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

2003-04 WATER YEAR

OCTOBER 1, 2003 – SEPTEMBER 30, 2004

MAY 2005

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MAY 2005

FOREWARD

I am pleased to submit this annual Watermaster Report for the 2003-2004 Water Year in accordance with the provisions of the Final Judgment signed by the Los Angeles Superior Court on January 26, 1979.

This report describes the water rights in each basin, and indicates the water in storage to the credit of each party as of October 1, 2004. In addition, this report includes background information on the history of the San Fernando Case; information regarding each basin in ULARA with respect to water supply, groundwater extractions, groundwater levels, quantities of imported water use, recharge operations, and water quality conditions; and other pertinent information occurring during the 2003-04 Water Year.

Updates on the development of "Significant Events" through April 2005 are discussed in Section 1.5. These include chromium and other emerging contaminants in the San Fernando Basin, and the challenges and opportunities presented by urban runoff.

One of our most serious future challenges continues to be the long-term decline in water levels in the Verdugo and San Fernando Basins. We must take steps to reverse this trend. A study is currently underway in the Verdugo Basin to determine the cause(s) of the decline and to recommend remedial actions. As a related matter, it is important that we manage the available storage space in these basins to achieve maximum reliability for the benefit of the ratepayers and the public.

To provide groundwater management for the ULARA basins, the Watermaster and Administrative Committee met on a quarterly basis during 2003-2004. As provided in Section 5.4 of the ULARA Policies and Procedures, the tenth ULARA Groundwater Pumping and Spreading Plan was completed and filed with the Court in July 2004.

We thank Mr. Mike Sovich for his service to the Crescenta Valley Water District and wish him well in his future endeavors, and we welcome Mr. Dennis Erdman to the Administrative Committee. We also thank Mr. Fred Lantz for his service to the City of Burbank on the Administrative Committee and wish him well during his retirement, and we welcome Mr. Bill Mace as the new representative for Burbank. Mr. Edwin Galvez, Administrative Committee member representing the City of San Fernando, has also moved on to other challenges and we wish him success.

I thank the Court and the Administrative Committee for their continued confidence and support. I also wish to acknowledge and express appreciation to all the parties who have provided information and data that were essential to the completion of this report.

MARK G. MACKOWSKI
ULARA Watermaster

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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 (Plates 1 and 5). ULARA encompasses 328,500 acres, composed of 122,800 acres of valley fill, referred to as the groundwater basins, and 205,700 acres of tributary hills and mountains. 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 it from the San Gabriel 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.

ULARA has four distinct groundwater basins. The water supplies of these basins are separate and are replenished by deep percolation from rainfall, surface runoff and from a portion of the water that is delivered for use within these basins. The four groundwater basins in ULARA are the San Fernando, Sylmar, Verdugo, and Eagle Rock Basins.

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. 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. 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 bedrock of 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. 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 Basin; on the southeast by the San Rafael Hills; and on the south and southwest by the Verdugo Mountains.

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

The water rights in ULARA were established by the JUDGMENT AFTER TRIAL BY COURT in 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 pretrial conferences were held subsequent to the filing of the action by the City of Los Angeles in 1955 and 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. 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)" on June 11, 1958.

A final Report of Referee was approved on July 27, 1962 and filed with the Court. The Report of Referee made a complete study of the geology, insofar as it affects the occurrence and movement of groundwater and the surface and groundwater hydrology of the area. In addition, investigations were made of the history of channels of the Los Angeles River and its tributaries; the areas, limits, and directions of flow of all groundwater within the area; the historic extractions of groundwater in the basin and their quality; and all sources of water, whether they be diverted, extracted, imported, etc. The Report of Referee served as the principal basis for geological 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, which held a hearing on November 9, 1972, and issued its opinion on November 22, 1972. The opinion, prepared by Judge Compton and concurred in by Judges Roth and Fleming, reversed, with direction, the original judgment handed down by Judge Moor. In essence, the City of Los Angeles was given rights to all water in ULARA, including the use of the underground basins with some limited entitlements to others. The defendants, however, were given the right to capture "return water", which is water purchased from the Metropolitan Water District of Southern California (MWD) that percolates into the basin.

