase.

Water Recycling Program in the San Fernando Valley

LADWP is developing the Recycled Water Master Plan, which will identify options to maximize recycled water use throughout the entire City of Los Angeles. The Master Plan is anticipated to be completed by 2012 and will result in projects that will connect various users to the recycled water distribution network. Other water recycling projects currently in progress include establishing recycled water delivery to the Van Nuys Golf Course, Hansen Dam Golf Course, Valley Presbyterian Hospital, and Van Nuys High School. LADWP expects to deliver as much as 19,350 AF of recycled water, annually,

by 2014, which includes an estimated 3,000 AF of delivery to the SFB. The City of Los Angeles' water supply goals set by Mayor Antonio Villaraigosa provides that by 2019 as much as 50,000 AF of recycled water will be delivered city-wide each year for non-potable reuse and conjunctive use.

Headworks

The former Headworks Spreading Grounds is the site of a multi-objective project to improve water quality, provide the community with an opportunity for passive recreation, and restore a portion of the wetlands along the Los Angeles River. LADWP has completed its preliminary studies and the Environmental Impact Report for the Silver Lake Reservoir Complex Storage Replacement Project (SLRC SRP). The SLRC SRP will allow LADWP to comply with the Long Term 2 Enhanced Surface Water Treatment Rule and the Stage 2 Disinfectants and Disinfection Byproducts Rule that were recently promulgated by the USEPA. The SLRC SRP will remove Silver Lake and Ivanhoe reservoirs from service as potable water reservoirs and transfer regulatory storage to a buried 110-million gallon reservoir to be constructed at the Headworks Spreading Grounds site. A new hydroelectric power plant will be constructed as part of this project and will provide approximately four megawatts of green power.

A second project under consideration at the Headworks Spreading Grounds site is a joint effort between the United States Army Corps of Engineers and LADWP to develop wetlands on a portion of this site. This project is currently undergoing a feasibility analysis.

The project design is scheduled to be completed by December, 2009 and is intended to be sent out to bid immediately thereafter. Construction is expected to begin mid-2010, and completion of the project (reservoir, regulating station, River Supply Conduit Unit 1A, and hydro-electric generation power plant) is expected by the end of 2013.

Projects to Enhance Recharge Capacity in the San Fernando Groundwater Basin

LADWP and LACDPW are cooperating on several projects to enhance recharge of native water in the SFB. These projects include: Big Tujunga Dam Seismic Retrofit Project; enlargement and modernization of the Hansen Spreading Grounds; the Tujunga Spreading Grounds Enhancement Project; the Pacoima Spreading Grounds Enhancement Project; the Sheldon-Arleta Project–Cesar Chavez Recreational Complex Project (Phase I); and other distributed recharge efforts to implement non-traditional

flood control measures that provide the combined benefit of flood protection, stormwater capture and groundwater recharge, The following paragraphs provide additional discussion of each of the above-mentioned projects.

Big Tujunga Dam Seismic Retrofit Project

The project was developed to seismically retrofit the dam and increase spillway capacity. In addition to preventing flood damage and impacts to public safety associated with a dam failure, the project provides for the conjunctive management of stormwater runoff at the dam.

LADWP and the Los Angeles County Flood Control District (LACFCD) entered into a cooperative agreement in September 2007, with LADWP providing $9 million to the LACFCD to help fund construction of the $100 million project. This project is expected to increase average annual stormwater capture by 4,500 to 10,000 AF. The project is currently under construction and is scheduled to be completed by the end of 2010.

Hansen Spreading Grounds Enhancement Project

The Hansen Spreading Grounds is a 156-acre parcel located adjacent to the Tujunga Wash Channel downstream from the Hansen Dam. The site is utilized for recharging the SFB. Construction is currently underway to retrofit and automate the current intake structure on the Tujunga Wash and to combine and deepen the separate spreading basin at this facility.

LADWP and LACFCD entered into a Cooperative Agreement in April 2008 to equally cost-share in construction costs for the $15 million project. This project is expected to increase average annual stormwater capture by 1,200 to 3,000 AF. The project is currently under construction and is scheduled to be completed by the end of 2009.

Tujunga Spreading Grounds Enhancement Project

The Tujunga Spreading Grounds, owned by LADWP and operated by LACFCD, is a 188-acre parcel located along the Tujunga Wash Channel at its confluence with the Pacoima Wash Channel. Plans are underway to enhance the facility by relocating and automating the current intake structure on the Tujunga Wash, installing a second automated intake to receive flows from the Pacoima Wash, and reconfiguring the spreading basins. Other enhancements include recreational walking trails, native habitat, and educational facilities on land not needed for the primary function of stormwater

capture. These improvements will greatly increase stormwater capture and subsequent groundwater recharge while improving flood protection, water quality, and open space attributes.

This project is expected to increase average annual stormwater capture by 4,000 to 8,000 AF. Final concepts and designs are scheduled to be completed by the end of 2010.

Pacoima Spreading Grounds Enhancement Project

The 169-acre Pacoima Spreading Grounds, owned and operated by LACFCD, is located on both sides of the old Pacoima Wash Channel downstream from the Pacoima Dam and Reservoir. LADWP and LACFCD are currently working cooperatively to upgrade the facility to better capture stormwater by upgrading and automating the intake facility and rehabilitating the recharge basins.

This project is expected to increase average annual stormwater capture by 1,500 to 3,000 AF. Final concepts and designs are scheduled to be completed by the end of 2012.

Sheldon-Arleta Project – Cesar Chavez Recreational Complex Project (Phase I)

The Sheldon-Arleta Project is located at the Sheldon-Arleta Landfill adjacent to the Tujunga Spreading Grounds. During stormwater spreading operations at the Tujunga Spreading Grounds the potential exists to displace the methane gas produced within the landfill. In recent years, methane gas has migrated offsite and currently being elevated concentrations of this gas have been detected at a nearby school. To avoid these episodes, limitations have been placed on the amount of stormwater that can be spread at the Tujunga Spreading Grounds. These limitations have reduced the capacity of the spreading grounds to approximately 20 percent of their original capacity.

The Sheldon-Arleta Project, a collaborative effort between LADWP, LABOS, and LABOE, replaces the existing methane gas collection system at the Sheldon-Arleta Landfill with a new gas collection system. This system will enhance the containment of the methane gas within the landfill and restore the historic spreading flow capacity of 250 cubic feet per second, and will help bring some of the spreading basins closest to the landfill back into operation. Upon construction completion, a consultant will begin an evaluation to determine the maximum possible recharge capacity.

This project is expected to increase average annual stormwater capture by 3,000 to 5,000 AF. Construction began in 2007 and is scheduled to be completed in early- to mid-2009.

LADWP's Distributed Recharge Efforts

Across the San Fernando Valley, urban stormwater runoff from impervious surfaces enters the storm drain system and is eventually discharged into the ocean. LADWP is exploring partnerships, projects, and programs to promote infiltration of rainfall runoff close to its point of origin. Several partnerships that LADWP continues to develop are with the City of Los Angeles Department of Public Works, the County of Los Angeles Flood Control District, the Metropolitan Water District of Southern California, TreePeople, and the Los Angeles and San Gabriel Rivers Watershed Council. Some of the projects and programs being developed include facility retrofits, neighborhood retrofits, and local recharge projects such as along medians, power line easements, and parkways.

Standard Urban Stormwater Mitigation Plan (SUSMP)

As a result of the municipal stormwater National Pollution Discharge Elimination System Permit (NPDES Permit No. CAS004001) issued December 2001 by the LARWQCB, Los Angeles County and the 84 cities subject to the region-wide permit developed and adopted Standard Urban Stormwater Mitigation Plan (SUSMP) policies or ordinances within their respective jurisdictions to address stormwater pollution. Under SUSMP, private-sector new development and redevelopment projects may be required to implement certain Best Management Practices and/or stormwater mitigation measures to contain or treat the first ¾-inch of rainfall runoff from every storm; and these developments are also encouraged to implement on-site stormwater infiltration. The City of Los Angeles refers new projects to the Watermaster that are undergoing a SUSMP evaluation within the San Fernando Basin. The Watermaster reviews the SUSMP mitigation measures and provides a determination as to the potential effects that on-site stormwater infiltration might have on the basin. The Watermaster encourages runoff infiltration wherever feasible, but is concerned about the possibility of polluting groundwater quality caused by infiltration using potentially contaminated surface runoff or through any known subsurface contamination.

Integrated Resources Plan (IRP)

The IRP is Los Angeles' plan to integrate its wastewater, storm water, potable water, and reclaimed water programs for the next 20 years. The IRP uses a broader "watershed" approach to promote more efficient use of all water within the City. The Watermaster served on the Management Advisory Committee and guided the process with respect to water rights and water quality within ULARA.

Dewaterers

Groundwater levels in portions of the SFB are near ground surface. As a result, permanent dewatering is required at certain structures with deep underground parking structures in these areas to artificially lower and maintain groundwater levels. Wherever such dewatering is needed, the building owner (i.e., the "dewaterer") is required to meter the extracted groundwater (i.e., the rates and volumes of discharge), report the extractions to the Watermaster, and to enter into an agreement with the affected Party for payment for this extraction. The Watermaster requires and receives groundwater production reports from several dewaterers in the SFB (see Table 2-5).

Water Licenses

Portions of ULARA located in unincorporated Los Angeles County are without water service. Working in cooperation with the County Department of Public Health and the County Planning Department, the Watermaster and LADWP have developed a process to identify and monitor water usage through a water license agreement (see Table 2-5). The agreements allow the use of groundwater on overlying property until a water service becomes available. The agreements also establish maximum annual groundwater usage, and require the monthly reporting of groundwater production to the Watermaster and annual payment to the City of Los Angeles.

Glendale Request for Stored Water Credit Adjustment

In August 2007, Glendale submitted a letter requesting an adjustment of 3,052 AF to its Stored Water Credits in the SFB due to an over-reporting of groundwater extractions at the Grayson Power Plant. On November 13, 2007, the Watermaster and Glendale met to discuss the issue and concluded that further investigation was necessary. On April 8, 2008, Glendale submitted a letter of conclusion of findings to the Watermaster in regards to the groundwater pumping adjustment. Watermaster disagreed with the data analysis provided by Glendale and therefore denied the requested adjustment on June 26, 2008.

Glendale will submit additional analysis to the Watermaster in 2009 for reconsideration of the requested adjustment.

1.6 Summary of Water Operations in ULARA

Highlights of all elements of water operations within ULARA for the 2006-07 and 2007-08 Water Years are summarized in Table 1-3. Details of the 2007-08 Water Year operations and hydrologic conditions are provided in Section 2. Plates 2 through 8 show locations of the groundwater basins, water service areas and well locations of the Parties and individual producers. Locations of other important facilities are shown on these plates, including climatic stations, rain and runoff gages, and spreading basins. Locations of river tributaries, landfills, and sewer projects are also illustrated.

Average Rainfall

Average precipitation on all valley floor areas during the 2007-08 Water Year in ULARA was 15.10 inches; this value represents 92 percent of the calculated 100-year mean (16.48 inches). Average precipitation in the mountain areas within ULARA in the 2007-08 Water Year was 18.62 inches; this value is 86 percent of the calculated 100-year mean (21.76 inches). The weighted average of 17.27 inches of all precipitation throughout ULARA is 88 percent of the 100-year mean (19.64 inches).

Spreading Operations

A total of 21,638 AF of native water was spread in 2007-08. The average annual spreading of native water for the 1968-2008 period is 26,178 AF.

Groundwater Extractions

Total groundwater extractions amounted to 80,103 AF in 2007-08 in all four groundwater basins. Specific extractions were: 67,312 AF in San Fernando Basin; 6,666 AF in Sylmar Basin, 5,945 AF in Verdugo Basin, and 180 AF in Eagle Rock Basin. This current total represents a decrease of 31,204 AF from 2006-07, and is less than the 1968-2008 average of 97,225 AF. Of the total for the 2007-08 Water Year, 1,856 AF of groundwater were pumped for non-consumptive use. Appendix A contains a summary of groundwater extractions for the 2007-08 Water Year.

Imports

Gross imports (including pass-through water) for 2007-08 totaled 575,227 AF; this represents a decrease of 5,160 AF from the 2006-07 total. Net imports used within ULARA in 2007-08 amounted to 323,671 AF, a decrease of 9,617 AF from the volume of imported water used during 2006-07.

Exports

A total of 300,105 AF were exported from ULARA. Of the 300,105 AF exported, 48,549 AF were from groundwater extractions, and 251,556 AF were from imported supplies (pass-through water).

Treated Wastewater

A total of 85,051 AF of wastewater was treated in ULARA in 2007-08. The majority of the treated water, 57,351 AF, was discharged to the Los Angeles River. A portion of the treated water was exported from ULARA and delivered to the Hyperion Treatment Plant located in Playa Del Rey, and the remaining amount, approximately 9,195 AF or 11 percent, was used as recycled water as discussed below.

Recycled Water

Total recycled water used in 2007-08 in ULARA was 9,195 AF. This represents an increase of 265 AF from the 2006-07 value. The recycled water is used for landscape irrigation, in-plant use, power plant use (i.e. cooling), and other industrial uses.

Groundwater Storage

Groundwater storage increased in the SFB during 2007-08 by 9,443 AF. Stored water increased primarily due to reduced pumping by the City of Los Angeles and a greater amount of rainfall for the year. The estimated changes in groundwater storage for the Sylmar, Verdugo, and Eagle Rock basins are 672, 1347, and 38 AF**,** respectively.

Wells

During the 2007-08 Water Year, no new municipal-supply water wells were constructed or destroyed in any of the four groundwater basins in ULARA.

TABLE 1-3: SUMMARY OF OPERATIONS IN ULARA

Category	Water Year 2006-07	Water Year 2007-08
Active Pumpers (parties and nonparties)	34	34
Inactive Pumpers (parties)[1]	7	7
Annual Weighted Average Rainfall, in inches		
Valley Floor	4.39	15.10
Mountain Area	5.97	18.62
Total ULARA	5.36	17.27
Spreading Operations, in acre-feet	7,974	21,638
Extractions, in acre-feet	111,308	80,103
Gross Imports, in acre-feet		
Los Angeles Aqueduct Water	199,029	151,464
MWD Water	381,358	423,763
Total	**580,387**	**575,227**
Exports, in acre-feet		
Los Angeles Aqueduct Water	84,782	63,743
MWD Water	162,317	187,813
Groundwater	72,722	48,549
Total	**319,821**	**300,105**
Net Groundwater Used in ULARA	38,586	31,554
Net Imports Used in ULARA, in acre-feet	333,288	323,671
Recycled Water Used, in acre-feet	8,930	9,195
Total Water Used in ULARA, in acre-feet [2]	380,804	364,420
Treated Wastewater, in acre-feet [3]	88,899	85,051

1. The seven inactive pumpers are Van de Kamp, Disney, Angelica, Santiago Estates, Greeff, Sears, and Waste Management.
2. Extractions used in ULARA plus Net Imports and Recycled Water.
3. Most treated wastewater is discharged to the Los Angeles River, whereas the remaining amounts are delivered to the Hyperion Plant or to other locations utilizing recycled water.

1.7 Allowable Pumping for the Forthcoming 2008-09 Water Year

Table 1-4 provides a summary of the groundwater extraction rights in each of the three major groundwater basins in ULARA for the forthcoming 2008-09 Water Year and the Stored Water Credit (as of October 1, 2008), for the Cities of Los Angeles, Burbank, Glendale, San Fernando, and the CVWD. The calculation of these values is shown in more detail in Section 2.

TABLE 1-4: ALLOWABLE GROUNDWATER EXTRACTION RIGHTS
2008-09 WATER YEAR - ULARA
(Acre-feet)

	Native Safe Yield Credit [1]	Import Return Credit [2]	Total Native + Import	Available Stored Water Credit [3, 4] (as of Oct. 1, 2008)	Allowable Pumping 2008-09 Water Year
San Fernando Basin					
City of Los Angeles	43,660	44,134	87,794	120,560	208,355
City of Burbank	---	4,855	4,855	5,550	10,405
City of Glendale	---	5,786	5,786	16,838	22,624
Total	43,660	54,776	98,436	142,948	241,384
Sylmar Basin					
City of Los Angeles	3,405	---	3,405	9,422	12,827
City of San Fernando	3,405	---	3,405	983	4,388
Total	6,810	---	6,810	10,405	17,215
Verdugo Basin					
CVWD	3,294	---	3,294	---	3,294
City of Glendale	3,856	---	3,856	---	3,856
Total	7,150	---	7,150	---	7,150

1) Native Safe Yield extraction right per page 11 of the Judgment,.
2) Import Return extraction right per page 17 of the Judgment,.
3) There is no Stored Water Credit assigned in Verdugo Basin.
4) See Table 2-11A for calculation of SFB Totals and Store water credits in reserve.

2. WATER SUPPLY, OPERATIONS, AND HYDROLOGIC CONDITIONS

2. WATER SUPPLY, OPERATIONS, AND HYDROLOGIC CONDITIONS

2.1 Precipitation

Precipitation varies considerably throughout ULARA depending on topography and elevation. Mean annual precipitation ranges from about 14 inches at the western end of the San Fernando Valley to 33 inches near the top of the watershed in the San Gabriel Mountains on the east side of ULARA. Approximately 80 percent of the annual rainfall in ULARA occurs from December through March.

During the 2007-08 Water Year, the weighted average rainfall on the valley floor areas was 15.10 inches (92 percent of the 100-year mean), whereas the weighted average annual rainfall in the hill and mountain areas was 18.62 inches (86 percent of the 100-year mean). The weighted average of both valley floor and mountain areas was 17.27 inches (88 percent of the 100-year mean). Table 2-1 provides rainfall data for several rain gages in the valley floor areas and the hill and mountain areas, and Plate 5 illustrates the locations of these rain gages. Figure 2.1 shows monthly valley floor and mountain area rainfall in ULARA for 2007-08.

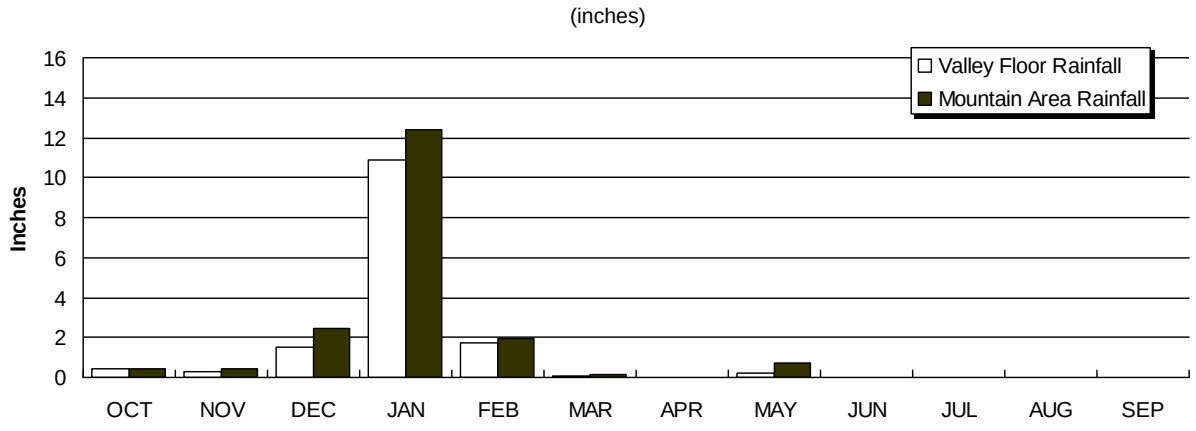
TABLE 2-1: 2007-08 PRECIPITATION

(inches)

Gage No.	LACDPW Rain Gage Stations	2007-08 Precipitation	100-Year Mean (1881-1981)	Percent of 100-Year Mean
	Valley Floor Areas			
13C	North Hollywood-Lakeside	17.81	16.63	107%
1107D	Green Verdugo Pumping Plant	12.76	14.98	85%
465C	Sepulveda Dam	17.11	15.30	112%
21B	Woodland Hills	13.77	14.60	94%
735H	Chatsworth Reservoir	15.78	15.19	104%
1222	Northridge-LADWP	7.87	15.16	52%
251C	La Crescenta	20.60	23.31	88%
293B	Los Angeles Reservoir	16.25	17.32	94%
	Weighted Average[1]	**15.10**	**16.48**	**92%**
	Hill & Mountain Areas			
11D	Upper Franklin Canyon Reservoir	20.65	18.50	112%
17	Sepulveda Canyon at Mulholland	20.87	16.84	124%
33A	Pacoima Dam	14.11	19.64	72%
47D	Clear Creek - City School	32.57	33.01	99%
53D	Monte Cristo Ranger Station	21.70	29.04	75%
54C	Loomis Ranch-Alder Creek	12.09	18.62	65%
210C	Brand Parks	13.87	19.97	69%
797	DeSoto Reservoir	18.89	17.52	108%
1074	Little Gleason	17.92	21.79	82%
	Weighted Average[1]	**18.62**	**21.76**	**86%**
	Weighted Average Valley/Mountain Areas[1]	**17.27**	**19.64**	**88%**

1. Weighted Average calculations performed according to Report of Referee-7/62. Mountain Station Weighted Average estimated due to incomplete data.

FIGURE 2.1: 2007-08 MONTHLY WEIGHTED AVERAGE RAINFALL



2.2 Runoff and Outflow from ULARA

The entire watershed of ULARA contains 328,500 acres, of which 205,700 acres are considered to be the hill and mountain areas. The drainage system in ULARA is made up of the Los Angeles River and its tributaries. Surface flow in ULARA originates as runoff from the hills and mountains, runoff from the impervious areas of the valley floor, industrial and sanitary waste discharges, domestic irrigation runoff, and rising groundwater.

A number of stream-gaging stations are maintained throughout ULARA, either by the LACDPW or the United States Geological Survey (USGS). The Watermaster has selected six key gaging stations which record runoff from the main hydrologic areas in ULARA. From upstream to downsream, these six gaging stations (the locations for which are shown on Plate 5) are as follows:

1. Station F-118B-R registers all releases from Pacoima Dam. Runoff below this point flows to the Los Angeles River through lined channels, or can be diverted to the Lopez and Pacoima Spreading Grounds.

2. Station F-168-R registers all releases from Big Tujunga Dam, which collects runoff from the watershed to the northeast. Runoff below this point flows to Hansen Dam.

3. Station F-300-R registers all flow east of Lankershim Boulevard plus the portion of outflow from Hansen Dam which is not spread. These records also include flow through the Sepulveda Dam.

4. Station E-285-R registers flow from the westerly slopes of the Verdugo Mountains and some flow from east of Lankershim Boulevard in the San Fernando Basin. It also records any releases of reclaimed wastewater discharged by the City of Burbank.

5. Station F-252-R registers flow from Verdugo Canyon which includes flows from Dunsmore and Pickens canyons.

6. Station F-57C-R registers all surface outflow from ULARA.

Table 2-2 summarizes the monthly runoff for these six stations for 2006-07 and 2007-08. The 2007-08 daily mean discharge rates for these six stations are summarized in Appendix B.

TABLE 2-2: MONTHLY RUNOFF AT SELECTED GAGING STATIONS

(acre-feet)

Station	Water Year	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
F-57C-R	2006-07	6,950	6,770	8,550	9,250	12,610	7,460	8,340	6,940	5,600	6,200	6,120	10,710	**95,500**
L.A. River Arroyo Seco	2007-08	6,840	7,170	9,660	65,090	19,000	20,900	22,400	6,920	4,720	4,860	4,830	4,350	**176,740**
F-252-R	2006-07	931	889	720	721	854	548	612	474	487	538	456	713	**7,943**
Verdugo Wash	2007-08	284	121	348	6,360	605	393	365	381	309	243	263	240	**9,912**
E-285-R	2006-07	844	630	1,110	1,320	1,700	1,210	1,270	1,200	1,110	1,000	930	1,330	**13,654**
Burbank Storm Drain	2007-08	1,060	1,370	1,390	5,450	1,380	2,130	1,710	1,240	978	965	540	568	**18,781**
F-300-R	2006-07	3,620	3,800	6,370	7,240	8,010	4,650	4,940	3,200	3,510	4,310	4,400	13,470	**67,520**
L.A. River Tujunga Ave.	2007-08	7,060	6,080	10,500	62,650	30,670	4,290	4,090	4,140	3,230	3,010	3,060	3,010	**141,790**
F-168-R	2006-07	251	291	441	443	219	716	54	214	49	37	28	21	**2,764**
Big Tujunga Dam	2007-08	450	1,270	452	3,320	4,190	2,340	60	24	252	625	224	23	**13,230**
F-118B-R	2006-07	0	0	129	0	6	0	3	0	0	0	0	0	**138**
Pacoima Dam	2007-08	1	2	12	2,170	3,220	0	1,120	331	0	0	0	0	**6,856**

2.3 Components of Surface Flow

The surface flow of the Los Angeles River at Gaging Station F-57C-R consists of:

1. Storm flows;
2. Treated wastewater from the Tillman, Burbank, and Los Angeles-Glendale Water reclamation plants;
3. Industrial discharges and domestic irrigation runoff; and,
4. Rising groundwater.

Storm flows are often the largest component of surface flow at Gage F-57C-R, and these flows occur mostly in the winter months (Table 2-3 and Appendix B).

A significant factor affecting surface flow in the Los Angeles River has been the release of treated wastewater. Releases from the Los Angeles-Glendale Plant began in 1976-77 and from the Tillman Plant in September 1985.

Industrial discharges and irrigation runoff upstream of Gage F-57C-R are relatively small but, in total, are considered to be significant contributors to surface flow. Field inspection during 1998-99 confirmed year-round unmetered flows of domestic irrigation runoff from residential areas, golf courses and industrial sites.

Rising groundwater is a constant source of loss from the Verdugo and San Fernando groundwater basins. Rising groundwater occurs above the Verdugo Wash Narrows, and in the unlined reach of the Los Angeles River upgradient from Gage F-57C-R. Outflow at Gage F-57C-R includes rising groundwater leaving the Verdugo Basin past Gage F-252-R (Table 2-3). In 2007-08 rising groundwater was estimated to be 1,212 AF at Gage F-252-R and a total of 3,905 AF at the downstream Gage F-57C-R.

Releases of treated wastewater also has an influence on rising groundwater. These large year-round releases tend to keep the alluvium beneath the Los Angeles River saturated, even in dry years. Nevertheless, there is some opportunity for continuing percolation in the unlined reaches of the river, both upstream and downstream of the lined section near the confluence of the Verdugo Wash and the Los Angeles River. Water percolating in the unlined reach is thought to percolate through the shallow alluvial zones and to re-appear as rising groundwater at a location downstream from Los Feliz Boulevard. Also, there is up to 3,000 AF of recharge from

delivered water within the Los Angeles Narrows-Pollock Well Field area that contributes to the rising groundwater condition.

In the Report of Referee (1962, Volume II, Appendix O), procedures were developed for the calculation of rising groundwater for the period 1928-1958. Some of the important factors of that study that are no longer significant include: releases of Owens River water; operation of the Chatsworth Reservoir; and operation of the Headworks Spreading Grounds. As shown on Figure O-2 of the Report of Referee, excess rising groundwater was considered to have declined to zero by the late-1950s. The January 1993 report by Brown and Caldwell, "Potential Infiltration of Chlorides from the Los Angeles River Narrows into the Groundwater Aquifer" assessed groundwater levels along the course of the Los Angeles River. The Watermaster provided the data for this evaluation. As of the end of the drought period in 1977, groundwater levels in the Los Angeles River Narrows were very low, with very little potential for creating excess rising groundwater at that time. High rainfall and large runoff occurred during the 1978-83 period, which, combined with reduced pumping in the Crystal Springs, Grandview, and Pollock well fields, caused large rises in groundwater levels in the Los Angeles River Narrows. These increased groundwater levels caused increases in the amounts of rising groundwater.

Finally, the methodology used to calculate rising groundwater (Table 2-3) needs to be improved. Over the years, many of the gaging stations in the Los Angeles River and its tributaries have been lost or abandoned. Actual data from these gaging stations have been replaced by estimates, and the flow model has been used to check the results. Although the current methodology provides an approximation, it is much less precise than using actual flow data.

In March 2007, the ULARA Administrative Committee requested the Watermaster to improve the calculation of rising groundwater leaving the San Fernando Basin. Subsequently, in September 2007, the Cities of Glendale, Burbank, and Los Angeles entered into an agreement to address the long-term decline in storage in the SFB and the accumulation of a large quantity of Stored Water Credits for which there is an insufficient quantity of actual water in storage. This agreement included a provision to conduct a re-evaluation of the safe yield of the San Fernando Basin. The safe yield re-evaluation which is currently being conducted by Stetson Engineers, will include an assessment of rising groundwater, and , recommendations, as needed, to improve the accuracy of the rising groundwater loss calculation.

TABLE 2-3: ESTIMATED SEPARATION OF SURFACE FLOW AT STATIONS F-57C-R & F-252-R

(acre-feet)

	F-57C-R				F-252-R		
Water Year	Rising Groundwater[1]	Waste Discharge	Storm Runoff	Total Outflow	Rising Groundwater[2,3]	Storm Runoff [3]	Total Outflow
2007-08	3,905	76,287	96,548	176,740	1,212	8,700	9,912
2006-07	1,720	72,544	21,236	95,500	1,272	6,668	7,943
2005-06	5,441	74,256	77,063	156,760	1,414	12,717	14,131
2004-05	6,309	70,828	423,293	500,430	5,198	31,874	37,072
2003-04	3,330	90,377	42,153	135,860	2,468	2,851	5,319
2002-03	3,869	75,159	106,862	185,890	3,167	5,183	8,350
2001-02	2,126	74,737	43,937	120,800	1,819	5,721	7,540
2000-01	3,000	91,795	94,065	188,860	1,500	6,370	7,870
1999-00	1,980	78,009	62,202	142,190	824	4,243	8,470
1998-99	2,000	72,790	39,110	113,900	1,000	2,534	7,250
1997-98	4,000	97,681	245,079	346,730	4,000	12,140	16,140
1996-97	3,000	75,827	76,485	155,312	3,000	13,860	16,860
1995-96	3,841	86,127	61,188	151,156	2,577	10,946	13,523
1994-95	4,900	66,209	367,458	438,567	4,809	28,881	33,696
1993-94	2,952	60,594	73,149	136,695	1,387	6,156	7,543
1992-93	4,900	77,000	478,123	560,023	3,335	20,185	23,520
1991-92	3,000	120,789	197,040	320,829	1,412	13,209	14,621
1990-91	3,203	75,647	117,779	196,629	1,157	6,865	8,022
1989-90	3,000	76,789	55,811	167,639	1,182	2,938	4,120
1988-89	3,000	80,020	56,535	136,843	1,995	4,453	6,448
1987-88	3,000	81,920	74,074	156,204	3,548	10,493	14,041
1986-87	3,000	64,125	19,060	83,295	2,100	1,690	3,790
1985-86	3,880	48,370	102,840	155,090	2,470	6,270	8,740
1984-85	3,260	21,600	46,300	71,160	2,710	3,970	6,680
1983-84	3,000	17,780	49,090	69,870	4,000	n/a	n/a
1982-83	3,460	17,610	384,620	405,690	5,330	21,384	26,714
1981-82	1,280	18,180	80,000	99,460	3,710	5,367	9,077
1980-81	4,710	19,580	51,940	76,230	5,780	2,917	8,697
1979-80	5,500	16,500	n/a	n/a	5,150	7,752	12,902
1978-79	2,840	16,450	119,810	139,100	2,470	n/a	n/a
1977-78	1,331	7,449	357,883	366,663	1,168	23,571	24,739
1976-77	839	7,128	58,046	66,013	1,683	2,635	4,318
1975-76	261	6,741	32,723	39,725	2,170	2,380	4,550
1974-75	427	7,318	56,396	64,141	1,333	4,255	5,588
1973-74	2,694	6,366	79,587	88,878	1,772	5,613	7,385
1972-73	4,596	8,776	100,587	113,959	1,706	7,702	9,408
1971-72	---	---	---	---	2,050	2,513	4,563
Average	3,154	54,427	124,231	183,509	2,537	9,000	11,701

1. Includes the influence of treated waste water discharged to the Los Angeles River from the Los Angeles-Glendale Water Reclamation Plant (as of Water Year 1976-77) and the Donald C. Tillman Water Reclamation Plant (as of September 1985).
2. Includes the influence of declining capacity at Verdugo Park Treatment Plant.
3. Includes influence of dry weather runoff and perennial stream flow.

2.4 Groundwater Recharge

Precipitation has a direct influence on groundwater recharge and, with some delay, groundwater storage. Urban development in ULARA has resulted in a significant portion of the rainfall being collected and routed into lined channels that discharge into the Los Angeles River. To partially offset the increased runoff due to urbanization, Pacoima, Big Tujunga and Hansen dams, originally built for flood control, are now utilized to regulate storm flows and allow recapture of a portion of the flow in downstream spreading basins operated by the LACDPW and the City of Los Angeles.

The LACDPW operates the Branford, Hansen, Lopez, and Pacoima spreading grounds. The LACDPW, in cooperation with the City of Los Angeles, operates the Tujunga Spreading Grounds (TSG). The spreading grounds are primarily used for spreading native water (stormwater runoff). Table 2-4 summarizes the spreading operations for the 2007-08 Water Year, and Table 2-4A summarizes recharge since the 1968-69 Water Year. Plate 8 shows the locations of the spreading grounds.

TABLE 2-4: 2007-08 SPREADING OPERATIONS IN THE SAN FERNANDO BASIN

(acre-feet)

Agency	Spreading Facility	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
LACDPW														
	Branford	51	55	75	172	75	28	18	25	17	19	19	16	570
	Hansen	34	447	529	3,780	2,660	998	732	890	447	0	0	0	10,517
	Lopez	0	0	0	151	348	0	88	47	0	0	0	0	634
	Pacoima	0	52	281	1,900	2,100	0	555	137	0	0	0	0	5,025
	Tujunga	118	119	174	1,750	963	748	14	0	266	283	241	216	4,892
	Total	**203**	**673**	**1,059**	**7,753**	**6,146**	**1,774**	**1,407**	**1,099**	**730**	**302**	**260**	**232**	**21,638**
City of Los Angeles														
	Tujunga	0	0	0	0	0	0	0	0	0	0	0	0	0
	Headworks	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Basin Total		**203**	**673**	**1,059**	**7,753**	**6,146**	**1,774**	**1,407**	**1,099**	**730**	**302**	**260**	**232**	**21,638**

TABLE 2-4A: ANNUAL SPREADING OPERATIONS IN THE SAN FERNANDO BASIN

1968-69 through 2007-08
(acre-feet)

Water Year	Los Angeles County Department of Public Works (Native)						City of Los Angeles (Imported)			GRAND TOTAL	Rainfall Weighted Average Valley/Mtns.
	Branford	Hansen	Lopez	Pacoima	Tujunga	TOTAL	Headworks	Tujunga	TOTAL		
2007-08	570	10,517	634	5,025	4,892	21,638	0	0	0	21,638	17.27
2006-07	532	5,762	44	436	1,200	7,974	0	0	0	7,974	5.36
2005-06	576	20,840	958	7,346	14,895	44,615	0	0	0	44,615	17.42
2004-05	1,448	33,301	940	17,394	21,115	74,198	0	0	0	74,198	45.66
2003-04	444	6,424	144	1731	1322	10,065	0	0	0	10,065	12.21
2002-03	932	9,427	518	3,539	1,914	16,330	0	0	0	16,330	21.22
2001-02	460	1,342	0	761	101	2,664	0	0	0	2,664	6.64
2000-01	562	11,694	172	3,826	1,685	17,939	0	0	0	17,939	22.29
1999-00	468	7,487	578	2,909	2,664	14,106	0	0	0	14,106	16.77
1998-99	547	8,949	536	696	3,934	14,662	0	0	0	14,662	10.83
1997-98	641	28,129	378	20,714	11,180	61,042	0	77	77	61,119	38.51
1996-97	415	9,808	724	5,768	6,406	23,121	0	51	51	23,172	17.65
1995-96	345	8,232	363	4,532	7,767	21,239	0	0	0	21,239	14.48
1994-95	585	35,137	1,086	14,064	18,236	69,108	0	0	0	69,108	33.08
1993-94	462	12,052	182	3,156	4,129	19,981	0	0	0	19,981	11.86
1992-93	389	26,186	1,312	17,001	19,656	64,544	114	0	114	64,658	41.26
1991-92	653	15,461	1,094	12,914	9,272	39,394	230	0	230	39,624	32.39
1990-91	509	11,489	241	3,940	2,487	18,666	52	0	52	18,718	7.69
1989-90	327	2,029	90	1,708	0	4,154	0	0	0	4,154	9.55
1988-89	255	3,844	308	1,306	0	5,713	0	0	0	5,713	9.72
1987-88	352	17,252	1,037	4,520	0	23,161	0	0	0	23,161	21.36
1986-87	0	7,311	141	467	0	7,919	0	33	33	7,952	7.70
1985-86	290	18,188	1,735	6,704	0	26,917	0	1,433	1,433	28,350	23.27
1984-85	244	13,274	104	3,375	0	16,997	0	5,496	5,496	22,493	13.31
1983-84	213	10,410	0	3,545	0	14,168	0	24,115	24,115	38,283	11.18
1982-83	883	35,192	1,051	22,972	10,580	70,678	10	32,237	32,247	102,925	46.07
1981-82	345	14,317	243	5,495	0	20,400	3,853	0	3,853	24,253	20.16
1980-81	245	14,470	335	3,169	0	18,219	4,652	9,020	13,672	31,891	12.89
1979-80	397	31,087	1,097	15,583	0	48,164	5,448	19,931	25,379	73,543	33.66
1978-79	295	24,697	1,018	12,036	0	38,046	2,463	31,945	34,408	72,454	24.07
1977-78	2,142	28,123	445	20,472	12,821	64,003	3,200	18,247	21,447	85,450	44.84
1976-77	377	2,656	63	1,943	0	5,039	3,142	16	3,158	8,197	16.02
1975-76	470	3,128	562	1,308	0	5,468	3,837	5,500	9,337	14,805	14.20
1974-75	681	5,423	915	2,476	0	9,495	4,070	9,221	13,291	22,786	---
1973-74	672	6,287	946	2,378	0	10,283	6,205	0	6,205	16,488	---
1972-73	1,271	9,272	0	6,343	2,274	19,160	5,182	0	5,182	24,342	---
1971-72	161	1,932	0	1,113	0	3,206	7,389	0	7,389	10,595	---
1970-71	507	11,657	727	4,049	0	16,940	6,804	399	7,203	24,143	---
1969-70	674	11,927	0	1,577	2,380	16,558	11,021	0	11,021	27,579	---
1968-69	461	32,464	893	14,262	13,052	61,132	6,698	3,676	10,374	71,506	---
AVG.	545	14,179	540	6,564	4,349	26,178	1,859	4,035	5,894	32,072	

2.5 Groundwater Extractions

The original Trial Court adjudication of groundwater rights in ULARA, effective October 1, 1968, restricted all groundwater extractions to the safe yield of approximately 104,040 AF/Y. This amounted to a reduction of approximately 50,000 AF from the average groundwater extractions for the prior six years. The State Supreme Court's opinion, as implemented on remand in the Judgment dated January 26, 1979, further restricted groundwater pumping from each basin, and by each party within each basin.

Figure 2.2 illustrates the imported water used in ULARA and annual groundwater extractions, beginning with the 1954-55 Water Year. It can be noted that for the 14 years prior to pumping restrictions (1954-55 to 1967-68), imports exceeded extractions by 50,000 to 90,000 AF/Y, in contrast to the past 38 years (1968-69 to 2007-08) where imports have exceeded extractions by 110,000 to 250,000 AF/Y.

A total of 80,103 AF of groundwater was pumped from the four ULARA groundwater basins during the 2007-08 Water Year, as follows: 67,312 AF from the SFB; 6,666 AF from the Sylmar Basin; 5,945 AF from the Verdugo Basin; and 180 AF from the Eagle Rock Basin. The respective extraction rights for the 2007-08 Water Year for each basin are: 87,790 AF (Native Safe Yield of 43,660 AF plus an import return credit of 44,130 AF) for the SFB; 6,810 AF for the Sylmar Basin; and 7,150 AF for the Verdugo Basin. Appendix A contains a summary of groundwater extractions for the 2007-08 Water Year. Plate 8 shows the locations of the various well fields, and Plate 11 illustrates the general affect of pumping on simulated changes in groundwater elevations for the 2007-08 Water Year.

Of the total amount of groundwater pumped in ULARA (80,103 AF), 77,027 AF constitute extractions by Parties to the Judgment; 1,856 AF constitute nonconsumptive use; and 1,220 AF were pumped for physical solutions, groundwater cleanup, water well development and testing, and dewatering parties (Appendix E). Table 2-5 summarizes 2007-08 private party pumping in the SFB, and Plate 3 shows the locations of the individual producers.