A petition for rehearing was filed on December 7, 1972, but 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. The hearing began on January 14, 1975.

On May 12, 1975, the California Supreme Court filed its opinion on the 20-year San Fernando Valley water 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 within ULARA. The City of Los Angeles' Pueblo Water Rights were not allowed to extend to the groundwaters of the Sylmar and Verdugo Basins. However, all surface and groundwater underflows from these basins are a part of the Pueblo Waters.

The City of Los Angeles was also given rights to all SFB groundwater derived from water imported by it from outside ULARA and either 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. San Fernando was not a member of MWD until the end of 1971, and had never prior thereto imported any water from outside ULARA. San Fernando has no return flow rights based on a stipulation between Los Angeles and San Fernando in the March 22, 1984 amendment to the Final Judgment.

The Supreme Court reversed the principal judgment of the Trial Court 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 the Honorable Harry L. Hupp, was entered on January 26, 1979. (Copies of the Judgment are available from the ULARA Watermaster Office.) The water rights set forth in the Judgment are consistent with the opinion of the Supreme Court described above. In addition, the Judgment includes provisions and stipulations regarding water rights, the calculation of imported return water credit, storage of water, stored water credit, 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 Melvin L. Blevins as Watermaster under the Judgment in this case. On September 1, 2003 Mark G. Mackowski was appointed Watermaster by the Superior Court, succeeding Mr. Blevins after 24 years of service as Watermaster.

On August 26, 1983, the Watermaster 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. On March 22, 1984, Judge Harry L. Hupp signed a stipulation ordering, effective October 1, 1984, that the Cities of Los Angeles and San Fernando would be limited in their pumping to bring the total pumping within the safe yield of the basin, including any rights exercised by private parties.

The following table lists the judges who have succeeded Judge Hupp as Judge of Record for the San Fernando Judgment.

TABLE 1-1: JUDGES OF RECORD

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

1.3 Extraction Rights

The extraction rights under the Judgment and Sylmar Basin Stipulation are as follows:

San Fernando Basin

Native Water

Los Angeles has an exclusive right to extract and utilize all the native safe yield water that has been determined to be 43,660 acre-feet per year (AF/Y). This represents Los Angeles' Pueblo Water Right under the Judgment.

Import Return Water

Los Angeles, Glendale, and Burbank each have a right to extract the following amounts of groundwater from the San Fernando Basin.

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

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

Glendale: 20.0 percent of all delivered water, including reclaimed water, to the SFB and 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 lists the parties and their maximum physical solution quantities.

TABLE 1-2: PHYSICAL SOLUTION PARTIES

Chargeable Party	Pumping Party	Allowable Pumping (acre-feet)
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
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

Los Angeles, Glendale, and Burbank each have a right to store groundwater and the right to extract equivalent amounts.

Sylmar Basin

Native Water

As of March 22, 1984, Los Angeles and San Fernando were assigned equal rights to the safe yield of the basin. The Administrative Committee on July 16, 1996 approved increasing the safe yield in the Sylmar Basin by 300 AF to 6,510 AF/Y based on the evalution and recommendation of the Watermaster. 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. Santiago Estates' pumping is deducted from the safe yield and the two cities divide the remainder. Santiago Estates has not pumped since the 1998-99 Water Year.

Stored Water

Los Angeles and San Fernando each have a right to store groundwater by in-lieu practices and the right to extract equivalent amounts.