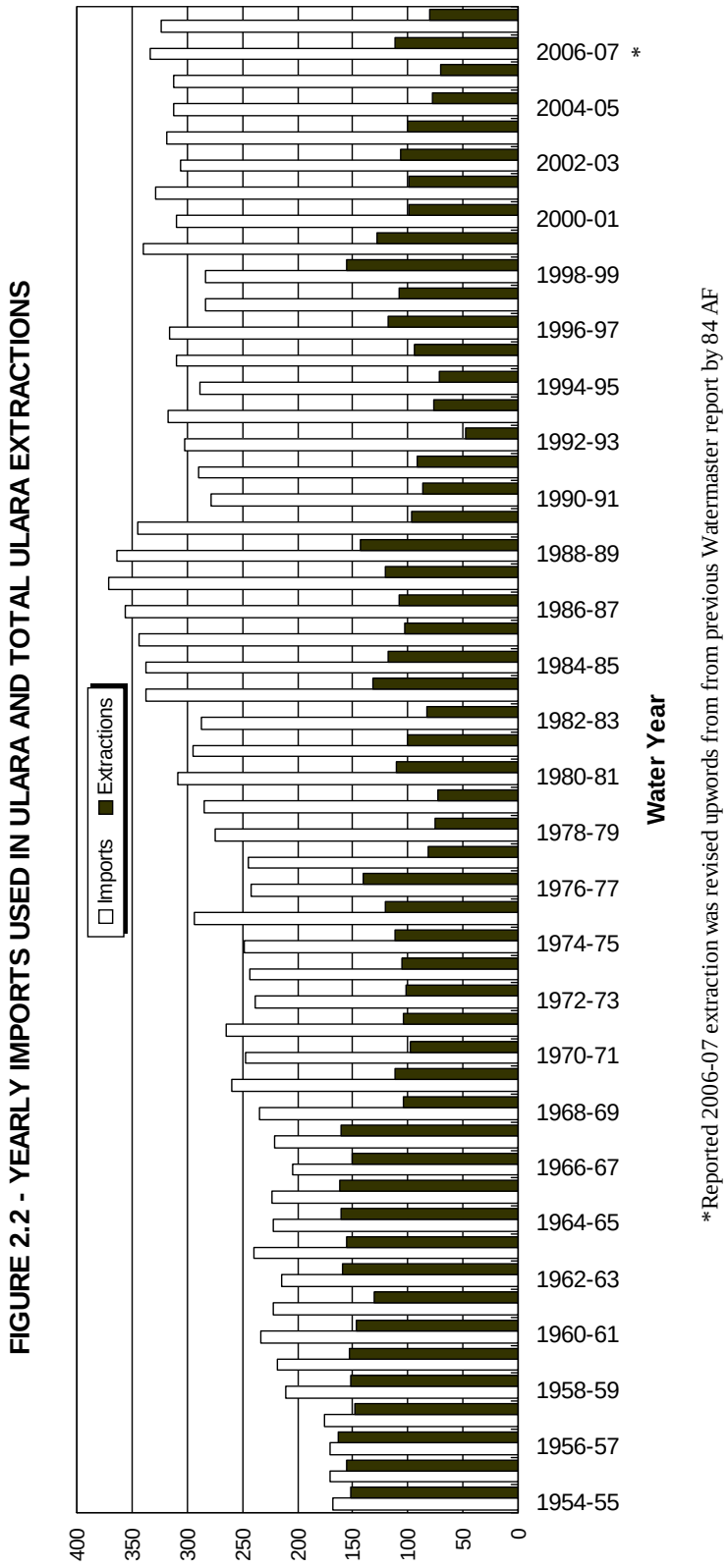


FIGURE 2.2 - YEARLY IMPORTS USED IN ULARA AND TOTAL ULARA EXTRACTIONS

*Reported 2006-07 extraction was revised upwords from from previous Watermaster report by 84 AF

TABLE 2-5: 2007-08 PRIVATE PARTY PUMPING - SAN FERNANDO BASIN

(acre-feet)

Nonconsumptive Use or Minimal Consumption	
Sears, Roebuck and Company (Air Conditioning; well disconnected 2000)	0.00
Sportsmens' Lodge	0.05
Toluca Lake Property Owners	0.00
Vulcan (CalMat)* (Gravel washing)	1,856.19
Walt Disney Productions (3 wells inactive/ Not abandoned)	0.00
Total	**1,856.24**

Groundwater Dewatering	
Charged to Los Angeles's water rights	
Avalon Encino	0.19
BFI Sunshine Canyon Landfill**	216.90
Glenborough Realty (First Financial)	30.62
Mercedes Benz Encino (formerly known as Auto Stiegler)	19.15
Metropolitan Transportation Agency	34.03
Trillium Corporation	27.12
Warner Properties Plaza 6 and 3	29.00
Subtotal	*357.01*
Total	**357.01**

Groundwater Cleanup	
Charged to Burbank's water rights	
B.F.Goodrich (Menasco/Coltec)	0.22
Home Depot U.S.A. Inc.	7.73
Subtotal	*7.95*
Charged to Los Angeles' water rights	
3M-Pharmaceutical	40.77
Boeing Santa Susana Field Lab	1.35
Honeywell International, Inc.	4.95
Micro Matics USA, Inc.	3.17
Tesoro	7.41
Subtotal	*57.65*
Total	**65.60**

Physical Solution	
Charged to Burbank's water rights	
Valhalla Memorial Park	336.52
Subtotal	*336.52*
Charged to Glendale's water rights	
Forest Lawn Cemetery Assn.	390.52
Subtotal	*390.52*
Charged to Los Angeles' water rights	
Hathaway (deMille)	24.40
Middle Ranch (deMille)	8.84
Toluca Lake Property Owners	33.36
Water Licenses	1.70
Wildlife Waystation	1.67
Subtotal	*69.97*
Total	**797.01**

Total Extractions	**3,076.96**

* Water pumped does not include 120.09 AF of water lost through evaporation.

** Includes 84.89 AF of water not counted from the 2006-07 Water Year.

2.6 Imports and Exports of Water

The continued expansion of residential, commercial, and industrial developments have required the importation of additional water supplies to supplement groundwater in ULARA over time.

Imported supplies to ULARA are from the Los Angeles Aqueduct and the MWD. Water in the Los Angeles Aqueduct consists of runoff from the Eastern Sierra Nevada and groundwater from Owens Valley. The MWD supplies consist of State Water Project and water from the Colorado River Aqueduct.

Exports from ULARA include imported Los Angeles Aqueduct water and MWD water (pass-through water), and groundwater extracted from the San Fernando Basin by LADWP. Exports of wastewater are by pipeline to Hyperion Treatment Plant.

Table 2-6 summarizes the imports and exports from ULARA during the 2006-07 and 2007-08 Water Years, and Figure 2.3 shows the monthly extractions and imports for 2007-08.

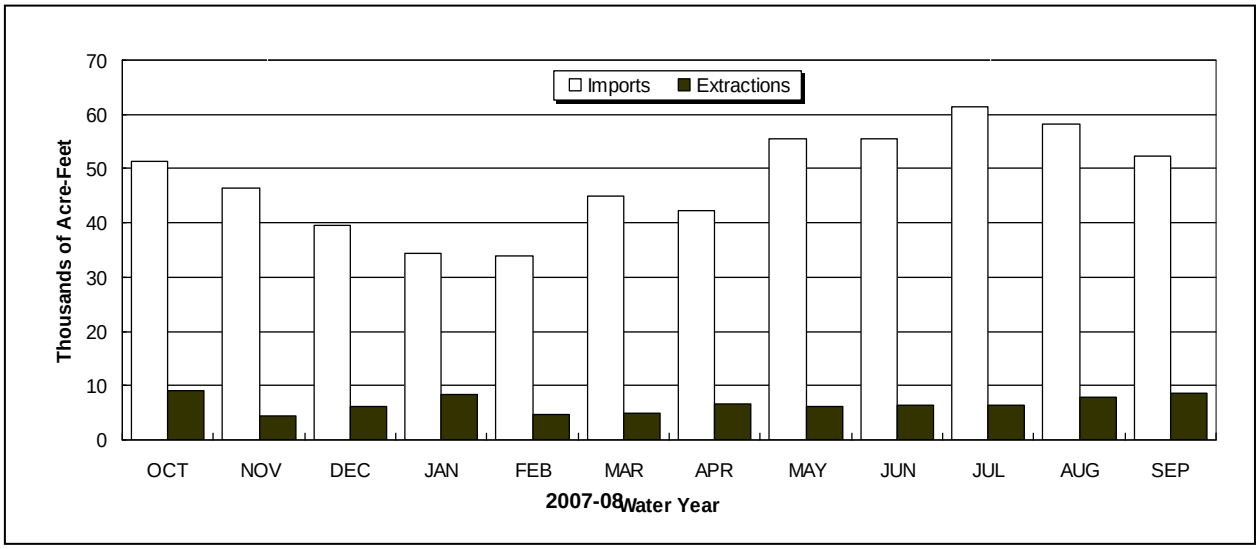
TABLE 2-6: ULARA WATER IMPORTS AND EXPORTS

(acre-feet)

Source and Agency	Water Year 2006-07	2007-08
Gross Imported Water		
Los Angeles Aqueduct		
City of Los Angeles	199,029	151,464
MWD Water		
City of Burbank	13,444	15,299
Crescenta Valley Water District	2,294	2,063
City of Glendale	22,955	21,478
City of Los Angeles [1]	331,466	374,393
La Canada Irrigation District [1]	1,354	1,275
Las Virgenes Municipal Water District [1]	8,944	9,255
City of San Fernando	901	0.32
MWD Total	**381,358**	**423,763**
Grand Total	**580,387**	**575,227**
Exported Water (Pass-Through)		
Los Angeles Aqueduct		
City of Los Angeles	84,782	63,743
MWD Water		
City of Los Angeles	162,317	187,813
Total	**247,099**	**251,556**
Net Imported Water	**333,288**	**323,671**

1. Deliveries to those portions of these agency service areas that are within ULARA.

FIGURE 2.3 – TOTAL MONTHLY EXTRACTIONS AND GROSS IMPORTS



2.7 Wastewater Recycling

Wastewater recycling presently provides a source of water for irrigation, industrial, and recreational uses. In the future, wastewater recycling may provide additional water for groundwater recharge. Four wastewater recycling plants are in operation in ULARA. The Las Virgenes Municipal Water District operates a wastewater recycling facility outside ULARA but a part of the water treated at this facility is used in ULARA. Table 2-7 summarizes the 2007-08 wastewater recycling plant operations, and Plate 5 shows the locations of these facilities.

TABLE 2-7: 2007-08 WASTEWATER RECYCLING OPERATIONS

(acre-feet)

Plant/Agency	Plant Influent [1]	Effluent to L.A. River	Flow to Hyperion	Recycled Water Use	Recycled Water Use [6] (%)	Recycled Water Delivered to SFB
City of Burbank	10,254	7,244	818	2,192 [4]	21%	2,192
Los Angeles-Glendale	18,867 [2]	12,853	1,660	4,208 [5]	22%	---
Los Angeles				2,686		0.4
Glendale				1,523		1,276
Donald C. Tillman	55,930 [3]	37,254	15,184	1,078	2%	---
Las Virgenes MWD				1,717		1,717
Total	**10,254**	**57,351**	**17,661**	**9,195**		**5,186**

1. Does not include plant overflow/ by pass.
2. Plant influent does not equal to the effluent due to metering error and/or plant use.
3. Includes 2,414 AF of plant use.
4. Of the total recycled water (2,192 AF), 1,430 AF was delivered to the Burbank power plant. 762 AF was used by CalTrans, DeBell Golf Course and other landscape irrigation.
5. Of the total recycled water (4,208 AF), 1,523 AF was delivered to Glendale for use in Glendale's Power Plant and for irrigation water for CalTrans, Forest Lawn Project, Verdugo School, and Brand Park; 1120 AF was for in plant use; 561 AF was delivered to Griffith Park by Los Angeles for irrigation; and 1,004 AF was used by CalTrans, Lake Side, Mt. Sinai Memorial Park, Forest Lawn H.H., and Universal City for irrigation.
6. Recycled Water Use (%) is calculated as percentage of plant influent.

2.8 Groundwater Elevations

The simulated groundwater elevation contour maps for the Spring (April) and the Fall (September) of 2008 were created using the SFB Groundwater Flow Model. The SFB model was initially developed during the Remedial Investigation (RI) study of groundwater contamination in the San Fernando Valley, and was funded through the USEPA's Superfund program.

The model is comprised of up to four layers in the deepest portion of the eastern SFB, and includes 6,883 cells, ranging in size from 1,000 by 1,000 feet to 3,000 by 3,000 feet. The model parameters were calibrated by matching the simulated hydraulic-head fluctuations with the historical water level fluctuations measured at selected key monitoring wells for a 10-year period. The simulated 2008 contours were estimated by incorporating the actual monthly recharge (e.g. spread water, precipitation, etc.) and extraction values for the 2007-08 Water Year as model input. The model was then run to simulate the actual operations in the San Fernando Basin during the period October 2007 to September 2008. The simulated head values (simulated groundwater elevations) at the end of the months of April and September of the 2007-08 Water Year were then plotted by utilizing groundwater contouring software.

The simulated Spring and Fall 2008 Groundwater Elevation Contour Maps are shown as Plates 9 and 10, respectively. These simulated contours are intended to depict the general trend of groundwater flow for April and September 2008, respectively. Current groundwater elevations in different portions of the four ULARA groundwater basin may be obtained by contacting the Watermaster Support Staff at LADWP at (213) 367-2117.

Plate 11 exhibits the simulated change in groundwater elevations from Fall 2007 to Fall 2008. The slight increase in simulated groundwater levels, which ranges from 1 to 10 feet in the portion of the SFB near the Hansen, Pacoima, and Tujunga spreading grounds, is attributed to the moderate volume (21,638 AF) of native runoff water spread on these spreading grounds in that period.

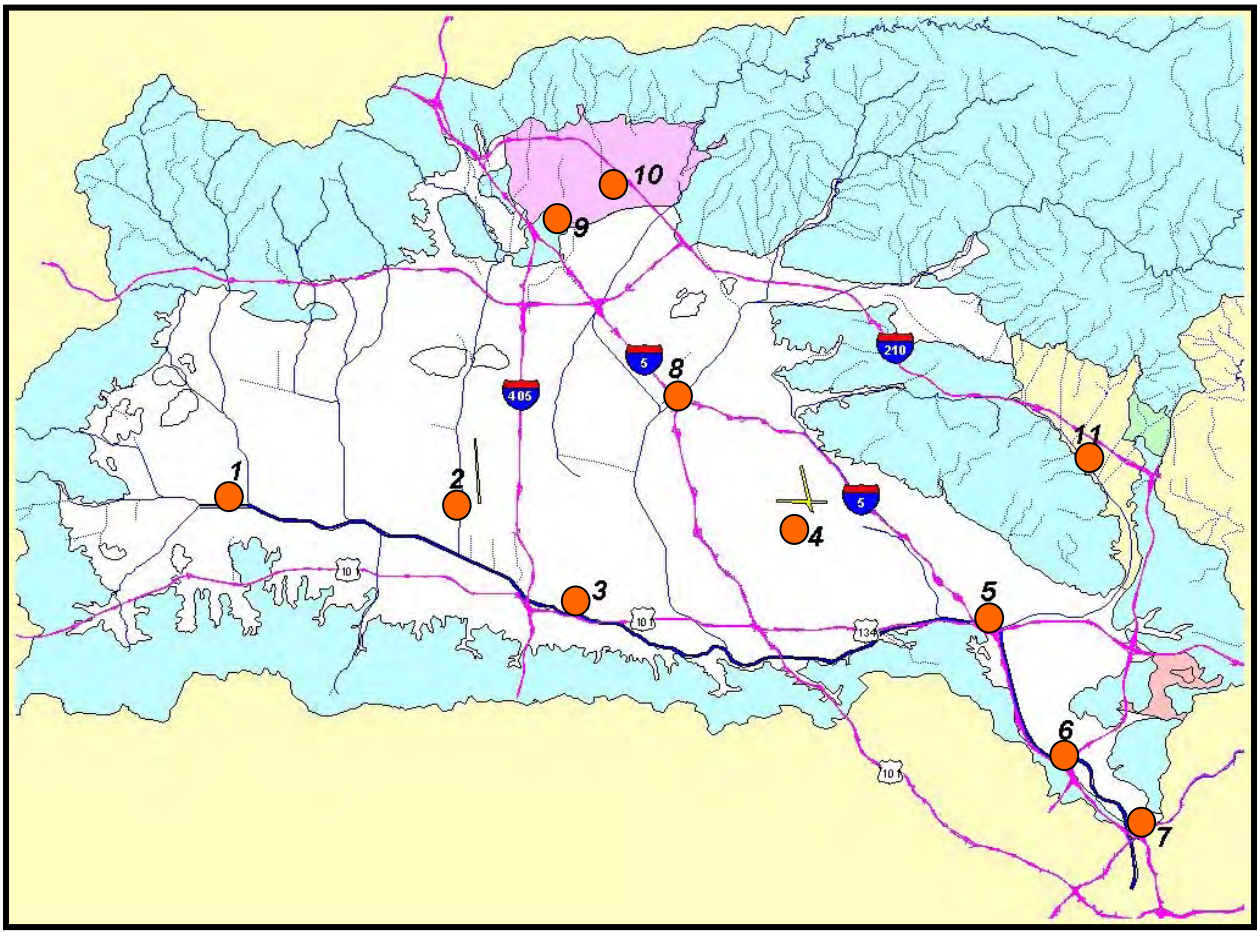
The 7- to 10-foot increase in simulated groundwater levels near the Rinaldi-Toluca and North Hollywood well fields is primarily attributed to reduced groundwater extractions in those areas. Pumping at these two major well fields was reduced by 17 percent from 46,491 AF in 2006-07 to 38,719 AF in 2007-08.

The area near the Tujunga Well Field (TWF) shows an increase in simulated groundwater levels by as much as 10 feet due to increased spreading at TSG and reduced pumping at TWF. Spreading at TSG increased from 12,00 AF in 2006-07 to 4,892 AF during 2007-08. Pumping at TWF declined from 16,686 AF to 6,605 AF during the same period.

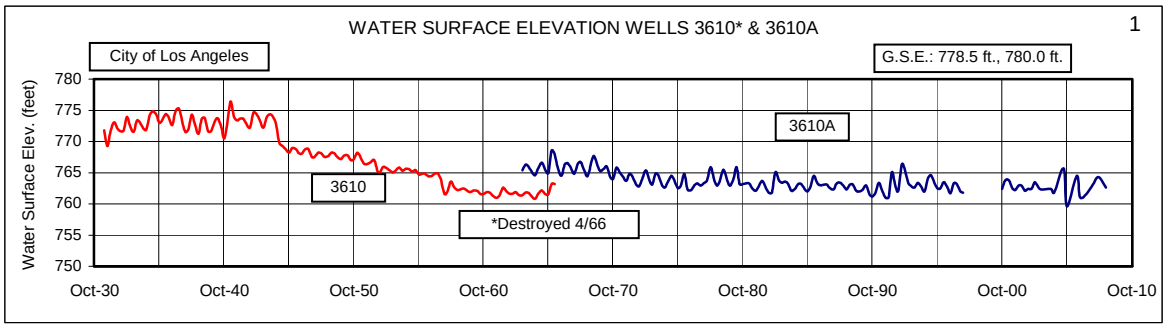
Simulated groundwater elevations near the Burbank Operable Unit Well Field (BOU-WF) shows an increase of approximately 10 feet as a result of reduced pumping from upgradient well fields (i.e., from the Rinaldi-Toluca, Tujunga, and North Hollywood – West well fields). Pumping from BOU-WF declined by approximately 39 percent between 2006-07 and 2007-08 (9,780 AF vs. 5,998 AF, respectively). Pumping from the upgradient well fields declined by approximately 28 percent between 2006-07 and 2007-08 (63,177 AF vs. 45,324 AF, respectively).

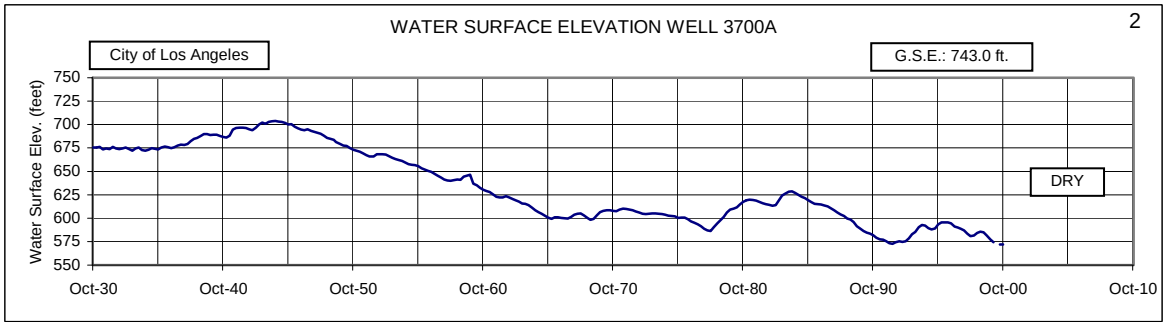
In general, the SFB shows a minor rebound in simulated groundwater elevations on the east side of the San Fernando Basin, mainly due to reduced pumping and to increased artificial recharge when compared to the 2006-07 water year.

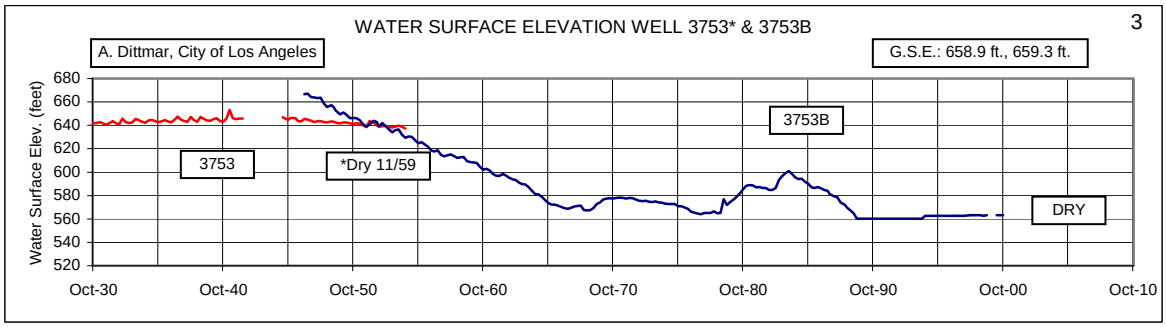
FIGURE 2.4 HYDROGRAPHS AND LOCATIONS OF WELLS THROUGHOUT ULARA

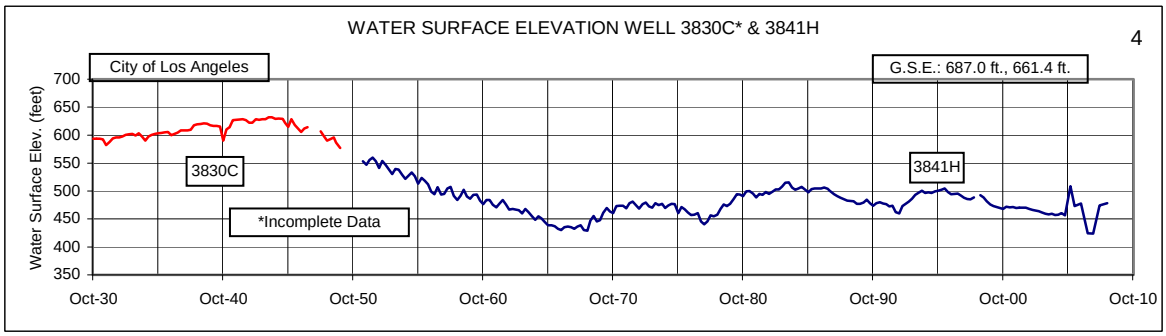


SAN FERNANDO BASIN

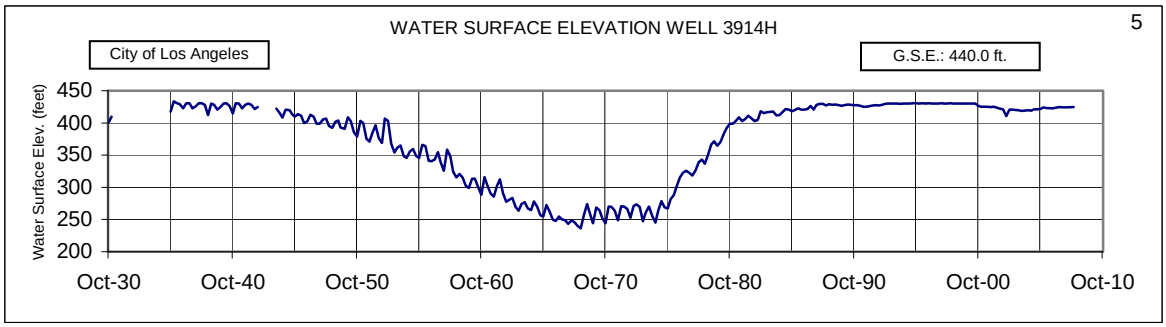


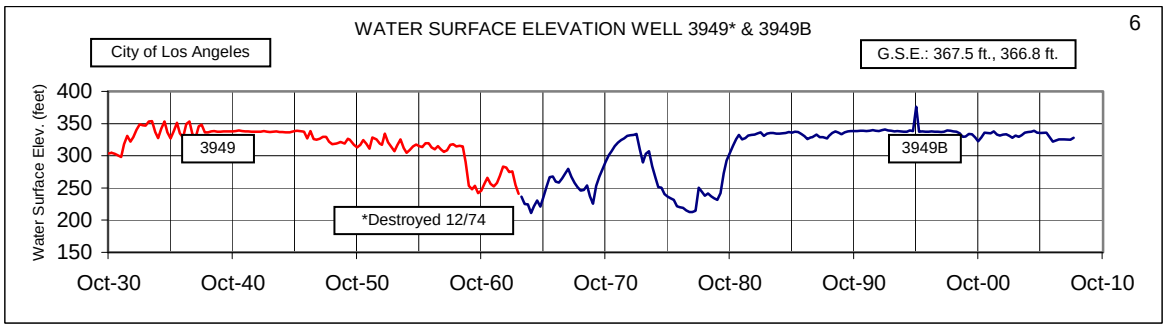


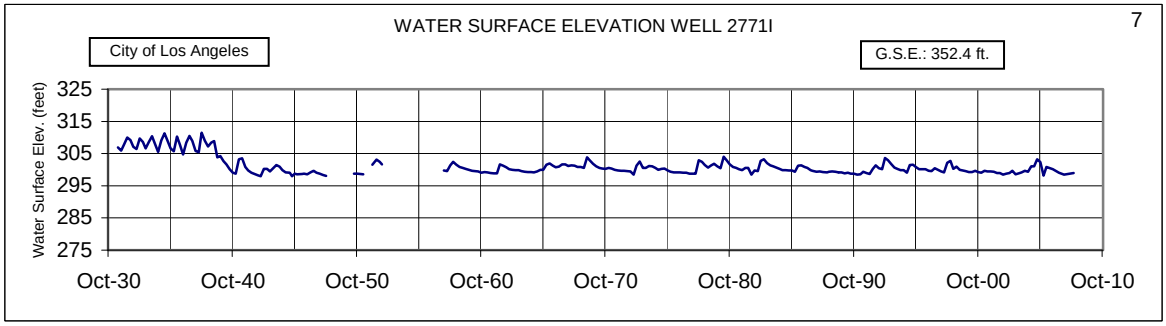


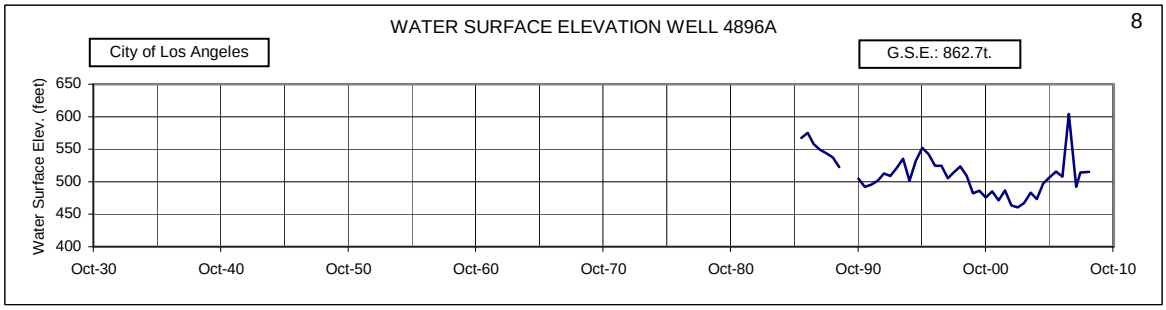


SAN FERNANDO BASIN

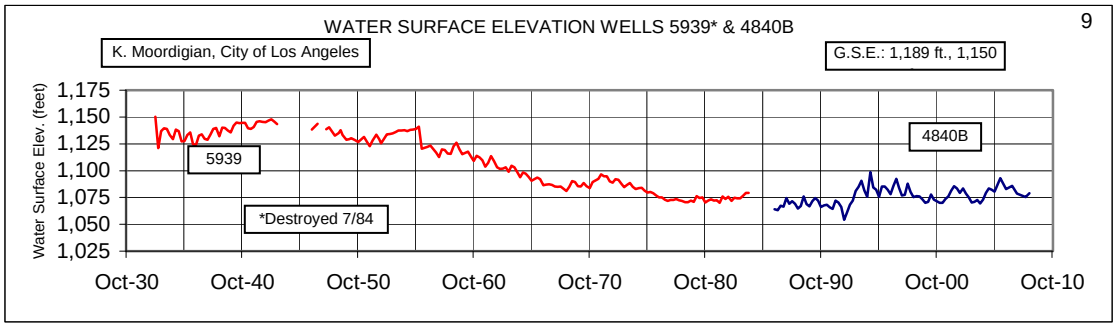


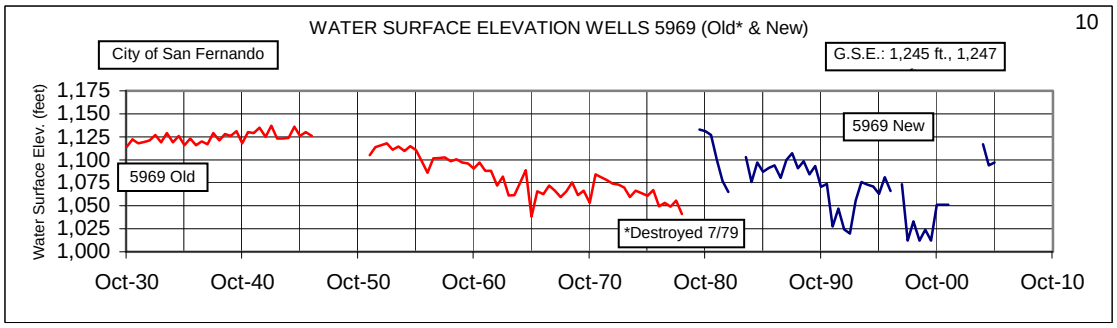






SYLMAR BASIN





VERDUGO BASIN

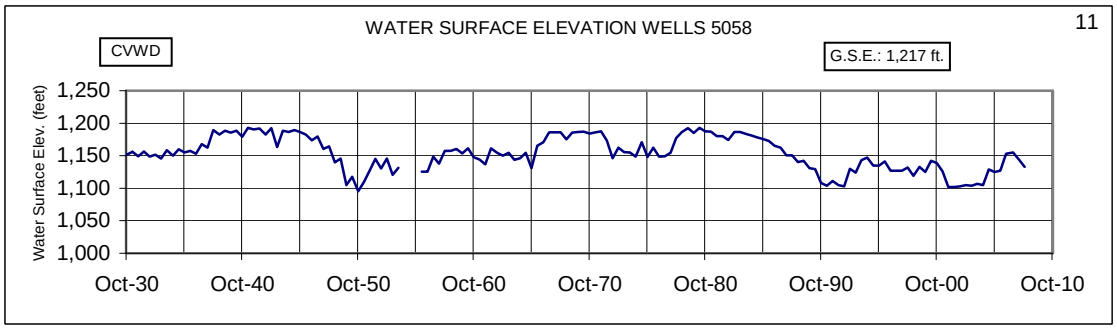


TABLE 2-8: CHANGE IN GROUNDWATER STORAGE SAN FERNANDO BASIN

Water Year	Valley Floor Precipitation (in)	Artificial Recharge (acre-feet)	Change in Storage (acre-feet)	Cumulative Change in Storage (acre-feet)	Pumping (acre-feet)
2007-08	15.10	21,638	9,443	142,948	67,228
2006-07	4.39	7,974	(33,693)	133,505	94,430
2005-06	16.46	44,615	16,303	167,198	59,375
2004-05	42.64	74,198	66,476	150,895	67,865
2003-04	9.52	10,065	(22,367)	84,419	89,346
2002-03	19.41	16,330	(15,835)	106,786	95,431
2001-02	5.95	2,664	(27,094)	122,621	87,992
2000-01	19.52	17,939	(6,930)	149,715	86,946
1999-00	14.84	14,106	(31,044)	156,645	116,357
1998-99	9.81	14,662	(82,673)	187,689	141,757
1997-98	37.04	61,119	44,113	270,362	94,682
1996-97	15.17	23,172	(35,737)	226,249	105,899
1995-96	12.03	21,239	(49,223)	261,986	82,862
1994-95	33.36	69,108	79,132	311,209	58,121
1993-94	10.19	19,981	(22,238)	232,077	62,990
1992-93	36.62	64,658	106,317	254,315	36,419
1991-92	30.05	39,624	411	147,998	76,213
1990-91	14.38	18,718	(14,122)	147,587	71,065
1989-90	8.20	4,154	(29,941)	161,709	81,466
1988-89	9.12	5,713	(30,550)	191,650	127,973
1987-88	18.62	23,161	(5,000)	222,200	105,470
1986-87	5.99	7,952	(31,940)	227,200	91,632
1985-86	20.27	28,350	(7,980)	259,140	86,904
1984-85	11.00	22,493	(31,690)	267,120	101,591
1983-84	9.97	38,283	(63,180)	298,810	115,611
1982-83	39.64	102,925	121,090	361,990	68,394
1981-82	17.18	24,253	(530)	240,900	84,682
1980-81	11.04	31,891	(32,560)	241,430	92,791
1979-80	30.25	73,543	99,970	273,990	58,915
1978-79	21.76	72,454	78,080	174,020	59,843
1977-78	35.43	85,450	136,150	95,940	66,314
1976-77	14.19	8,197	(50,490)	(40,210)	125,445
1975-76	9.90	14,805	(30,090)	10,280	103,740
1974-75	14.74	22,786	(22,580)	40,370	95,830
1973-74	15.75	16,488	(21,820)	62,950	88,017
1972-73	20.65	24,342	17,020	84,770	82,004
1971-72	8.10	10,595	(17,090)	67,750	84,140
1970-71	15.57	24,143	15,340	84,840	79,010
1969-70	10.50	27,579	(9,740)	69,500	88,856
1968-69	29.00	71,506	79,240	79,240 [1]	84,186
40 Year Average	**18.08**	**32,072**	**3,574**		**86,695**

1. Accumulation of storage begun as of October 1, 1968.

2.9 Groundwater Storage

San Fernando Basin

Each year, the change in the amount of stored groundwater is evaluated in three ways – between the most recent and the previous water year; for the cumulative change since Safe Yield Operation began in 1968; and, for the cumulative change since 1928, the date at which sufficiently detailed records were considered to begin.

In Fall 1968, following the Trial Court decision, Safe Yield Operation was implemented by the Court to halt the overdraft in groundwater levels that began in 1954 (indicated on Plate 13 by the blue-colored line). Methodology established by the State Water Rights Board, also referenced in Appendix R of the 1962 Report of Referee, was used to derive a regulatory storage requirement of 360,000 AF for the SFB that considered normal wet-dry cycles, operational flexibility, and pumping based on the calculated safe yield. The upper limit of 210,000 AF above the 1954 level was established to prevent excess rising groundwater from leaving the basin, whereas the lower limit of 150,000 AF below the 1954 level was established to help provide additional storage space for wet years. Stored groundwater levels should be kept between the upper and lower limits of the regulatory storage range (indicated on Plate 13 by the horizontal-dashed red line). As shown on Plate 13, with only a few brief periods, the basin has rarely been operated within the regulatory storage range after 1968.

Plate 13 illustrates two important concepts. First, the blue line on the graph shows the change in actual water stored within the basin. Each year, groundwater level measurements throughout the basin are used to calculate the overall gain or loss of groundwater in the basin and the change is plotted annually on the graph. The blue line on Plate 13 illustrates a 28-year overall decline in storage beginning in approximately 1980, interrupted only temporarily during years of above-average rainfall. This long-term decline in storage is caused by more water leaving the basin on an average annual basis than is being recharged. Causes of this decline include: pumping in excess of long-term recharge; reduced natural recharge caused by increased urbanization and runoff leaving the basin; underflow and rising groundwater leaving the basin; and reduced artificial recharge due to restrictions at the spreading grounds.

Second, the Judgment provides Los Angeles, Glendale, and Burbank (the “Parties”) a right to store, or “carry over”, un-pumped water into future years. These un-pumped water rights are accounted for as Stored Water Credits. The red line on Plate 13 represents the change in storage minus the total Stored Water Credits that the Parties have accumulated. In other

words, the red line illustrates what the change in storage would have been if the Parties had pumped their full rights beginning in 1968. If the Parties had exercised their full pumping rights as enumerated in the Judgment, the basin would be far below the level at which the Court declared Safe Yield Operation in 1968. This clearly demonstrates that the basin cannot supply the groundwater to which the Parties are entitled under the Judgment, and that there is a significant shortfall between water rights and actual hydrologic conditions.

Compounding this problem is a provision in the Judgment that allows Stored Water Credits to accumulate indefinitely, with no limit on the amount of Stored Water Credits that a Party can accumulate. As of October 1, 2008 the Parties had accumulated a total of 481,763 AF of Stored Water Credits. If the Parties had pumped their full water rights beginning in 1968, the San Fernando Basin would be 338,815 AF below the 1968 level at which the Court imposed Safe Yield Operation (Plate 13 red line), thus returning the basin to a condition of overdraft. Clearly, basin recharge is not keeping up with pumping rights enumerated in the Judgment. Because 338,815 AF of these Stored Water Credits are below the level at which Safe Yield Operation was mandated by the Court in 1968, it has been the opinion of the Watermaster that this water does not actually exist in the San Fernando Basin. These non-existent Stored Water Credits represent 70% of the total credits accumulated by Los Angeles, Glendale, and Burbank.

The Judgment established pumping rights based on two types of water rights: a Pueblo water right for Los Angeles of 43,660 AF/Y of all native water tributary to the SFB; and an Import Return water right for the Parties based on the amount of water delivered annually to their customers.

The 1975 Supreme Court decision in the *San Fernando* case states that only imported water shall be used to calculate Import Return water rights. The Judgment defines “imported water” as “Water used within ULARA, which is derived from sources outside said watershed.” This means water from sources such as the Owens Valley, Northern California, or the Colorado River. Nevertheless, historical documents show that in 1978 the Parties agreed to use *all* delivered water, including pumped groundwater, in the calculation of Import Return rights. This agreement ignored the language of the Supreme Court decision and conflicts with fundamental basin hydrology. It has been the opinion of the Watermaster, as a result of this agreement among the Parties, that the formulas adopted in the 1979 San Fernando Judgment that are used to calculate Import Return rights have significantly overestimated the amount of delivered water that actually recharges the groundwater basin. Although there are several reasons for the long-term decline in storage and the accumulation of Stored Water Credits, this 1978 agreement

among the Parties is a major contributor to the existing imbalance. Had the Parties and the Judgment language strictly adhered to the Supreme Court decision, the current basin imbalance would be significantly smaller.

Finally, the basin "leaks" a significant amount of water each year due to rising groundwater (Table 2-3) and to underflow. Accounting for these losses would significantly reduce the large imbalance between Stored Water Credits and actual water in storage. The Judgment requires the Watermaster to account for these losses, but until now that has never been done.

The challenge facing the Parties, the Watermaster, and the Court is therefore twofold at this time: a long-term decline in actual stored water, and an accumulation of a large quantity of Stored Water Credits for which there is insufficient real water in storage in the SFB. Accounting for these non-existent Stored Water Credits is controversial, and reducing future pumping by each Party to match the actual basin recharge will be extremely difficult. Nevertheless, it is the duty of the Watermaster and the Parties to manage the San Fernando Basin in a responsible manner that helps to sustain its long-term viability.

Toward that goal, in July 2005, the Watermaster provided a Draft White Paper to the Parties entitled "Is the San Fernando Groundwater Basin Undergoing a Long-Term Decline in Storage?" This Draft White Paper outlined the aforementioned issues regarding the decline, and recommended a new Safe Yield Study consistent with Section 8.2.10 of the Judgment. For nearly two years the Watermaster and the Parties discussed the issues presented in the White Paper. In March 2007 the Watermaster finalized and filed the White Paper with the Court. (A copy of the text of the White Paper is in Appendix F; the White Paper Attachments are on file at the Watermaster Support Staff office at LADWP and are available upon written request.)

Subsequently, in September 2007, the Parties entered into a Stipulated Agreement entitled "Interim Agreement for the Preservation of the San Fernando Basin Water Supply" ("Agreement") that contains several important provisions designed to address the imbalance between the decline in stored groundwater and the large accumulation of Stored Water Credits (a copy of the Agreement is in Appendix G). The provisions of the Agreement are discussed in the following paragraphs.

First, the 10-year Agreement segregates total Stored Water Credits into "Available Credits" and "Reserved Credits". Reserved Credits are the amount of Stored Water Credits that lie below the 1968 level (represented on Plate 13 by the horizontal-dashed brown line). Reserved Credits are

not supported by actual water in storage and, with a minor exception, may not be pumped until stored water within the San Fernando Basin recovers enough to allow their safe use. Conversely, Available Credits are the amount of Stored Water Credits that lie above the 1968 level, and may be pumped by the Parties without restriction.

Second, the Agreement memorializes the support of the City of Los Angeles to work closely with LACDPW to restore and enhance basin recharge using stormwater runoff. This provision is important in the eventual recovery of actual stored water in the basin.

Third, beginning October 1, 2007, an estimated amount of the loss from the SFB due to rising groundwater and underflow is being debited from the Party's Stored Water Credits, in accordance with Section 8.2.9 of the Judgment. The importance of this provision of the Agreement is to help bring the water rights of each party back into balance with basin hydrology. These losses from the basin are estimated to be 1% of the total Stored Water Credits and the Agreement provides that this amount will be subtracted each year from all Stored Water Credits until the rising groundwater calculation is refined during the upcoming safe yield study.

Finally, the Agreement acknowleges that a safe yield re-evaluation is required. The most recent basin safe yield calculation was conducted in 1964-65. At this time, the new safe yield re-evaluation study is being conducted to determine whether the SFB, under current cultural and hydrologic conditions, can support the water rights enumerated in the Judgment. The basin can not be managed in a sustainable manner unless updated values of the safe yield determination are available.

The estimated change in storage between Water Year 2006-07 and 2007-08 is 9,443 AF. As of the 2007-08 calculation for change in storage, there remains approximately 512,422 AF of storage space available in the SFB. This space can be used to capture and store additional native water or imported supplies during wet years. Basin storage space is a valuable resource, and it has been the opinion of the Watermaster to use this storage space for the benefit of all Parties.

Sylmar Basin

The groundwater storage capacity of the Sylmar Basin is approximately 310,000 AF. The estimated change in storage from Water Year 2006-07 to 2007-08 is an increase of 672 AF.

Verdugo Basin

The groundwater storage capacity of the Verdugo Basin is approximately 160,000 AF; the estimated change in storage from Water Year 2006-07 to 2007-08 is an increase of 1347 AF.

While there was a calculated increase in the 2007-08 groundwater storage, the overall decline in storage observed since 1968 in Verdugo Basin is likely caused by increased urbanization and runoff leaving the basin and a significant reduction in groundwater recharge from former cesspools and septic systems that were removed from service following the installation of sewers in this area beginning in the 1980s. An evaluation of stormwater storage and conjunctive use was completed in May 2005, and a geophysical study of the Verdugo Basin was completed in June 2006 for CVWD by a private consulting firm.

Eagle Rock Basin

The estimated change in storage from Water Year 2006-07 to 2007-08 is an increase of 38 AF.

2.10 Water Supply and Disposal - Basin Summaries

Tables 2-9A, 2-9B, 2-9C, and 2-9D summarize water supply and disposal in the San Fernando, Sylmar, Verdugo, and Eagle Rock basins, respectively. Outflows are based on computations made by the State Water Rights Board in the 1962 Report of Referee.

2.11 Extraction Rights and Stored Water Credits - Basin Summaries

San Fernando Basin

Tables 2-10A and 2-11A show the calculation of SFB extraction rights for the 2008-09 Water Year and Stored Water Credits (as of October 1, 2008) for the Cities of Burbank, Glendale, and Los Angeles. All rights are based on the Judgment in *City of Los Angeles vs. City of San Fernando, et al.*, dated January 26, 1979.

Sylmar Basin

Tables 2-10B and 2-11B show the calculation of Sylmar Basin extraction rights for the 2008-09 Water Year and Stored Water Credit (as of October 1, 2008) for the Cities of Los Angeles and San Fernando. All rights are based on: the March 22, 1984 stipulation between the City of San Fernando and the City of Los Angeles; and the action by the Administrative Committee on July 16, 1996 to temporarily increase the safe yield of this basin from 6,210 AF/Y to 6,510 AF/Y. The 1996 temporary increase expired on October 1, 2005 but the safe yield was re-evaluated by the Watermaster in 2006. A new stipulation dated December 13, 2006 increased the safe yield to 6,810 AF/Y, effective October 1, 2006, subject to certain conditions.

Verdugo Basin

Glendale and CVWD have rights to extract 3,856 and 3,294 AF/Y respectively. Glendale has not pumped its full right since the Judgment was entered, but has expressed an intent to increase its groundwater pumping in the near future. In the past, CVWD has extracted in excess of its right with the permission of Glendale and the approval of the Watermaster. During the 2006-07 Water Year, CVWD pumped 12 AF above its entitlement without Glendale's consent or approval by the Watermaster. In 2004-05 and 2005-06, CVWD also pumped more than its entitlement without Watermaster approval. In December 2006, Glendale and CVWD reached a settlement regarding the over-pumping for 2004-05 and 2005-06. The CVWD Board has not approved the agreement with Glendale on compensation for 2006-07 over-pumping, thus leaving this issue potentially open for litigation. The Watermaster thanks the parties for negotiating a settlement and encourages them to develop a long-term agreement to guide future over-pumping. Pumping in the basin should be managed to optimize production and prevent waste due to rising groundwater, and such an agreement could be used to achieve those goals.

In 2007, Glendale drilled two pilot holes in an effort to increase its extraction capacity in the Verdugo Basin. Both pilot holes were rejected as candidates for production wells due to low pumping capacity. Glendale is considering investigating alternative well locations. Also in

2006, Glendale located an old Well No. 5036 in La Crescenta; also known as the Foothill Well. The well was tested for quality and video logged to evaluate its condition. It was determined to be suitable for water production. Glendale is planning to rehabilitate and equip the well and to connect it to the City's water supply system during the 2008-09 Water Year.

Los Angeles has a right to extract its Import Return water in the Verdugo Basin, but has never exercised its right.

There are no Stored Water Credits in the Verdugo Basin.

Eagle Rock

Los Angeles has the right to extract, or cause to be extracted, the entire safe yield of the basin that consists mostly of return flows of delivered water by Los Angeles. Los Angeles does not pump groundwater from the Eagle Rock Basin. DS Waters, as successor to Sparkletts and Deep Rock, has a physical solution right to extract groundwater to supply its bottled drinking water facility. DS Waters pumped 180 AF in the 2007-08 Water Year.

TABLE 2-9A: SUMMARY OF 2007-08 WATER SUPPLY AND DISPOSAL SAN FERNANDO BASIN

(acre-feet)

Water Source and Use	City of Burbank	City of Glendale	City of Los Angeles	City of San Fernando	All Others	Total
Extractions						
Municipal Use	6,817	7,411	50,009	---	0	64,237
Basin Account	0	0	0	---	0 [1]	0
Physical Solution	---	0	0	---	797 [2]	797
Cleanup/Dewaterers	---	---	0	---	422	422
Non-consumptive Use	---	---	---	---	1,856	1,856
Total	**6,817**	**7,411**	**50,009**	**0**	**3,075**	**67,312**
Imports						
LA Aqueduct Water	---	---	151,464	---	---	151,464
MWD Water	15,299	21,478	315,365	0.29	9,255 [3]	361,398
Groundwater from						
Sylmar Basin	---	---	2,996	3,339	---	6,335
Verdugo Basin		706				706
Total	**15,299**	**22,184**	**469,825**	**3,339**	**9,255**	**519,903**
Delivered Reclaimed Water	2,192	1,276	0.40 [4]	0	1,717 [3]	5,186
Exports						
LA Aqueduct Water						
out of ULARA	---	---	63,743	---	---	63,743
to Verdugo Basin	---		252			252
to Sylmar Basin	---		3,351			3,351
to Eagle Rock Basin	---	---	24	---	---	24
MWD Water						
out of ULARA	---	---	132,771	---	---	132,771
to Verdugo Basin	---	1,824	524	---	---	2,348
to Sylmar Basin	---	---	6,978	---	---	6,978
to Eagle Rock Basin			0			0
Groundwater	32 [5]	118 [5]	48,209	---	---	48,368
Total	**32**	**1,942**	**255,852**	**0**	**0**	**257,835**
Delivered Water						
Hill & Mountain Areas	---	---	51,819	---	---	51,819
Total - All Areas	24,277	28,929	263,983	3,339	14,047	334,576
Water Outflow						
Storm Runoff (F-57C-R)	---	---	---	---	96,548	96,548
Rising Groundwater (F-57C-R)	---	---	---	---	3,905	3,905
Subsurface	---	---	---	---	391	391
Recycled Water to the LA River	7,244	4,651	45,456	---	---	57,351
Wastewater to Hyperion	1,157	601 [6]	16,243 [6]			18,001

1. Basin Account water is not charged to any party.
2. Includes pumping from Hill and Mountain areas tributary to SFB.
3. Las Virgenes Municipal Water District.
4. LA total recycled water is 2,654 AF of which 11 AF were delivered to valley fill and 2,643 delivered to hill/mountains.
5. Glendale OU and Burbank OU treated groundwater discharged to Los Angeles River or sewer.
6. Water discharged from Tillman and LA-Glendale plants. Annual cities' portion from LAG based on proportion of reclaimed water.

TABLE 2-9B: SUMMARY OF 2007-08 WATER SUPPLY AND DISPOSAL SYLMAR BASIN

(acre-feet)

Water Source and Use	City of Los Angeles	City of San Fernando	All Others	Total
Total Extractions	2,996	3,670	0 [1]	6,666
Imports				
LA Aqueduct Water	3,351	--	--	3,351
MWD Water	6,978	0.03	--	6,978
Total	**10,329**	**0**	**0**	**10,329**
Exports - Groundwater to San Fernando Basin	2,996	3,339	0	6,335
Total Delivered Water	10,329	330	0	10,660
Water Outflow				
Storm Runoff	5,000 [2]	--	--	5,000
Subsurface	560 [3]	--	--	560
Total	**5,560**	**0**	**0**	**5,560**

1. Pumping for landscape irrigation by Santiago Estates. The well was capped in 1999.
2. Surface outflow is not measured. Estimate based on Mr. F. Laverty – SF Exhibits 57 and 64.
3. Estimated in the Report of Referee.

TABLE 2-9C: SUMMARY OF 2007-08 WATER SUPPLY AND DISPOSAL VERDUGO BASIN

(acre-feet)

Water Source and Use	Crescenta Valley Water District	City of Glendale	La Canada Irrigation District	City of Los Angeles	Other	Total
Total Extractions	3,281	2,653	---	---	10 [1]	5,945
Imports						
LA Aqueduct Water	---	---	---	252		252
MWD Water	2,063	1,824	1,275	524		5,686
Total	2,063	1,824	1,275	775		5,938
Exports to San Fernando Basin	0	706	0	0		706
Delivered Reclaimed Water		277				277
Total Delivered Water	5,344	4,048	1,275	775	10	11,453
Water Outflow						
Storm Runoff (Sta. F-252)					8,700	8,700
Rising Groundwater (Sta. F-252)					1,212	1,212
Subsurface to:						
Monk Hill Basin	---	---	---	---	300	300 [2]
San Fernando Basin	---	---	---	---	80	80 [2]
Total	**0**	**0**	**0**	**0**	**10,292**	**10,292**

1. Private party extractions.
2. Estimated.
3. Includes rising groundwater.

TABLE 2-9D: SUMMARY OF 2007-08 WATER SUPPLY AND DISPOSAL EAGLE ROCK BASIN

(acre-feet)

Water Source and Use	City of Los Angeles	DS Waters	Total
Total Extractions	0	180 [1]	180
Imports			
LA Aqueduct Water from SFB	24	--	24
MWD Water (25+35) from SFB	0		0
MWD Water (17)	59,028		59,028
Groundwater from SFB	0	--	0
Total	**59,052**	**0**	**59,052**
Exports			
MWD Water (17) out of ULARA	55,042		55,042
Groundwater	0	180	180
Total	**55,042**	**180**	**55,222**
Total Delivered Water	4,010	0	4,010
Water Outflow			
Storm Runoff	--	--	-- [3]
Subsurface	50 [2]	--	50
Total	**50**	**0**	**50**

1. DS Waters (formed by the merger of Suntory/Deep Rock Water Co. and McKesson/Danone Water Products) is allowed to pump as successor to Deep Rock and Sparkletts, under a stipulated agreement with the City of Los Angeles and export equivalent amounts.
2. Estimated in Supplement No. 2 to Report of Referee.
3. Estimated.
4. Not quantified.

TABLE 2-10A: CALCULATION OF 2008-09 EXTRACTION RIGHTS SAN FERNANDO BASIN

(acre-feet)

	City of Burbank	City of Glendale	City of Los Angeles
Total Delivered Water, 2007-08	24,277	28,929	263,983
Water Delivered to Hill and Mountain Areas, 2007-08	---	---	51,819
Water Delivered to Valley Fill, 2007-08	24,277	28,929	212,164
Percent Recharge Credit	20.0%	20.0%	20.8%
Return Water Extraction Right	4,855	5,786	44,130
Native Safe Yield Credit	---	---	43,660
Total Extraction Right for the 2008-09 Water Year[1]	**4,855**	**5,786**	**87,790**

1. Does not include Stored Water Credit and Physical Solution.

TABLE 2-10B: CALCULATION OF 2008-09 EXTRACTION RIGHTS SYLMAR BASIN

(acre-feet)

	City of Los Angeles	City of San Fernando	All Others
Extraction Right for the 2008-09 Water Year[1]	3,405	3,405	--- [2]

1. Does not include Stored Water Credit. The safe yield of the Sylmar Basin was increased to 6,810 AF/YR effective October 1, 2006. Effective October 1, 1984 safe yield less pumping by Santiago Estates is equally shared by Los Angeles and San Fernando.
2. Santiago Estates (Home Owners Group) capped well in 1999.

TABLE 2-11A: CALCULATION OF STORED WATER CREDITS SAN FERNANDO BASIN

(acre-feet)

	City of Burbank	City of Glendale	City of Los Angeles
1. Stored Water Credit (as of Oct. 1, 2007)	16,796	59,219	375,287
1a. Credits and Debits	4,200		(4,200)
1b. Credits and Debits	0	0	0
1c. Credits and Debits	0	0	0
2. Extraction Right for the 2007-08 Water Year	5,058	5,902	89,824
3. 2007-08 Extractions			
Party Extractions	6,816	7,411	50,009
Physical Solution Extractions	337	391	70
Clean-up/Dewaterers	8		415
Total	7,161	7,802	50,494
4. Spread Water 2007-08 Water Year	0	0	0
5. Stored Water Credits [1] per City (as of Oct. 1, 2008)	18,893	57,319	410,417
6. 1% Basin Loss Factor [2,3]	188.93	573.19	4104.17
7. **Stored Water Credits** (less Basin Loss) **for each City** (as of Oct. 1, 2008)	**18,704**	**56,746**	**406,313**
8. **Total Stored Water Credits** (less Basin Loss)		**481,764**	
9. **Total Available Stored Water Credits** [2,3] (from Plate 13)		**142,948**	
10. Percentage of Total Credits per City	3.882%	11.779%	84.339%
11. **Available Stored Water Credits for each City** (as of Oct. 1, 2008) (Item 9 x Item 10)	**5,550**	**16,838**	**120,560**
12. **Total Reserved Stored Water Credits** [2,3] (Item 8 - Item 9)		**338,816**	
13. **Reserved Stored Water Credits for each City** (as of Oct. 1, 2008) (Item 7 - Item 11)	**13,154**	**39,909**	**285,753**

1. Item 5 = 1 +1a + 1b + 1c + 2 – 3 + 4.
2. Glendale submitted a request for a credit of 3,052 AF due to past over-reporting of groundwater production at the power plant. The stored water credit adjustment will be addressed in the annual Watermaster Report for the 2008-09 Water Year.
3. Basin Loss Factor, Available and Reserved Stored Water Credits are determined pursuant to Interim Agreement for the Preservation of the San Fernando Basin Water Supply, 2008 (see Appendix G)

TABLE 2-11B: CALCULATION OF STORED WATER CREDITS SYLMAR BASIN

(acre-feet)

	City of Los Angeles	City of San Fernando
1. Stored Water Credit (as of Oct. 1, 2007)	9,014	1,248
2. Extraction Right for the 2007-08 Water Year [1]	3,405	3,405
3. Total 2007-08 Extractions	2,996	3,670
Santiago Estates[2]	0.0	0.0
4. Stored Water Credit[3] (as of Oct. 1, 2008)	**9,423**	**983**

1. The safe yield of the Sylmar Basin was increased to 6,810 AF/YR as of 10/1/06.
2. Santiago Estates pumping is equally taken from the rights of San Fernando and Los Angeles. Santiago Estates capped well in 1999.
3. Item 4 = 1 + 2 - 3

3. WATER QUALITY, TREATMENT, AND REMEDIAL INVESTIGATION ACTIVITIES

3. WATER QUALITY, TREATMENT, AND REMEDIAL INVESTIGATION ACTIVITIES

3.1 Water Quality

Imported Water

1. *LOS ANGELES AQUEDUCT* water is sodium bicarbonate in character and is the highest quality water available to ULARA. Its Total Dissolved Solids (TDS) concentration averaged about 210 milligrams per liter [mg/L; equivalent to parts per million, ppm] for 30 years before 1969. The highest TDS value on record was 320 mg/L on April 1, 1946. The TDS concentration measured on May 13, 2008 was 255 mg/L.

2. *COLORADO RIVER* water is predominantly sodium-calcium sulfate in character, changing to sodium sulfate after it has been treated to reduce total hardness. Samples taken at the MWD Burbank Turnout between 1941 and 1975 showed that TDS concentrations ranged from a high of 875 mg/L in August 1955, to a low of 625 mg/L in April 1959. The average TDS concentration over this 34-year period was approximately 740 mg/L. Tests conducted at Lake Matthews showed an average TDS concentration of 679 mg/L for Fiscal Year 2007.

3. *NORTHERN CALIFORNIA* Water (delivered via the State Water Project) is sodium bicarbonate-sulfate in character. It generally contains lower concentrations of TDS and is softer than local groundwater and imported Colorado River water. Since the time that State Project water was first imported to Southern California in April 1972, its TDS concentrations in have ranged from a high of 410 mg/L to a low of 247 mg/L. Laboratory tests conducted at the Joseph Jensen Filtration Plant showed an average TDS concentration of 266 mg/L during Fiscal Year 2007-08.

4. *COLORADO RIVER/NORTHERN CALIFORNIA* waters were first blended at the Weymouth Plant beginning in May 1975. Blending ratios vary, and laboratory tests conducted at the Weymouth Plant after treatment and blending processes showed an average TDS concentration of 491 mg/L during Fiscal Year 2007-08.

Surface Water

Surface runoff contains salts dissolved from sediments and rocks in the tributary areas of ULARA and is sodium-calcium to sulfate-bicarbonate in character. The most recent tests taken in September 1995 from flows in the Los Angeles River at the Arroyo Seco showed a TDS concentration of 666 mg/L and a total hardness (TH) of 270 mg/L. These values also reflect the inclusion of rising groundwater in the Los Angeles River between Los Feliz Blvd. and Gage F-57C-R.

Chlorides in Surface Water

In 1997 the LARWQCB adopted Resolution No. 97-02 in order to help develop a long-term solution to the chloride compliance problems stemming from elevated concentrations of chloride, caused by drought and the use of water softeners, in water imported into the Los Angeles region. Water Quality Objectives for chloride within the Los Angeles River reach between Sepulveda Flood Control Basin and Figueroa Street (including Burbank Western Channel only) have been raised from 100 mg/L to 190 mg/L; chloride levels are reported in Appendix D.

Nitrogen in Surface Water

As part of a Total Maximum Daily Load (TMDL) program, the LARWQCB ordered the Cities of Burbank and Los Angeles to determine the source of nitrogen in the Los Angeles River Narrows. The studies, which included nitrogen from rising groundwater into the Los Angeles River, were completed in 2007 by an outside consultant.

Groundwater

Groundwater in ULARA is considered to be moderately hard to very hard. The character of groundwater from the major water-bearing formations is of two general types, each reflecting the composition of the surface runoff in the area. In the western part of the San Fernando Basin, the groundwater is calcium sulfate-bicarbonate in character, whereas in the eastern part, including the Sylmar and Verdugo basins, it is calcium bicarbonate in character.

The overall quality of the groundwater is generally within the recommended limits of the California Title 22 Drinking Water Standards, except for: 1) areas in the eastern SFB where high concentrations of trichloroethylene (TCE), tetrachloroethylene (PCE), hexavalent chromium, and nitrate as NO_3 (or nitrogen as N) are present; 2) areas in the western end of the SFB having excess concentrations of naturally-occurring sulfate and TDS; and 3) areas within the Verdugo Basin that have shown high concentrations of MTBE (a gasoline additive) and nitrate as NO_3.

In each area, the groundwater delivered is either being treated or blended to meet State Drinking Water Standards.

A history of the TDS concentrations and the general mineral analyses of imported water , surface water, and groundwater is contained in Appendix D.

3.2 Groundwater Quality Management Plan

During the 2007-08 Water Year, the Interagency Coordinating Committee continued to implement the recommendations of the "Groundwater Quality Management Plan - San Fernando Valley Basins" issued in July 1983. The objective of this effort is to protect and improve the quality of stored water contained in the groundwater basins within ULARA. Special emphasis is placed on monitoring and removing the volatile organic contaminants TCE and PCE, and hexavalent chromium, which have been encountered in the groundwater. Table 3-1 summarizes the number of ULARA wells that are contaminated at the indicated levels above the Maximum Contaminant Level (MCL) of the California Drinking Water Standards of 5 micrograms per liter [µg/L, which is equivalent to parts per billion, ppb] for TCE and 5 µg/L for PCE.

TABLE 3-1: 2007-08 NUMBER OF WELLS IN THE ULARA WELL FIELDS EXCEEDING STATE MCL FOR TCE AND PCE

	Number of Wells													
	City of Los Angeles[3]									Sub-	Others[3]			Grand
Total Number of	NH	RT	P	HW	E	W	TJ	V	AE	Total	B	G	C	Total
Wells in Well Field[2]	35	15	3	4	7	8	12	5	7	96	8	15	15	134
Number of Wells Exceeding Contaminant Level[1]														
TCE Levels ppb														
5-20	4	3	2	-	1	0	2	0	1	**13**	0	3	0	**16**
20-100	0	1	0	-	0	0	7	0	4	**12**	4	4	0	**20**
>100	0	0	0	-	0	0	0	0	1	**1**	4	2	0	**7**
Total	4	4	2	-	1	0	9	0	6	**26**	8	9	0	**43**
PCE Levels ppb														
5-20	0	1	2	-	0	0	4	0	5	**12**	0	2	0	**14**
20-100	0	0	0	-	0	0	3	0	1	**4**	1	0	0	**5**
>100	0	0	0	-	0	0	0	0	0	**0**	7	0	0	**7**
Total	0	1	2	-	0	0	7	0	6	**16**	8	2	0	**26**

1. Wells are categorized based upon historic maximum TCE and PCE values measured throught 2007-08 Water Year.
2. Well Fields:
   - NH - North Hollywood
   - P - Pollock
   - HW - Headworks
   - E - Erwin
   - W - Whitnall
   - RT Rinaldi Toluca
   - TJ - Tujunga
   - V - Verdugo
   - AE - LADWP Aeration Tower Wells
   - B - City of Burbank
   - G - City of Glendale
   - C - Crescenta Valley Water District

3.3 Underground Tanks, Sumps, and Pipelines

The City of Los Angeles Fire Department (LAFD) continues to implement the State-mandated Underground Storage Tank (UST) Program and is actively conducting a program to bring the large number of underground tanks in the San Fernando Valley into compliance with current law. During the 2007-08 Water Year, a total of 15 sites were remediated under the direction of the LAFD. Currently, the Environmental Unit of the LAFD is monitoring the remediation of 48 sites.

The main focus of the LAFD UST Program in ULARA has been the monitoring and removal of gasoline, diesel, and their related constituents from the soil to help prevent contamination of the

underlying groundwater. If a site investigation indicates groundwater contamination, the site is referred to the LARWQCB for further action. Since October 1, 2007, 51 sites have been reassigned from the Underground Tank Plan Check Unit to the LARWQCB.

3.4 Private Sewage Disposal Systems (PSDS)

To reduce the potential for groundwater contamination from septic tanks, on September 17, 1985, the City of Los Angeles enacted Ordinance No. 160388, Los Angeles Municipal Code Section 64.26 (LAMC 64.26 or "Ordinance"), which was entitled "Mandatory Abandonment of Private Sewage Disposal Systems."

This Ordinance, LAMC 64.26, requires all owners of industrial, commercial, and multiple dwelling residential (five or more units) properties to connect to the public sewer when the sewer becomes available, and discontinue use of their PSDS within one year of the date of the issuance of a "Notice to Connect" by the City of Los Angeles. In addition, this Ordinance requires the Director of the Los Angeles Bureau of Sanitation (Director) to issue a "Reminder Notice" and a "Final Notice to Connect" to the owner of the property four (4) months and one (1) month, respectively, prior to the compliance deadlines. LAMC Section 64.26 further requires the Director to take the following actions whenever a property is found to be in violation of the Code requirements:

a) Request that the LADWP discontinue water service to the subject property,

b) Request that the Los Angeles Superintendent of Buildings order any building(s) on the subject property to be vacated; and,

c) Request that the Los Angeles City Attorney take the necessary legal action(s) against the property owner.

In order to further eliminate existing commercial and industrial PSDS and their discharges of nitrates to the SFB, a sanitary sewer construction program has been in progress for many years. This program is continuing to systematically install sanitary sewers in eighteen Groundwater Improvement Districts (GIDs) throughout the San Fernando Valley. To date, twelve of these areas have had completed construction, whereas the remaining six areas are in various stages of right-of-way acquisition and processing. Plate 7 shows the locations of these six GIDs.

The sewer construction program ordered by the Los Angeles City Council (City Council) required project design and construction to be funded though Assessment Act provisions.

Proposition 218, approved by the electorate on November 5, 1996, now requires that a majority of mail-in ballots of property owners approve any new or increased assessments, in order to proceed with funding the projects through the Assessment Program. The passage of Proposition 218 and continued downsizing of the workforce of the City of Los Angeles has impeded the sewer construction program for the remaining six GIDs.

Toward the end of the 1998-99 Water Year, inquiries by the Watermaster regarding scheduling for the completion of the remaining six GIDs led to the revision and re-estimation of construction plans for those improvements. Those projects were reactivated with the intent of facilitating the construction through the Assessment Program. The previously completed plans were revised as necessary and a revised construction cost estimate was prepared for each project. Those anticipated construction costs and project incidental costs were spread among the owners of benefiting property within the individual districts and the owners were notified of their proportionate share of the total assessment cost for the projects.

The majority of the responding property owners within five of the Groundwater Improvement Districts voted against paying assessments for the construction of sewer projects in their respective districts. The five districts failing to gain the majority vote required by Proposition 218 include: GID No. 3 (Raymer St. Nr. Fulton Ave.); GID No. 17 (Glenoaks Blvd. Nr. Roxford St.); GID No. 19 (Sherman Way Nr. Balboa Blvd.); GID No. 5 (Chandler Blvd. Nr. Lankershim Blvd.); and GID No. 12 (San Fernando Rd. Nr. Brazil St.). These projects are now inactive. Sixty-one percent of the responding owners serviced by GID No. 4 (San Fernando Rd. Nr. Keswick St.) voted in favor of the project and the assessments to fund it. Construction of the GID No. 4 sewer project was completed in September 2008.

Work on the five inactive GID projects has been deferred because of the fiscal impact to the City of Los Angeles for right-of-way acquisition and construction. The City Council will be notified of the current impasse regarding these projects. Further work on the projects will be contingent upon direction from the City Council and authorization for alternative financing of the projects.

In order to determine the number of properties not connected to a sewer, the Los Angeles Bureau of Sanitation (LABOS) updated the database for water users not being billed for sewer usage. The analysis initially showed that in the SFB approximately 5,700 of these properties are located within 50 feet of an existing sewer, and another 7,700 properties are located more than 50 feet from an existing sewer. The LABOS has prepared a map to illustrate the locations of the unsewered properties relative to the locations of municipal-supply water wells. The map

will assist the LABOS in prioritizing field inspections, beginning with unsewered properties within 1,000 feet of a known municipal-supply well.

Most sites have been found to be connected to a sewer but are not being billed. Other addresses have two water meters - one for irrigation and a second for residential use. Some properties are on septic tanks in areas where there are no sewers.

In June 2005, the Wastewater Engineering Services Division (WESD) of the LABOS identified a list of approximately 840 properties owning and operating a PSDS that had access to an existing sewer. These properties were subsequently referred to the Industrial Waste Management Division (IWMD) for further investigation and to determine applicability of the provisions of LAMC 64.26 (or Ordinance) to these properties.

IWMD staff conducted its own investigation before requiring the referred properties to be connected to the sewer. Investigations included contacting the property owner or tenant, site visits, and, if necessary, "dye tests" to ensure that each of the properties in question did own and operate a PSDS. The site visits also helped to further verify that the property had access to a sewer.

Following IWMD investigations, 413 of the 840 referred properties were found to fit the criteria such as being an industrial, a commercial or a multiple dwelling residential building (with five or more units) subject to the Ordinance provisions. Of the 413 properties that were subject to the Ordinance, 234 properties were found to be connected to the sewer already; hence 179 properties subject to the Ordinance are not currently connected to the sewer in the SFB.

From June 2005 to June 2008, IWMD issued 179 "Notice to Connect to the City Sewer and Abandonment of the PSDS" (NTC) letters to those properties subject to the Ordinance. Of the 179 properties that were issued a NTC letter, 158 properties have since connected to the sewer, and six (6) are under enforcement actions. Twelve (12) NTC letters were returned to IWMD for various reasons including change of business ownership or refusal to accept the certified letter that contained the NTC. These properties are being further investigated.

3.5 Landfills

The Solid Waste Assessment Test (SWAT) reports for major SWAT Rank 1 to Rank 4 landfills in the Los Angeles area have been completed and submitted to the LARWQCB for approval. The reports reviewed by the LARWQCB are listed in Table 3-2. As stipulated by Article 5 of Title 27, a follow-up sampling program under an Evaluation Monitoring Plan was required for some landfills due to the presence of VOCs in the underlying groundwater. Further updates to the SWAT would be triggered by post-closure land use.

Bradley Landfill closed in April 2007. Waste Management, the owner of that landfill, is focusing its efforts on the construction of a Recycling and Transfer Center at that facility to replace the landfill.

Sheldon-Arleta Landfill is undergoing modifications to install an improved landfill gas collection system. The goal of the improvements is to help restore recharge capacity at the nearby Tujunga Spreading Grounds from its current limit of 100 cubic feet per second (cfs) to its historic level of 250 cfs. It is expected that the improvements will be completed by mid-2009.

Landfill locations in ULARA are shown on Plate 6.

TABLE 3-2: LANDFILLS WITH SWAT INVESTIGATIONS

(reported to Interagency Coordinating Committee)

Name	Rank	Current Owner	Location	SWAT Report Completed	Final SWAT Submitted	Phase II SWAT Req.	Approved by RWQCB	Site Leak -1	Type of Emission -2	Further Monitoring
Open										
CalMat (Sun Valley #3)	2	CalMat Properties	Sun Valley District, NE of Glenoaks Blvd	Jul-88	Nov-90		Jun-92	N	Inert site	N,7
Scholl Canyon	1	City of Glendale	San Rafael Hills, 1 mile West of Rose Bowl	Jul-87	Apr-88		Aug-90	G	NHA (I/O)	3
Stough Park	2	City of Burbank	Bel Air Drive & Cambridge Drive	Jun-88	Dec-88		Apr-90	G	NHA Inert Site	3
Sunshine Cyn. LA County	2	Browning - Ferris Industries	SE Santa Susana Mtns W of Golden State Fwy	Jul-88	Jul-89		Apr-94		MSW	6
Closed										
Bradley East	2	WMDSC	SE of Sheldon St	Jun-87	Nov-90		Apr-92	G	NHA (I/O)	4, 8
Bradley West	1	WMDSC	Sun Valley, SE of Sheldon St.	Jun-87	Nov-90		Apr-92	G	NHA (I/O)	3
Bradley West Extension	3	WMDSC	Near Canyon Blvd & Sheldon St	Jul-88	Jul-89		Apr-92	G	MSW	3, 8
Branford	2	City of Los Angeles Bureau of Sanitation	Sun Valley District, NW of Tujunga Wash	Jul-88	Oct-90	X	Jun-92		MSW	4,7
Gregg Pit/Bentz	2	CalMat Properties	Between Pendleton St & Tujunga Ave	Jul-89	Jul-89		Feb-90	G	NHA	4
Hewitt Pit	2	CalMat Properties	North Hollywood District Hollywood Fwy, Laurel	Jun-88	Jul-89		May-91	G	NHB (I)	N
Lopez Canyon	2	City of Los Angeles Bureau of Sanitation	N of Hansen Dam near Lopez and Kagel Cyn	Jun-88	Jun-88	X				8
Newberry	3	Los Angeles (LA By-Products Co.)	N of Strathern St, Tujunga Ave	Jun-88	Jul-89		Sep-89	G	NHB (I/O)	4
Pendleton St.	4	City of Los Angeles Bureau of Sanitation	Sun Valley, Pendelton St & Glenoaks Blvd	Jul-90	May-91		Jun-92	N	Inert Site	5
Penrose	2	Los Angeles (LA By-Products Co.)	N of Strathern St, Tujunga Ave	Jun-88	Jul-89		Sep-89	G	NHB (I/O)	4
Scholl Canyon	2	City of Glendale	San Rafael Hills, 1 mile West of Rose Bowl	Jul-87	Aug-90		Dec-93	G	NHA	5
Sheldon-Arleta	1	City of Los Angeles Bureau of Sanitation	Sun Valley District near Hollywood & Golden State Fwys	May-87	May-87		Feb-90	G	MSW	4,7
Sunshine Cyn. LA City	2	Browning - Ferris Industries	SE Santa Susana Mtns W of Golden State Fwy	Jul-88	Jul-89		Apr-94	G	MSW	6
Toyon Canyon	2	City of Los Angeles Bureau of Sanitation	Griffith Park	Jun-88	Mar-89		Apr-91	L	NHA (I/O MSW)	3
Tuxford Pit	2	Aadlin Bros. (LA By-Products Co.)	Sun Valley District, SW of Golden State Fwy & Tujunga Ave	Jun-88	Dec-90		Jun-92		MSW	4, 8, 9
Incomplete										
Strathern		Never completed. Application 12/88.	Strathern St. & Tujunga Ave							10

1. G – Gas, L – Liquid.
2. MSW – Municipal Solid Waste
   NHA - Non-Hazardous but above state drinking water regulatory levels
   NHB - Non-Hazardous but below state drinking water regulatory levels
   I – Inorganic, O – Organic; N-No, Y-Yes
3. Under Title 27 Corrective Action Program (CAP), after completion of EMP.
4. Closed landfills with groundwater monitoring required under Title 27. Monitoring results are submitted to the Regional Board periodically.
5. Subject to SWAT requirements. Further monitoring may be required under Title 27.
6. All open landfills are required to have groundwater monitoring under Title 27. Monitoring results are submitted to the Regional Board quarterly or semi-annually.
7. Semi-annual groundwater monitoring.
8. Groundwater contamination Evaluation Monitoring Program (EMP) required under Title 27.
9. USEPA involved in evaluation.
10. Under permit as Inert Landfill.

3.6 San Fernando Valley Remedial Investigation Activities

A remedial investigation (RI) of groundwater contamination in the San Fernando Valley was initiated in July 1987 by the USEPA to characterize the San Fernando Basin and the Verdugo Basin due to the presence of TCE and PCE contamination in the soils and/or groundwater. The LADWP was selected by the USEPA to serve as the lead agency in conducting the RI and they entered into a cooperative agreement that has provided over $22 million in federal funding to LADWP beginning July 1987. In August 1987, the LADWP selected James M. Montgomery, Consulting Engineers (JMM), to serve as its consultant to perform various RI tasks.

The JMM report, "Remedial Investigation of Groundwater Contamination in the San Fernando Valley," was completed in December 1992 and it is a comprehensive, five-volume report that presented the findings and characterizations of the SFB and the Verdugo Basin with regard to their geology and hydrogeology, and to the nature and extent of contamination known at that time. The RI report also provided: a description, along with the documentation, of the SFB Groundwater Flow Model; a summary of the RI field investigation activities; and an evaluation of potential risks to human health and the environment.

The SFB Groundwater Flow Model was developed as a part of the San Fernando Valley RI and is a comprehensive, three-dimensional, regional-scale model. A three-dimensional mass transport model has also been developed for the SFB. The model has been utilized for various groundwater projects to help analyze the storage and physical characteristics of groundwater in the SFB.

USEPA's consultant, CH2M HILL, continues to periodically sample the 87 groundwater monitoring wells that were installed as part of the RI. CH2M HILL also obtains groundwater quality and groundwater elevation data from the various municipalities and from the various facilities in the San Fernando Valley to update the SFB database. CH2M HILL utilizes the data to produce contaminant plume maps.

The RI Report and the semi-annual sampling reports are available for public review at the Superfund Primary Information Repositories, which are located in the following libraries: City of Glendale, City of Burbank, LADWP, California State University-Northridge, and the University of California - Los Angeles.

The LADWP also maintains a current SFB database for use with the SFB flow model and continues to generate groundwater contour maps and contaminant plume maps for the SFB.

CH2M HILL continues to provide updated groundwater quality data for incorporation into the LADWP database.

3.7 Water Treatment

USEPA Operable Units

The USEPA is proceeding with enforcement actions against Potentially Responsible Parties (PRPs) for the North Hollywood, Burbank, and the Glendale North and South Operable Units (OUs); these actions are all a part of the USEPA's overall, long-term groundwater remediation activities in the SFB. The four OUs in the San Fernando Basin are described below.

1. *NORTH HOLLYWOOD OU* - The North Hollywood OU (NHOU) construction was funded by the USEPA, CDPH (formerly DHS), and LADWP. Operations and Maintenance activities in the NHOU are funded by the USEPA and LADWP. In 2007-08, 338 million gallons (1,038 AF) of groundwater CONTAINING VOCs were treated by air stripping at this facility. This volume represents 88 AF less than that in the 2006-07 Water Year.

   Air discharged to the atmosphere from the treatment process continues to be monitored for VOCs on a quarterly basis. All four quarters of VOC monitoring data were in compliance with permit requirements of the South Coast Air Quality Management District.

   Groundwater production at NHOU continues to be limited due to declining groundwater levels in the SFB. Although the 15-year NHOU Consent Decree expired on December 31, 2004, the VOC plume has not been fully remediated. In addition, a nearby hexavalent chromium groundwater plume has been identified; however the NHOU treatment facility was not designed to remove this contaminant. In Fall 2006, chromium levels began to increase in NHOU Aeration Well No. 2, and the well was taken out of service. The former Honeywell site in North Hollywood is suspected of being a major contributor to this chromium plume. Honeywell has submitted a remedial action plan to the LARWQCB for review and approval. The USEPA is nearing completion of its Focused Feasibility Study to evaluate VOC and chromium levels at the NHOU. The draft report is undergoing public agency review and will proceed with a public review and comment period, to be

followed with public meetings before the final report is adopted and project development begins.

The Focused Feasibility Study includes construction of approximately 37 monitoring wells to further characterize the water quality and hydrogeology of the area, the construction of three new extraction wells, and the rehabilitation of the existing wells; also a part of the work will be providing for treatment of chromium and 1-4 Dioxane.

2. *BURBANK OU* - The Burbank OU (BOU), funded by Lockheed-Martin under a USEPA Consent Decree and operated by the City of Burbank, uses aeration and liquid-phase GAC to remove VOCs from groundwater (that also contains elevated concentrations of nitrate) and then blends the treated water with imported water from the MWD for delivery to the City of Burbank.

   Burbank assumed operation and maintenance of the BOU in 2001. Since that time, the facility has had difficulty in sustaining operation at the designed treatment rate of 9,000 gpm. Burbank, Lockheed-Martin, and the USEPA have been cooperating in an effort to determine the cause(s) of the reduced treatment rate and have made several process enhancements and repairs. The liquid-phase GAC vessels have been modified, and modifications to the vapor-phase GAC vessels were completed in 2008. In addition, in 2006-07 the water table remained relatively high in the vicinity of the BOU, allowing higher Burbank OU well production than in previous years. However, the high water table is not expected to continue indefinitely due to the very dry winter in 2006-07 and continued pumping by Los Angeles and Burbank.

   In order to further explore ways to sustain production at the design rate of 9,000 gpm, Burbank selected Montgomery Watson Harza to conduct a Well Field Performance Attainment Study; this report is currently being evaluated by the USEPA. Options to increase production rates include deflating the packers that currently exist in the existing wells, constructing additional production wells, and building a pipeline to blend MWD water with groundwater from the Lake Street wells that contains elevated concentrations of chromium.

Burbank is also concerned about hexavalent chromium in groundwater produced at the BOU and has been blending with imported water to keep the concentration of total chromium at, or below, 5 µg/L. The BOU treatment facility was not designed to treat chromium.

A total of 6,817 AF of contaminated groundwater was treated by the BOU in the 2007-08 Water Year.

3. *GLENDALE NORTH AND SOUTH OUS* - Construction of the Glendale North and South Operable Units (GOU) was completed and treated water was ready for delivery on August 1, 2000. The system includes four Glendale North OU extraction wells (with a capacity of 3,300 gpm) and four Glendale South OU extraction wells (with a capacity of 1,700 gpm). The treatment process uses aeration and liquid-phase GAC to treat groundwater contaminated with VOCs and then blends the treated water with imported MWD water at the Grandview Pump Station. A total of 7,347 AF of contaminated groundwater was treated in 2007-08.

   The Weak-Base Anion Exchange Chromium Reduction Demonstration project will provide a wellhead treatment factility, which is expected to complete construction by July 2009. The facility will remove chromium from Well GS-3.

Other Treatment Facilities

1. *VERDUGO PARK WATER TREATMENT PLANT (VPWTP)* – Glendale's VPWTP serves as a filtration and disinfection facility. A total of 715.2 AF of groundwater was treated in the 2007-08 Water Year.

2. *GLENWOOD NITRATE WATER TREATMENT PLANT* - CVWD's Glenwood Nitrate Water Treatment Plant, which uses an ion-exchange process for nitrate removal, treated 660 AF in the 2007-08 Water Year.

3. *POLLOCK WELLS TREATMENT PLANT* (PWTP) – The 3,000-gpm PWTP was dedicated on March 17, 1999. This treatment plant uses four liquid phase GAC vessels to remove VOCs from Pollock Well Nos. 4 and. 6. The operation of these production wells helps reduce groundwater discharge to

the Los Angeles River by reducing the amount of rising groundwater. A total of 2,573 AF of groundwater was treated during the 2007-08 Water Year.

4. *BURBANK GAC TREATMENT PLANT* - The City of Burbank GAC system (Lake St. wells) was shut down in March 2001 due to the elevated concentrations of hexavalent chromium in the groundwater and remained out of service during the 2007-08 Water Year. The City of Burbank has a goal of accepting a maximum of 5 µg/L of total chromium after blending for distribution within its water system. If the plant is returned to service, production may be considered as part of the average pumping goal of 9,000 gpm for the Burbank OU.

3.8 Groundwater Quality Investigations

There are several ongoing groundwater quality investigations in ULARA. Some of the major sites and related activities are summarized below.

Boeing/Rocketdyne Santa Susana Field Lab, Simi Hills

This facility, located in the hills at the western end of the San Fernando Valley, was the site of rocket testing until the 1980s. As a result, soil and groundwater became contaminated; ; key constituents of concern include VOCs, perchlorate, and radionuclides. Several hundred monitoring wells have been constructed at this site and they are being sampled and tested on a regular basis. Contaminated soil and groundwater are being remediated at selected locations.

CVWD-MTBE Investigation

In February 2004, methyl-tert-butyl-ether (MTBE) was discovered by CVWD in Well No. 5 during its annual VOC water quality sampling program in their active water-supply wells. MTBE is a gasoline additive that was used from 1990 to 2003; gasoline containing MTBE has leaked from underground storage tanks and contaminated local soils and groundwater. In 2005, CDPH directed CVWD to continue monitoring Well No. 5 on a quarterly basis. As a result, MTBE continued to be detected. CVWD retained McGuire Malcolm Pirnie Environmental Consultants (McGuire) to provide an evaluation of possible MTBE sources for the contamination in CVWD Well No. 5. In addition, the Watermaster requested the LARWQCB to perform an investigation into potential sources of MTBE. LARWQCB met with CVWD in 2005 and began the investigation. In March 2006, the McGuire report was completed and forwarded to LARWQCB. The report identified several potential source sites. Since November 2006, LARWQCB has

been aggressively continuing its investigation and has been meeting with CVWD and potentially responsible parties at the CVWD offices.

In August 2006, MTBE concentrations in Well No. 7 increased to 29 µg/L which is significantly above the MCL of 13 µg/L for this constituent, and, as a result, the well was shut down. CVWD started out testing all its wells on a weekly basis and the MTBE level in Well No. 7 rose to values as high as 50 µg/L in October 2006. After that, the MTBE levels have dropped to a low of 0.50 µg/L in October 2007.

In October 2006, CVWD retained McGuire to evaluate and prioritize the available methods to treat groundwater from this well and other nearby wells in order to begin cleanup of groundwater before the MTBE plume spreads to other wells in the system. The report was completed in January 2007 and it was determined that a granulated active carbon (GAC) treatment system would be the best treatment method. In addition, as part of the study, groundwater samples were tested with different types of GAC to determine the best type of GAC to be used. It was determined that a "coconut shell" based GAC would provide the best medium for MTBE removal. It was also discovered that groundwater that also contained high levels of nitrate would see “spikes” in nitrate concentrations in the effluent stream after the GAC system was shut down for a period of time. This has been referred to as "nitrate adsorption", or release of nitrates from the GAC into the water. This report was completed in November 2007.