Verdugo Basin

Native Water

Glendale and the Crescenta Valley Water District (CVWD) have appropriative and prescriptive rights to extract 3,856 and 3,294 AF/Y, respectively. In past years CVWD has requested and been given approval by the Watermaster and Administrative Committee to pump an adjusted amount above its water right. Glendale has never pumped its entire adjudicated right. Due to a declining water table CVWD was unable to pump its adjudication during the 2003-04 Water Year. This past year CVWD, using A.B. 303 grant money from the California Department of Water Resources (DWR), hired a consultant to prepare a groundwater storage and conjunctive use feasibility study of the Verdugo Basin. A final report will be delivered to DWR by May 2005.

Eagle Rock Basin

Native Water

The Eagle Rock Basin has a small native safe yield.

Imported Return Water

Los Angeles delivers imported water to lands overlying the basin, and return flow from this delivered water constitutes the majority of the safe yield of the basin. Los Angeles has the right to extract or allow to be extracted the safe yield of the basin.

Physical Solution Water

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

1.4 Watermaster Service and Administrative Committee

In preparing the annual Watermaster Report, the Watermaster collected and reported all information affecting and relating to the water supply, water use and disposal, groundwater levels, water quality, and ownership and location of new wells within ULARA. Groundwater pumpers report their extractions monthly to the Watermaster. This makes it possible to update the Watermaster Water Production Accounts on a monthly basis and determine the allowable pumping for the remainder of the year.

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, 2005, are:

BURBANK, CITY OF
Bill Mace (Vice-President)
Bassil Nahhas (Alternate)

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

SAN FERNANDO, CITY OF
David Lawrence

LOS ANGELES, CITY OF
Thomas Erb
Mario Acevedo (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 Committee is responsible for reviewing and approving with the Watermaster the proposed annual report. The Committee met in October, January, April, June and September of the 2003-04 Water Year. The Committee approved the 2003-04 Watermaster Report on April 21, 2005.

1.5 Significant Events through April 2005

Burbank Operable Unit (BOU)

The BOU, operated by Burbank under a contract with United Water, Inc., and funded by Lockheed-Martin, removes volatile organic compounds (VOCs) from elevated nitrate groundwater and then blends it with water from MWD for delivery to the City of Burbank.

The City of Burbank, in cooperation with Lockheed-Martin, made design and operational changes in an attempt to bring the facility up to the design capacity of 9,000 gallons per minute (gpm), or 14,000 AF annually. During the 2003-04 Water Year 9,660 AF of groundwater were treated at the facility. Burbank is reducing the levels of chromium in its groundwater supply by blending with imported supplies from MWD before delivery to the City of Burbank.

Burbank has recently hired Montgomery Watson Harza (MWH) to perform an evaluation of the well field and appurtenant facilities in an effort to bring production up to 9,000 gpm. The Well Field Performance Attainment Study is scheduled to be completed in approximately June 2005.

Glendale Operable Unit (GOU)

The GOU removes VOCs and has the capability of treating up to 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 7,282 AF during the 2003-04 Water Year.

The USEPA has accepted Glendale's interim pumping plan in an effort to control chromium levels in the blended plant effluent. The plan varies from the original Consent Decree pumping pattern, and calls for reduced pumping from higher chromium wells and increased pumping from wells lower in chromium.

Glendale, in cooperation with the cities of Los Angeles, Burbank, San Fernando, and the American Water Works Association Research Foundation (AWWARF) is continuing to perform studies for the large-scale removal of chromium from drinking water. McGuire Environmental Consultants has identified three promising chromium removal technologies: weak base anion exchange, strong base anion exchange, and reduction-coagulation-filtration. Unit costs of these technologies are currently being evaluated, and wellhead demonstration-scale testing will be initiated when funding is secured.

North Hollywood Operable Unit (NHOU)

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. Enough funds remain to continue operation and maintenance of the NHOU into 2006. However,

the remedy did not perform as expected, and some VOCs have been detected at nearby well fields owned by LADWP. The USEPA and LADWP are currently evaluating additional treatment and funding alternatives.
A total of 1,150 AF were treated during the 2003-04 Water Year.