In November 2006, the Watermaster, at the request of CVWD, formed the Verdugo Basin MTBE Task Force to expedite the MTBE investigation and cleanup of the contamination in order to return CVWD’s wells to full operational capacity. The Task Force met five times during the 2006-07 Water Year. The Task Force determined that 11 of the 27 potential contamination sites need additional site investigation and remedial action work. In 2007-08, the following activities occurred: two sites installed clean-up systems; site investigations were still being performed at four; three sites had prepared work plans but no work had started; and two sites were de-listed.

Three of the sites are under the direction of Resource Environmental LLC (RELLC), an oil industry remediation firm representing five major oil companies, which has joined the cleanup effort with CVWD. RELLC is helping to define the MTBE plume(s) by constructing monitoring wells at its clients’ sites, and constructing additional monitoring wells on proximal offsite

locations. RELLC has also installed soil vapor extraction (SVE) systems at two of their sites and these have been in operation since January 2008.

CVWD has also applied for a grant from the CDPH's Drinking Water Research and Treatment Fund for the cost to build and operate the proposed GAC treatment system at CVWD's Mills Facility. The grant was for $6.4 million, however, money for the Drinking Water Fund has not become available and CDPH has included the project under Proposition 84.

DriLube, 711 W. Broadway and 718 W. Wilson, Glendale

DriLube Company, a plating facility located in Glendale, was issued a Cleanup and Abatement Order (CAO) by the LARWQCB in 2002. DriLube was named a Responsible Party by the USEPA for discharging contaminants from its site into the Glendale South Operable Unit. The results of subsurface investigations have detected chlorinated solvents, petroleum hydrocarbons, PCBs, and heavy metals (including chromium) within the underlying soils and groundwater to date. On November 15, 2002 a fire at the DriLube Company totally destroyed the Plant 1 facility and records. USEPA now manages the DriLube site, and has issued a Unilateral Administrative Order for cleanup.

PRC-DeSoto (formerly Courtaulds Aerospace), 5430 San Fernando Road, Glendale

The LARWQCB issued a Cleanup and Abatement Order (CAO) to PRC-DeSoto on August 22, 2002. This facility has been named a Responsible Party by USEPA for releasing chlorinated organic solvents within the Glendale South Operable Unit. The facility's principal industrial activities involved chemical formulation of adhesives and sealants used by the U.S. Department of Defense for various aerospace applications. Trichloroethane (1,1,1-TCA), dichloroethane (DCA), TCE, PCE, chromium, hexavalent chromium, and nickel have been detected to date in soil and groundwater beneath the site. Three downgradient monitoring wells were constructed in May 2006. PRC-DeSoto has submitted a Remedial Action Plan (RAP) for the in-situ reduction of hexavalent chromium that is under review by the LARWQCB. Furthermore, the facility is applying for a General Waste Discharge Requirement (WDR) permit from the LARWQCB for the remediation of the hexavalent chromium. The facility recently completed a soil gas investigation and submitted a final report which is under review. Groundwater monitoring continues on a quarterly basis.

Excello Plating, 4057 Goodwin Ave., Los Angeles

The LARWQCB issued a CAO to Excello Plating on June 20, 2003. The CAO was revised and reissued on June 2, 2005. The facility's owners have been named a Responsible Party under CERCLA for releasing VOCs, hexavalent chromium, nickel, cadmium, zinc and lead into the enviornment. The purpose of issuing this CAO was to ensure that Excello Plating completes the onsite and offsite assessments that are necessary to help delineate the lateral and vertical extent of heavy metal contaminants (specifically chromium) and, as necessary, undertake remediation of the affected soil and groundwater, both onsite and offsite.

On September 23, 2004, the Los Angeles City Attorney charged Excello with a violation of the Federal Clean Water Act for failure to comply in a timely manner with the CAO. This criminal citation has corresponding financial penalties including fines of $50,000 per day. In 2006, there was an out-of-court settlement that included a plan to construct and sample additional groundwater monitoring wells for further plume delineation.

As of March 2009, soil assessment for the site has been completed, and the groundwater assessment is still ongoing. USEPA and LARWQCB continue to meet with the site consultant to discuss potential cleanup activities.

B.F. Goodrich (formerly Menasco/Coltec Industries, Inc.) 100 E. Cedar Ave., Burbank

The LARWQCB issued a CAO to Coltec Industries, Inc. on July 5, 2002, because this facility was named a Responsible Party by the USEPA for discharging contaminants that have reached the Glendale North Operable Unit. The facility's former industrial activities involved machining, manufacturing, metal plating, and anodizing of parts and equipment used by the U.S. Department of Defense for various aerospace applications. Various contaminants including TCE, PCE, DCE, 1,1,1-TCA and hexavalent chromium have been detected in soil and groundwater beneath the site. Vapor extraction and extraction from a perched water zone have been implemented as interim response actions. Groundwater monitoring and sampling of onsite and offsite wells continues on a semi-annual basis. The work plan for conducting a pilot study for in-situ remediation of hexavalent chromium in the soil and groundwater was approved by the LARWQCB and implemented under the General Waste Discharge Requirements (WDR) permit. A human health risk assessment (HHRA) was completed for the site and the report was approved by the LARWQCB following review by the Office of Environmental Health Hazard Assessment (OEHHA). The results of the pilot study and the HHRA will be incorporated into the feasibility study and selection of a remedy that will be presented in a comprehensive remedial action plan for soil and groundwater at the site.

ITT/Home Depot, 1200 S. Flower St., Burbank

Home Depot has completed construction of a store and parking lot on part of the former ITT Aerospace Controls site. ITT Aerospace Controls manufactured parts, and conducted metal finishing and plating. Groundwater contamination at the site consists of VOCs, petroleum hydrocarbons, nickel, and hexavalent chromium. In 2004, Home Depot built a slurry wall around the site to help prevent the lateral offsite migration of contamination. A naturally occurring low-permeability zone located 50 feet below the ground surface is reportedly expected to reduce vertical migration of the contaminants. ITT is also responsible for cleanup of the area outside the Home Depot's slurry wall barrier. The facility will be required to submit a Remedial Action Plan (RAP) and apply for a General WDR permit from the LARWQCB for the remediation of hexavalent chromium. Groundwater monitoring continues on a semi-annual basis.

Brenntag (formerly Holchem) and Paxton Street LLC (formerly Price Pfister) - Pacoima Area Groundwater Investigation

A VOC contamination plume was identified in the Pacoima area near the intersection of the Simi Valley Freeway (118 Freeway) and San Fernando Road. This site is approximately 2.5 miles upgradient of LADWP's Tujunga Well Field; this well field is capable of pumping groundwater at a maximum combined rate of approximately 47,000 gpm. LADWP constructed two monitoring wells downgradient of the known contamination plume. Under DTSC guidance, Brenntag has installed a soil vapor extraction system (SVE).

The Paxton Street site (formerly Price Pfister), located southeast of Brenntag, has been directed to delineate the extent of VOC contamination with onsite and offsite monitoring wells. The LARWQCB is the lead agency in enforcing cleanup at this site. Soil vapor extraction began in September 2002 and air sparging began in June 2003. Excavation of contaminated soils from all source areas in the northern part of the property (approximately 2/3 of the total 25 acres) has been completed. Groundwater monitoring is on-going. A Lowe's Home Center is planned for the site.

LARWQCB staff has received the public comments on the report which discusses the results of a soil gas survey of the property and provides an associated groundwater RAP for hexavalent chromium and 1,4-dioxane. As of January 2009, the RAP has been deferred for one year to collect additional groundwater quality data and to further characterize the site.

Honeywell (formerly Allied Signal/Bendix) 11600 Sherman Way, North Hollywood

Honeywell was issued a Cleanup and Abatement Order (CAO) on February 21, 2003 and an amended CAO in September 2004. The company was also directed to prepare a workplan for additional onsite and offsite assessment of soil and groundwater. A workplan was submitted and approved and the field work has been completed. The RAP for in-situ chromium remediation has been approved and has started with injection treatment. The facility's General WDR application has been approved by the LARWQCB. Additional offsite monitoring wells were approved by the USEPA and LARWQCB and the wells have been constructed. The facility was required to submit a wellhead treatment workplan for treating hexavalent chromium and 1,4-dioxane at LADWPs extraction well NHE-2. The well was shut down by the LADWP due to elevated concentrations of total chromium (to values of 400 µg/L); such values are well above the MCL of 50 µg/L for this constituent. The source of the chromium concentration is a groundwater plume that has migrated offsite from the Honeywell facility.

In September 2008, Honeywell began wellhead treatment at NHE-2 but only for VOCs; the treated effluent is discharged to the sanitary sewer system. LADWP is working with regulatory agencies to ensure that the extracted water is also treated for other contaminants so that the water could eventually be used for potable purposes.

General Electric (formerly Pacific Airmotive), 2940 North Hollywood Way, Burbank

LARWQCB have identified an apparent continuing source of VOCs at the former site of Pacific Airmotive property that is currently owned by General Electric. The soil vapor extraction system has been removing PCE soil vapor from underneath the adjacent property (2960 No. Hollywood Way).

Raytheon (formerly Hughes Missile Systems Company), 8433 Fallbrook Avenue, Canoga Park

Contaminants at the site reportedly include 1,1-DCE, TCE, PCE, TCA, BTEX and 1,1-DCA. TDS concentrations are in excess of the Basin Plan objectives, so the treated water may not be discharged to the Los Angeles River. As a result of the high TDS concentrations, the treatment plant effluent is stored in holding tanks, and used for onsite irrigation.

3M (formerly Riker Lab), 19901 Nordhoff, Northridge

Contaminants at this site include chloroform, 1,2-DCE, 1,2-DCA, and Freon 11. There has been a groundwater treatment system in operation since 1997. There are currently 15 groundwater extraction wells and two air-stripping towers in series capable of treating 60,000 gallons per

day. In March 2005, 3M and its consultant, Weston Solutions, Inc. completed installation of a system to re-use the discharged portion of the treated groundwater for landscape irrigation. All of the treated groundwater is now beneficially used onsite.

Micro Matics, 19791 Bahama St., Northridge

The soil and groundwater beneath a portion of the Micro Matic's property are contaminated with PCE and 1,1,1-TCA. The plume has moved offsite to the west beneath a portion of the former 3M property, and also to the south beneath Bahama Street. The 3M parcel contaminated by Micro Matics was sold to a developer, Nordhoff Industrial, in December 2004.

Treatment currently consists of pumping contaminated groundwater and treating it with liquid-phase GAC. A plan has recently been approved by the LARWQCB to inject a hydrogen donating compound into the aquifer to degrade the VOCs in-situ. The first phase of the HRC™ in-situ groundwater remediation pilot test has been implemented and initial results indicate a reduction in the PCE concentration. The second phase of the pilot test that includes injection of HRC-X™ was implemented in July 2005.

Tesoro Petroleum (former Fast Fuel, 11051 Victory Blvd., N. Hollywood)

Tesoro Petroleum is the owner of a gasoline station site in North Hollywood. A leaking underground tank caused a plume of gasoline hydrocarbons containing MTBE to move downward into the local groundwater. Over time, a contamination plume has migrated offsite toward several municipal-supply wells in LADWP's Whitnall Well Field. Tesoro, and its consultants, Haley & Aldrich and Miller Brooks Environmental, have been performing soil remediation using soil vapor extraction. Working with its consultants, and with LADWP, LARWQCB, and the Watermaster, Tesoro has implemented a groundwater cleanup plan that utilizes ex-situ bioremediation and re-injection of the treated groundwater. Full-scale re-injection began in October 2005 and the initial work has resulted in a dramatic reduction in MTBE in the groundwater. Upon review of the data, the LARWQCB determined that the groundwater influent into the remediation system showed substantial reduction in MTBE concentrations; thus, the LARWQCB approved the permittee's request to discontinue Soil Vapor Extraction (SVE) operations. SVE systems were shut down in August 2008 and are only operated to obtain water quality samples when requested by LARWQCB.

Taylor Yard (Los Angeles River Narrows Area)

The Union Pacific Railroad owns a large parcel adjacent to the Los Angeles River Narrows. The parcel has been subdivided into two parts – the "active yard" and the "sale parcel". The 25-acre active yard is contaminated with VOCs, semi-volatile organic compounds, fuel hydrocarbons, and metals. Remediation is under the jurisdiction of the California Department of Toxic Substance Control.

The sale parcel has attracted the attention of several agencies and stakeholders, including the State Parks Department and the California State Coastal Conservancy, who consider the site as a potential location for habitat restoration and recreation near the Los Angeles River.

Status on the existence of Hexavalent Chromium in the San Fernando Basin

In January 2003, the Watermaster published a report on hexavalent chromium contamination in the SFB. The LARWQCB published a report of its four-year investigation of hexavalent chromium in December 2002. The presence of this contaminant threatens the use of SFB groundwater as a reliable source of water for Burbank, Glendale and Los Angeles, and also jeopardizes the Operable Units constructed with funding from the USEPA to clean up VOCs on a regional basis. None of the Operable Units that treat VOCs in the groundwater in the San Fernando Basin were designed to treat chromium.

Total chromium is comprised of hexavalent chromium and trivalent chromium. Hexavalent chromium is a carcinogen when inhaled, but the effects when ingested are a subject of continuing debate. Trivalent chromium is a nutrient when ingested in small amounts.

The California Office of Environmental Health Hazard Assessment (OEHHA) is currently developing a new Public Health Goal (PHG) for hexavalent chromium. Following the issuance of the PHG, a California Maximum Contaminant Level (MCL) can be set. In addition, a National Toxicology Program study is underway to determine a safe Federal MCL for hexavalent chromium. The Federal and State drinking water MCLs for total chromium are currently 100 µg/L and 50 µg/L, respectively. There are no separate standards for hexavalent chromium. Until the new hexavalent chromium standards are developed, the total chromium standards will continue to be used.

Hexavalent chromium affects the operation of OUs which were designed to treat only for VOCs. The Consent Decrees between the USEPA and the responsible parties require that certain

pumping rates be maintained in the OUs to control VOC plume migration and to provide contaminant removal. As these wells are pumped, the chromium plumes also migrate toward the wells, albeit at a slower rate than the VOCs. Hexavalent chromium has now appeared in all of the OUs in the SFB. Fortunately, its concentrations are currently low enough to meet all drinking water standards, under certain operational controls. High hexavalent chromium concentrations have caused several wells to be pumped at reduced rates (particularly in the GOU), and at least one well has been shut down (in the NHOU). Should hexavalent chromium concentrations become too high, the operation of the OUs will be compromised.

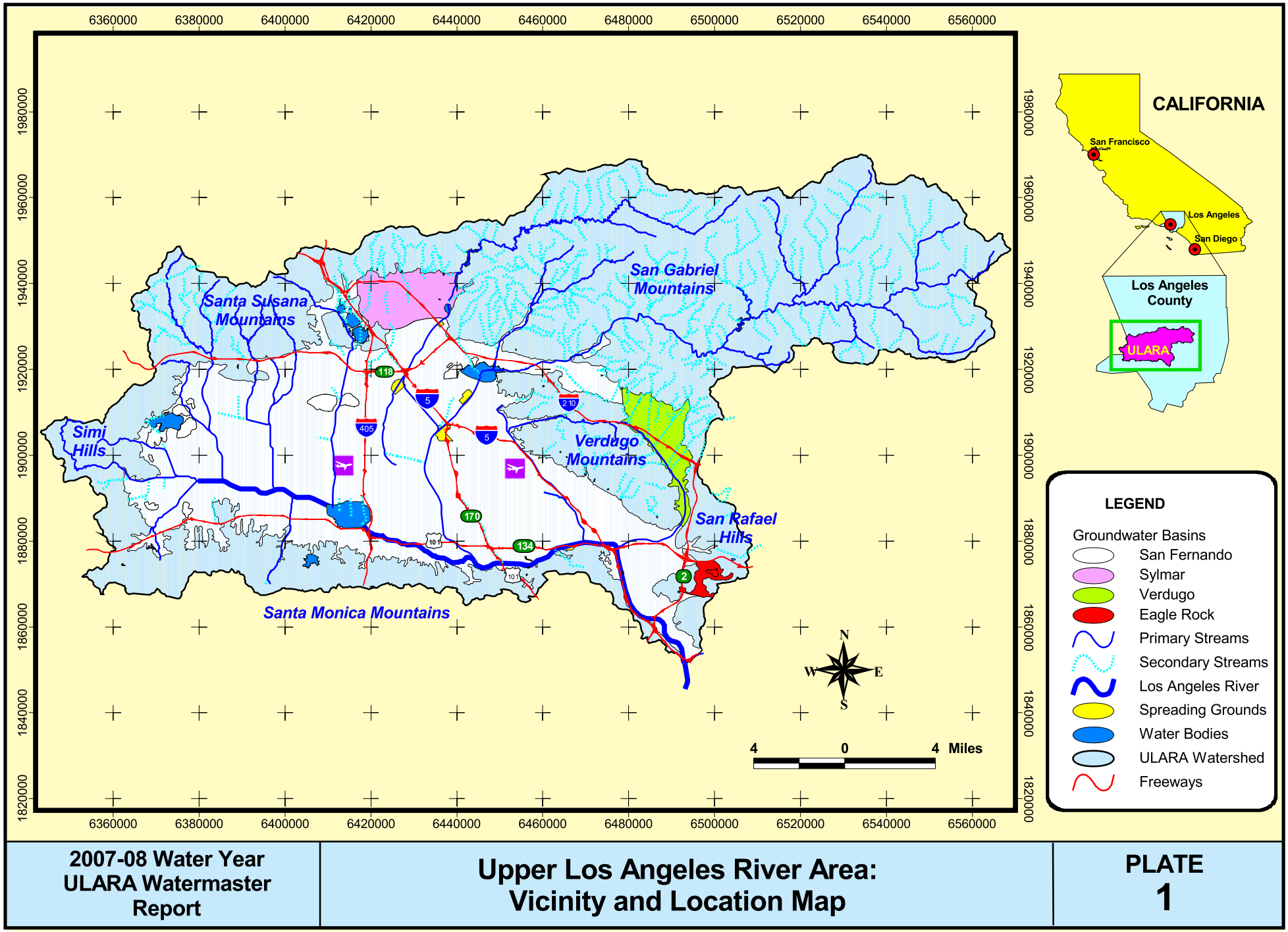
A study is underway by McGuire Malcolm Pirnie Environmental Consultants to identify a cost-effective technology to remove chromium to very low concentrations. The USEPA, American Water Works Research Foundation, and the cities of Glendale, Los Angeles, and Burbank are funding the project. Weak-base anion exchange has been identified as a promising treatment technology. The Weak-Base Anion Exchange Chromium Reduction Demonstration facility will provide a wellhead treatment process for removing hexavalent chromium from Well GS-3 at the GOU using ion exchange. The facility should be completed by July 2009.

General Waste Discharge Requirements Permit (WDR)

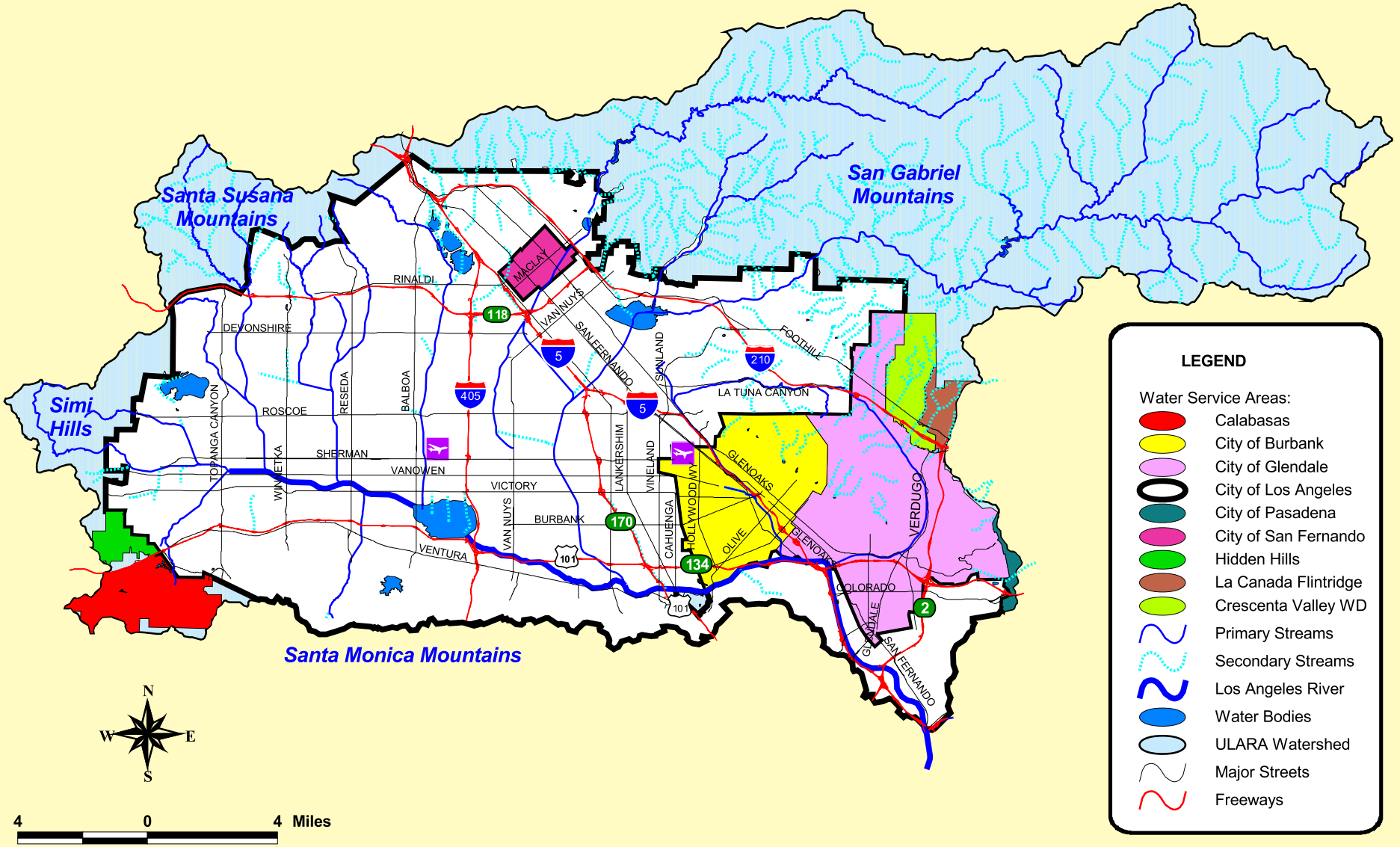
On March 1, 2007 the LARWQCB adopted a revision to the General Waste Discharge Requirements Permit. This marks significant progress in the effort to expedite cleanup of chromium and other contaminants in ULARA. In the Notice of Preparation of Mitigated Negative Declaration, the LARWQCB

> "proposed to adopt General Waste Discharge Requirements for groundwater remediation at sites impacted by petroleum fuel, volatile organic compounds and/or hexavalent chromium. The adoption of WDRs for in-situ groundwater remediation/cleanup or the extraction of polluted groundwater with above ground treatment and the return of treated groundwater to the same aquifer zone would: a) simplify the application process for discharges; b) allow more efficient use of LARWQCB staff time; c) reduce LARWQCB time by enabling the Executive Officer to notify the discharger of the applicability of the general WDRs; d) enhance the protection of surface water quality by eliminating the discharge of wastewater to surface waters; and e) provide a level of protection comparable to individual, site-specific WDRs."

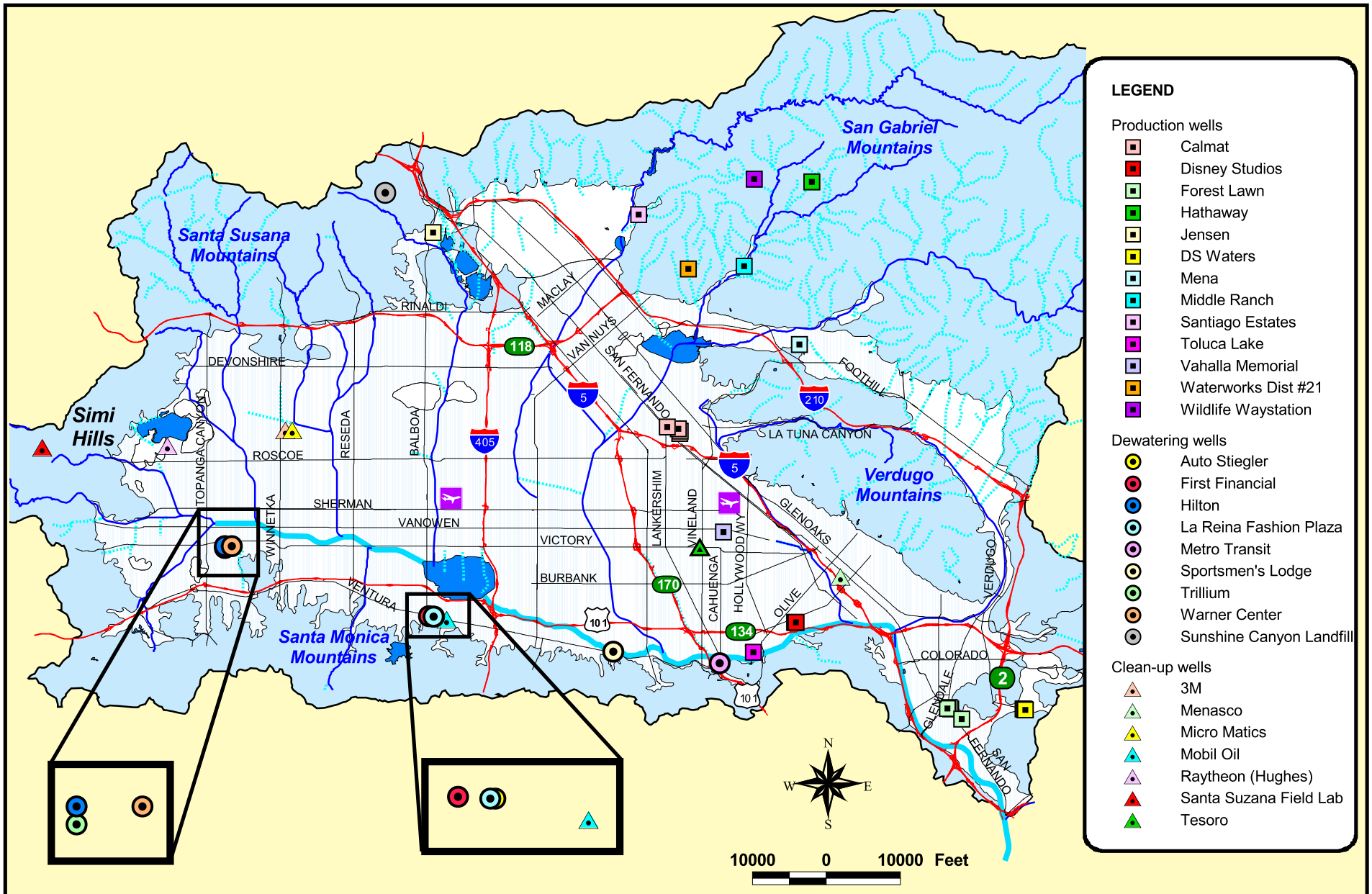
PLATES



2007-08 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Vicinity and Location Map**	**PLATE 1**



2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Water Service Areas of Public Agencies	PLATE 2



2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Location of Individual Producers	PLATE 3

UPPER LOS ANGELES RIVER AREA

LOCATION OF WELLS AND HYDROLOGIC FACILITIES

LEGEND

- IMPEDIMENTS TO GROUNDWATER FLOW
- GROUNDWATER CASCADES
- QUESTIONABLE IMPEDIMENT OR GROUNDWATER CASCADE
- CLIMATIC STATION
- SURFACE WATER GAGING STATION
- SURFACE WATER SAMPLING POINT
- KEY WELL USED FOR HYDROGRAPHS
- KEY WELL USED FOR SAMPLING
- ACTIVE, OBSERVATION, OR TEST WELL
- SURFACE AND GRAVITY DIVERSION

N

SCALE

FEET

SANTA SUSANA MOUNTAINS

SIMI HILLS

SANTA MONICA MOUNTAINS

VERDUGO MOUNTAINS

Rocketdyne Santa Susana Field Laboratory Wastewater Treatment Plants

Indian Hills Mobile Homes Wastewater Treatment Plant

Tapia Water Reclamation Plant

Los Angeles Reservoir

Encino Reservoir

Pacoima Reservoir

Big Tujunga Reservoir

Hansen Dam

Sepulveda Flood Control Dam

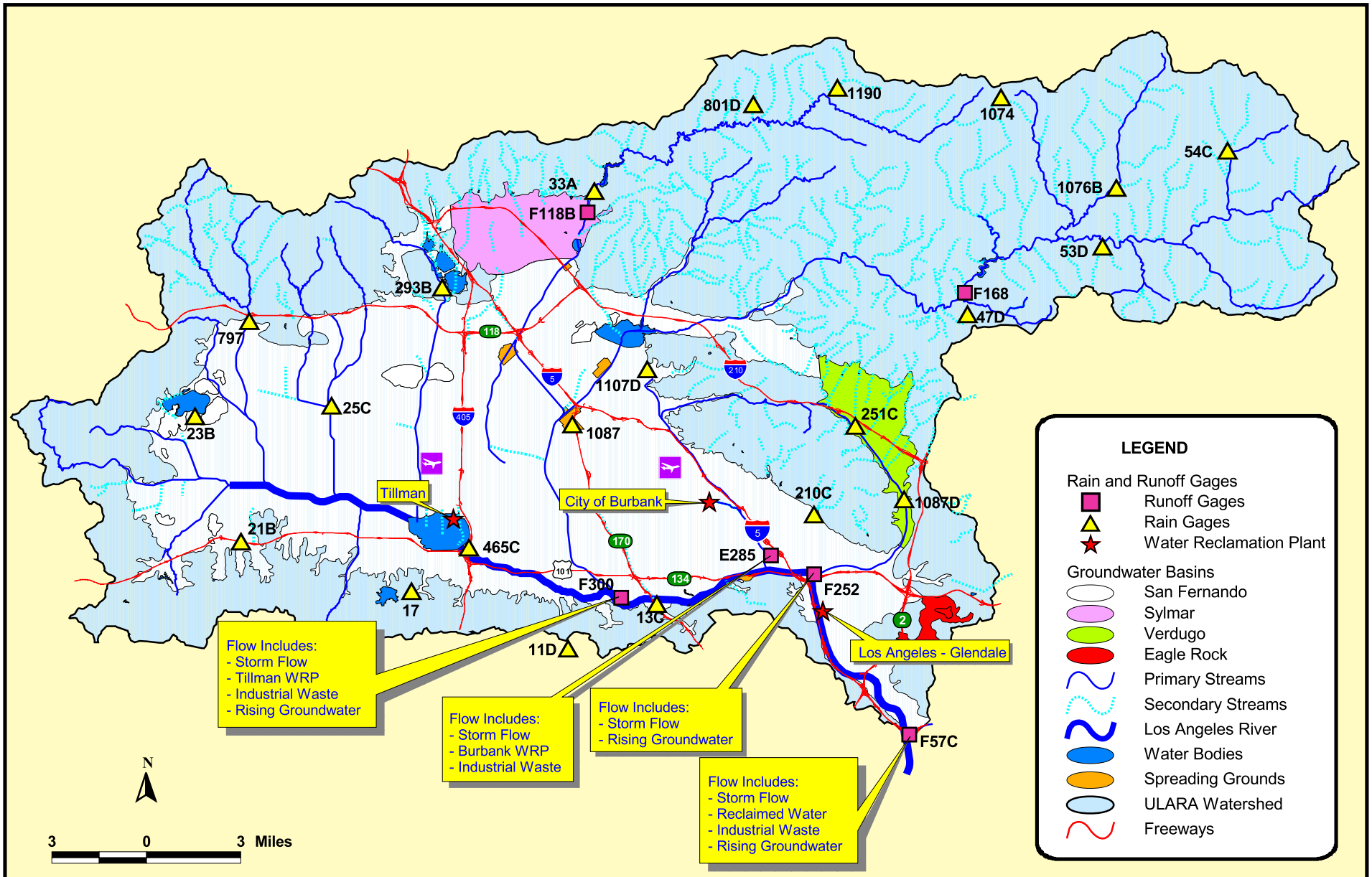
Van Nuys Airport

Burbank-Glendale-Pasadena Airport

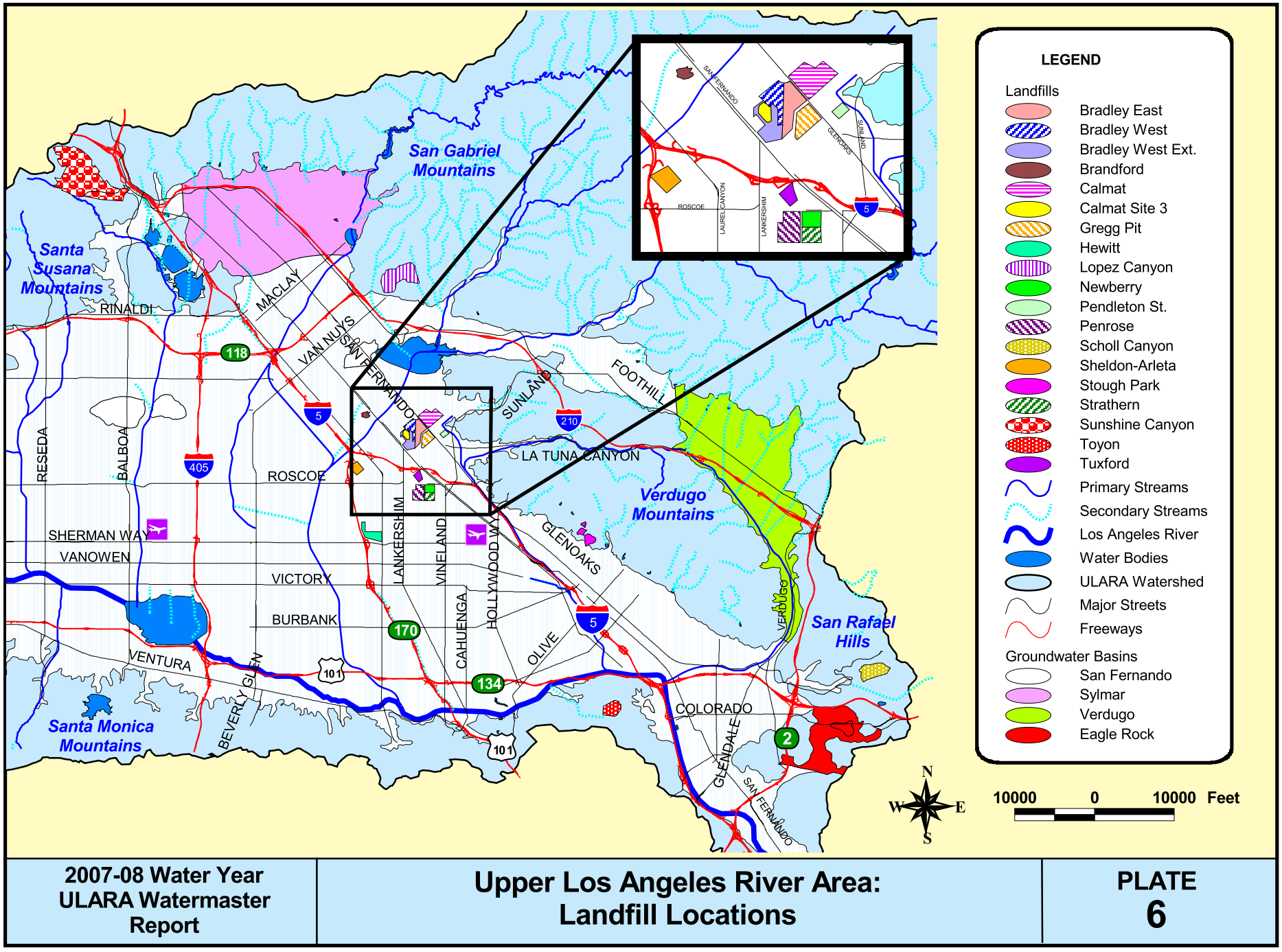
Forest Lawn Memorial Parks

Groundwater Divide

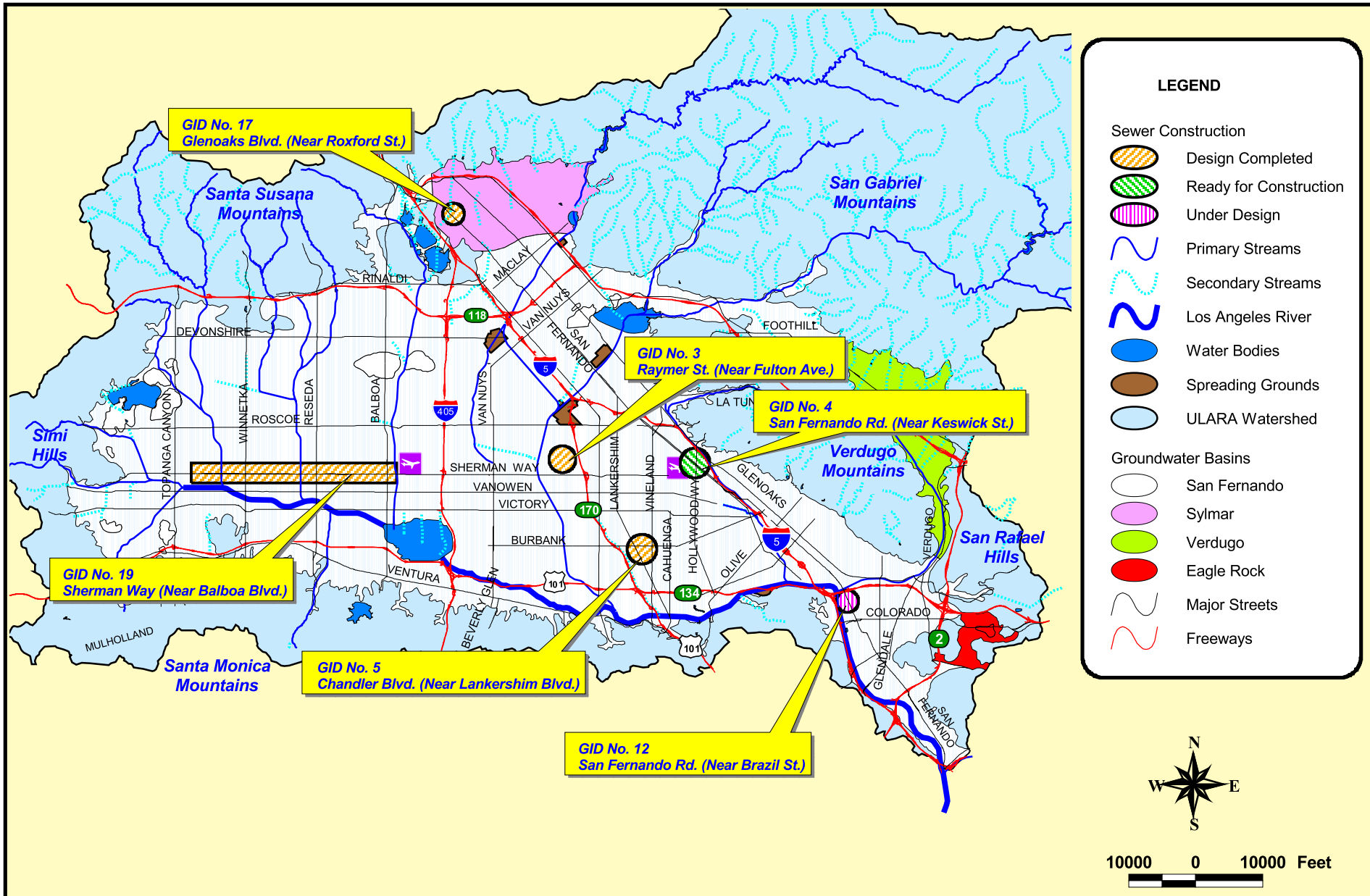
NOTE: 4.25 miles to Tapia Water Reclamation Plant which delivers water to a portion of the west end of ULARA area.