Pollock Wells Treatment Plant

LADWP's Pollock Wells Treatment Plant uses three wells and four GAC vessels to remove VOCs at a design rate of 3,000 gpm. The primary purpose of the facility is to prevent the loss of excess rising groundwater from entering the Los Angeles River channel and leaving the SFB as waste. In the absence of pumping at Pollock an estimated average 2,000 AF would leave the SFB each year.

During Water Year 2003-04 a total of 1,137 AF of groundwater were treated, the lowest production amount since the facility went on-line in 1999. As a result of excess rising groundwater, the Watermaster debited Los Angeles nearly 863 AF (Appendix H).

Verdugo Park Water Treatment Plant

The City of Glendale Verdugo Park Water Treatment Plant treats groundwater from the Verdugo Basin for turbidity and bacteria, and is operating at 500 gpm instead of the expected 700 gpm. Methods to increase the efficiency of the groundwater collection system are being investigated. A total of 656 AF were treated in the 2003-04 Water Year.

Glenwood Nitrate Removal Plant

CVWD's Glenwood Nitrate Removal Plant treated 164 AF during the 2003-04 Water Year. The amount of treated water is 24 percent less than the previous year due to the lower water table in the Verdugo Basin and the reduced amount of pumped groundwater.

Verdugo Basin Evaluation

In June 2003 CVWD obtained an AB 303 grant to determine the cause(s) of the decline in Verdugo Basin groundwater levels, develop alternatives to reverse the decline, enhance conjunctive use of the basin, and reduce CVWD's reliance on imported supplies. The Watermaster serves on the Technical Advisory Committee. A final report is scheduled to be completed in May 2005.

Reclamation Projects in the San Fernando Valley

The LADWP has plans to connect large recycled water customers over the next three years including the Hansen Dam Recreation Area, Valley Generating Station and Angeles National Golf Course in the eastern portion of the Valley, and the Sepulveda Basin and Pierce College in the southern portion of the Valley. Smaller users in the vicinity of these pipelines will also be connected over time with the present goal of fully utilizing the 10,000 acre feet per year (AF/Y) originally intended for groundwater recharge as part of the East Valley Water Recycling Project.

Hansen Area Water Reclamation Project Phase I consists of approximately one-half mile of 30-inch pipeline and a 7-million gallon storage tank. The primary purpose of this project is to deliver recycled water to the Valley Generating Station for cooling tower and other industrial uses. The project is scheduled to be in service in 2006.

The Hansen Area Water Reclamation Project Phase II will consist of a booster pumping station adjacent to the proposed 7-million gallon recycled water storage tank at the Valley Generating Station, and a pipeline extending to the Hansen Dam Recreation Area and the Angeles National Golf Course, where it will terminate at a small recycled water storage tank. This system is scheduled to be in service by late 2008 or early 2009.

The Sepulveda Basin Water Recycling project is designed to provide recycled water for irrigation throughout the Sepulveda Basin Recreation Area including Woodley Golf Course, Lake Balboa Recreation Area, Wildlife Area, Balboa and Encino Golf Courses, Balboa Sports Center, and Hjelte Park. The Woodley Park, West Valley Youth Baseball, and the proposed Sports Concession will be connected to the South Valley Water Recycling Project pipeline scheduled to be in service late 2007 or early 2008. Delivery to Woodley Golf Course is scheduled to begin in 2005.

The South Valley Water Reclamation Project includes construction of a 13-mile long pipeline from Warner Center to North Hollywood to deliver recycled water to serve irrigation and industrial users near the pipeline route including Pierce College, the Metropolitan Transportation Authority bus way currently under construction, and various park facilities. Construction is scheduled to be completed by the end of 2007 with recycled water deliveries beginning approximately in early 2008.