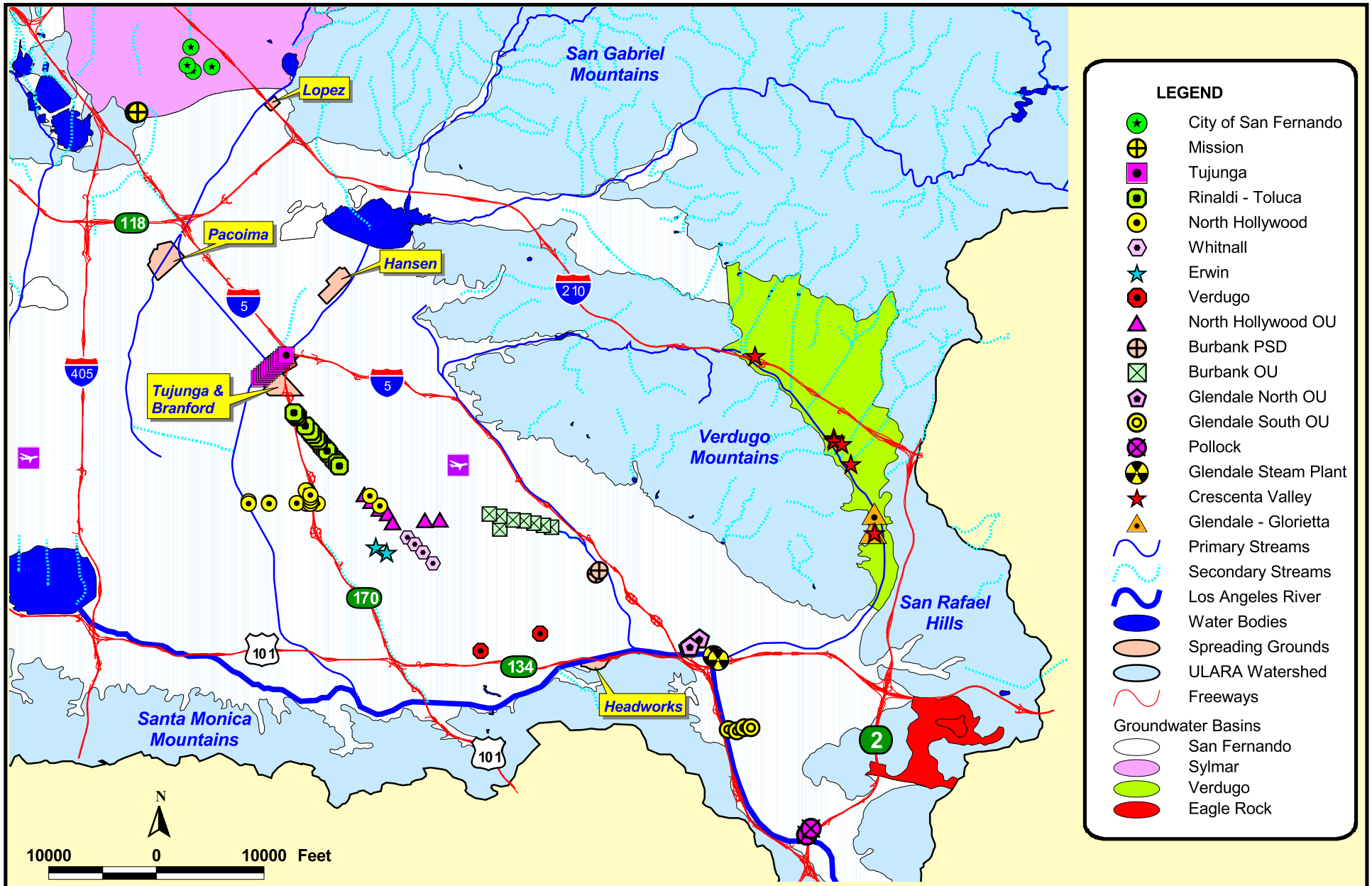
2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Components of Los Angeles River	PLATE 5



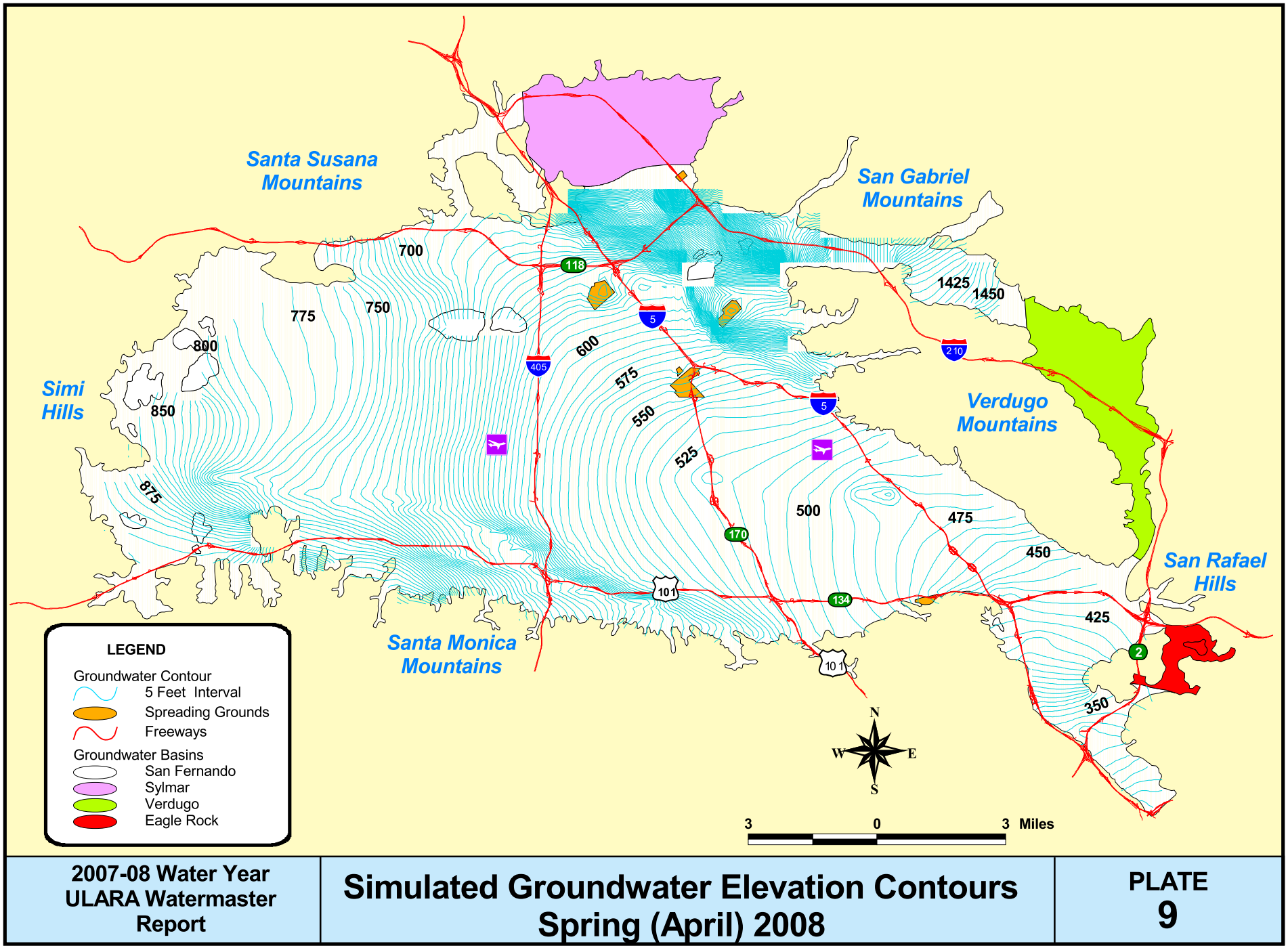
2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Landfill Locations	PLATE 6



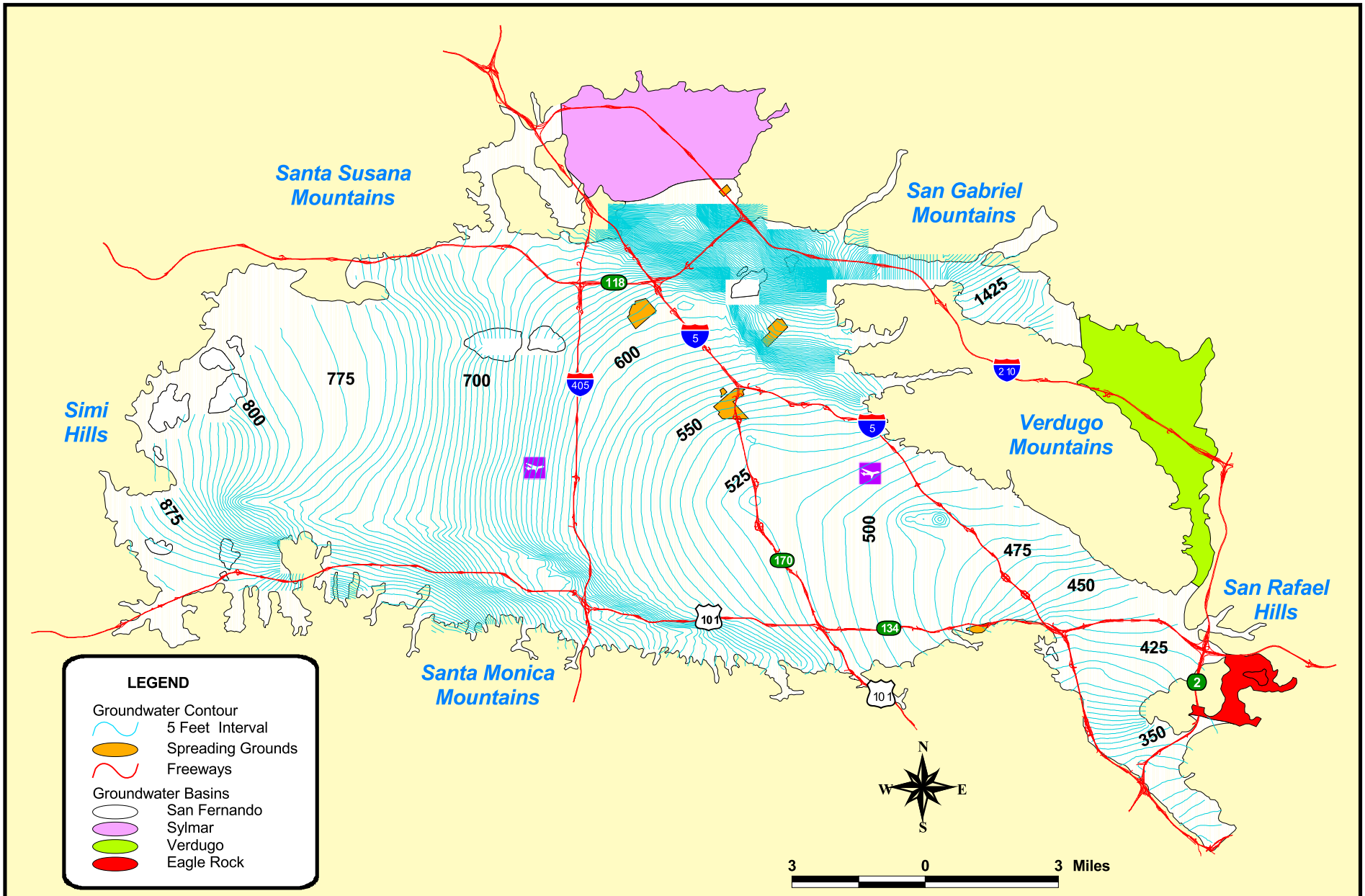
2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Los Angeles Bureau of Sanitation Sewer Construction Program for Commercial Parcels	PLATE 7



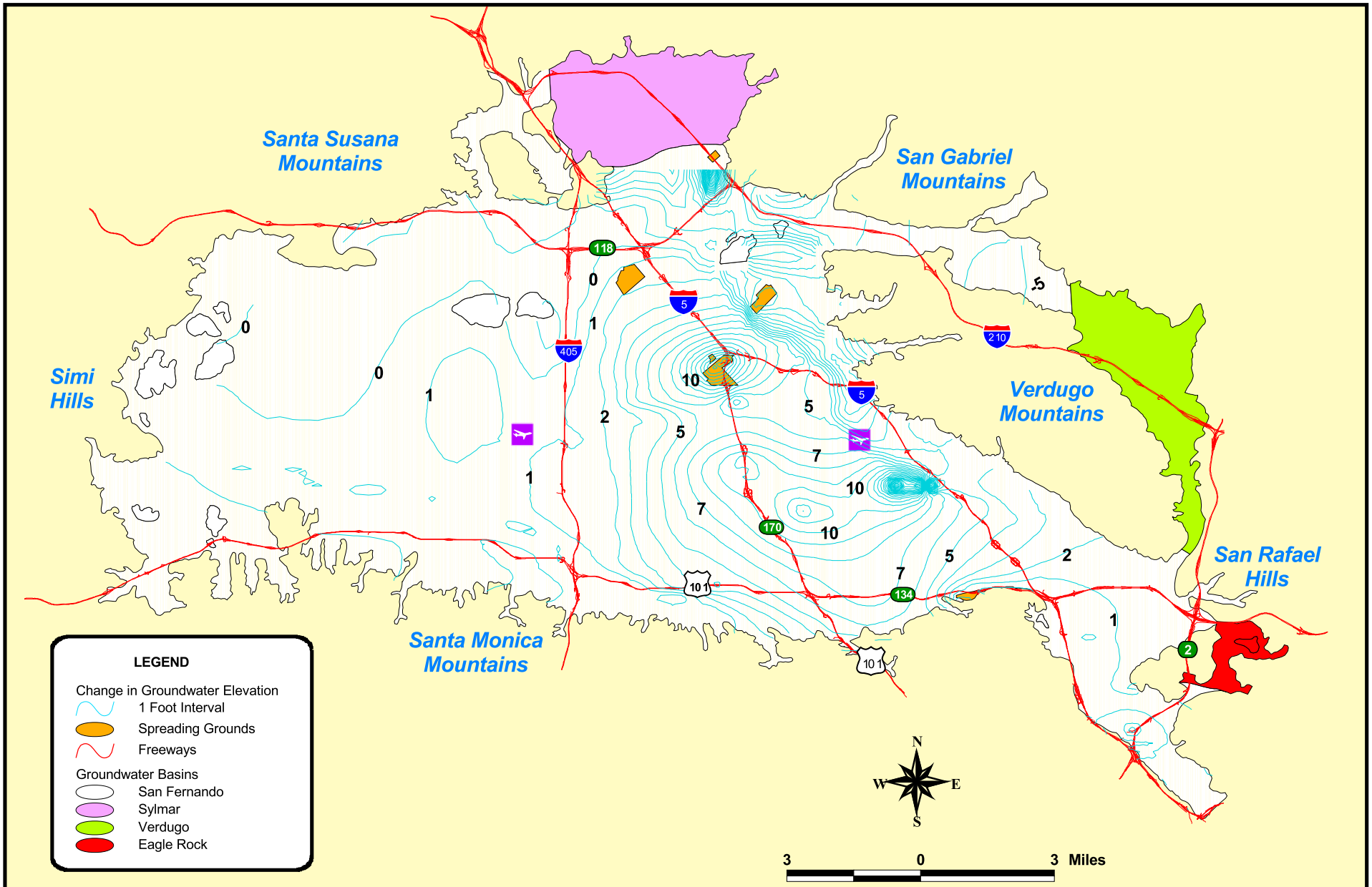
2007-08 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Major Well Fields and Spreading Grounds**	**PLATE 8**



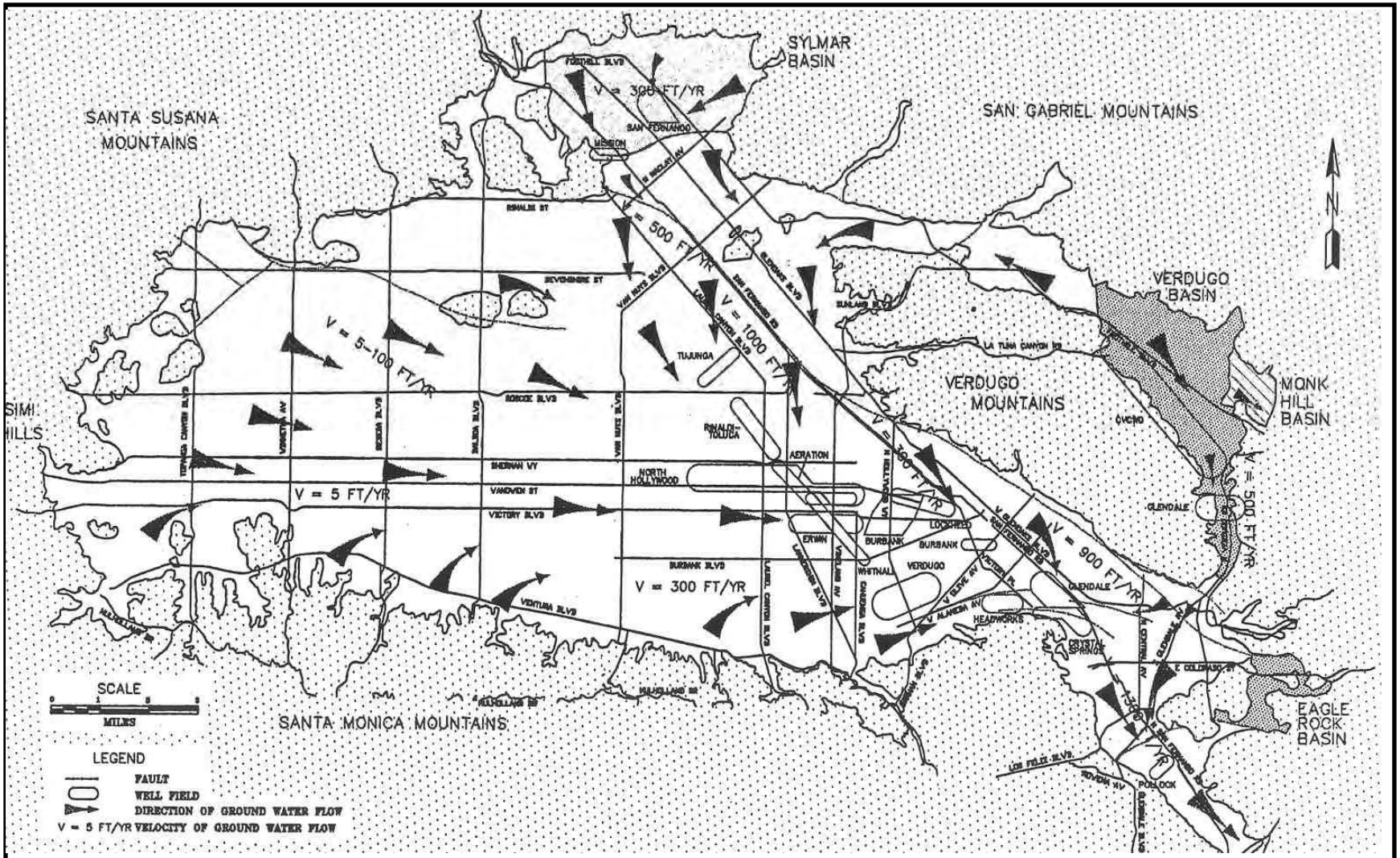
2007-08 Water Year ULARA Watermaster Report	Simulated Groundwater Elevation Contours Spring (April) 2008	PLATE 9



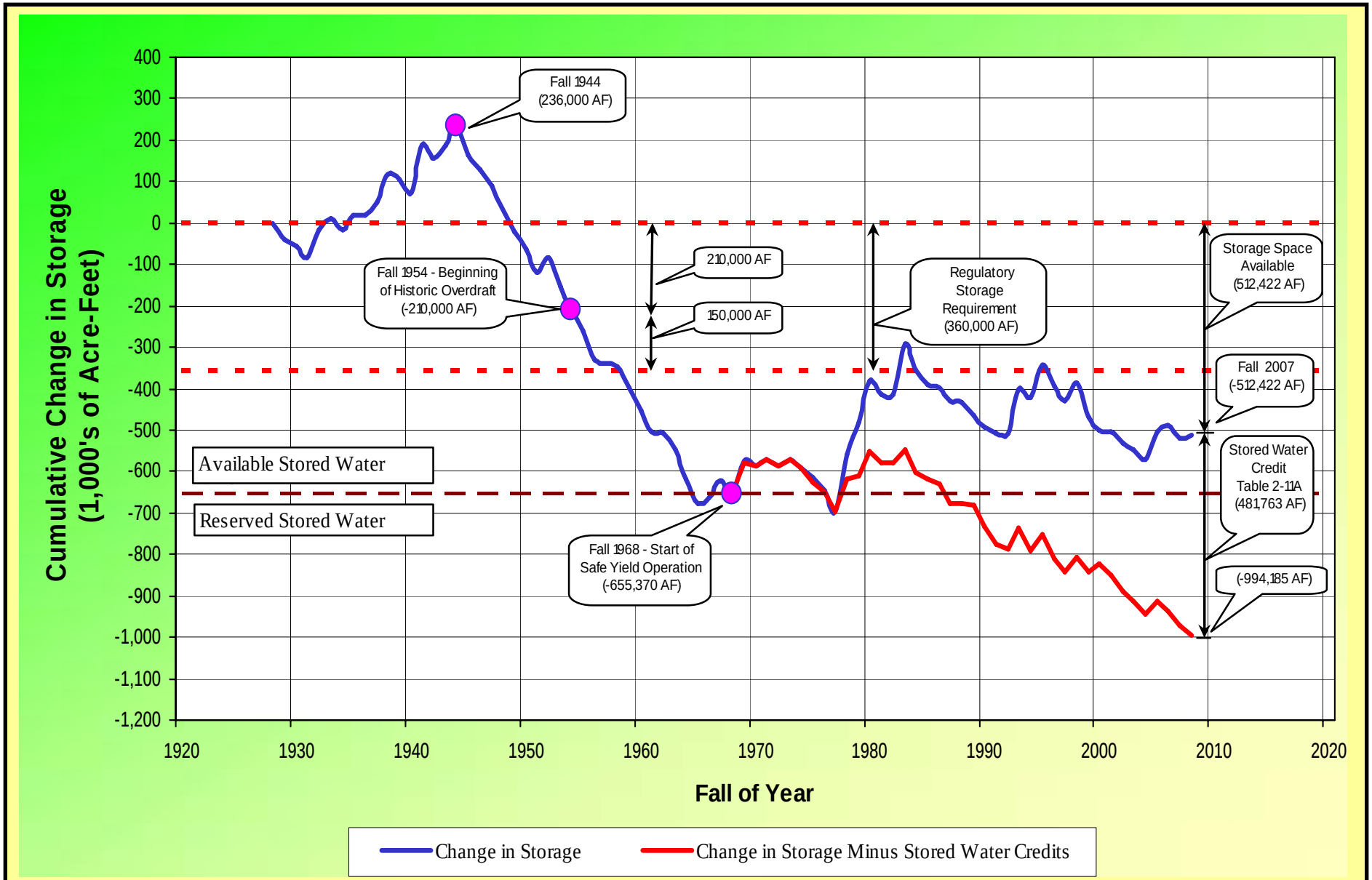
2007-08 Water Year ULARA Watermaster Report	Simulated Groundwater Elevation Contours Fall (September) 2008	PLATE 10



2007-08 Water Year ULARA Watermaster Report	Simulated Change in Groundwater Elevations Fall 2007 - Fall 2008	PLATE 11



2007-08 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Estimated Directions and Velocities of Groundwater**	PLATE **12**



2007-08 Water Year **ULARA Watermaster Report**	**San Fernando Basin:** **Cumulative Change in Groundwater Storage**	**PLATE** **13**

PLATE 13A - ULARA WATERMASTER REPORT

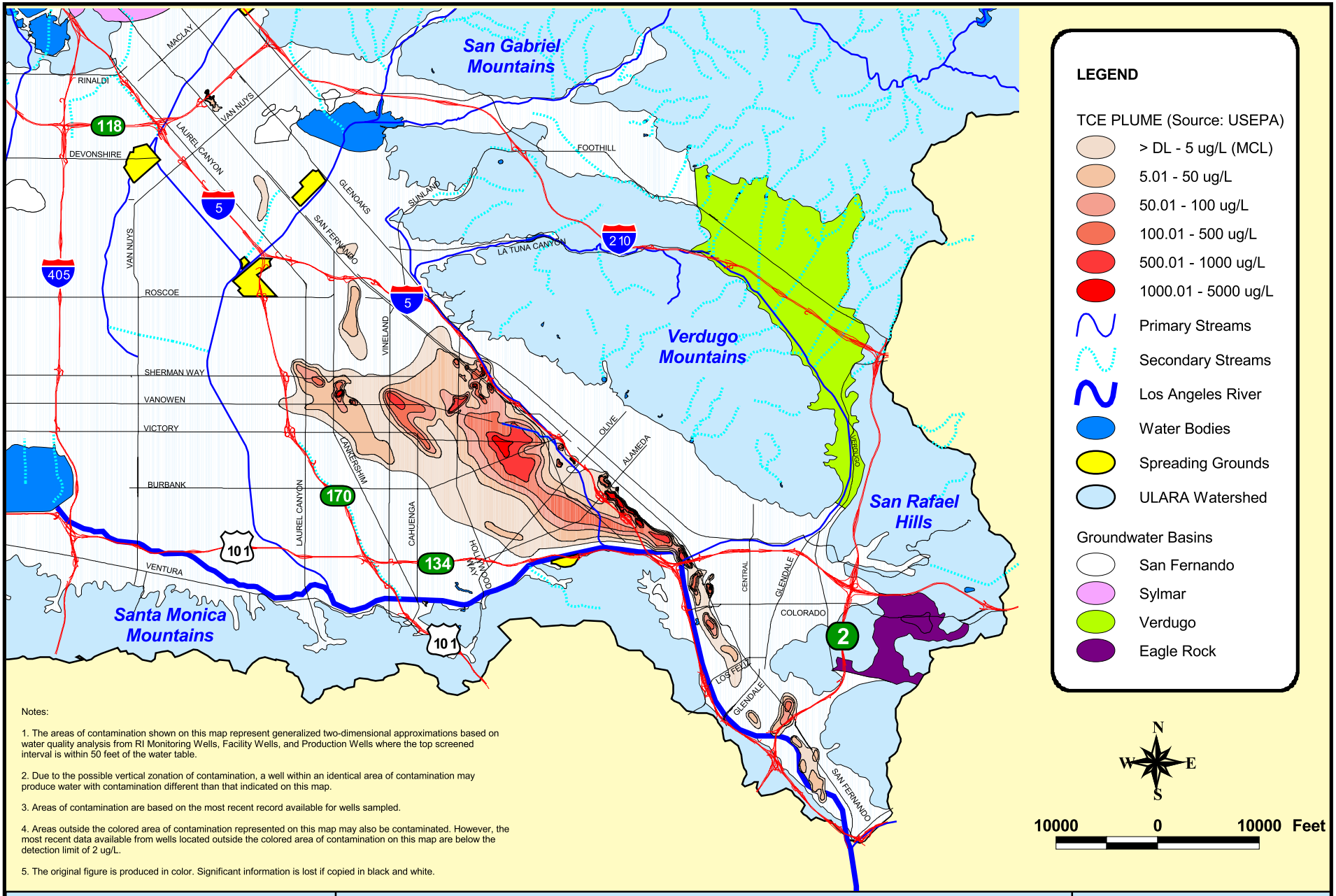
SAN FERNANDO BASIN
CUMULATIVE CHANGE IN GROUNDWATER STORAGE

Fall of Year	Change in Storage	Cumulative Chg. in Storage	Cumulative Chg. Change in Storage	Cumulative Chg. in Storage (1944)	Cumulative Chg. Total Storage
1928	0	0	0		
1929	-41,510	-41,510	-42		
1930	-15,690	-57,200	-57		
1931	-26,320	-83,520	-84		
1932	67,030	-16,490	-16		
1933	26,640	10,150	10		
1934	-28,560	-18,410	-18		
1935	38,040	19,630	20		
1936	1,000	20,630	21		
1937	30,660	51,290	51		
1938	66,420	117,710	118		
1939	-12,540	105,170	105		
1940	-32,650	72,520	73		
1941	116,850	189,370	189		
1942	-31,230	158,140	158		
1943	31,030	189,170	189		
1944	47,200	236,370	236	0	0
1945	-74,180	162,190	162	-74,180	-74
1946	-33,300	128,890	129	-107,480	-107
1947	-41,200	87,690	88	-148,680	-149
1948	-52,770	34,920	35	-201,450	-201
1949	-56,360	-21,440	-21	-257,810	-258
1950	-43,390	-64,830	-65	-301,200	-301
1951	-53,290	-118,120	-118	-354,490	-354
1952	33,720	-84,400	-84	-320,770	-321
1953	-68,280	-152,680	-153	-389,050	-389
1954	-56,770	-209,450	-209	-445,820	-446
1955	-51,370	-260,820	-261	-497,190	-497
1956	-71,390	-332,210	-332	-568,580	-569
1957	-6,280	-338,490	-338	-574,860	-575
1958	-9,160	-347,650	-348	-584,020	-584
1959	-52,160	-399,810	-400	-636,180	-636
1960	-53,080	-452,890	-453	-689,260	-689
1961	-50,770	-503,660	-504	-740,030	-740
1962	-3,590	-507,250	-507	-743,620	-744
1963	-40,390	-547,640	-548	-784,010	-784
1964	-70,220	-617,860	-618	-854,230	-854
1965	-57,850	-675,710	-676	-912,080	-912
1966	14,970	-660,740	-661	-897,110	-897
1967	36,720	-624,020	-624	-860,390	-860
1968	-31,350	-655,370	-655	-891,740	-892
1969	79,240	-576,130	-576	-812,500	-813
1970	-9,740	-585,870	-586	-822,240	-822
1971	15,340	-570,530	-571	-806,900	-807
1972	-17,090	-587,620	-588	-823,990	-824
1973	17,020	-570,600	-571	-806,970	-807
1974	-21,820	-592,420	-592	-828,790	-829
1975	-22,580	-615,000	-615	-851,370	-851

PLATE 13A - ULARA WATERMASTER REPORT

SAN FERNANDO BASIN
CUMULATIVE CHANGE IN GROUNDWATER STORAGE

Fall of Year	Change in Storage	Cumulative Chg. in Storage	Cumulative Chg. Change in Storage	Cumulative Chg. in Storage (1944)	Cumulative Chg. Total Storage
1976	-30,090	-645,090	-645	-881,460	-881
1977	-50,490	-695,580	-696	-931,950	-932
1978	136,150	-559,430	-559	-795,800	-796
1979	78,080	-481,350	-481	-717,720	-718
1980	99,970	-381,380	-381	-617,750	-618
1981	-32,560	-413,940	-414	-650,310	-650
1982	-530	-414,470	-414	-650,840	-651
1983	121,090	-293,380	-293	-529,750	-530
1984	-63,180	-356,560	-357	-592,930	-593
1985	-31,690	-388,250	-388	-624,620	-625
1986	-7,980	-396,230	-396	-632,600	-633
1987	-31,940	-428,170	-428	-664,540	-665
1988	-5,000	-433,170	-433	-669,540	-670
1989	-30,550	-463,720	-464	-700,090	-700
1990	-29,941	-493,661	-494	-730,031	-730
1991	-14,122	-507,783	-508	-744,153	-744
1992	411	-507,372	-507	-743,742	-744
1993	106,317	-401,055	-401	-637,425	-637
1994	-22,238	-423,293	-423	-659,663	-660
1995	79,132	-344,161	-344	-580,531	-581
1996	-49,223	-393,384	-393	-629,754	-630
1997	-35,737	-429,121	-429	-665,491	-665
1998	44,113	-385,008	-385	-621,378	-621
1999	-82,673	-467,681	-468	-704,051	-704
2000	-31,044	-498,725	-499	-735,095	-735
2001	-6,930	-505,655	-506	-742,025	-742
2002	-27,094	-532,749	-533	-769,119	-769
2003	-15,835	-548,584	-549	-784,954	-785
2004	-22,367	-570,951	-571	-807,321	-807
2005	66,476	-504,475	-504	-740,845	-741
2006	16,303	-488,172	-488	-724,542	-725
2007	-33,693	-521,865	-522	-758,235	-758
2008	9,443	-512,422	-512	-748,792	-749



Notes:

1. The areas of contamination shown on this map represent generalized two-dimensional approximations based on water quality analysis from RI Monitoring Wells, Facility Wells, and Production Wells where the top screened interval is within 50 feet of the water table.

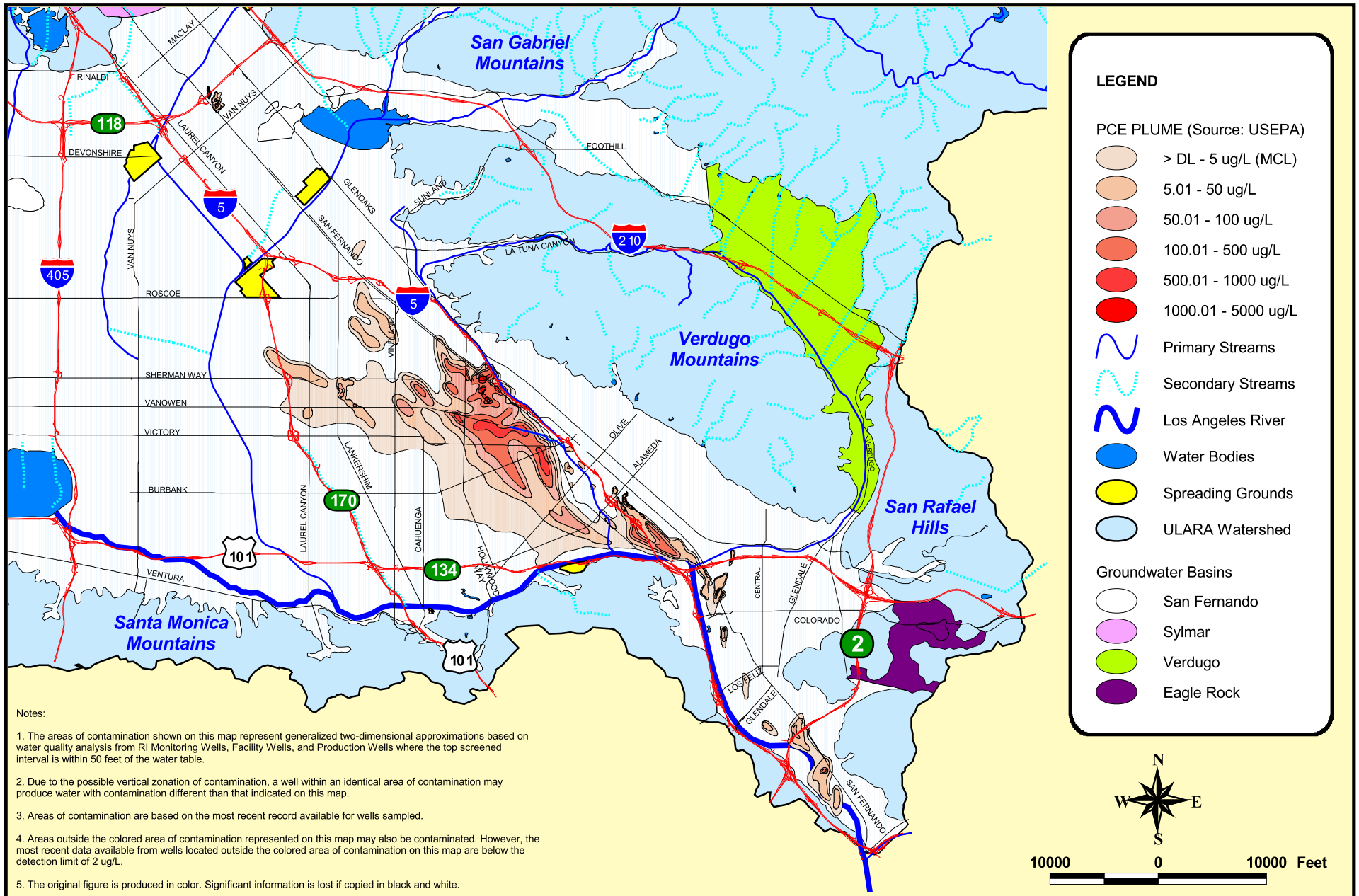
2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on the most recent record available for wells sampled.

4. Areas outside the colored area of contamination represented on this map may also be contaminated. However, the most recent data available from wells located outside the colored area of contamination on this map are below the detection limit of 2 ug/L.

5. The original figure is produced in color. Significant information is lost if copied in black and white.

2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: TCE Contamination (ug/L) in Shallow Zone in 2007	PLATE 14



Notes:

1. The areas of contamination shown on this map represent generalized two-dimensional approximations based on water quality analysis from RI Monitoring Wells, Facility Wells, and Production Wells where the top screened interval is within 50 feet of the water table.

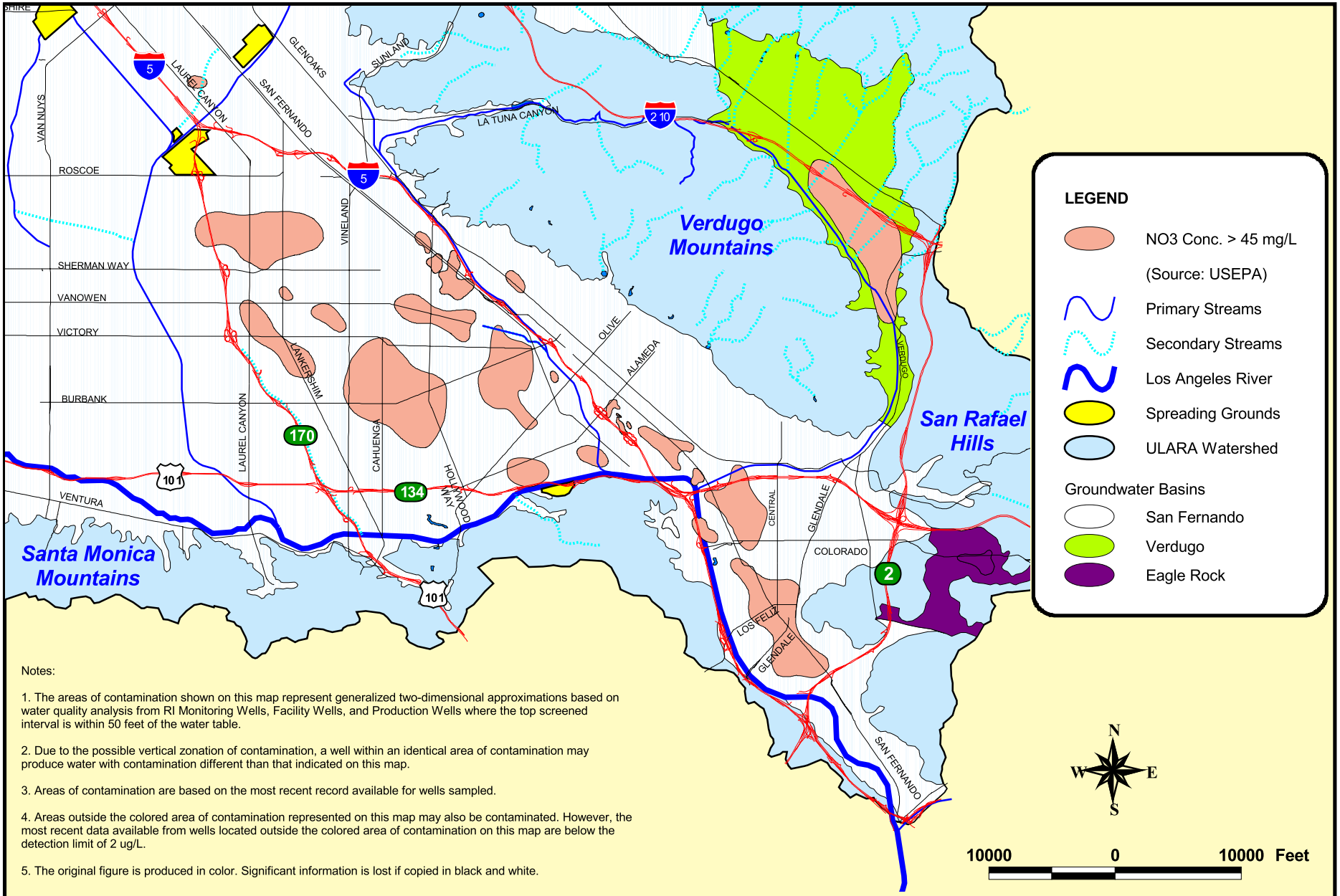
2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on the most recent record available for wells sampled.

4. Areas outside the colored area of contamination represented on this map may also be contaminated. However, the most recent data available from wells located outside the colored area of contamination on this map are below the detection limit of 2 ug/L.

5. The original figure is produced in color. Significant information is lost if copied in black and white.

2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: PCE Contamination (ug/L) in Shallow Zone in 2007	PLATE 15



Notes:

1. The areas of contamination shown on this map represent generalized two-dimensional approximations based on water quality analysis from RI Monitoring Wells, Facility Wells, and Production Wells where the top screened interval is within 50 feet of the water table.

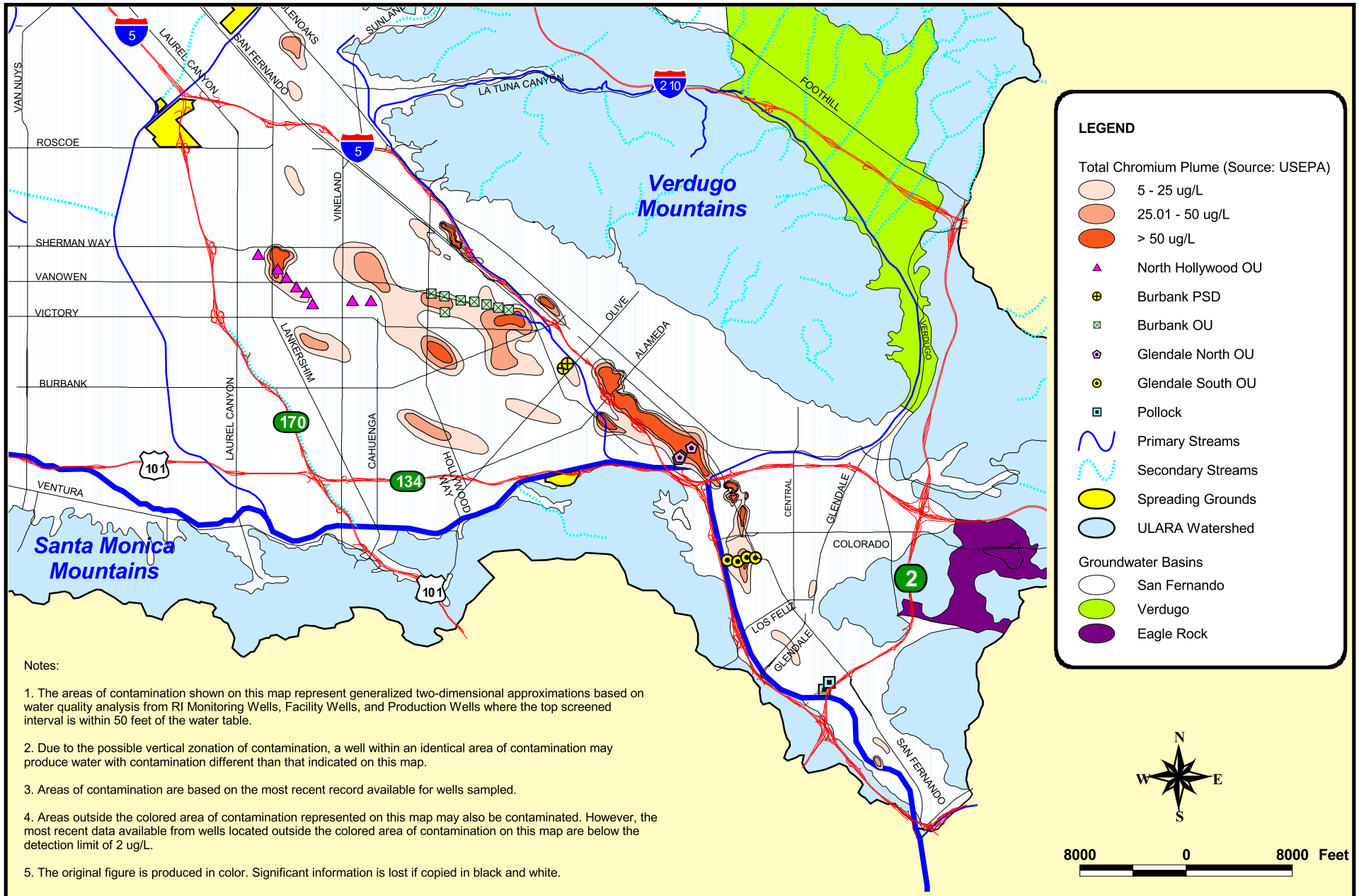
2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on the most recent record available for wells sampled.

4. Areas outside the colored area of contamination represented on this map may also be contaminated. However, the most recent data available from wells located outside the colored area of contamination on this map are below the detection limit of 2 ug/L.

5. The original figure is produced in color. Significant information is lost if copied in black and white.

2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: NO3 Contamination (mg/L) in Shallow Zone in 2007	PLATE 16



Notes:

1. The areas of contamination shown on this map represent generalized two-dimensional approximations based on water quality analysis from RI Monitoring Wells, Facility Wells, and Production Wells where the top screened interval is within 50 feet of the water table.

2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on the most recent record available for wells sampled.

4. Areas outside the colored area of contamination represented on this map may also be contaminated. However, the most recent data available from wells located outside the colored area of contamination on this map are below the detection limit of 2 ug/L.