Headworks

The Headworks Spreading Grounds is the site of multi-objective projects to improve water quality and storage, and to provide the community with an opportunity for passive recreation. LADWP has completed the preliminary design and is in the process of completing the draft Environmental Impact Report for the Silver Lake Reservoir Complex Storage Replacement Project in order to comply with the Stage 2 Disinfection By-Products Rule and the Long-Term 2 Enhanced Surface Water Treatment Rule. The project will remove Silver Lake and Ivanhoe Reservoirs from service as potable water reservoirs, provide potable water storage in a buried 110 million gallon reservoir located at the Headworks Spreading Grounds, and provide for hydropower generation. Construction is planned to commence in January 2007.

The other Headworks component is the proposed wetlands project that is a joint effort between LADWP and the Army Corps of Engineers. A feasibility study for the wetlands habitat is currently underway.

Tujunga Spreading Grounds Task Force

The Watermaster initiated the Tujunga Spreading Grounds Task Force in May 1998. The use of the Tujunga Spreading Grounds has been significantly reduced in above-normal runoff years because of environmental issues associated with methane gas migration from the nearby Sheldon-Arleta Landfill. The purpose of the task force is to restore the historic recharge capacity; enhance methane gas control and monitoring; and improve storm water management. The task force consists of representatives of the Los Angeles County Department of Public Works (LACDPW), Los Angeles Bureau of Sanitation, LADWP, and the Watermaster Office. During a study in May 2003, a consultant analyzed the impact of a controlled release of native water from the Big Tujunga Dam to test the gas collection system at the Sheldon-Arleta Landfill. Preliminary results suggested that a release of 100 cubic feet per second (cfs) into the spreading grounds over a one week period has no negative impact on the methane gas movement. Heavy storms in January 2005 confirmed that spreading in excess of 100 cfs caused methane migration from the landfill. Future planned modifications include installing additional methane collection wells.

San Fernando Basin Recharge Task Force

In 2004 the Watermaster formed the San Fernando Basin Recharge Task Force in an effort to increase spreading of native water in the SFB. The Task Force includes

LADWP, LACDPW, and Watermaster. The goal of the Task force is to identify ways to capture and infiltrate more rainfall runoff. The Task Force has met several times, and a field trip was conducted to LACDPW's recharge facilities in nearby San Gabriel Basin to observe infrastructure and operational improvements that may be applicable in the SFB.

With the exception of Tujunga Spreading Grounds, the spreading basins are owned by LACDPW, and are operated exclusively by them. However, the primary beneficiary of the spreading activities is the City of Los Angeles, which owns the water under its Pueblo Water Right. The cities of Burbank and Glendale also benefit indirectly by increased recharge of the SFB. Therefore, continued close cooperation between these agencies will be needed to reverse the declining groundwater levels in the basin (see Section 2.9 Groundwater Storage).

United States Forest Service (USFS)

During the 2003-04 Water Year, the Big Tujunga Dam Retrofit Proposal Planning and Coordination Task Force met to discuss the operation of the dam during seismic retrofit construction and after the retrofit completion. The task force includes representatives from the Federal Emergency Management Agency (FEMA), USFS, United States Fish and Wildlife Service (USFWS), California Department of Fish and Game, LACDPW, LADWP, and the Watermaster Office.

The USFS and USFWS are mandated to protect the Santa Ana Sucker (SAS) under the Endangered Species Act. They view the dam retrofit as an opportunity to reduce peak flows during the winter to prevent damage to the SAS and its habitat, and to provide low flows during the dry summer season to prevent the stream bed from drying out and adversely impacting the population of SAS.

The LACDPW is required by law to operate the dam to protect life and property from flooding. Furthermore, the LACDPW, LADWP, and Watermaster view the retrofit as an opportunity to conserve more native water, which belongs to the City of Los Angeles under its Pueblo Right.

If large controlled releases are not allowed during the winter storm season, the limited storage capacity of the reservoir could cause uncontrolled releases over the dam spillway, resulting in flood damage to property and SAS habitat along Tujunga Wash. If small releases from the dam are required during the dry summer months, this water may not reach the spreading grounds where it recharges the San Fernando Basin.

In November 2004 FEMA terminated its grant of $7 million for the seismic retrofit project, citing a 10-year period during which the project was not constructed and the probability of further delays. Without FEMA funding the project will probably not go forward.

The Watermaster views the retrofit project as an opportunity to protect Los Angeles' Pueblo Water Right, maximize water conservation, protect against flood damage, and preserve the habitat of the SAS and has written a letter to FEMA in support of the LACDPW appeal as has LADWP and others.

The LACDPW was notified on April 5, 2005 by FEMA that the Big Tujunga Dam appeal has been granted and that funding has been reinstated. Between FEMA and Proposition 13, the County has secured approximately $13 million of funding for the Big Tujunga Dam Seismic Restoration Project which is projected to cost about $30 million. The County is going to try to accelerate the environmental documentation process and hopes to start construction on the project in 2006.

Standard Urban Stormwater Mitigation Plan (SUSMP)

The RWQCB adopted SUSMP on March 8, 2000. It requires some new developments and redevelopments to contain or treat the first ¾-inch of rainfall runoff from every storm, and encourages on-site infiltration. The Watermaster placed a temporary moratorium on urban stormwater infiltration in the San Fernando Basin due to concerns over potential impacts on groundwater quality. For the past several years we have been monitoring water quality data from several demonstration sites, and have determined that infiltration in residential and light commercial areas can be safely accomplished under certain conditions. The Watermaster is currently working with the City of Los Angeles' Watershed Protection Division to allow infiltration if those criteria are met.

Sun Valley Watershed Committee

The Watermaster Office is a stakeholder on the Sun Valley Watershed Committee. The objective of the group is to identify alternative ways to solve the local flooding problems in the Sun Valley area. These alternatives could replace or augment the traditional approach of an improved storm drain system. Some of the alternatives include local infiltration of storm runoff and the acquisition of gravel pits for conversion into spreading basins. The storm runoff contains contaminants that are potentially adverse to water quality in the basin. The Watermaster is concerned about potential impacts to

groundwater quality as well as conflicts with established water rights, but is working closely with the committee to resolve these issues. The Sun Valley Watershed Project Environmental Impact Report was approved by the Los Angeles County Board of Supervisors on June 29, 2004. An infiltration gallery at Sun Valley Park is currently under construction, and additional infiltration demonstration projects are being planned or are in the design phase.

Water Augmentation Study (WAS)

The Los Angeles and San Gabriel Rivers Watershed Council has developed a WAS to determine the feasibility of infiltrating urban runoff to reduce local flooding, recharge groundwater, and reduce surface water pollution. The Watermaster serves on the Technical Advisory Committee and provides guidance with respect to water quality and water rights within ULARA. The WAS now has six sites throughout the greater Los Angeles area where it infiltrates urban stormwater and monitors the effects on underlying groundwater. These demonstration sites have given us a better understanding of the effects on groundwater quality, and an increased level of confidence in the use of urban runoff to augment recharge of our local aquifers.

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. Phase I, the Integrated Plan for Wastewater Program, emphasized community outreach to help direct the program and was completed in 2001. The goal of Phase II is to develop and implement the program. The IRP uses a broader "watershed" approach to promote more efficient use of all water within the City. The Watermaster serves on the Management Advisory Committee and guides the process with respect to water rights and water quality within ULARA.

The Los Angeles Unified School District IRP has been formed to ensure that new and retrofitted schools conform to the overall goals of the City's IRP.

Taylor Yard

The Union Pacific Railroad owns this large parcel along the Los Angeles River Narrows. It has attracted the interest of many stakeholders including the State Parks Department and the California State Coastal Conservancy as a potential site for habitat restoration and recreation. There is significant soil and groundwater contamination at the site, and potential issues involving water rights. The Watermaster Office is working with the

stakeholders to resolve these issues. A final feasibility study was issued in June 2002, and is available through the Coastal Conservancy.