5. The original figure is produced in color. Significant information is lost if copied in black and white.

2007-08 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Total Dissolved Chromium Contamination (ug/L) in Shallow Zone in 2007	PLATE 17

APPENDIX A
GROUNDWATER EXTRACTIONS

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin														
A. W. Warner Properties														
Plaza Six		1.58	1.24	0.93	1.36	1.50	1.76	1.26	1.23	1.68	1.48	1.27	1.09	16.38
A. W. Warner Properties														
Plaza Three		1.29	1.02	0.76	1.10	1.17	1.40	0.98	0.94	1.26	1.09	0.90	0.71	12.62
Angelica Healthcare Services		(abandoned 12/97)												
3934A	M050A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avalon Encino														
---	---	0.08	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
Boeing (Rockwell International No further pumping until 2000)														
---	E-1 to E-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boeing Santa Susana Field Laboratory														
Delta	WS-09A	0.45	0.45	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
	RD-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.45	0.45	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35
Burbank, City of														
3841C	6A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3882P	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3851E	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3851K	13A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3882T	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3841G	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Burbank Operable Unit														
3871L	VO-1	17.53	65.77	140.20	82.86	97.75	0.00	0.11	0.17	0.13	23.15	149.46	47.08	624.21
3861G	VO-2	136.27	78.88	49.35	0.47	1.95	0.00	0.21	0.20	58.14	159.98	25.45	121.09	631.99
3861K	VO-3	131.34	111.01	112.76	90.65	68.96	0.00	62.03	116.96	41.75	0.22	0.43	36.62	772.73
3861L	VO-4	90.24	92.00	88.92	99.42	95.49	0.00	120.86	80.09	104.38	190.59	174.11	160.72	1,296.82
3850X	VO-5	136.15	9.34	0.21	93.02	62.01	0.00	47.57	82.26	0.56	0.44	0.07	136.31	567.94
3850Z	VO-6	224.73	135.28	135.07	133.01	43.36	0.00	0.30	88.23	114.37	16.26	0.81	7.90	899.32
3850AB	VO-7	71.65	71.11	147.35	197.92	39.44	0.00	0.22	18.67	31.03	190.52	188.95	237.50	1,194.36
3851C	V0-8	109.36	0.10	0.03	37.17	140.72	0.00	139.46	216.33	97.84	0.73	16.89	70.16	828.79
	Total:	917.27	563.49	673.89	734.52	549.68	0.00	370.76	602.91	448.20	581.89	556.17	817.38	6,816.14
Douglas Emmett Management, LLC (Trillium)														
Well #1	---	0.00	1.13	1.13	1.21	1.21	1.21	1.21	2.47	0.17	0.00	1.38	2.27	13.39
Well #2	---	1.20	0.29	0.29	1.66	1.66	1.66	1.66	1.62	1.61	1.25	0.83	0.00	13.73
	Total:	1.20	1.42	1.42	2.87	2.87	2.87	2.87	4.09	1.78	1.25	2.21	2.27	27.12
First Financial Plaza Site														
N/A	F.F.P.S.	2.11	2.20	2.14	3.21	5.03	3.19	2.55	2.24	1.80	2.06	2.28	1.81	30.62
Forest Lawn Memorial Park														
3947B	3	7.99	6.81	0.62	0.63	0.98	7.63	11.12	0.00	0.00	0.00	0.00	0.00	35.78
3947C	4	7.23	6.13	0.55	0.56	0.88	6.91	9.71	0.00	0.00	0.00	0.00	0.03	32.00
3858K	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03
3947M	8	9.10	26.76	2.72	2.76	4.11	29.11	43.43	27.88	46.87	47.34	49.98	32.65	322.71
	Total:	24.32	39.70	3.89	3.95	5.97	43.65	64.26	27.88	46.87	47.34	49.98	32.71	390.52

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
							San Fernando Basin (cont'd)							
Glendale, City of														
3924N	STPT 1	13.02	16.01	0.00	13.98	0.00	0.00	0.07	0.56	1.63	0.68	1.21	16.31	63.47
3924R	STPT 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.66
GVENT	GVENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	13.02	16.01	0.00	13.98	0.00	0.00	0.07	0.56	1.63	0.68	1.87	16.31	64.13
Glendale North/South														
	GN-1	101.16	89.94	98.94	80.08	85.01	94.58	99.28	98.34	105.53	84.11	98.45	80.78	1,116.20
	GN-2	57.72	64.47	71.16	57.96	56.04	61.76	79.45	77.60	66.38	85.55	67.75	76.55	822.39
	GN-3	21.62	20.65	19.01	17.35	17.70	21.82	15.54	17.26	21.26	18.75	20.82	20.15	231.93
	GN-4	211.85	223.75	225.57	211.34	214.77	228.90	221.47	228.87	220.05	191.40	211.42	223.09	2,612.48
	GS-1	46.86	53.39	52.08	30.73	47.97	52.81	52.98	48.74	47.90	45.50	43.99	53.96	576.91
	GS-2	81.76	74.28	78.31	81.87	77.00	76.57	79.09	71.59	63.36	79.61	67.99	65.16	896.59
	GS-3	20.63	22.66	22.67	19.07	21.15	20.80	26.87	21.55	20.03	17.23	16.88	22.56	252.10
	GS-4	69.66	75.12	74.73	65.12	58.78	77.21	75.77	70.16	63.25	66.93	71.94	69.65	838.32
	Total:	611.26	624.26	642.47	563.52	578.42	634.45	650.45	634.11	607.76	589.08	599.24	611.90	7,346.92
Greeff Fabrics														
----	-----	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grigsby, Wood														
----	-----	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.17
Hathaway (successor to deMille)														
----	1	0.73	0.85	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	2.32
	2	0.38	0.31	0.10	0.83	0.19	1.51	3.65	2.65	2.95	3.45	2.91	1.47	20.40
	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	1.68
	Total:	1.11	1.16	0.34	0.83	0.19	1.51	3.65	2.65	2.95	3.95	2.91	3.15	24.40
Home Depot U.S.A., Inc.														
----		0.46	0.30	0.38	0.69	0.52	0.61	1.02	1.02	0.56	0.72	0.82	0.64	7.74
Honeywell International, Inc.														
----		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.95	4.95
Jose Diaz (010022)														
---	---	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.42
Khatcher Atamian (010006)														
----		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.12
Lopez-Zamarripa (010007T)														
---	---	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.36	0.69
Menasco/Coltec Site														
---	---	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.07	0.05	0.22
Mercedes Benz of Encino (Auto Stiegler)														
---	---	0.08	0.10	0.26	0.23	2.35	2.00	2.22	1.86	2.25	2.65	2.65	2.50	19.15
Metropolitan Transportation Authority														
---	1065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1075	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1130	0.37	0.31	0.43	0.86	0.65	0.55	0.51	0.43	0.40	0.44	0.34	0.35	5.64
---	1140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1070	2.60	2.26	2.46	2.14	2.20	2.31	2.31	2.10	2.40	2.14	1.91	3.56	28.39
---	1133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	2.97	2.57	2.89	3.00	2.85	2.86	2.82	2.53	2.80	2.58	2.25	3.91	34.03

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Metropolitan Water District														
	Jensen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Micro Matics														
JEW	1	0.00	0.06	0.06	0.05	0.06	0.15	0.41	0.37	0.34	0.31	0.30	0.00	2.11
JEW	2	0.00	0.00	0.00	0.16	0.18	0.48	0.06	0.05	0.05	0.04	0.04	0.00	1.06
RMW	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.06	0.06	0.21	0.24	0.63	0.47	0.42	0.39	0.35	0.34	0.00	3.17
Middle Ranch (Successor to deMille)														
4931 x	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4940-1	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
new	5	0.00	0.00	0.00	0.00	0.00	0.14	0.07	0.07	0.06	0.05	0.07	0.00	0.46
4940-3	6	0.05	0.08	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.43	1.00	0.85	2.44
4940-2	7	0.84	0.39	0.18	0.17	0.17	0.67	0.67	0.67	0.80	0.83	0.01	0.15	5.55
new	8	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.10
	Spring 1&2	0.03	0.02	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.29
	Total	0.93	0.50	0.21	0.20	0.20	0.85	0.78	0.78	0.90	1.35	1.11	1.03	8.84
Mobil Oil Corporation														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(NEIS) Northeast Interceptor Sewer City of LA BOS														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Raytheon (Formerly Hughes Missile Systems)														
----	-----	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quaranto, John (010004)														
----	----	0.002	0.002	0.002	0.003	0.004	0.002	0.003	0.003	0.002	0.004	0.005	0.002	0.03
Sears Roebuck & Co. (Well disconnected 10/2000)														
3945	3945	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sportsmen's Lodge														
3785A	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05
Stallcup, Jackosn & Susan (010021)														
---	---	0.03	0.01	0.02	0.02	0.04	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.27
Sunshine Canyon Landfill														
---	---	8.77	8.52	11.01	9.58	18.47	13.07	12.44	11.23	9.94	10.05	9.91	9.02	132.01
3M-Pharmaceuticals														
---	---	3.22	2.15	4.25	1.63	4.42	3.87	3.96	2.67	3.31	4.19	3.65	3.45	40.77
Tesoro Petroleum Corporation														
---	MW-15	0.03	0.19	0.07	0.00	0.00	0.01	0.14	1.73	2.05	1.74	1.45	0.00	7.41
Toluca Lake Property Owners Association														
3845F	3845F	1.65	2.21	1.91	0.21	0.00	2.90	3.11	3.10	4.19	5.11	4.60	4.37	33.36
Valhalla Memorial Park and Mortuary														
3840K	4	29.38	26.83	7.39	2.25	3.21	15.98	41.61	34.92	47.92	69.61	8.54	48.90	336.52
Vulcan Materials														
4916A	3	2.39	16.83	16.60	0.18	0.00	2.79	0.15	0.00	15.04	13.23	14.48	14.45	96.14
4916	2	10.09	53.61	44.36	0.52	0.00	9.37	0.39	0.00	47.60	38.31	38.07	37.46	279.78
4916(x)	1	12.80	58.46	0.00	0.00	0.00	14.23	18.70	12.89	73.69	58.57	59.29	57.30	365.93
Sheldon Pond		117.99	137.50	119.42	59.41	81.73	85.50	101.83	97.67	111.16	60.69	76.57	64.87	1,114.34
	Total:	143.27	266.40	180.38	60.11	81.73	111.89	121.07	110.56	247.49	170.80	188.41	174.08	1,856.19

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Waste Management Disposal Services of Calif.														
4916D		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walt Disney Pictures and Television (wells inactive/ not abandoned)														
3874E	EAST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3874F	WEST	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3874G	NORTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Walt Disney Riverside Building														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waterworks District No. 21														
---	---	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wildlife Waystation														
Rehab Canyon		0.17	0.08	0.08	0.12	0.25	0.07	0.16	0.12	0.12	0.14	0.12	0.00	1.43
Foreman Hill Spring		0.02	0.02	0.02	0.02	0.03	0.01	0.03	0.02	0.02	0.02	0.02	0.01	0.24
	Total:	0.19	0.10	0.10	0.14	0.28	0.08	0.19	0.14	0.14	0.16	0.14	0.01	1.67
Los Angeles, City of														
Aeration (A)														
3800E	A-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810U	A-2	0.02	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.07	1.29	1.48
3810V	A-3	0.00	0.16	2.32	4.20	1.63	1.24	4.73	5.14	3.86	10.19	10.35	9.37	53.19
3810W	A-4	3.05	0.02	3.10	6.57	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	12.78
3820H	A-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821J	A-6	40.43	3.97	10.90	31.57	23.94	31.80	29.45	36.66	14.74	36.85	35.72	35.54	331.57
3830P	A-7	48.19	4.06	12.53	32.12	25.71	35.40	35.10	41.85	15.38	40.73	37.90	39.62	368.59
3831K	A-8	39.00	3.31	10.01	10.06	20.22	27.16	23.44	32.97	11.62	31.61	30.58	30.51	270.49
	A Total:	130.69	11.52	38.86	84.54	71.52	95.62	92.74	116.66	45.62	119.38	114.62	116.33	1,038.10
Erwin (E)														
3831H	E-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821I	E-2A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3831G	E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821F	E-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3831F	E-5	0.00	0.00	0.00	0.00	0.16	0.16	0.00	0.00	0.16	0.00	0.00	0.00	0.48
3821H	E-6	150.09	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.18	97.98	248.43
3811F	E-10	69.33	0.00	0.00	0.00	0.09	0.09	0.07	0.00	0.18	0.00	0.18	0.16	70.10
	E Total:	219.42	0.00	0.00	0.00	0.25	0.25	0.25	0.00	0.34	0.00	0.36	98.14	319.01
Headworks (H)	Inactive Well Field													
3893Q	H-27A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3893R	H-28A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3893S	H-29A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3893T	H-30A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	H Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2007-2008 Water Year
(acre-feet)

LACDPW	Owner	2007			2008									
Well No.	Well No.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
							San Fernando Basin (cont'd)							
North Hollywood (NH)														
3800	NH-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3780A	NH-4	152.75	49.93	125.99	184.48	88.34	120.39	0.00	0.00	146.14	152.57	183.77	117.93	1,322.29
3770	NH-7	19.49	9.34	25.16	38.45	15.89	0.02	73.71	11.29	22.34	19.47	29.50	17.79	282.45
3810	NH-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810A	NH-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810B	NH-14A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790B	NH-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820D	NH-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820C	NH-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820B	NH-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830D	NH-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830C	NH-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830B	NH-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790C	NH-22	298.81	102.53	271.69	156.77	0.00	0.16	61.62	285.33	222.38	81.80	0.37	0.53	1,481.99
3790D	NH-23	0.00	0.00	0.00	0.00	0.00	0.02	0.18	0.00	0.00	0.00	0.00	0.32	0.52
3800C	NH-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790F	NH-25	159.89	0.00	151.61	231.84	120.48	139.90	158.59	93.09	171.51	149.98	150.02	93.99	1,620.90
3790E	NH-26	216.64	57.39	215.13	307.25	138.66	133.45	206.38	123.78	243.39	139.46	229.16	203.72	2,214.41
3820F	NH-27	0.00	55.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.90
3810K	NH-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810L	NH-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3800D	NH-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3770C	NH-32	170.20	62.70	158.36	246.19	133.54	153.47	169.01	121.12	167.61	164.23	197.43	126.63	1,870.49
3780C	NH-33	201.03	68.60	178.93	174.70	138.38	116.94	171.01	250.23	185.56	172.73	209.87	133.65	2,001.63
3790G	NH-34	315.75	11.64	27.13	0.30	0.32	0.92	0.28	0.00	0.76	381.91	399.66	361.27	1,499.94
3830N	NH-35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790H	NH-36	241.71	18.64	0.21	0.23	0.30	169.03	261.75	158.98	19.83	0.00	0.02	0.16	870.86
3790J	NH-37	0.28	0.00	0.44	0.00	0.21	0.57	0.23	0.00	0.44	0.00	2.13	0.18	4.48
3810M	NH-38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810N	NH-39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810P	NH-40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810Q	NH-41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810R	NH-42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790K	NH-43A	0.00	0.00	0.48	0.39	0.34	0.57	0.28	0.00	0.60	0.00	0.53	0.53	3.72
3790L	NH-44	319.81	11.71	0.53	0.25	0.53	0.78	0.28	0.00	0.53	0.00	0.60	0.25	335.27
3790M	NH-45	446.17	30.79	34.71	71.63	0.53	1.10	0.34	0.00	0.48	0.00	0.80	0.39	586.94
	NH Total:	2,542.53	479.17	1,190.37	1,412.48	637.52	837.32	1,103.66	1,043.82	1,181.57	1,262.15	1,403.86	1,057.34	14,151.79
Pollock (P)														
3959E	P-4	145.75	200.00	213.29	214.72	0.00	108.03	132.58	88.02	177.02	137.63	154.22	0.00	1,571.26
3958H	P-6	75.80	0.00	161.36	183.82	30.51	161.80	0.46	37.65	160.97	124.68	65.13	0.00	1,002.18
3958J	P-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	P Total:	221.55	200.00	374.65	398.54	30.51	269.83	133.04	125.67	337.99	262.31	219.35	0.00	2,573.44

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Rinaldi-Toluca (RT)														
4909E	RT-1	0.44	0.60	0.37	30.92	0.34	0.30	0.32	0.34	0.28	0.00	0.73	0.32	34.96
4898A	RT-2	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96
4898B	RT-3	0.00	0.00	0.00	0.00	219.54	414.58	411.64	339.58	463.68	453.86	18.80	0.44	2,322.12
4898C	RT-4	394.74	200.64	279.71	611.78	356.36	291.12	396.99	269.79	455.00	443.34	411.64	574.45	4,685.56
4898D	RT-5	344.38	191.18	238.66	0.00	0.00	0.00	0.00	0.00	0.00	14.99	395.96	553.97	1,739.14
4898E	RT-6	393.18	218.53	405.97	640.52	308.52	423.48	452.53	618.11	471.85	422.50	426.24	597.61	5,379.04
4898F	RT-7	0.16	118.88	137.51	340.45	185.65	5.97	0.25	0.23	0.32	0.18	0.32	0.30	790.22
4898G	RT-8	33.45	0.00	0.00	351.88	219.30	318.55	433.56	640.31	495.80	483.03	449.45	626.10	4,051.43
4898H	RT-9	366.12	204.45	379.45	616.32	289.85	292.68	395.94	325.64	451.72	441.62	411.87	578.97	4,754.63
4909G	RT-10	0.55	0.00	1.12	0.46	0.51	0.44	0.48	0.53	2.23	0.00	0.87	1.15	8.34
4909K	RT-11	0.44	0.34	0.41	0.46	0.48	0.37	0.41	0.41	0.41	0.00	1.01	0.41	5.15
4909H	RT-12	0.78	0.48	37.86	553.67	194.79	0.41	0.41	0.44	0.48	0.00	0.83	0.39	790.54
4909J	RT-13	0.73	0.37	0.53	0.51	0.39	0.46	0.37	0.39	0.44	0.00	0.80	0.37	5.36
4909L	RT-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23
4909M	RT-15	0.05	0.07	0.05	0.05	0.05	0.02	0.07	0.05	0.02	0.00	0.05	0.05	0.53
	RT Total:	1,535.98	935.54	1,481.64	3,147.02	1,775.78	1,748.38	2,092.97	2,195.82	2,342.23	2,259.52	2,118.80	2,934.53	24,568.21
Tujunga (T)														
4887C	T-1	460.17	0.00	225.96	308.36	1.10	0.00	387.88	0.62	0.00	2.41	284.85	484.23	2,155.58
4887D	T-2	543.87	0.00	264.92	506.52	1.40	0.00	468.32	0.96	0.00	2.82	422.70	586.80	2,798.31
4887E	T-3	0.53	0.00	0.25	134.16	1.06	0.00	7.51	0.83	0.00	0.64	406.06	520.02	1,071.06
4887F	T-4	0.87	0.00	2.80	2.00	0.41	0.00	1.58	0.73	0.00	0.51	0.39	0.00	9.29
4887G	T-5	0.64	0.00	0.46	0.55	0.92	0.00	2.55	0.48	0.00	0.44	0.39	0.00	6.43
4887H	T-6	0.62	0.00	0.51	0.51	1.24	0.55	0.96	0.00	0.00	1.58	0.44	1.06	7.47
4887J	T-7	0.53	0.00	0.62	0.41	1.12	0.87	1.65	0.00	0.00	1.08	0.51	1.72	8.51
4887K	T-8	0.55	0.00	0.69	0.44	2.00	0.76	0.92	0.00	0.00	1.88	152.30	0.00	159.54
4886B	T-9	0.00	0.00	0.64	0.44	2.57	1.45	0.51	1.38	0.00	2.13	0.71	0.00	9.83
4886C	T-10	21.42	0.00	0.53	1.03	0.51	0.05	0.41	0.96	0.00	2.64	0.67	0.00	28.22
4886D	T-11	1.15	0.00	0.48	1.26	0.55	0.00	0.73	0.48	0.00	0.78	0.64	0.00	6.07
4886E	T-12	36.25	0.00	4.22	0.48	1.42	0.00	0.51	1.45	0.00	1.81	299.52	0.00	345.66
	T Total:	1,066.60	0.00	502.08	956.16	14.30	3.68	873.53	7.89	0.00	18.72	1,569.18	1,593.83	6,605.97
Verdugo (V)														
3863H	V-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3863P	V-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3863J	V-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3863L	V-11	125.60	0.00	0.00	0.00	0.00	0.23	0.21	0.28	0.64	0.00	0.51	0.30	127.77
3853G	V-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3854F	V-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3844R	V-24	118.64	0.00	0.00	0.00	0.21	1.12	0.18	0.30	0.46	0.00	0.53	0.39	121.83
	V Total:	244.24	0.00	0.00	0.00	0.21	1.35	0.39	0.58	1.10	0.00	1.04	0.69	249.60

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Whitnall (W)														
3820E	W-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821B	W-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821C	W-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821D	W-4	0.00	0.00	0.00	0.00	0.92	0.39	0.39	0.00	0.62	0.00	0.57	84.27	87.16
3821E	W-5	0.00	0.00	0.00	0.00	0.30	0.48	0.39	0.00	0.39	0.00	0.44	0.25	2.25
3831J	W-6A	160.63	0.00	0.83	0.00	0.25	0.57	0.00	0.00	0.94	0.00	0.23	147.70	311.15
3832K	W-7	43.87	0.00	0.00	0.00	0.11	0.09	0.00	0.00	0.09	0.00	0.18	57.99	102.33
3832L	W-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3832M	W-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3842E	W-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	W Total:	204.50	0.00	0.83	0.00	1.58	1.53	0.78	0.00	2.04	0.00	1.42	290.21	502.89
	Los Angeles, City of Total:	6,165.51	1,626.23	3,588.43	5,998.74	2,531.67	2,957.96	4,297.36	3,490.44	3,910.89	3,922.08	5,428.63	6,091.07	50,009.01
	San Fernando Basin Total:	7,930.20	3,187.20	5,123.51	7,402.22	3,788.56	3,799.65	5,581.94	4,936.26	5,344.64	5,417.74	6,866.88	7,829.28	67,227.19

Sylmar Basin														
Los Angeles, City of														
Plant	Mission													
4840J	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4840K	6	162.33	162.33	152.71	153.42	108.22	138.66	88.84	155.46	127.30	0.00	79.09	0.00	1,328.36
4840S	7	202.94	202.94	196.56	200.48	138.27	179.34	111.02	192.40	161.55	0.00	83.20	0.28	1,668.98
		365.27	365.27	349.27	353.90	246.49	318.00	199.86	347.86	288.85	0.00	162.29	0.28	2,997.34
Santiago Estates														
5998	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sylmar Basin (cont'd)														
San Fernando, City of														
5969D	2A	181.10	157.87	140.05	120.59	127.10	179.04	189.10	215.98	234.16	248.75	246.24	230.82	2,270.80
5959	3	102.26	102.90	90.61	89.65	72.12	76.20	83.63	81.12	95.08	100.26	99.16	88.53	1,081.52
5969	4	31.87	28.81	21.21	25.52	22.33	23.39	28.01	22.52	28.99	28.20	28.06	25.90	314.81
5968	7A	0.00	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47
	Total:	315.23	292.05	251.87	235.76	221.55	278.63	300.74	319.62	358.23	377.21	373.46	345.25	3,669.60
	Sylmar Basin Total:	680.50	657.32	601.14	589.66	468.04	596.63	500.60	667.48	647.08	377.21	535.75	345.53	6,666.94

2007-2008 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2007 Oct.	Nov.	Dec.	2008 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
							Verdugo Basin							
Crescenta Valley Water District														
5058B	1	43.47	43.17	25.31	9.38	12.59	33.14	42.18	45.38	46.36	51.46	51.12	48.97	452.53
5036A	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5058H	5	60.05	75.62	58.33	66.72	62.07	77.87	76.62	13.18	22.03	20.23	22.31	23.35	578.38
5058	6	2.85	4.90	8.06	11.15	11.64	5.84	1.35	12.43	10.08	10.95	2.34	8.47	90.06
5047B	7	0.22	0.20	0.09	0.06	0.08	0.63	16.46	34.36	35.30	39.90	36.52	9.40	173.22
5069J	8	33.60	33.42	34.09	30.16	31.04	34.45	35.79	34.21	32.44	33.74	32.94	32.43	398.31
5047D	9	23.03	20.36	11.82	1.34	5.76	16.41	12.12	0.00	0.00	0.02	5.86	39.22	135.94
5058D	10	51.71	52.42	53.57	50.53	51.61	55.61	58.81	40.19	38.73	23.71	34.28	19.00	530.17
5058E	11	31.78	15.68	31.93	33.94	31.50	36.32	35.61	9.62	14.00	11.39	14.93	22.56	289.26
5058J	12	16.45	19.44	15.32	0.00	0.00	0.00	2.32	46.70	52.25	45.12	41.46	39.92	278.98
5069F	14	11.11	18.41	26.29	19.74	1.68	0.00	0.00	18.57	22.36	47.44	46.17	44.82	256.59
	15	1.44	1.99	0.92	0.58	4.52	4.12	3.26	6.34	3.21	3.44	1.23	1.97	33.02
	PICKENS (CVWD)	4.76	4.61	4.80	4.80	3.95	4.41	4.26	4.48	4.28	4.22	4.58	4.28	53.43
	Total:	280.47	290.22	270.53	228.40	216.44	268.80	288.78	265.46	281.04	291.62	293.74	294.39	3,269.89
Knowltons														
	PICKENS	0.96	0.92	0.97	0.69	0.69	0.69	0.80	0.96	0.96	0.96	0.96	0.93	10.49
Glendale, City of														
3961-3971	GL3-4	111.14	108.15	109.26	107.15	99.63	104.48	102.04	110.25	106.22	79.40	106.02	99.38	1,243.12
3970	GL-6	65.76	62.68	62.46	55.73	57.22	66.26	65.37	61.71	61.22	64.58	61.54	44.14	728.67
---	VPCKP	31.29	58.91	66.70	63.68	61.45	77.56	71.19	73.09	45.76	52.21	81.38	31.99	715.21
---	MM-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	208.19	229.74	238.42	226.56	218.30	248.30	238.60	245.05	213.20	196.19	248.94	175.51	2,687.00
Verdugo Basin Total:		489.62	520.88	509.92	455.65	435.43	517.79	528.18	511.47	495.20	488.77	543.64	470.83	5,967.38
							Eagle Rock Basin							
Sparkletts														
3987A	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3987B	2	0.90	2.37	1.53	0.21	0.18	3.07	0.79	1.26	1.71	1.56	3.28	4.03	20.89
3987F	3	4.88	4.45	7.90	6.06	5.27	5.22	6.49	9.73	7.63	7.55	2.57	3.02	70.77
3987G	4	5.64	6.38	5.13	7.15	7.04	6.13	7.60	9.06	7.30	8.07	8.70	10.21	88.41
	Total:	11.42	13.20	14.56	13.42	12.49	14.42	14.88	20.05	16.64	17.18	14.55	17.26	180.07
Eagle Rock Basin Total:		11.42	13.20	14.56	13.42	12.49	14.42	14.88	20.05	16.64	17.18	14.55	17.26	180.07
ULARA Total:		9,111.74	4,378.60	6,249.13	8,460.95	4,704.52	4,928.49	6,625.60	6,135.26	6,503.56	6,300.90	7,960.82	8,662.90	80,041.58

APPENDIX B
KEY GAGING STATIONS OF SURFACE RUNOFF

Los Angeles County Dept of Public Works

USDAY V62 Output 10/21/2008

Summary Report

Site: F57C Los Angeles River Above Arroyo Seco
USGS #:
Beginning Date: 10/01/2007
Ending Date: 09/30/2008

Daily Mean Discharge in Cubic feet/second Water Year Oct 2007 to Sep 2008

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79.1	87.4	101	90.9	121	337	446	209	93.8	78.6	80.5	80.5
2	80.3	90.0	83.0	92.4	115	358	511	184	87.8	80.0	80.7	80.6
3	81.7	92.4	82.2	98.5	1090	418	520	171	86.7	83.3	79.4	80.1
4	82.3	92.7	80.2	3580	141	332	473	159	82.9	85.4	79.7	79.0
5	82.3	96.5	79.6	2570	113	323	468	141	79.5	80.7	77.9	79.1
6	80.8	93.5	83.1	1670	113	322	465	128	79.2	79.7	78.2	79.7
7	80.9	96.1	624	1020	118	357	466	128	83.0	82.1	77.8	80.0
8	81.8	95.3	86.2	112	121	389	465	117	81.6	79.4	79.4	79.0
9	82.2	95.8	85.9	112	120	375	460	107	80.8	73.8	79.9	79.4
10	86.7	95.3	83.4	110	125	331	476	108	79.2	72.3	80.1	80.0
11	87.7	92.4	83.7	108	134	342	478	102	80.4	74.7	78.3	79.3
12	98.3	93.1	85.8	103	141	322	455	98.2	78.1	81.1	77.2	80.6
13	923	90.3	85.1	102	150	317	422	109	78.4	83.3	78.0	79.2
14	83.7	89.1	85.6	103	162	293	390	97.0	79.5	82.6	76.3	78.7
15	83.4	87.9	87.7	100	161	328	395	101	80.2	79.6	78.8	79.0
16	83.1	90.2	87.3	98.3	185	312	385	94.5	79.9	72.5	78.8	77.6
17	84.0	91.2	88.1	97.3	177	241	356	90.1	77.2	78.0	78.3	77.9
18	82.5	89.6	947	101	187	262	336	88.1	72.7	80.1	77.8	77.3
19	84.7	89.7	887	103	200	281	323	90.0	73.4	79.8	77.0	75.8
20	82.2	87.4	93.3	105	510	312	314	89.8	73.9	78.8	76.2	76.1
21	79.1	92.0	108	132	257	305	317	85.4	72.8	79.5	77.1	75.6
22	82.7	89.7	78.5	234	1340	314	344	94.5	74.2	79.0	77.3	64.5
23	83.0	87.5	79.2	2120	252	310	293	117	75.0	77.4	77.2	60.4
24	83.5	84.5	80.8	2680	2310	307	284	163	75.0	80.1	76.1	57.3
25	84.8	84.7	80.9	6230	263	327	272	86.0	77.0	78.7	76.6	60.2
26	87.4	86.0	82.5	595	216	341	267	86.5	77.3	78.3	77.1	59.7
27	86.2	85.4	85.2	6830	232	374	248	88.8	76.9	77.1	78.9	59.4
28	87.3	85.0	87.0	2450	252	384	232	88.3	80.2	79.2	80.4	59.1
29	87.5	84.7	89.1	746	275	418	221	87.2	79.3	77.9	79.9	58.6
30	87.9	998	89.9	187	------	450	209	88.7	82.3	80.2	81.0	58.0
31	89.3	------	90.9	136	------	456	------	89.6	------	78.4	80.9	------
Total	3449.4	3613.4	4871.2	32816.4	9581	10538	11291	3486.7	2378.2	2451.6	2432.8	2191.7
Mean	111	120	157	1059	330	340	376	112	79.3	79.1	78.5	73.1
Max	923	998	947	6830	2310	456	520	209	93.8	85.4	81.0	80.6
Min	79.1	84.5	78.5	90.9	113	241	209	85.4	72.7	72.3	76.1	57.3
Acre-Ft	6840	7170	9660	65090	19000	20900	22400	6920	4720	4860	4830	4350

Wtr Year 2008	Total	89101.4	Mean	243	Max	6830	Min	57.3	Inst Max	27100	Acre-Ft	176700
Cal Year 2007	Total	48853.8	Mean	134	Max	2500	Min	78.5	Inst Max	7960	Acre-Ft	96900

Los Angeles County Dept of Public Works

USDAY V62 Output 10/27/2008

Summary Report

Site: F252 Verdugo Wash At Estelle Avenue
USGS #:
Beginning Date: 10/01/2007
Ending Date: 09/30/2008

Daily Mean Discharge in Cubic feet/second Water Year Oct 2007 to Sep 2008

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.41	2.57	2.57	3.90	12.6	7.52	7.08	5.41	5.42	3.90	3.90	4.17
2	5.85	2.57	2.57	3.90	11.6	7.10	6.24	4.78	4.91	3.90	3.90	5.21
3	5.42	2.57	2.57	3.55	21.5	7.10	7.00	4.86	4.65	3.90	3.90	5.65
4	5.42	2.57	2.57	428	16.9	6.53	7.10	5.42	4.65	3.90	3.90	4.50
5	5.42	2.57	2.57	483	11.2	6.24	7.10	5.42	4.65	3.90	4.09	6.03
6	5.42	2.57	2.57	355	9.91	6.24	7.10	5.41	5.38	3.90	3.90	5.57
7	4.88	2.57	7.03	84.4	9.19	6.24	7.10	5.36	6.24	3.90	3.90	4.55
8	4.65	2.57	7.76	11.2	8.93	6.24	7.10	5.31	6.24	3.90	3.90	4.99
9	4.65	2.57	7.10	8.69	8.51	6.24	7.10	5.26	5.43	3.90	3.90	4.68
10	4.65	2.57	6.27	7.99	7.99	6.24	6.77	5.21	5.42	3.90	3.90	3.94
11	4.65	2.57	5.42	7.99	7.99	6.24	6.24	5.15	5.42	3.90	3.90	4.66
12	4.65	2.19	5.06	7.23	7.99	6.24	6.24	5.10	5.42	4.53	3.90	4.97
13	5.33	1.98	4.65	7.10	7.99	6.24	6.24	5.05	5.42	4.65	3.90	3.68
14	5.42	1.98	4.14	7.56	7.86	6.24	6.24	5.00	5.42	4.20	3.99	3.71
15	5.42	1.98	3.90	7.99	7.10	6.24	6.24	5.20	5.42	3.90	4.17	3.79
16	5.42	1.98	3.65	7.16	7.10	6.24	6.24	6.52	5.42	3.90	4.38	3.69
17	5.33	1.98	3.21	7.10	7.10	6.24	5.90	6.46	5.42	3.90	4.83	3.42
18	4.65	1.98	4.02	7.10	7.10	6.24	5.42	6.41	5.42	3.90	4.33	3.44
19	4.65	1.98	12.6	7.10	7.10	6.24	5.42	6.74	5.42	3.90	4.39	3.52
20	4.65	1.98	12.8	7.10	8.35	6.24	5.84	7.16	5.42	3.90	4.31	3.36
21	4.65	1.98	11.6	7.62	8.44	6.24	5.52	6.78	5.42	3.90	4.58	3.43
22	4.65	1.98	8.72	9.10	14.4	6.24	5.42	7.10	5.42	3.90	4.44	3.66
23	4.27	1.98	7.89	159	13.7	6.24	5.42	9.73	5.42	3.90	5.66	3.67
24	3.90	1.55	7.10	225	19.0	6.24	5.42	11.7	5.42	3.90	4.05	3.26
25	3.90	1.46	7.10	460	17.5	6.24	5.42	9.43	5.42	3.90	4.46	3.21
26	3.90	1.31	6.30	66.9	11.9	6.24	5.42	7.29	5.05	3.90	5.44	3.21
27	3.90	1.01	5.05	469	9.76	6.24	5.42	6.38	4.65	3.90	5.06	3.21
28	3.30	1.01	4.65	277	8.21	6.24	5.42	6.10	4.03	3.90	4.86	3.21
29	2.57	.90	4.65	36.5	7.99	6.24	5.42	5.42	3.90	3.90	4.38	3.18
30	2.57	1.76	4.65	20.4	------	6.93	5.42	5.42	3.90	3.90	4.31	3.21
31	2.57	------	4.65	15.1	------	7.10	------	5.42	------	3.90	4.22	------
Total	143.12	61.24	175.39	3208.68	304.91	198.28	184.01	192.00	155.82	122.58	132.75	120.78
Mean	4.62	2.04	5.66	104	10.5	6.40	6.13	6.19	5.19	3.95	4.28	4.03
Max	6.41	2.57	12.8	483	21.5	7.52	7.10	11.7	6.24	4.65	5.66	6.03
Min	2.57	.90	2.57	3.55	7.10	6.24	5.42	4.78	3.90	3.90	3.90	3.18
Acre-Ft	284	121	348	6360	605	393	365	381	309	243	263	240

Wtr Year 2008	Total	4999.56	Mean	13.7	Max	483	Min	.90	Inst Max	5700	Acre-Ft	9920
Cal Year 2007	Total	3103.65	Mean	8.50	Max	139	Min	.90	Inst Max	1000	Acre-Ft	6160

Los Angeles County Dept of Public Works

USDAY V62 Output 10/27/2008

Summary Report

Site: E285 Burbank-Western Storm Drain
USGS #:
Beginning Date: 10/01/2007
Ending Date: 09/30/2008

Daily Mean Discharge in Cubic feet/second Water Year Oct 2007 to Sep 2008

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.3	19.1	21.1	18.5	17.2	21.7	39.7	24.1	15.9	17.8	11.2	9.27
2	15.3	19.7	20.3	18.5	17.4	22.4	39.2	24.5	16.1	17.2	9.73	9.75
3	15.6	19.1	20.5	19.7	24.4	23.6	38.5	24.5	16.9	17.1	8.71	9.32
4	16.4	19.7	19.5	441	21.1	23.3	37.1	22.6	17.0	17.0	8.18	9.96
5	16.4	21.4	19.1	89.3	19.0	23.3	34.7	21.9	16.9	16.8	8.29	9.59
6	16.0	18.5	19.1	171	18.7	24.2	35.7	20.6	16.8	16.1	8.10	9.94
7	15.8	20.5	57.5	38.8	18.8	26.2	37.2	21.0	16.3	15.9	7.62	10.4
8	16.4	20.5	17.2	15.9	19.0	27.5	35.0	21.1	16.8	15.7	7.22	10.9
9	8.47	20.6	17.6	16.7	18.8	27.8	32.6	20.8	16.8	15.4	6.81	11.5
10	15.3	20.4	17.5	18.2	18.0	28.2	30.6	22.4	16.2	15.4	6.40	10.9
11	15.5	20.1	18.0	18.2	18.5	29.8	28.1	23.4	16.4	15.4	5.99	11.0
12	22.1	20.7	18.7	17.8	18.8	31.3	27.3	25.3	15.7	15.6	5.61	11.1
13	52.3	20.8	18.8	17.6	19.1	34.1	26.6	27.6	14.7	16.1	5.74	10.3
14	13.6	20.8	17.8	18.6	19.1	35.0	26.3	28.3	15.3	16.5	7.90	10.0
15	14.4	19.3	17.6	18.5	19.0	36.6	26.8	28.4	16.1	15.9	10.3	10.3
16	15.1	19.7	17.6	19.2	19.2	37.3	22.9	25.9	16.6	16.4	10.4	9.83
17	15.1	19.7	17.7	19.0	19.5	36.0	23.1	21.1	16.8	16.8	10.2	10.2
18	15.3	19.5	90.6	19.1	20.0	37.7	25.0	18.1	16.6	16.8	9.99	11.0
19	15.8	20.0	44.2	18.3	20.0	38.3	25.5	17.2	16.0	17.0	10.1	10.1
20	15.5	20.7	17.8	18.3	26.9	39.4	25.0	16.9	15.7	17.0	9.79	9.54
21	14.7	20.7	18.1	19.9	31.3	40.5	25.0	16.0	15.4	16.3	9.56	9.42
22	15.1	18.7	16.9	22.5	51.3	40.9	24.7	15.4	15.5	15.7	9.53	9.61
23	15.9	18.5	16.2	239	25.4	41.9	25.5	16.4	15.8	14.7	9.14	9.49
24	16.5	19.0	17.1	295	91.3	41.4	24.7	17.4	16.0	14.9	8.93	8.27
25	17.2	18.8	16.8	516	22.5	42.0	25.4	15.0	17.1	14.5	9.42	7.48
26	18.1	19.3	17.7	129	20.5	41.3	24.0	13.7	17.3	14.4	9.59	7.64
27	17.2	20.0	17.5	319	20.7	43.6	22.8	14.1	17.4	14.1	8.71	7.67
28	17.1	18.4	17.8	117	20.0	45.7	23.8	14.5	17.5	14.1	9.23	7.19
29	17.2	19.3	18.0	22.9	21.1	43.8	24.6	14.6	17.5	14.3	10.2	7.24
30	19.0	117	17.8	17.3	------	44.5	24.7	15.3	17.9	13.4	9.79	7.31
31	19.3	------	19.8	16.8	------	42.2	------	15.6	------	12.4	9.83	------
Total	532.97	690.5	701.9	2746.6	696.6	1071.5	862.1	623.7	493.0	486.7	272.21	286.22
Mean	17.2	23.0	22.6	88.6	24.0	34.6	28.7	20.1	16.4	15.7	8.78	9.54
Max	52.3	117	90.6	516	91.3	45.7	39.7	28.4	17.9	17.8	11.2	11.5
Min	8.47	18.4	16.2	15.9	17.2	21.7	22.8	13.7	14.7	12.4	5.61	7.19
Acre-Ft	1060	1370	1390	5450	1380	2130	1710	1240	978	965	540	568

Wtr Year 2008	Total	9464.00	Mean	25.9	Max	516	Min	5.61	Inst Max	3260	Acre-Ft	18770
Cal Year 2007	Total	7513.07	Mean	20.6	Max	174	Min	8.47	Inst Max	2240	Acre-Ft	14900

Los Angeles County Dept of Public Works

USDAY V62 Output 10/27/2008

Summary Report

Site: F300 Los Angeles River at Tujunga Avenue
USGS #:
Beginning Date: 10/01/2007
Ending Date: 09/30/2008