Los Angeles City Council Ad Hoc Committee on the Los Angeles River

This Committee, chaired by Councilman Ed Reyes, was formed in June 2002 to study the revitalization of the Los Angeles River and its tributaries. The Committee has reviewed the successful efforts of San Antonio, Texas; Denver, Colorado; and Tempe, Arizona to develop their rivers into centers of recreational and economic opportunities for their communities. A $1.069 million appropriation has been secured for the US Army Corps of Engineers for river revitalization. A portion of these funds will be used for hydrology and hydraulics studies for the river. The Committee directed the establishment of an intra-department task force to coordinate City department river efforts. The Watermaster Office enforces the San Fernando Judgment, which adjudicated the surface and subsurface water rights of the Los Angeles River and its tributaries. The Watermaster will provide guidance to the Committee on an as-needed basis with respect to water rights and water quality.

Dewaterers

The groundwater table in parts of the SFB is near the ground surface. Dewatering is occasionally required to maintain subsurface structures. If dewatering is needed, the dewaterer is required to meter the discharge and enter into an agreement with the affected party for payment for the pumped water. The Watermaster Office currently receives reports from several dewaterers in the SFB.

Water Licenses

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

1.6 Summary of Water Supply, Operations, and Hydrologic Conditions

Highlights of operations for the 2002-03 and 2003-04 Water Years are summarized in Table 1-3. Details of the 2003-04 Water Year operations and hydrologic conditions are provided in Section 2. Locations of the groundwater basins, water service areas of the parties and individual producers, and other pertinent hydrologic facilities are shown on Plates 2 through 8.

Average Rainfall

Precipitation on the valley floor area during the 2003-04 Water Year was 9.42 inches, 58 percent of the calculated 100-year mean (16.48 inches). Precipitation in the mountain areas was 13.04 inches, 60 percent of the calculated 100-year mean (21.76 inches). The weighted average of 12.21 inches is 58 percent of the 100-year mean (21.22 inches).

Spreading Operations

A total of 10,065 AF of water were spread. This represents a significant decrease from the average annual spreading for the 1968-2004 period of 31,512 AF.

Extractions

Total extractions amounted to 100,756 AF. This is a decrease of 6,255 AF from 2002-03, but more than the 1968-2004 average of 98,886 AF. Of the total for the 2003-04 Water Year, 2,163 AF were for non-consumptive use. Appendix A contains a summary of groundwater extractions for the 2003-04 Water Year.

Imports

Gross imports (including pass-through water) totaled 603,377 AF, an increase of 13,186 AF from 2002-03. Net imports used within ULARA amounted to 330,887 AF, a 19,832 AF increase from 2002-03.

Exports

A total of 338,571 AF were exported from ULARA. Of the 338,571 AF exported, 66,081 AF were from groundwater extractions, and 272,490 AF were from imported supplies (pass-through).

Treated Wastewater

A total of 90,546 AF of wastewater were treated in ULARA. The majority of the treated water was discharged to the Los Angeles River, a portion was delivered to the Hyperion Treatment Plant, and approximately 6 percent was used as recycled water.

Recycled Water

Total recycled water used in ULARA was 7,399 AF, a 1,177 AF increase from last year. The recycled water is used for landscape irrigation, in-plant use, power plant use (i.e. cooling), and other industrial uses.

Sewage Export

Sewage export was estimated at 103,744 AF; this was the amount of untreated sewage delivered by pipeline to the Hyperion Treatment Plant. The estimate does not include treated wastewater discharged to the Los Angeles River that leaves ULARA as surface flow.

Groundwater Storage

Groundwater storage in the SFB during 2003-04 decreased by 22,367 AF; the total cumulative increase in groundwater storage since October 1, 1968 is 84,419 AF. The 2003-04 change in storage declined due to reduced spreading operations and continued heavy pumping. The change in groundwater storage for the Sylmar, Verdugo, and Eagle Rock Basins was
(–708), (–427), and + 27 AF, respectively.