Daily Mean Discharge in Cubic feet/second Water Year Oct 2007 to Sep 2008

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.3	79.3	170	75.7	234	73.4	69.0	66.4	62.1	50.1	50.4	49.4
2	77.5	78.7	99.0	74.8	181	72.4	69.5	66.0	61.0	49.9	50.4	49.9
3	76.2	77.9	89.4	74.2	1490	75.2	71.4	65.8	60.1	49.9	50.4	49.9
4	76.4	77.6	85.8	2590	706	76.1	71.5	65.4	58.8	49.9	50.4	49.9
5	77.1	77.6	84.3	1860	278	74.1	71.5	63.9	56.6	50.0	50.4	49.9
6	76.4	77.6	84.0	1790	192	69.7	71.5	63.3	54.8	50.1	50.4	50.0
7	75.7	77.6	669	1240	180	69.0	71.5	62.7	54.7	50.3	50.4	50.2
8	74.9	77.1	125	282	172	69.0	71.0	62.3	54.7	50.4	50.4	50.4
9	74.3	76.9	108	163	164	69.0	70.4	62.1	54.7	49.6	50.4	50.4
10	73.9	76.9	99.8	138	157	68.4	69.7	62.1	54.7	48.2	50.4	50.4
11	73.0	76.9	92.7	124	154	68.3	69.6	62.1	55.2	47.1	50.4	50.4
12	80.7	76.9	87.8	115	152	68.3	69.2	62.1	54.8	47.0	50.4	50.5
13	1230	76.3	85.7	112	151	68.3	68.6	62.2	54.7	47.4	50.4	50.9
14	85.7	75.5	83.8	107	153	66.5	68.0	62.5	54.7	47.8	49.9	51.2
15	81.9	75.4	82.8	104	155	66.8	67.7	62.7	54.7	48.5	49.9	51.4
16	81.2	75.5	82.2	102	165	72.1	67.8	62.7	54.8	47.5	49.9	51.4
17	79.6	75.5	81.9	102	167	71.6	67.7	62.8	55.0	47.7	49.6	51.4
18	81.6	75.5	1070	101	168	70.6	67.7	63.3	54.1	48.1	49.4	51.4
19	80.9	75.5	1000	101	170	69.8	67.7	63.3	53.5	48.4	49.4	51.4
20	79.7	75.8	149	100	1190	69.0	66.9	63.3	52.8	48.4	49.1	51.4
21	76.7	75.5	110	102	878	69.0	66.4	63.3	52.5	48.5	48.9	51.4
22	75.0	75.5	88.8	557	2080	69.0	67.6	63.1	52.5	49.1	48.9	51.6
23	75.0	75.5	77.8	1820	925	68.6	67.7	63.3	52.5	49.4	48.9	51.9
24	74.9	75.5	73.8	2850	2760	68.3	67.7	103	51.5	49.4	48.9	51.5
25	75.5	75.1	72.2	4410	1260	68.3	67.7	97.1	50.9	49.4	48.9	51.4
26	76.4	74.8	71.5	1680	691	68.3	67.7	83.1	50.5	49.4	48.9	51.0
27	77.4	74.4	71.9	5570	328	68.3	67.3	76.7	50.4	49.4	48.5	50.5
28	77.7	73.8	73.0	2620	84.6	68.3	67.0	71.6	50.4	49.4	48.6	49.7
29	78.6	73.5	74.4	1350	76.7	68.3	66.7	68.4	50.4	49.3	48.9	48.7
30	79.0	856	75.8	837	------	68.7	66.4	65.7	50.4	49.7	49.3	47.6
31	79.5	------	75.9	435	------	69.0	------	63.7	------	50.4	49.4	------
Total	3560.7	3065.6	5295.3	31586.7	15462.3	2161.7	2060.1	2086.0	1628.5	1519.7	1540.5	1517.1
Mean	115	102	171	1019	533	69.7	68.7	67.3	54.3	49.0	49.7	50.6
Max	1230	856	1070	5570	2760	76.1	71.5	103	62.1	50.4	50.4	51.9
Min	73.0	73.5	71.5	74.2	76.7	66.5	66.4	62.1	50.4	47.0	48.5	47.6
Acre-Ft	7060	6080	10500	62650	30670	4290	4090	4140	3230	3010	3060	3010

Wtr Year 2008	Total	71484.2	Mean	195	Max	5570	Min	47.0	Inst Max	14900	Acre-Ft	141800
Cal Year 2007	Total	39017.9	Mean	107	Max	3720	Min	48.4	Inst Max	21700	Acre-Ft	77390

Los Angeles County Dept of Public Works

USDAY V62 Output 10/02/2008

Summary Report

Site: F168 Big Tujunga Creek Below Big Tujunga Dam
USGS #:
Beginning Date: 10/01/2007
Ending Date: 09/30/2008

Daily Mean Discharge in Cubic feet/second Water Year Oct 2007 to Sep 2008

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	24.7	10.4	10.2	183	78.7	5.98	.28	.04	10.9	9.33	1.39
2	.68	24.9	10.1	28.9	190	66.5	3.96	.33	.02	11.7	8.48	1.56
3	.71	24.9	9.69	28.4	178	57.9	3.90	.17	.01	11.6	7.39	1.47
4	.70	24.7	9.42	10.3	183	50.9	3.36	.10	0	11.5	6.15	2.04
5	.71	24.6	9.38	22.2	96.9	44.5	3.09	.11	0	11.4	5.32	1.99
6	.75	24.4	9.26	25.3	72.2	41.9	.86	.09	0	11.3	4.71	1.62
7	.68	24.2	9.92	29.0	53.7	41.0	.55	.07	0	11.4	4.24	1.46
8	.59	23.5	9.27	30.1	48.4	40.3	.41	.10	0	11.1	3.85	0
9	.48	19.1	8.59	27.9	49.3	40.2	.25	.20	0	11.0	3.52	0
10	.38	18.6	8.54	24.8	51.8	39.7	.25	.34	0	10.9	3.20	0
11	.32	18.5	8.49	23.7	51.7	36.4	.23	.55	0	10.6	3.16	0
12	.30	18.7	7.79	22.2	48.9	33.4	.22	.64	0	10.4	3.05	0
13	.45	18.7	7.54	21.6	51.3	33.4	.21	.44	0	10.4	2.98	0
14	.62	18.6	7.26	21.4	51.3	33.4	.24	.19	0	10.5	2.96	0
15	.67	20.6	6.93	24.6	45.5	33.4	.50	2.10	0	10.2	2.96	0
16	42.0	23.1	6.79	23.2	41.9	33.3	.43	.71	0	10.1	2.90	0
17	.75	21.1	6.56	23.1	40.0	32.8	.42	.23	0	9.98	2.78	0
18	.62	20.4	6.90	22.8	39.3	32.7	.46	.40	0	9.90	2.91	0
19	.61	20.1	7.04	21.7	39.1	32.7	.47	.20	0	9.86	2.90	0
20	.73	20.0	6.73	14.7	39.2	32.7	.44	.23	0	9.73	2.74	0
21	.89	20.1	6.74	13.9	39.1	32.3	.43	.24	0	9.63	2.72	0
22	.83	20.4	6.04	13.8	38.1	32.1	.42	.24	0	9.70	2.70	0
23	.81	20.8	5.75	14.1	38.6	32.1	.44	.85	1.68	9.57	2.60	0
24	.72	20.9	5.64	15.7	38.2	32.1	.48	.91	14.4	9.44	2.52	0
25	24.9	20.8	5.59	25.1	79.4	31.6	.48	.38	33.0	9.29	2.70	0
26	23.6	20.8	5.59	20.9	81.0	31.5	.46	.30	30.0	9.14	2.53	0
27	23.7	20.3	5.39	251	83.5	31.1	.45	.40	18.8	9.02	2.36	0
28	24.7	20.0	5.30	343	80.0	30.9	.41	.33	9.78	8.87	2.48	0
29	23.7	19.8	5.24	181	78.3	30.5	.34	.27	9.63	8.77	2.44	0
30	25.4	20.6	5.12	174	------	30.2	.21	.26	9.55	8.60	2.34	0
31	24.4	------	5.01	166	------	27.2	------	.23	------	8.46	2.13	------
Total	227.00	637.9	228.01	1674.6	2110.7	1177.4	30.35	11.89	126.91	314.96	113.05	11.53
Mean	7.32	21.3	7.36	54.0	72.8	38.0	1.01	.38	4.23	10.2	3.65	.38
Max	42.0	24.9	10.4	343	190	78.7	5.98	2.10	33.0	11.7	9.33	2.04
Min	.30	18.5	5.01	10.2	38.1	27.2	.21	.07	0	8.46	2.13	0
Acre-Ft	450	1270	452	3320	4190	2340	60	24	252	625	224	23

Wtr Year 2008	Total	6664.30	Mean	18.2	Max	343	Min	0	Inst Max	672	Acre-Ft	13220
Cal Year 2007	Total	1988.25	Mean	5.45	Max	63.5	Min	.01	Inst Max	115	Acre-Ft	3940

Los Angeles County Dept of Public Works

USDAY V62 Output 10/16/2008

Summary Report

Site: F118B Pacoima Creek Flume below Pacoima Dam
USGS #:
Beginning Date: 10/01/2007
Ending Date: 09/30/2008

Daily Mean Discharge in Cubic feet/second Water Year Oct 2007 to Sep 2008

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	111	0	0	0	0	0	0	0
2	0	0	0	0	110	0	161	0	0	0	0	0
3	0	0	0	0	81.8	0	75.0	0	0	0	0	0
4	0	0	0	2.04	31.6	0	0	0	0	0	0	0
5	0	0	0	1.86	63.2	0	0	0	0	0	0	0
6	0	0	.10	1.88	100	0	0	0	0	0	0	0
7	0	1.18	1.14	.83	62.7	0	0	97.7	0	0	0	0
8	0	0	0	0	0	0	0	68.4	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	.47	0	0	0	82.5	0	0	0	0	0	0	0
14	0	0	0	0	298	0	0	0	0	0	0	0
15	0	0	0	0	144	0	144	0	0	0	0	0
16	0	0	0	0	0	0	68.3	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	2.41	0	0	0	0	0	0	0	0	0
19	0	0	1.55	0	129	0	0	0	0	0	0	0
20	0	0	.24	0	93.0	0	0	0	0	0	0	0
21	0	0	.13	0	32.1	0	0	0	0	0	0	0
22	0	0	0	153	36.3	0	74.1	0	0	0	0	0
23	0	0	0	131	.02	0	44.7	.58	0	0	0	0
24	0	0	0	1.09	.68	0	.08	.27	0	0	0	0
25	0	0	0	1.37	0	0	0	0	0	0	0	0
26	0	0	0	.35	166	0	0	0	0	0	0	0
27	0	0	0	86.7	81.7	0	0	0	0	0	0	0
28	0	0	0	334	0	0	0	0	0	0	0	0
29	0	0	0	161	0	0	0	0	0	0	0	0
30	0	0	.25	110	------	0	0	0	0	0	0	0
31	0	------	.45	111	------	0	------	0	------	0	0	------
Total	0.47	1.18	6.27	1096.12	1623.60	0	567.18	166.95	0	0	0	0
Mean	.015	.039	.20	35.4	56.0	0	18.9	5.39	0	0	0	0
Max	.47	1.18	2.41	334	298	0	161	97.7	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Acre-Ft	.93	2.3	12	2170	3220	0	1120	331	0	0	0	0

Wtr Year 2008	Total	3461.77	Mean	9.46	Max	334	Min	0	Inst Max	456	Acre-Ft	6870
Cal Year 2007	Total	12.18	Mean	.033	Max	2.41	Min	0	Inst Max	149	Acre-Ft	24

APPENDIX C
COMPONENTS OF LOS ANGELES RIVER FLOW

UPPER LOS ANGELES RIVER AREA: COMPONENTS OF LOS ANGELES RIVER FLOW

2007-08 WATER YEAR

TOTAL FLOW AT GAGE F-57C-R		F-57C-R: Storm, Reclaimed, Industrial, Rising Ground Water
		F300-R: Storm, Tillman, Industrial Waste, and Rising Water
Total:	176,740	E285-R :Storm, Burbank WRP, Industrial Waste
		F252-R: Storm, Rising Water

I. RECLAIMED WATER DISCHARGED TO L.A. RIVER IN ULARA		
Tillman:	35686	: Record
L.A.-Glendale:	12893	: Record
Burbank WRP:	7244	: Record
Total:	**55823**	
II. INDUSTRIAL WATER and STORM FLOWS DISCHARGED TO L.A. RIVER IN ULARA		
Upstream of F300-R		
Industrial Water	166	: From F300-R separation of flow
F168	13230	
F118	6856	
Storm Flows @300	74865	Storm flows less F168 and F118
	95117	
Between F300-R and E-285		
Burbank OU	32	Burbank Operable Unit
MTA	34	
Storm Drains and Unaccounted water	4822	:6.7 cfs assumes 3,888
Headworks:	0	:pilot project record
Western Drain:	6888	: From E285-R separation of flow
Storm Flows @285	1597	
	13373	
Between E-285 and F57C-R		
Storm Flows, DryWeather Flow, perennial stream flow, VPWTP @ 252	3896	:From F252-R separation of flow
endale Operable Unit	118	
Eagle Rock Blow Off	0	
Pollock Treatment	0	
Sycamore Canyon	1100	Estimated from historic flows
Storm Drains and Unaccounted water	3409	:4.7 cfs assumes 2,747 from F57C -R separation of flows
	8523	
Total Part II	**117012**	
III. RISING WATER IN L.A. RIVER IN ULARA		
Total:	3905	: See Section 2.3 of the Watermaster's Report

APPENDIX D
WATER QUALITY DATA

REPRESENTATIVE MINERAL ANALYSES OF WATER

Well Number or Source	Date Sampled	Spec. Cond. µS/cm	Mineral Constituents in milligrams per liter (mg/l)												TDS mg/l	Hardness as $CaCO_3$ mg/l
			pH	Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	NO_3	F	B		
Imported Water																
Colorado River Water at Eagle Rock Reservoir	2007/08FY	836	8.1	50	21	85	4.1	0	122	166	91	2.1	0.6	0.14	491	216
LA Aqueduct No 1. Influent	5/13/2008	370	8.2	29	7.5	39.8	4.7	0	168	35	29	ND	0.7	0.05	255	102
LA Aqueduct Filtration Plant Influent	5/13/2008	412	8.2	29	7.6	44	4.7	---	166	33	28.4	ND	0.71	0.05	253	103
State Water Project at Joseph Jensen Filtration Plant (Influent)	2007/08FY	485	7.9	25	12	50	2.8	0	99	44	67	2.9	0.1	0.17	266	113
Surface Water																
Tillman Rec. Plant Discharge to LA River	2007/08FY	-	7.3	-	-	-	-	-	-	118	131	5.45	0.75	0.54	597	222
Los Angeles River at Arroyo Seco	9/95	981	8.0	68.1	24.3	96.5	9.75	ND	171	191	108	7.4	0.3	0.58	666	270
LA/Glendale Rec. Plant Discharge to LA River	2007/08FY	-	7.3	-	-	-	-	-	-	163	154	5.96	0.51	0.4	693	250
Groundwater																
(San Fernando Basin - Western Portion)																
4757C (Reseda No. 6)	10/13/83	944	7.8	115	31	43	2.1	-	301	200	33	2.6	0.31	0.24	595	416
(San Fernando Basin - Eastern Portion)																
3800 (No. Hollywood No. 33)	5/19/2004	1150	7.8	80.5	27.4	132	3.9	-	109	320	67.2	3.06	0.45	0.56	729	321
3851C V0-8/Burbank No. 10	4/8/2004	-	7.5	-	-	-	-	ND	286	-	36.5	32.7	-	-	442	314
Glendale OU GN-1	4/6/2004	977	7.2	120	31	44	5.1	0.33	318	140	58	8.7	0.32	0.16	620	261
(San Fernando Basin - L.A. Narrows)																
3959E (Pollock No. 6)	5/19/2004	933	7.2	92	30.4	52.9	2.55	0	262	129	76.8	42.4	0.28	0.24	591	347
(Sylmar Basin)																
4840K (Mission No. 6)	6/8/2005	460	7.7	53.1	10.1	28.4	3.83	0	199	53	14	5.3	0.34	0.09	347	170
5969 (San Fernando No. 4A)	2/23/2006	454	7.8	50	9.2	28	4.3	ND	170	52	14	18	0.08	-	278	160
(Verdugo Basin)																
3971 (Glorietta No. 3)	2/14/2006	-	6.8	145	42.7	27.3	4.47	<10.0	207	191	133	43.8	0.18	-	698	485
5069F (CVWD No. 14)	2/5/2008	807	7.1	91	33	42	3.4	ND	200	120	81	43	0.17	95	600	360

APPENDIX E
DEWATERING AND REMEDIATION PROJECTS

DEWATERING PROJECTS

No.	Company	Contact	Address	Start Date
		Permanent Dewatering Required		
1	A H Warner Properties Plaza 3	Bernier, Dave	21650 Oxnard	June 4, 1997
2	A H Warner Properties Plaza 6	Bernier, Dave	21700 Oxnard	June 4, 1997
3	BFI Sunshine Canyon Landfill	Dave Hauser	14747 San Fernando Rd.	October 1, 2006
4	Brent & Miller	Brent, Stanley	4328 Mammoth Ave	January 13, 2000
5	Commercial Project	Helfman, Haloosim & Assoc.: Varadi, Ivan	5550 Topanga Canyon	June 19, 1989
6	Encino Spectrum Project	Helfman, Haloosim & Assoc.: Varadi, Ivan	15503 Ventura Blvd.	June 14, 1989
7	Glenborough Realty (First Financial)	Slade, Richard	16830 Ventura Blvd.	October 9, 1987
8	Home Savings of America	Eli Silon & Associates	13949 Ventura Blvd.	June 14, 1989
9	LAMCO	O'Neil, John	21300 Victory Blvd	April 27, 1988
10	La Reina Fashion Plaza	Blumenfeld, Dolores	14622 Ventura Blvd.	April 27, 1988
11	Mercedes Benz Encino (Auto Stiegler)	Stiegler, John	16721 Ventura Blvd.	October 31, 1987
12	Metropolitan Transportation Authority	Laury, Victor	Metro Red Line	April 1, 1995
13	Park Hill Medical Plaza	Anjomshoaa, Mahmoud	7303 Medical Center Dr.	December 27, 1989
14	Trillium	Arnold, Daryl	6310 Canoga Ave.	April 27, 1988
15	Warner Center Ent. Complex	Tsuchiyama and Kaino	5955 Owensmouth Ave.	June 26, 1989
		Potential for Future Dewatering		
1		Carter, Dennis	4547 Murietta Ave	January 16, 1997
2		Eccleston, C. W.	22020 Clarendon St.	
3		Henkin, Doug	8806 Etiwanda Ave.	
4		Marks, Ronald	5348 Topanga Canyon	
5	Danalex Engineering		12050 Ventura Blvd.	
6	Danalax Engineering Corp.	Krell, Alex	11239 Ventura Blvd.	
7	Delta Tech. Engineering	Abbasi, Z. A.	12800 Ventura Blvd.	
8	Ellis Plumbing Co.	Ellis, Chris	4235 Mary Ellen Ave.	
9	Ellis Plumbing Co.	Ellis, Chris	19951 Roscoe Blvd.	
10	Helfman, Haloosim & Assoc.	Varadi, Ivan	21820 Burbank Blvd.	
11	Helfman, Haloosim & Associates	Varadi, Ivan	5350 White Oak Ave.	
12	Sherway Properties	Vasquez, Rodney	4477 Woodman Ave.	
13	Tarzana Office Plaza	Varadi Engineering	18701 Burbank Ave.	
14	T Violes Construction Company	Viole, Tim, Jr.	15840 Ventura Blvd.	
		Temporary Dewatering		
1	Avalon Bay	Rob Salkovitz	16350 Ventura Blvd	January 26, 2006
2	Eagle Rock Interceptor Sewer	Baron Miya	Bureau of Engineering	May 8, 2003

REMEDIATION PROJECTS

No.	Company	Contact	Address	ID	Start Date
1	3M Pharmaceutical	Bob Paschke	19901 Nordhoff St.	R	February 8, 1989
2	Boeing (Rockwell International)	Lafflam, S. R.	6633 Canoga Park Ave.	R	June 10, 1990
3	Drilube	Artik Avanessians	Glendale, CA	R	March 29, 2002
4	Excello Plating	Glen Harleman	Los Angeles, CA	R	June 20, 2003
5	Holchem	Cuthbert, Andrew	Pacoima, CA	R	February 1, 2000
6	Home Depot	Karen Arteaga	Burbank, CA	R	March 19, 2001
7	Honeywell (Allied Signal)	Benny Dehghi	No.Hollywood, CA	R	February 21, 2003
8	ITT	Teresa Olmstead	Burbank, CA	R	June 9, 2004
9	Lockheed	Gene Matsushita	N. Hollywood Way	R	January 5, 1989
10	Menasco	George Piantka	Burbank, CA	R	October 31, 2001
11	Micro Matic USA Inc.	Reinhard Ruhmke	Northridge CA	R	April, 1999
12	Mobil Oil	Alton Geoscience	16461 Ventura Blvd.	R	May 11, 1989
13	Philips Components	Wade Smith	4561 Colorado St.	R	July 14, 1987
14	PRC-Desoto (Courtald)	Christer Sorenson	Glendale, CA	R	August 22, 2002
15	Raytheon (Hughes)	Tim Garvey	Canoga Park, CA	R	February 1995
16	Tesoro	Peter Stampf	No. Hollywood,CA	R	May 8, 2004
17	Thrifty Oil	Delta Tech. Eng.	18226 Ventura Blvd.	R	February 2, 1990

Notes:

1) ID - Refers to the type of project;
R: Groundwater remediation site.

2) Start Date - Date project was brought to the attention of the ULARA Watermaster.

APPENDIX F
WHITE PAPER – "Is the San Fernando Groundwater Basin Undergoing a Long – Term Decline in Storage?"
(ATTACHMENTS ON FILE IN ULARA WATERMASTER OFFICE)

NOSSAMAN, GUTHNER, KNOX & ELLIOTT, LLP
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Attorneys for Upper Los Angeles River Area Watermaster

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

THE CITY OF LOS ANGELES, Plaintiff, v. CITY OF SAN FERNANDO, et al., Defendants.	Case No. C650 079 **NOTICE OF LODGING OF WATERMASTER WHITE PAPER RE: QUARTERLY STATUS CONFERENCE** Conference: Date: April 27, 2007 Time: 8:30 a.m. Dept: 52 Before the Hon. Susan Bryant-Deason

NOTICE IS HEREBY GIVEN that the court-appointed Watermaster hereby lodges with the Court the attached White Paper in connection with the quarterly Upper Los Angeles River Area Watermaster status conference scheduled for April 27, 2007, in Department 52 of the above-entitled Court.

DATED: March 23, 2007

NOSSAMAN, GUTHNER, KNOX & ELLIOTT, LLP
Frederic A. Fudacz
Alfred E. Smith

By: _____
Alfred E. Smith

Attorneys for Upper Los Angeles River Area Watermaster

PROOF OF SERVICE

The undersigned declares:

I am employed in the County of Los Angeles, State of California. I am over the age of 18 and am not a party to the within action; my business address is c/o Nossaman, Guthner, Knox & Elliott, LLP, 445 S. Figueroa Street, 31st Floor Los Angeles, California 90071-1602.

On March 23, 2007, I served the foregoing **NOTICE OF LODGING OF WATERMASTER WHITE PAPER RE: QUARTERLY STATUS CONFERENCE** on parties to the within action by placing ( ) the original (x) a true copy thereof enclosed in a sealed envelope, addressed as shown on the attached service list.

(XX) (By U.S. Mail) On the same date, at my said place of business, said correspondence was sealed and placed for collection and mailing following the usual business practice of my said employer. I am readily familiar with my said employer's business practice for collection and processing of correspondence for mailing with the United States Postal Service, and, pursuant to that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid, on the same date at Los Angeles, California.

( ) (By Facsimile) I served a true and correct copy by facsimile pursuant to C.C.P. 1013(e), to the number(s) listed on the attached sheet. Said transmission was reported complete and without error. A transmission report was properly issued by the transmitting facsimile machine, which report states the time and date of sending and the telephone number of the sending facsimile machine. A copy of that transmission report is attached hereto.

( ) (By Overnight Service) I served a true and correct copy by overnight delivery service for delivery on the next business day. Each copy was enclosed in an envelope or package designated by the express service carrier; deposited in a facility regularly maintained by the express service carrier or delivered to a courier or driver authorized to receive documents on its behalf; with delivery fees paid or provided for; addressed as shown on the accompanying service list.

Executed on _March 23, 2007.

(XX) (STATE) I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

( ) (FEDERAL) I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Charlyn Jones

ATTORNEYS OF RECORD

Name	Party
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Mr. Peter Kavounas (Member) Water Services Administrator City of Glendale 141 North Glendale Avenue Glendale, CA 91206-4496 Telephone: 818-548-2137	Glendale

Name	Party
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Mr. Tony Salazar (Member) Operations Manager City of San Fernando 117 Macneil Street San Fernando, CA 91340 Telephone: 818-898-7350	San Fernando
Mr. Dennis Erdman (Member) General Manager Crescenta Valley Water District 2700 Foothill Boulevard La Crescenta, CA 91214 Telephone: 818-248-3925	Crescenta Valley Water District
Mr. David Gould (Alternate) District Engineer Crescenta Valley Water District 2700 Foothill Boulevard La Crescenta, CA 91214 Telephone: 818-248-3925	Crescenta Valley Water District

UPPER L ANGELES RIVER AREA WA MASTER

CITY OF LOS ANGELES VS. CITY OF SAN FERNANDO, ET AL
CASE NO. 650079 – COUNTY OF LOS ANGELES

MARK G. MACKOWSKI -- WATERMASTER

OFFICE LOCATION:
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March 22, 2007

The Honorable Susan Bryant-Deason
Judge of the Los Angeles County Superior Court
111 N. Hill Street, Dept. 52
Los Angeles, CA 90012

Dear Judge Bryant-Deason:

Subject: Meeting on April 27, 2007 to discuss the Decline in Storage in the San Fernando Groundwater Basin (basin)

At our last meeting with the Court on December 13, 2006 you generously offered to spend some time with the Watermaster and the Cities of Los Angeles, Burbank, and Glendale (Cities) to discuss the decline in groundwater storage in the basin during our next meeting on April 27.

As Watermaster for the Upper Los Angeles River Area (ULARA), I have been regularly informing the Court and the Cities regarding my growing concern over declining water levels and accumulating groundwater pumping credits in the basin.

In July 2005, I distributed a DRAFT White Paper to the Cities titled "Is the San Fernando Groundwater Basin Undergoing a Long-Term Decline in Storage?" describing the problems, causes, and some possible solutions. Since then, we have been meeting with the Cities in an attempt to resolve these issues.

In preparation for the April 27 meeting, I feel it is appropriate to share the enclosed White Paper with the Court so that you may become more familiar with the background and details regarding the decline in storage.

We look forward to meeting with you at 8:30 a.m. on April 27, 2007 to explore the challenges we face regarding the decline in groundwater storage in the basin.

If you have any questions or comments, please call me at (213) 367-0896.

Sincerely,

MARK G. MACKOWSKI
ULARA Watermaster

MGM:mm

c:
Mr. Bill Mace, City of Burbank
Mr. Peter Kavounas, City of Glendale
Mr. Thomas Erb, City of Los Angeles
Mr. Dennis Erdman, Crescenta Valley Water District
Mr. Ron Ruiz, City of San Fernando

Watermaster Staff
Mr. Mark G. Mackowski, Watermaster
Ms. Patricia T. Kiechler, Assistant Watermaster
Mr. Fred Fudacz, Special Counsel
Mr. Melvin Blevins, Consultant

Is the San Fernando Groundwater Basin Undergoing a Long-Term Decline in Storage?
by
Mark Mackowski, ULARA Watermaster
March 2007

Executive Summary

This report addresses the long-term decline in storage in the San Fernando Groundwater Basin (hereinafter SFB or "basin") caused by over-pumping due to an excessive allocation of water rights; reduced natural and artificial recharge; unaccounted underflow and rising groundwater leaving the basin; and unaccounted or under-accounted pumping by third parties. It also addresses the large accumulation of stored water credits for which there is insufficient actual water in storage, and makes recommendations to reverse these trends.

The Watermaster has discussed this issue in the Annual Watermaster Report for the last four years; has informed and updated the Court during the last two years; and in July 2005 presented a draft of this paper to the Cities of Los Angeles, Burbank, and Glendale (hereinafter "parties"). Subsequently, several workshops were held with the parties to answer their questions and discuss potential solutions.

The parties have responded by proposing to study several projects to increase long-term artificial recharge of the basin. The Watermaster fully supports those studies, but does not believe that the current proposed projects will be either timely enough or adequate to completely address the serious and ongoing decline in storage and avoid the potential for the basin to re-enter overdraft.

Introduction

This paper addresses the question: "Is the San Fernando Groundwater Basin undergoing a long-term decline in storage?"

Plate 13 (Attachment 1) of the 2004-05 Annual Watermaster Report illustrates the change in storage in the SFB between 1928 and Fall 2005.

It is clear that the SFB has experienced a progressive decline of real water in storage (Plate 13 blue line) since 1928. The decline began in 1944, and overdraft was eventually declared beginning in 1954 when water in storage had reached 210,000 acre-feet (AF) below the 1928 level. Litigation over water rights commenced in 1955, and continued until 1979 when the Judgment was entered. Section 4.2.6.1 of the Judgment states that the SFB **"...remained in overdraft continuously until 1968, when an injunction became effective. Thereafter, the basin was placed on safe yield operation."** (Safe yield operation means that extractions from the basin do not exceed recharge on a long-term average.) When safe yield operation was ordered by the Court in 1968 the basin was 655,370 AF below the 1928 level.

From 1968 until 1977, the amount of real water in storage (Plate 13 blue line) declined an additional 40,210 AF, to 695,580 AF below the 1928 level, despite the fact that the basin was supposedly under safe yield operation. Fall 1977 was the historically lowest level of basin storage.

Plate 13 shows a sharp increase in stored water beginning in 1977, suggesting that the basin began to recover. However, a large portion of the increase was due to water imported by Los Angeles to the SFB from outside sources such as the Owens Valley and spread at Tujunga Spreading Grounds, and was not part of the safe yield of the basin. Table 2-22 from Watermaster Relevant Data (Attachment 2) shows spreading from 1968-2005. Under the column "City of Los Angeles – Tujunga", 142,457 AF were spread from 1977-1987. Therefore, because Plate 13 (blue line) does not differentiate between various water sources that recharge the basin, the water level increase beginning in 1977 *does not* represent a significant recovery of the basin.

Furthermore, beginning in the late 1970s, groundwater extractions began to decline as a result of the decision in San Fernando that restricted pumping, especially by Glendale and Burbank, followed in the early 1980s by the discovery of widespread groundwater contamination that affected all the parties' ability to pump their full adjudicated rights (Relevant Data Table 2-1, Attachment 3). As a result, stored water credits began to accumulate rapidly, and continue to accrue whenever a party does not pump its full right. As of October 1, 2005 a combined total of 410,033 AF of stored water credits in the SFB belonged to Los Angeles, Burbank, and Glendale.

Section 8.2.10 of the Judgment requires the effects of stored water to be excluded from consideration when evaluating the safe yield. Judgment Section 8.2.10 states, **"Upon request of the Administrative Committee, or on motion of any party and subsequent Court order, Watermaster shall recalculate safe yield of any basin within ULARA. If there has been a material long-term change in storage over a base period (excluding any effects of stored water) in San Fernando Basin the safe yield shall be adjusted by making a corresponding change in native safe yield of the basin."**

The graph shown in red on Plate 13 is the result of subtracting stored water credits from the change in storage shown in blue, as required by Judgment Section 8.2.10. When stored water credits are subtracted from the change in storage, the basin is 914,508 AF below the 1928 level, and 259,138 AF below the 1968 level when safe yield operation was required to be implemented.

In summary, Plate 13 clearly shows that the SFB is undergoing a long-term decline in storage that is temporarily interrupted during above-normal rainfall or below-normal pumping. However, spread imported water from 1977-1987 and an ongoing large accumulation of stored water credits obscures this decline.

Import Return Credits

Import return water is defined by the Judgment as "Ground water derived from percolation attributable to delivered imported water."

The Judgment allows the parties to recapture a portion of delivered imported water based on the reasonable assumption that some of it percolates into the aquifer and is available for pumping once it reaches the groundwater table. This water accrues to the parties as import return credits using formulas provided in Section 5.2.1.3 of the Judgment.

The California Supreme Court decision (1975, Vol. 14-3d, p. 261-262, Attachment 4) states, **"Defendants contend that if any party is given rights to a return flow from delivered *imported* water, it is 'obvious' and 'axiomatic' that the same rights should be given to the return flow from delivered water derived from all other sources, including native water extracted from local wells. This argument misconceives the reason for the prior right to return flow from imports. Even though all deliveries produce a return flow, only deliveries derived from imported water add to the ground supply...Returns from deliveries of extracted native water do not add to the ground supply but only lessen the diminution occasioned by the extractions."**

Despite the unequivocal language in the Supreme Court decision, the Cities of Los Angeles, Burbank, and Glendale negotiated an agreement to use *all* delivered water in the formulas for calculating import return credits. In the "Memorandum re Proposed Settlement with Cities of Glendale and Burbank, City of Los Angeles v. City of San Fernando, et al., and Damage Cases" dated November 22, 1978, Item 4 on page 5 (Attachment 5) states, **"A fixed formula for determining Glendale and Burbank rights to return flow from delivered imported water, including recirculation rights, as being equivalent to 20% of all delivered water in the immediate watershed of the San Fernando Basin. This has been determined to be a better administrative method than the method based on 20.8% of delivered imported water to valley-fill lands, which method was presented to the Supreme Court and approved by that Court in this case. Los Angeles' return flow rights will be determined by a comparable fixed formula, also somewhat a** [sic] **variance with the Supreme Court language, but consistent with simple future administration."**

Furthermore, the language in the Judgment addressing import return credits is contradictory and appears to have been influenced by the aforementioned agreement. Section 5.2.1.1 states, **"Each of said parties has a right to extract from San Fernando Basin that portion of the safe yield attributable to such import return waters."** Section 5.2.1.3 states, **"The extraction rights of Los Angeles, Glendale, and Burbank...shall only extend to the amount of any accumulated import return water credit of such party by reason of imported water delivered after September 30, 1977."** The foregoing language is consistent with the Supreme Court decision, and implies that only delivered waters that are imported from outside the basin (such as from the Los Angeles/Owens Valley Aqueduct and the Metropolitan Water District) would

qualify for import return credits. However, the formulas in Judgment Section 5.2.1.3 for calculating import return credits apparently contradict the Supreme Court decision, namely, **"Los Angeles: 20.8% of all delivered water...Burbank: 20.0% of all delivered water...Glendale: 20.0% of all delivered water..."**

Since 1979 the Watermaster Office has used the latter, more generous interpretation of the Judgment, giving the parties import return credits for *all* water delivered to their applicable service areas regardless of its source. This has caused the pumping of groundwater that would not have been allowed under the Supreme Court decision, and has also contributed to the accumulation of a large amount of stored water credits that are not supported by actual water in storage.

Thus, the Supreme Court decision and the technical issues related to basin hydrology were misunderstood, or not fully considered, in an effort to simplify the administration of the parties' rights, resulting in excessive groundwater pumping and an accumulation of pumping credits for which there is insufficient actual water in storage.

Changed Conditions in the SFB

Probable causes of the decline in storage also include changes in land and water use in the SFB.

The Report of Referee (1962) was accepted as prima facie evidence in San Fernando. Data for the Report of Referee was obtained in the late 1950s and early 1960s, which was used to calculate the safe yield of the SFB.

At that time, a significant portion of the land in the San Fernando Valley was still being used for agricultural purposes, or had not yet been developed. Rainfall runoff and irrigation water had a much better opportunity to percolate and re-enter the groundwater basin compared to the present, when much of the land has subsequently been developed and covered by rooftops, sidewalks, streets, and other "hardscape".

In addition, at the time the Report of Referee was prepared sewers had not yet been installed in much of the San Fernando Valley, and overflow from cesspool/septic systems was a significant source of recharge to the basin aquifer. During the 1956-57 Water Year, the Report of Referee estimated that 16,750 acre-feet per year (AF/Y) re-entered the groundwater basin from septic systems located in the SFB west of Burbank (Appendix N, Table N-7, p. N-32). Nearly everywhere in the SFB septic systems have been replaced by sewers, with a resulting decrease in recharge from this source. This has had the beneficial effect of eliminating a significant source of nitrate contamination, but has also contributed to the decline in storage. We have observed a similar phenomenon in the Verdugo Basin.

Present-day land and water use have changed in the intervening 40-50 years since the Report of Referee was researched and written, but provisions in the Judgment require the basin to be managed as if those conditions still exist.

Reduced Artificial Recharge

Artificial recharge capacity has declined in the basin during the past 20-25 years. 'Artificial recharge' means collecting rainfall runoff or imported water and percolating it into the groundwater basin at spreading grounds designed for that purpose.

Headworks Spreading Grounds (Headworks) is located on the Los Angeles River near Griffith Park. Headworks was operated until the early 1980s, when volatile organic compound (VOC) contamination was discovered in the underlying groundwater, and treated sewage effluent began to be discharged from Tillman Treatment Plant into the Los Angeles River. Headworks has not been used as a spreading ground since approximately 1982.

In the late 1990s, methane gas was detected at a school adjacent to the Sheldon-Arleta Landfill (SAL) and Tujunga Spreading Grounds (TSG). When stormwater is spread heavily at TSG, it compresses the air within the underlying vadose zone. Some of this air moves laterally and displaces methane gas from the adjacent SAL. The methane migrates out of the SAL, and some of it surfaces in the nearby neighborhood. To control this methane migration, spreading at TSG has been restricted to less than 100 cubic feet per second (cfs), or about 40% of the historic spreading capacity of 250 cfs. When storms produce runoff in excess of 100 cfs in the adjacent Tujunga Wash, this extra water cannot be diverted into TSG and is instead wasted to the ocean.

In addition, during past wet years, the Los Angeles County Department of Public Works (LACDPW) has curtailed spreading at Hansen Spreading Grounds (HSG) to prevent rising groundwater from inundating trash in the nearby Bradley Landfill. Alert levels were established nearby monitoring wells to monitor groundwater levels near the landfill. During the exceptionally wet winter of 2004-05 these alert levels were reached and spreading at HSG was stopped for a while, resulting in additional runoff being wasted to the ocean.

As a result of the elimination of Headworks and reduced spreading at TSG and HSG, a significant amount of stormwater runoff cannot be recharged into the SFB and is wasted to the ocean, especially during above-average rainfall years.

Safe Yield and Native Safe Yield

Safe Yield is defined by the Judgment as "The maximum amount of water which can be extracted annually from a ground water basin under a given set of cultural conditions and extraction patterns, based on the long-term supply, without causing a continuing reduction of water in storage."

Safe yield in the SFB consists of two parts: the aforementioned import return credits, and the native safe yield consisting of "native water", which the Judgment defines as "Surface

and ground waters derived from precipitation within ULARA". The Judgment affirmed Los Angeles' exclusive Pueblo water right to all native groundwater in the SFB.

The safe yield and native safe yield of the basin were determined to be 90,680 AF/Y and 43,660 AF/Y, respectively, in 1964-65 (Judgment Section 4.2.4) but have not been re-evaluated since then.

Each year, the Judgment gives Los Angeles a native safe yield pumping credit of 43,660 AF/Y based on studies performed for the Report of Referee. In dry years, it is doubtful whether 43,660 AF actually recharge the SFB. In wet years the amount can be substantially larger. The long-term average native recharge is unknown. However, as previously mentioned, the hydrologic conditions that existed when the Report of Referee was written may no longer be present in the SFB today.

If the long-term native safe yield is lower than 43,660 AF/Y, it would contribute proportionally to the decline in storage we observe on Plate 13 (blue line) and an increase in stored water credits (Plate 13 red line) for which there is insufficient water in storage.

Basin Losses from Rising Groundwater and Underflow

Groundwater constantly flows out of the basin in two ways: via underflow in the Los Angeles River Narrows area, and through groundwater rising into the Los Angeles River channel that subsequently leaves the SFB as surface flow. (The City of Los Angeles recognized this, and constructed the Pollock Wells Treatment Plant to reduce the amount of excess rising groundwater leaving the basin by pumping and treating groundwater in the Narrows that is contaminated with VOCs.)

The average annual loss due to rising groundwater was approximately 3,442 AF/Y from 1979-2005. The average annual loss due to underflow through the Narrows area was approximately 400 AF/Y. The total average loss from the basin was therefore approximately 3,842 AF/Y from 1979-2005.

Although Judgment Section 8.2.9 requires the Watermaster to "...record and verify additions, extractions and losses..." there is no clear mechanism in the Judgment to debit the parties for groundwater that leaves the basin in ways other than through pumping. With the exception of minor losses debited from Los Angeles due to under-pumping at the Pollock Wells, losses due to rising groundwater and underflow have never been debited from the parties.

In summary, stored water credits accumulate indefinitely until they are pumped by the parties, but a portion of the actual groundwater is constantly leaving the SFB unaccounted through underflow and rising groundwater.

Hill and Mountain Pumping

Unauthorized pumping in the hill and mountain areas tributary to the SFB reduces the amount of underflow from these regions to the basin. The City of Los Angeles claims this native water as part of its Pueblo water right, and the Watermaster has begun a program to identify these pumpers, quantify their water use, and require them to enter a water license agreement with Los Angeles. Under the license agreement, licensees report their pumping to the Watermaster Office and pay Los Angeles for the amount pumped, and the Watermaster debits Los Angeles. There are unauthorized pumpers who do not have license agreements and who do not report their pumping to the Watermaster Office.

Dewatering

There are areas within the SFB that have a high water table. Projects within these areas sometimes pump groundwater to maintain dry excavations during construction. In addition, there are some dewatering operations that keep subterranean parking and other below-ground structures dry on a permanent basis. This water is typically discharged to the storm drain or sewer, and is thereby lost from the basin. The Watermaster has identified several permanent dewatering systems, and the owners of these properties report their pumping monthly to the Watermaster Office. However, our efforts to institute a reliable program to account for temporary construction dewatering within the basin have not been effective.

Conclusions

The Watermaster has historically calculated import return credits based on all delivered water. This is clearly inconsistent with the Supreme Court decision, and in the Watermaster's opinion is the single largest contributor to the imbalance between actual water in storage and the parties' stored water credits. The 1978 agreement among all three parties with respect to import return credits departed from the Supreme Court decision (Attachment 5) and, as applied under today's circumstances, is seemingly inconsistent with Section 5.2.1.1 of the Judgment.

Furthermore, import return credits of 20% may have been appropriate for hydrologic conditions in the late 1950s and early 1960s, but may now be too high considering the urbanization that has occurred in the San Fernando Valley during the last 40-50 years. However, Section 7.1 of the Judgment explicitly precludes the Watermaster, or even the Court, from modifying these formulas.

Although real water in storage has increased by 150,895 AF since safe yield operation was declared in 1968, stored water credits have accumulated to 410,033 AF since 1978. When stored water credits are subtracted from real storage (Plate 13 red line), the SFB is more than 914,000 AF below the 1928 level.

In other words, if the parties had pumped their full adjudicated rights, the basin would be more than 259,000 AF below the 1968 level at which safe yield operation was supposed to begin (Plate 13).

This clearly indicates that groundwater rights in the SFB are significantly "oversubscribed", and the basin is undergoing a long-term decline in storage that is effectively masked by the accumulation of stored water credits. An argument could be made that the basin re-entered a condition of overdraft in the late 1980s when the red line fell below the 1968 level.

The general downward trend of the change in real storage (Plate 13 blue line), beginning in the early 1980s and interrupted only temporarily during wet years, is also disturbing. Although we observed a significant rebound in basin storage in the 2004-05 Water Year due to above-normal rainfall and below-normal pumping by Los Angeles, similar occurrences in the past suggest that this effect will be temporary and short-lived.

The downward trend in real storage coincides with the cessation of spreading at Headworks Spreading Grounds in the early 1980s and has accelerated with a significant reduction of spreading capacity at Tujunga Spreading Grounds due to the migration of methane gas from the nearby Sheldon-Arleta Landfill. The decline in actual storage due to reduced basin recharge has been exacerbated because the parties have received pumping rights since their negotiated settlement in 1978 that the basin cannot support.

Recommendations

The Watermaster recommends that the safe yield of the SFB be re-evaluated. The 1979 San Fernando Judgment was based on a safe yield study conducted in 1964-65, more than 40 years ago. At that time, the SFB safe yield was calculated to be 90,680 AF/Y. However, basin hydrology can change significantly over time, and we do not know the existing safe yield of the SFB. If we are to resolve this problem and manage the basin properly in the future it is imperative that we re-evaluate the safe yield of the SFB, and continue to re-evaluate it periodically.

As a component of the safe yield, the native safe yield of 43,660 AF/Y may be too large, which would contribute to a continuing decline in stored water and exacerbate the imbalance between actual water in storage and stored water credits. A safe yield study, as recommended above, would determine whether the existing native safe yield is appropriate for current hydrologic conditions in the SFB.

The parties and the Watermaster could agree to allocate pumping rights consistent with the language and intent of the Supreme Court decision, namely, giving the parties import return credits only for the amount of *imported* water served to their customers.

Or, following a safe yield re-evaluation, the Watermaster could implement Judgment Section 8.2.10 to correct any imbalance in the basin by adjusting the native safe yield of the SFB. This solution would affect only Los Angeles' water rights, since it has the

exclusive right to the entire native safe yield of the SFB under its Pueblo right. However, it is the Watermaster's opinion that implementing Section 8.2.10 of the Judgment in this manner would fail to address the major hydrologic cause of the current imbalance, and that the parties would continue to be given rights to water that are inconsistent with the Supreme Court decision.

A hydrologic study should be performed in the Narrows area to determine the actual amount of water lost due to underflow and excess rising groundwater, and the Watermaster and the parties should consider ways to account for this lost water. To that end, in March 2007 the ULARA Administrative Committee requested the Watermaster to conduct a study to determine ways to improve the methodology for the calculation of losses from the basin due to rising groundwater and underflow. While it is not practical to stop all rising groundwater and underflow, keeping water levels low in the Narrows through diligent pumping and monitoring would minimize these losses. As a related matter, Los Angeles should operate the Pollock Wells Treatment Plant at least 2,000 AF/Y to reduce the amount of rising groundwater that leaves the basin.

Tujunga Spreading Grounds should be restored to its full capacity without delay. Additional spreading and/or storage facilities, such as Boulevard Pit, should be acquired whenever possible. They may not be needed during dry-to-normal rainfall years, but their additional capacity would be invaluable during years when runoff exceeds our ability to store it using existing infrastructure.

Modernizing and upgrading facilities and operations at the spreading grounds might result in increased basin recharge. The Watermaster, LADWP, and LACDPW have begun to explore these opportunities within the framework of the Basin Recharge Task Force.

The parties and Watermaster should take advantage of opportunities such as the upcoming Los Angeles River Revitalization Master Plan to build projects that enhance basin recharge.

Hill and mountain pumping should be fully accounted. It may not be politically feasible to restrict it, but it is probably a component, albeit a small one, of the decline in stored water in the basin.

Likewise, permanent and temporary construction dewatering should be fully accounted. The Watermaster and the cities of Los Angeles, Burbank, and Glendale should develop a program to more closely track water lost from the basin due to dewatering.

It is the duty of the Watermaster to inform the parties and the Court about issues affecting the groundwater basins in ULARA. We look forward to working closely with the parties to reverse the decline in storage and ensure the long-term reliability of the SFB.

APPENDIX G
INTERIM AGREEMENT FOR THE PRESERVATION OF THE SAN FERNANDO BASIN WATER SUPPLY, 2007

ORIGINAL

DEPT #52

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Attorneys for Plaintiff, CITY OF LOS ANGELES

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

THE CITY OF LOS ANGELES,

Plaintiff,

vs.

CITY OF SAN FERNANDO, et al.,

Defendants.

CASE NO. **C 650 079**

Assigned for All Purposes to the Honorable Susan Bryant-Deason

STIPULATION AND ~~[PROPOSED]~~ ORDER RE. INTERIM AGREEMENT FOR THE PRESERVATION OF THE SAN FERNANDO BASIN WATER SUPPLY

This Stipulation re. Interim Agreement for the Preservation of the San Fernando Basin Water Supply ("Stipulation") is entered into this 19th day of Sept., 2007, by and among the City of Los Angeles, the City of Glendale and the City of Burbank (individually, "Party," and collectively, the "Parties"), all of whom are parties to this action, with reference to the following facts:

WHEREAS, on September 20, 2007, the Parties have entered into the *Interim Agreement for the Preservation of the San Fernando Basin Water Supply* ("Agreement"), a true and correct copy of which is attached hereto as Exhibit A.

WHEREAS, the Agreement is consistent with the 1979 judgment entered by stipulation in this action ("Judgment").

NOW, THEREFORE, the Parties hereby stipulate as follows and respectfully request that the Court enter the proposed Order submitted herewith:

The Parties stipulate that they have entered into the Agreement, the terms of which are hereby adopted and incorporated by this reference as though fully set forth herein.

The Parties further stipulate that the terms of the Agreement shall be judicially enforceable.

The Parties further stipulate to, and request that, the Court enter an order the terms of which are the same as the Agreement.

IN WITNESS WHEREOF, this Stipulation is entered into as of the first date set forth above.

Dated: Sept. 20, 2007

HATCH & PARENT, A LAW CORPORATION

BY Ann Steinfeld FOR:
SCOTT S. SLATER
STEPHANIE OSLER HASTINGS
ATTORNEYS FOR DEFENDANTS, CITY OF BURBANK AND CITY OF GLENDALE

Dated: Sept 24, 2007

CITY OF BURBANK

By:
Carolyn A. Barnes

Dated: Sept. 24, 2007

CITY OF GLENDALE

By:
Christine A. Godinez

Dated: 24 Sept., 2007

CITY OF LOS ANGELES

ROCKARD J. DELGADILLO, City Attorney
RICHARD M. BROWN, General Counsel, Water and Power
JULIE CONBOY RILEY, Deputy City Attorney

By:
Julie Conboy Riley

INTERIM AGREEMENT
FOR THE PRESERVATION OF THE SAN FERNANDO BASIN WATER SUPPLY

This Interim Agreement for the Preservation of the San Fernando Basin Water Supply (Agreement) is entered into as of _____, 2007 between and among the City of Los Angeles acting by and through the Los Angeles Department of Water and Power (Los Angeles), the City of Glendale, a municipal corporation (Glendale) and the City of Burbank, a municipal corporation (Burbank) (each a Party and collectively, the Parties), with reference to the following facts and intentions, which the Parties agree are true and correct to the best of their knowledge and belief:

RECITALS

A. The Parties are parties to the 1979 judgment entered by stipulation in *City of Los Angeles v. City of San Fernando* (California Superior Court Case No. 650079) (the Judgment). Each Party holds rights in and to the San Fernando Basin (Basin), one of the several groundwater basins subject to the Judgment, as set forth in the Judgment. The Parties are also all of the voting members of the Administrative Committee of the Basin, which is authorized by Section 8.3 of the Judgment.

B. The Basin has been, and continues to be, operated in accordance with the terms and conditions of the Judgment. The Superior Court of the County of Los Angeles (Court) retains continuing jurisdiction over the Judgment and the parties to it.

C. On March 23, the Upper Los Angeles River Area Watermaster (Watermaster), which is authorized by Section 8 of the Judgment to assist the Court in its administration and enforcement of the provisions of the Judgment, filed a White Paper with the Court expressing two concerns that the Parties seek to redress by agreement: (i) a reduction in the stored water in the Basin; and (ii) the accumulation of Stored Water credits, as that term is defined in Section 5.2 of the Judgment, by the Parties in excess of the quantity of water available to be pumped by them.

D. The Parties wish to enter into this Agreement to promote a physical solution to the observed falling groundwater levels by promoting artificial replenishment of the Basin in a manner that ensures the viability of the Basin as a long-term reliable water supply. The Parties also wish to enter into this Agreement to provide interim guidelines on the Parties' exercise of their Stored Water credits so as to avoid harm to the Basin.

E. The Parties wish to coordinate their actions to circumvent unnecessary and potentially protracted litigation over the meaning and implementation of the Judgment.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals, which are incorporated into the operative provisions of this Agreement by this reference, and for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the **PARTIES HERETO AGREE** as follows:

1. **Purpose.** The purpose of this Agreement is to address two issues: (a) reduction in the stored groundwater in the Basin; and (b) the accumulation of Stored Water credits by the Parties in excess of the quantity of water available to be pumped by them. By entering into this Agreement, and by undertaking the actions described herein, the Parties seek to ensure that necessary long-term improvements are made to capture and recharge sufficient quantities of rainfall whenever available to correct declining water levels and to guard against any short-term deficiencies in Basin replenishment as might be associated with drought conditions. In the interim, while these Projects are being implemented, the Parties also agree that some guidelines must be established to avoid harm to the Basin and all Parties.

2. **Term.** The term of this Agreement shall be ten years and shall commence with the 2007-08 Water Year (beginning October 1, 2007). The 2007-08 Water Year shall be Year 1; the 200 8-09 Water Year shall be Year 2, and so on. At the conclusion of the term of this Agreement, on or about September 30, 2017, the Parties, in coordination with the Watermaster, will evaluate the effectiveness of this Agreement including, but not limited to, the status of the Projects, and determine whether this Agreement shall be extended.

3. **Enhancement of Recharge Capacity.** Los Angeles has previously expressed its support for several artificial recharge projects. The Parties acknowledge that if implemented as planned, these projects, individually and collectively, will augment replenishment of the Basin in a manner that arrests the observed decline in groundwater levels. The projects presently being pursued include, but are not limited to: the Sheldon-Arleta Project, the Big Tujunga Dam Seismic Restoration Project, the Hansen Spreading Grounds Project, and the Tujunga Spreading Grounds Project (collectively, the Projects).

3.1 By the conclusion of Year 10, Los Angeles, in collaboration with the Los Angeles County Department of Public Works (a separate public agency which is not a party to this Agreement), intends to support and contribute resources towards the design, construction and implementation of the Projects in a manner that increases the Basin's total artificial recharge capacity over conditions existing as of the date of this Agreement. By taking these actions, Los Angeles anticipates that the long-term average native replenishment of the Basin may be increased by at least 12,000 acre-feet per year. Although the exact quantity of additional recharge that will be derived from these Projects, when completed, is unknown and is dependent ultimately on the quantity and variability of precipitation, it is reasonable to assume the additional recharge of the Basin made possible by these Projects will be substantial. While Los Angeles may also elect to contribute funding towards these Projects, this Agreement does not obligate Los Angeles to fund any of the Projects either in part or in whole.

3.2 Mutual Cooperation. Burbank and Glendale agree to coordinate and cooperate with Los Angeles and the Los Angeles County Department of Public Works as may be necessary to increase the likelihood of timely implementation of the Projects.

3.3 Reporting. Within 60 days of the conclusion of each Water Year during the term of this Agreement, Los Angeles shall file a report with the Administrative Committee, the Watermaster and the Court documenting the status of the Projects, including but not limited to the extent by which the Projects have increased the Basin's total artificial recharge capacity.

4. Pumping Limitation. For the term of this Agreement, the Parties agree not to pump their pro-rata share of the total Stored Water credits held by the Parties collectively that, if pumped, would cause the total quantity of water in storage to fall below -655,370 acre-feet (the 1968 level). The quantity of water that the Parties otherwise could have pumped pursuant to their respective Stored Water credits shall be placed in a reserve, and not lost, until such time as there is sufficient water in storage to permit the pumping of those credits without causing the quantity of water in storage to fall below the 1968 level.

4.1 Calculation of Available Stored Water Credits and Reserved Stored Water Credits. The Parties authorize the Watermaster to calculate, annually, the quantity of Stored Water credits available to be pumped by each Party (Available Stored Water credits) and the quantity of Stored Water credits reserved for later use by each Party (Reserved Stored Water credits), as agreed upon herein.

(a) For purposes of making this calculation, the Watermaster shall: (1) compute each Party's Stored Water credits as of the first day of each Water Year for the term of this Agreement, including the one percent (1%) loss described in Section 5 below; (2) assign a percentage to each Party that reflects the relative proportion of each Party's Stored Water credits to the total quantity of credits available to all Parties; (3) determine the quantity of Stored Water available to be pumped by all Parties and calculate each Party's relative proportion of that total quantity; and (4) calculate the quantity of Stored Water Credits not available to be pumped in that Water Year and reserved for later use. For the 2006-07 Water Year (beginning October 1, 2006), which is not subject to this Agreement, the calculation would be as follows:

Party	Stored Water Credits (AF), Minus 1% Losses	Percentage of Total Quantity of Stored Water Credits for Each Party	Available Stored Water Credits (AF)	Reserved Stored Water Credits (AF)
Los Angeles	370,350	83.146%	139,018	231,334
Glendale	61,215	13.743%	22,978	38,236
Burbank	13,859	3.111%	5,202	8,656
Total	**445,424**	**100%**	**167,198**	**278,226**

4.2 Exception to Satisfy Consent Decree Obligations. Nothing herein shall be construed as causing Burbank or Glendale to pump less groundwater from the Basin than required by the United States Environmental Protection Agency's Consent Decrees for the Burbank Operable Unit [Civil Action 91-4527-MRP (Tx), dated 06-22-1998] and the Glendale North and South Operable Units [CV99-00552 MRP (ANx), dated 05-17-2000], respectively, all of which are incorporated by this reference as if fully set forth herein, and as may be modified or amended from time to time during the term of this Agreement (collectively, Consent Decrees). In the event that the pumping limitations set forth in Section 4 above are triggered by a decline in storage, Burbank and Glendale may pump Reserved Stored Water credits to meet their Consent Decree obligations subject to the following conditions:

(a) In the event Los Angeles is able to produce the full quantity of its Extraction Right to meet the water requirements of its inhabitants for the Water Year in which Glendale's or Burbank's Available Stored Water Credits are not sufficient to meet that Party's Consent Decree obligations, Glendale or Burbank shall be required to purchase Physical Solution water pursuant to Section 9.4 of the Judgment as necessary to meet their respective Consent Decree obligations. For purposes of this Agreement, "Extraction Right" shall mean the total quantity of Los Angeles' Return Water Extraction Right plus Native Safe Yield Credit, as set forth in Table 2-1 1A of the Watermaster's most recent annual report prepared pursuant to section 8.2.11 of the Judgment.

(b) In the event the conditions of paragraph 4.2(a) above are not satisfied, Los Angeles may elect to exchange water or stored water credits with the Party requiring additional water to meet its Consent Decree obligations upon such terms and conditions as the affected Parties may agree upon. In the event an agreement to exchange water or stored water credits sufficient to permit either Glendale or Burbank to satisfy their Consent Decree obligations cannot be reached, Glendale or Burbank may pump Reserved Stored Water credits as necessary to meet their Consent Decree obligations, subject to Paragraph 4.2(c) below.

(c) Any pumping by Glendale and Burbank of Reserved Stored Water credits pursuant to this exception shall not exceed a maximum combined total of 2,000 acre-feet per year over the term of this Agreement. Any pumping in excess of a combined total of 2,000 acre-feet per year over the term of this Agreement shall be pursuant to Section 9.4 of the Judgment.

4.3 Exception for Unforeseen Circumstances. Additionally, to the extent that any Party is required to pump water in excess of that Party's Available Stored Water credits and in reliance upon that Party's Reserved Stored Water credits, to meet presently unspecified federal or state regulatory obligations that may be established in the future or unforeseen material changes in the Parties' operations or Basin conditions, the affected Party(ies) shall coordinate with the Administrative Committee and the Watermaster to determine whether and to what extent additional quantities of groundwater may be extracted in a manner that does not cause harm to the Basin or any other Party.

5. **Account for Groundwater Losses.** The Parties acknowledge that Stored Water losses may occur from the Basin. The Parties further acknowledge that Section 8.2.9 of the Judgment requires the calculation of such losses from Stored Water. The Parties estimate that as much as one percent (1%) of all Stored Water is lost from the Basin annually.

5.1 For the term of this Agreement, or until such time as the Basin loss calculation is re-evaluated, the Parties authorize Watermaster to deduct one percent (1%) annually from each Parties' respective Stored Water credits account.

6. **Basin Safe Yield Study.** The Parties acknowledge that, from time to time, it may be appropriate to study information regarding the hydrology of the Basin, including the Basin's Safe Yield, as that term is defined in the Judgment.

6.1 Within six months of the date of execution of this Agreement, the Parties, in coordination and consultation with the Watermaster, will develop a proposal for conducting a study of the Basin's Safe Yield. The proposal will include each of the following elements: (1) timing for designing, conducting and implementing the study and each of its phases, (2) trigger(s) and parameters for implementing the study, or any part or phase, (3) procedures for managing and allocating costs and for authorizing expenditures during and throughout the study; (4) methods and manner for conducting the study; and (5) anticipated goals or outcomes of the study. Thereafter, the Parties will commence a study of the Basin's Safe Yield that is consistent with the proposal required by this Section, as may be agreed upon by the Parties.

6.2 In the event the Parties are unable to agree to a proposal for studying the Basin's Safe Yield within six months of the date of execution of this Agreement, the Parties, individually or collectively, shall lodge their respective proposals, if any, with the Court. The Court, upon at least 30 days notice thereof and after a hearing, shall make such further or supplemental orders as may be necessary or appropriate and consistent with the Judgment.

7. **Recalculation of Safe Yield.** Regardless of any information collected or reports made pursuant to Section 6 above, the Parties agree to forebear from exercising any and all rights they may have arising under or related to Section 8.2.10 of the Judgment for the term of this Agreement, except as may be necessary to respond to, support or oppose any Watermaster recommendation or action that may be inconsistent with this Agreement, the provisions herein, or any Party's respective rights, remedies and defenses arising under the Judgment or applicable law. After the expiration of this Agreement, the rights of any and all Parties arising under or related to Section 8.2.10 will not be prejudiced by the existence of this Agreement or their agreement to forebear pursuant to its terms.

8. **Annual Accounting by Watermaster.** Watermaster will collect, record and verify, or otherwise arrange for the collection, recordation and verification of, any and all data and information as may be required or generated by this Agreement and as may be otherwise directed by the Administrative Committee or the Court. Upon written request by any Party, all such data and information shall be made available to the Parties. The

Watermaster shall include such data and information in its annual Watermaster Report, prepared pursuant to Section 8.2.11 of the Judgment, a copy of which is filed with the Court.

9. Administrative Committee and Watermaster Authority. Watermaster and the Administrative Committee are not Parties to this Agreement. This Agreement is made among the Parties and nothing herein shall be construed as a limitation on the powers and responsibilities of the Administrative Committee or the Watermaster arising under the Judgment.

10. Reservation of All Rights. Subject to Section 7 above, neither this Agreement, nor any provision herein, shall be construed as a waiver or limitation on any Party's respective rights, remedies and defenses arising under the Judgment or applicable law including, but not limited to, the right to respond to, support or oppose further Watermaster recommendations.

11. Consistency with Judgment and Continuing Jurisdiction. The actions contemplated by this Agreement, if implemented, facilitate a physical solution and are intended as measures that arise under, are consistent with, and in furtherance of, the Judgment. Accordingly, this Agreement shall be subject to the Court's continuing jurisdiction as provided by Section 7 of the Judgment.

12. Further Actions. The Parties contemplate that additional opportunities may arise to further augment the available yield of the Basin during the term of this Agreement. Upon a request by any Party, the Watermaster or the Administrative Committee, the Parties will exercise good faith to fairly evaluate opportunities to exchange water, enhance recharge, evaluate a replenishment program and conserve water. Further, Burbank is actively pursuing an inter-connection with the Metropolitan Water District of Southern California to permit the delivery of replenishment water to Burbank for storage in the Basin. Burbank will file annual status reports with the Watermaster, the Administrative Committee and the Court in a manner similar to Los Angeles' reporting as provided in Section 3.3 above.

13. General Provisions.

13.1 Assignment. This Agreement shall not be assigned by any Party.

13.2 Attorneys' Fees. Should legal action be instituted by any Party to this Agreement, to enforce or interpret any provision of this Agreement, each Party shall bear its own attorneys' fees.

13.3 Authorizations. All individuals executing this Agreement on behalf of the respective Parties certify and warrant that they have the capacity and have been duly authorized to so execute this Agreement on behalf of the entity so indicated.

13.4 Construction. The provisions of this Agreement shall be liberally construed to effectuate its purposes. The language of this Agreement shall be construed

simply according to its plain meaning and shall not be construed for or against any Party, as each Party has participated in the drafting of this Agreement.

13.5 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

13.6 Entire Agreement and Amendment. In conjunction with the matters considered herein, this Agreement contains the entire understanding and agreement of the Parties and there have been no promises, representations, agreements, warranties or undertakings by any of the Parties, either oral or written, of any character or nature binding except as stated herein. This Agreement may be modified, altered or amended only by an instrument in writing, executed by the Parties to this Agreement and by no other means. Each Party waives its right to claim, contest or assert that this Agreement was modified, canceled, superseded or changed by any oral agreement, course of conduct, waiver or estoppel.

13.7 Good Faith. The Parties agree to exercise their reasonable best efforts and utmost good faith to effectuate all the terms and conditions of this Agreement and to execute such further instruments and documents as are necessary or appropriate to effectuate all of the terms and conditions of this Agreement.

13.8 Notices. All notices, approvals, acceptances, demands and other communication required or permitted under this Agreement, to be effective, shall be in writing and delivered in person or by U.S. Mails (prepaid postage, certified, return receipt requested) or by overnight delivery service to the Party to whom the notice is directed at the addresses identified below:

To Los Angeles:

Director of Water Resources
Los Angeles Department of Water and Power
111 N. Hope Street, Room 1460
Los Angeles, CA 90012

With copy to:

Julie Conboy Riley, Deputy City Attorney
Office of the City Attorney
City of Los Angeles
111 N. Hope Street, Room 340
Los Angeles, CA 90012

To Glendale:

Peter Kavoumas, Water Services Administrator
Glendale Water and Power
City of Glendale
141 North Glendale Ave., 4th Level
Glendale, CA 9 1206-4496

With copy to:

Christine Godinez, Assistant City Attorney
City of Glendale
613 East Broadway, Suite 220
Glendale, CA 91206-4394

To Burbank:

William Mace, Assistant General Manager
Burbank Water and Power
City of Burbank
164 West Magnolia Boulevard
P.O. Box 631
Burbank, CA 91503-063 1

With copy to:

Carolyn Barnes, Senior Assistant City Attorney
City of Burbank
275 East Olive Avenue
Burbank, CA 91510-6459

To the Watermaster:

Mark Mackowski
Upper Los Angeles River Area Watermaster
111 N. Hope Street, Room 1450
Los Angeles, CA 90012

To the Court:

The Honorable Susan Bryant-Deason
Judge of the Los Angeles County Superior Court
111 N. Hill Street, Dept. 52
Los Angeles, CA 90012

Any written communication given by mail shall be deemed delivered two (2) business days after such mailing date. Any communication given by overnight delivery service

shall be deemed delivered one (1) business day after the dispatch date. Either Party may change its address by giving the other Party written notice of its new address as provided above.

13.9 Recitals. The recitals set forth at the beginning of this Agreement of any matters or facts shall be conclusive proof of the truthfulness thereof and the terms and conditions set forth therein shall be deemed a part of this Agreement.

13.10 Successors and Assigns. This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors.

13.11 Court Approval. The Parties hereto shall seek Court approval of this Agreement prior to September 30, 2007.

14. Waiver. No waiver of any provision or consent to any action shall constitute a waiver of any other provision or consent to any other action, whether or not similar. No waiver or consent shall constitute a continuing waiver or consent or commit a Party to provide a waiver or consent in the future except to the extent specifically stated in writing. No waiver shall be binding unless executed in writing by the Party making the waiver, based on a full and complete disclosure of all material facts relevant to the waiver requested.

[continued on next page]

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement.

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES BY
BOARD OF WATER AND POWER COMMISSIONERS
OF THE CITY OF LOS ANGELES

Date: 9/19/07 By: _____
ROBERT K. ROZANSKI
Acting General Manager

And: Barbara E. Moseley
Secretary

AUTHORIZED BY RES. 008 046
SEP 04 2007

APPROVED AS TO FORM AND LEGALITY
ROCKARD J. DELGADILLO, CITY ATTORNEY

AUG 22 2007
BY _____
JULIE CONBOY RILEY
Deputy City Attorney

CITY OF GLENDALE

Date: 9/13/07

James E. Starbird, City Manager

Approved as to Form:

By _____
City Attorney

CITY OF BURBANK

Date: 9/13/07

Ronald E. Davis, General Manager,
Burbank Water and Power

Attest:

By
Margarita Campos, City Clerk

Approved as to Form:

By
Carolyn Barnes, Senior Assistant City Attorney

SB 440012 v1:011538.0001

ORDER

Having read and reviewed the foregoing stipulation, **IT IS HEREBY ORDERED** that the terms of the *Interim Agreement for the Preservation of the San Fernando Basin Water Supply*, dated September 20, 2007 ("Agreement"), which is entered into by and between the City of Los Angeles, the City of Glendale and the City of Burbank, all of whom are parties to this action, a copy of which is attached hereto and incorporated herein by this reference, shall be the Order of the Court. The Parties are hereby ordered to comply with the terms of the Agreement.

DATED: October 2, 2007 Judge Susan Bryant-Deason
JUDGE OF THE SUPERIOR COURT

PROOF OF SERVICE

I am employed in the County of Los Angeles; I am over the age of eighteen years and am not a party to the within entitled action; my business address is 111 North Hope Street, Suite 340, Los Angeles, California 90012-2694. On September 25, 2007, I served the within documents:

STIPULATION AND [PROPOSED] ORDER RE. INTERIM AGREEMENT FOR THE PRESERVATION OF THE SAN FERNANDO BASIN WATER SUPPLY

[ ] by transmitting via facsimile the document(s) listed above to the fax number(s) set forth below on this date.

[X] by placing the document(s) listed above in a sealed envelope with postage thereon fully prepaid, in the United States mail at Los Angeles, California addressed as set forth below.

[ ] by personally delivering the document(s) listed above to the person(s) at the address(es) set forth below.

PLEASE SEE THE ATTACHED LIST.

I am readily familiar with the firm's practice of collection and processing correspondence for mailing. Under that practice it would be deposited with the U.S. Postal Service on that same day with postage thereon fully prepaid in the ordinary course of business.

I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on September 25, 2007, at Los Angeles, California.

Lillian M. Catena

Lillian M. Catena

THE CITY OF LOS ANGELES v. CITY OF SAN FERNANDO, ET AL.
LASC CASE NO. C 650 079

SERVICE LIST

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CITY OF BURBANK DENNIS BARLOW, City Attorney CAROLYN BARNES, Senior Assist. City Attorney 275 East Olive Avenue Burbank, California 91510-6459 Telephone: (818) 238-5700 Facsimile: (818) 238-5724	Attorneys for Defendants CITY OF BURBANK and CITY OF GLENDALE
Julie Conboy Riley Deputy City Attorney Office of the City Attorney Department of Water and Power P. O. Box 5111 - Room 340 (Mailing) 111 N. Hope Street, Room 340 Los Angeles, CA 90051-0100	Attorneys for Plaintiff, THE CITY OF LOS ANGELES, acting by and through the DEPARTMENT OF WATER AND POWER
Kisag Moordigian 15224 El Caseo Street Sylmar, California 91342 MHC Santiago Estates LP (Successor-In-Interest to Meurer Engineering, Inc.) 2 N. Riverside Plaza, Ste. 800 Chicago, IL 60606	MHC Santiago Estates LP (Successor-In-Interest to Meurer Engineering, Inc.) 13691 Gavina Avenue Sylmar, CA 91342-2655 Thomas Bunn, Special Counsel Lagerlof, Senecal, Swift & Bradley 301 North Lake Avenue - 10th Floor Pasadena, CA 91101 Tel. (626) 793-9400

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

THE CITY OF LOS ANGELES, Plaintiff, v. CITY OF SAN FERNANDO, et al., Defendants.	Case No. C650 079 **WATERMASTER STATEMENT RE: INTERIM AGREEMENT FOR THE PRESERVATION OF THE SAN FERNANDO BASIN WATER SUPPLY** Before the Hon. Susan Bryant-Deason

The court-appointed Watermaster hereby submits the following statement regarding the Stipulation and [Proposed] Order re: Interim Agreement for the Preservation of the San Fernando Basin Water Supply, submitted by the Cities of Los Angeles, Glendale and Burbank ("Agreement").

The Watermaster supports this Court's approval of the Agreement. The Watermaster appreciates the efforts on the part of the Cities of Los Angeles, Glendale and Burbank to reach a negotiated solution to the complex issues affecting the declining stored groundwater levels in the San Fernando Basin. The Watermaster believes the Agreement

represents significant progress in addressing the issues set forth in the Watermaster White Paper lodged with this Court on March 23, 2007. The Agreement contains many elements that will help restore the long-term sustainability of the Basin, and the Agreement expressly provides for the preservation of all Watermaster authority under the Judgment.[1]

While the Watermaster supports approval of the Agreement, and while the Watermaster is hopeful that the Agreement will facilitate improved storage levels in the Basin, the Watermaster is obligated to raise several issues that may materialize in the future.

First, the Watermaster believes that a Basin Safe Yield Study is a critical component of understanding the true and correct hydrologic conditions in the Basin. It has been over 40 years since a Basin Safe Yield Study has been performed. Section 6 of the Agreement provides that the Parties will develop a proposal for a Basin Safe Yield Study. This paragraph further provides that if the Parties do not come to an agreement on a single proposal, then the Parties will submit their separate proposals to this Court. The Agreement therefore has the potential to delay the Basin Safe Yield Study. The Watermaster agrees that a six month period is ample time for the Parties to agree upon the proposal for the Basin Safe Yield Study. Indeed, the Parties should endeavor to commence the study prior to the time allocated by the Agreement. In any case, the Safe Yield Study should begin no later than the completion of the six month study period.

Second, the Watermaster believes that actual losses must be calculated, not merely estimated. Section 5.1 of the Agreement provides that for the 10-year term of the Agreement, the Parties authorize Watermaster to deduct one-percent annually from each Party's respective Stored Water Credit, or until such time as the Basin loss calculation is re-evaluated. The Watermaster believes the one-percent estimate is reasonable on an interim basis. However, Section 8.2.9 of the Judgment requires that Watermaster shall calculate and

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[1] Paragraph 9 of the Agreement provides: "Watermaster and the Administrative Committee are not Parties to this Agreement. This Agreement is made among the Parties and nothing herein shall be construed as a limitation on the powers and responsibilities of the Administrative Committee or the Watermaster arising under the Judgment."

account for stored water losses.[2] It is therefore imperative that Watermaster calculate the true and correct Basin losses from rising groundwater and underflow. Upon obtaining the necessary data to accurately perform that calculation, Watermaster believes it is necessary and appropriate to deduct actual losses, not estimated losses, from the Parties' Stored Water Credits. Therefore, the Watermaster will recommend that the calculation for determining Basin losses be re-evaluated as part of the Basin Safe Yield Study, and implemented upon completion of the Study.

Third, Section 4.2.6.1 of the Judgment states that the San Fernando Basin "...remained in overdraft continuously until 1968, when an injunction became effective. Thereafter, the basin was placed on safe yield operation." The Parties anticipate that the actions required of them under the Agreement will forestall the Basin's decline and prevent groundwater levels from slipping below the 1968 benchmark. However, if progress does not materialize as anticipated and groundwater levels fall below the 1968 level, the Watermaster may be obligated to declare overdraft and consider further options consistent with the Judgment to protect the Basin.

The Watermaster is hopeful that the Parties will reach consensus on the implementation of a Basin Safe Yield Study, the calculation of losses, and conjunctive use projects to replenish the Basin. In that regard, the Watermaster hopes that the reservations expressed herein will not need to be addressed by this Court. Nonetheless, in light of the Agreement's dependence on additional action by the Parties over the next 10 years, and in particular the next six months, the Watermaster is obligated to inform this Court of the aforementioned issues.

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[2] Section 8.2.9, in relevant part, provides: "Watermaster shall record and verify additions, extractions and losses and maintain an annual and cumulative account of all (a) stored water and (b) import return water in San Fernando Basin."

The Watermaster expresses its appreciation to the Parties and this Court for their attention in developing solutions to enhance the long-term sustainability of the San Fernando Basin.

DATED: September 25, 2007

NOSSAMAN, GUTHNER, KNOX & ELLIOTT, LLP
Frederic A. Fudacz
Alfred E. Smith

By: _____
Alfred E. Smith
Attorneys for Upper Los Angeles River Area Watermaster

PROOF OF SERVICE

The undersigned declares:

I am employed in the County of Los Angeles, State of California. I am over the age of 18 and am not a party to the within action; my business address is c/o Nossaman, Guthner, Knox & Elliott, LLP, 445 S. Figueroa Street, 31st Floor Los Angeles, California 90071-1602.

On September 25, 2007, I served the foregoing **WATERMASTER STATEMENT RE: INTERIM AGREEMENT FOR THE PRESERVATION OF THE SAN FERNANDO BASIN WATER SUPPLY** on parties to the within action by placing ( ) the original (x) a true copy thereof enclosed in a sealed envelope, addressed as shown on the attached service list.

(X) (By U.S. Mail) On the same date, at my said place of business, said correspondence was sealed and placed for collection and mailing following the usual business practice of my said employer. I am readily familiar with my said employer's business practice for collection and processing of correspondence for mailing with the United States Postal Service, and, pursuant to that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid, on the same date at Los Angeles, California.

( ) (By Facsimile) I served a true and correct copy by facsimile pursuant to C.C.P. 1013(e), to the number(s) listed on the attached sheet. Said transmission was reported complete and without error. A transmission report was properly issued by the transmitting facsimile machine, which report states the time and date of sending and the telephone number of the sending facsimile machine. A copy of that transmission report is attached hereto.

( ) (By Overnight Service) I served a true and correct copy by overnight delivery service for delivery on the next business day. Each copy was enclosed in an envelope or package designated by the express service carrier; deposited in a facility regularly maintained by the express service carrier or delivered to a courier or driver authorized to receive documents on its behalf; with delivery fees paid or provided for; addressed as shown on the accompanying service list.

Executed on September 25, 2007.

(X) (STATE) I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

( ) (FEDERAL) I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Charlyn Jones

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APPENDIX H
WELLS DRILLED, REACTIVATED, ABANDONED, OR DESTORYED

WELLS DRILLED, REACTIVATED, ABANDONED, OR DESTROYED

2007-08 WATER YEAR

No municipal wells were drilled, reactivated, abandoned, or destroyed.

APPENDIX I
PRELIMINARY LIST of ACTION ITEMS
2008-09 WATER YEAR

PRELIMINARY LIST of ACTION ITEMS

WATERMASTER ACTIVITIES FOR THE FORTHCOMING 2008-09 WATER YEAR

- Continue to support ways to maximize the spreading of native water and increase the infiltration of urban runoff in the SFB.

- Continue to support ways to maximize spreading at various spreading grounds.

- Continue to work with the U.S. Forest Service, U.S. Fish and Wildlife Service, LACDPW, and LADWP to plan for the expected operation of the rehabilitated Big Tujunga Dam, which will improve flood protection, stormwater conservation, and basin revitalization.

- Continue to support the City of Burbank in its effort to purchase imported supplies from MWD for spreading and recharging in the SFB.

- Participate in the IRWMP process to increase the amount of grant support for water projects in the Greater Los Angeles Region and promote projects that increase basin recharge.

- Continue to work with the Cities and regulatory agencies, such as the USEPA and RWQCB, to enforce chromium cleanup in the SFB.

- Begin to incorporate more information and figures into the Annual Report on the Verdugo Sylmar and Eagle Rock basins.

- Revisit the City of Glendale's request for a SFB Stored Water Credit adjustment for the over-reporting by 3,052 AF of groundwater extraction at the Grayson Power Plant.

- Continue to assist City of Glendale and CVWD to resolve the prior year over-pumping by CVWD from the Verdugo Basin.

- Continue to attend meetings of public interest groups, such as the Los Angeles and San Gabriel Rivers Watershed Council, the Sun Valley Watershed Committee, and others to support and promote the goals of the parties and the overall health of the basins within ULARA.

- Continue to investigate the unauthorized use of groundwater in unincorporated areas of ULARA and to expedite water license agreements and well drilling permitting processes.

- Support the parties in their efforts to deal with increasingly stringent stormwater discharge requirements.

- Continue to keep the parties informed regarding current and emerging water quality issues, such as chromium, perchlorate, 1,4-Dioxane, and 1,2,3 TCP.

- Continue to attend meetings of technical groups, such as the Association of Groundwater Agencies (AGWA), Groundwater Resources Association (GRA), and others to exchange ideas and information regarding water quality and basin management.

APPENDIX J
WATER EQUIVALENTS

WATER EQUIVALENTS

Volume

1 gallon* ……	= 3.7854 liters (L)	= 231** cubic inches (in^3)
……	= 0.003785 cubic meters (m^3)	= 0.132475 cubic feet (ft^3)
100 cubic feet (HCF)**** ……....	= 748 gallons (gal)	= 2.83317 cubic meters (m^3)
……....	= 2,832 liters (L)	= 3.70386 cubic yards (yd^3)
……....	= 6,230.8 pounds of water (lb)	= 2,826.24 kilograms (kg)
1 acre-foot (AF)*** ……..	= 43,560** cubic feet (ft^3)	= 1233.5 cubic meters (m^3)
……..	= 325,851 gallons (gal)	= 1,233,476.3754 liters (L)
……..	= the average amount of water used by two families for one year.	

Flow

1 cubic foot per second (cfs) …	= 448.83 gallons per minute (gpm)	= 0.028317 cubic meters/sec (m^3/s)
…	= 646,317 gallons per day (gal/day)	= 1.70 cubic meters/min
…	= 1.98 AF/day	= 2446.6 cubic meters/day
1,000 gallons per Minute(gpm) …	= 2.23 cubic feet per second (cfs)	= 0.063 cubic meters/sec (m^3/s)
...	= 4.42 AF/day	= 5452.6 cubic meters/day
...	= 11,613.01 AF/year	= 1.99 million cubic meters/yr
1 million gallons per day (mgd) …	= 3.07 AF/day	= 3785 cubic meters/day
...	1,120.14 AF/year	= 1.38 million cubic meters/yr

Concentration

…	= 1.0 milligram per liter (mg/L)	= 1.0 part per million (ppm)
…	= 1.0 microgram per liter (μg/L)	= 1.0 part per billion (ppb)

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* U.S. gallons
** Exact Value
*** An acre foot covers one acre of land one foot deep
**** This is a standard billing unit of LADWP

APPENDIX K
LIST OF ABBREVATIONS

LIST OF ABBREVIATIONS

AF	Acre-feet
BOU	Burbank Operable Unit
BTEX	Benzene, tolulene,ethylbenzene,and total xylene
CVWD	Crescenta Valley Water District
Cal-EPA	California Environmental Protection Agency
DCA	Dichloroethane
DCE	Dichloroethylene
DHS	California Department of Health Services
DTSC	California Department of Toxic Substances Control
DWP	Department of Water and Power (see also LADWP)
EPA	Environmental Protection Agency (see also USEPA)
EVWRP	East Valley Water Recycling Project
LAFD	Los Angeles Fire Department
GAC	Granular Activated Carbon
gpm	Gallons Per Minute
LACDPW	Los Angeles County Department of Public Works
LADWP	Los Angeles Department of Water and Power
MCL	Maximum Contaminant Level
mg/L	Milligrams per Liter
MTA	Metropolitan Transportation Authority
MWD	Metropolitan Water District
NHOU	North Hollywood Operable Unit
OEHHA	Office of Environmental Health Hazard Assessment
OU	Operable Unit
PCE	Tetrachloroethylene
PHG	Public Health Goal
PPB	Parts Per Billion
PPM	Parts Per Million
PSDS	Private Sewage Disposal Systems
RAW	Removal Action Workplan
RI	Remedial Investigation
RWQCB	Regional Water Quality Control Board
SFB	San Fernando Basin
SUSMP	Standard Urban Stormwater Mitigation Plan
SWCRB	State Water Resouces Control Board
SWAT	Solid Waste Assessment Test
TCA	1,1,1- Trichloroethane
TCE	Trichloroethylene
TDS	Total Dissolved Solids
TSG	Tujunga Spreading Grounds
ug/L	Micrograms per Liter
ULARA	Upper Los Angeles River Area
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VPWTP	Glendale-Verdugo Park Water Treatment Plant
USGS	United States Geological Survey

APPENDIX L
CALCULATION OF COST SHARING PERCENTAGES FOR PAYMENT OF ULARA WATERMASTER SERVICES

CALCULATION OF COST SHARING PERCENTAGES
FOR PAYMENT OF ULARA WATERMASTER SERVICES

ULARA Pumping (2005-06)

Party	Basin	Acre-feet	%	Total %
Los Angeles	San Fernando	38,041.63	57.39%	60.67%
	Sylmar	2,174.66	3.28%	
Glendale	San Fernando	7,373.53	11.12%	14.73%
	Verdugo	2,389.79	3.61%	
Burbank	San Fernando	10,108.11	15.25%	15.25%
San Fernando	Sylmar	2,856.96	4.31%	4.31%
Crescenta Valley	Verdugo	3,342.71	5.04%	5.04%
Total		**66,287.39**	**100.00%**	**100.00%**

ULARA Pumping (2006-07)

Party	Basin	Acre-feet	%	Total %
Los Angeles	San Fernando	76,250.79	71.71%	75.40%
	Sylmar	3,919.40	3.69%	
Glendale	San Fernando	7,621.89	7.17%	9.58%
	Verdugo	2,567.97	2.42%	
Burbank	San Fernando	9,780.32	9.20%	9.20%
San Fernando	Sylmar	2,894.09	2.72%	2.72%
Crescenta Valley	Verdugo	3,294.25	3.10%	3.10%
Total		**106,328.71**	**100.00%**	**100.00%**

ULARA Pumping (2007-08)

Party	Basin	Acre-feet	%	Total %
Los Angeles	San Fernando	50,009.01	65.07%	68.96%
	Sylmar	2,997.34	3.90%	
Glendale	San Fernando	7,411.05	9.64%	13.14%
	Verdugo	2,687.00	3.50%	
Burbank	San Fernando	6,816.14	8.87%	8.87%
San Fernando	Sylmar	3,669.60	4.77%	4.77%
Crescenta Valley	Verdugo	3,269.89	4.25%	4.25%
Total		**76,860.03**	**100.00%**	**100.00%**

ULARA Pumping (2006-08 Rolling Average)

Party	Basin	Acre-feet	%	Total %
Los Angeles	San Fernando	54,767.14	65.86%	69.50%
	Sylmar	3,030.47	3.64%	
Glendale	San Fernando	7,468.82	8.98%	12.05%
	Verdugo	2,548.25	3.06%	
Burbank	San Fernando	8,901.52	10.70%	10.70%
San Fernando	Sylmar	3,140.22	3.78%	3.78%
Crescenta Valley	Verdugo	3,302.28	3.97%	3.97%
Total		**83,158.71**	**100.00%**	**100.00%**

02/04/09