Wells

During the 2003-2004 Water Year the City of Los Angeles destroyed North Hollywood Well No. 10 (3810), Foothill Well No. 2 (4994-C), and Foothill Well No. 3 (4994-B).

TABLE 1-3: SUMMARY OF OPERATIONS IN ULARA

Item	Water Year 2003-04	Water Year 2002-03
Active Pumpers (parties and nonparties)	30	29
Inactive Pumpers (parties)[1]	8	9
Valley Rainfall, in inches		
Valley Floor	9.52	19.41
Mountain Area	13.04	22.36
Weighted Average	12.21	21.22
Spreading Operations, in acre-feet	10,065	16,468
Extractions, in acre-feet		
Used in ULARA	34,675	38,130
Exported from ULARA	66,081	68,881
Total	**100,756**	**107,011**
Gross Imports, in acre-feet		
Los Angeles Aqueduct Water	212,805	219,342
MWD Water	390,572	370,849
Total	**603,377**	**590,191**
Exports, in acre-feet		
Los Angeles Aqueduct Water	97,546	108,071
MWD Water	174,944	171,065
Groundwater	66,081	68,664
Total	**338,571**	**347,800**
Net Imports Used in ULARA, in acre-feet	330,887	311,055
Recycled Water Use, in acre-feet	7,399	5,635
Total Water Use in ULARA, in acre-feet [2]	372,961	354,820
Treated Wastewater, in acre-feet [3]	90,546	96,741
Sewage Export to Hyperion, in acre-feet [4]	103,744	91,930

1) The eight inactive pumpers are Van de Kamp, Disney, Angelica, Santiago Estates,Boeing, Greef, Sears, Waste Management.
2) Extractions used in ULARA plus Net Imports and Recycled Water.
3) Most treated wastewater flows to LAR, a portion to Hyperion (see T2-7), and for recycled water.
4) Sewage outflow includes estimates of outflow from each of the four basins, and discharges to Hyperion from the Tillman and Los Angeles-Glendale Water Reclamation Plants.

1.7 Allowable Pumping for the 2004-05 Water Year

Table 1-4 shows a summary of extraction rights for the 2004-05 Water Year and stored water credit as of October 1, 2004, 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 PUMPING 2004-05 WATER YEAR

(acre-feet)

	Native Safe Yield Credit [1]	Import Return Credit [2]	Total Native + Import	Stored Water Credit [3] (as of Oct. 1, 2004)	Allowable Pumping 2004-05 Water Year
San Fernando Basin					
City of Los Angeles	43,660	45,196	88,856	286,846	375,702
City of Burbank	---	4,847	4,847	22,038	26,885
City of Glendale	---	6,006	6,006	66,201	72,207
Total	43,660	56,049	99,709	375,085	474,794
Sylmar Basin					
City of Los Angeles	3,255	---	3,255	6,303	9,558
City of San Fernando	3,255	---	3,255	227	3,482
Total	6,510	---	6,510	6,530	13,040
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 Judgment, page 11.
2) Import Return extraction right per Judgment, page 17.
3) There is no Stored Credit assigned in Verdugo Basin.

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 seasonal precipitation ranges from about 14 inches at the western end of the San Fernando Valley to 33 inches in the San Gabriel Mountains. Approximately 80 percent of the annual rainfall occurs from December through March.

In the 2003-04 Water Year the valley floor received 9.52 inches of rain (58 percent of the 100-year mean), while the mountain area received 13.04 inches (60 percent of the 100-year mean). Figure 2.1 shows monthly valley floor and mountain area rainfall in ULARA. The weighted average of both valley and mountain areas was 12.21 inches (62 percent of the 100-year mean). Table 2-1 shows a record of rainfall at the valley and mountain precipitation stations, and Plate 5 shows their locations.

FIGURE 2.1: MONTHLY RAINFALL

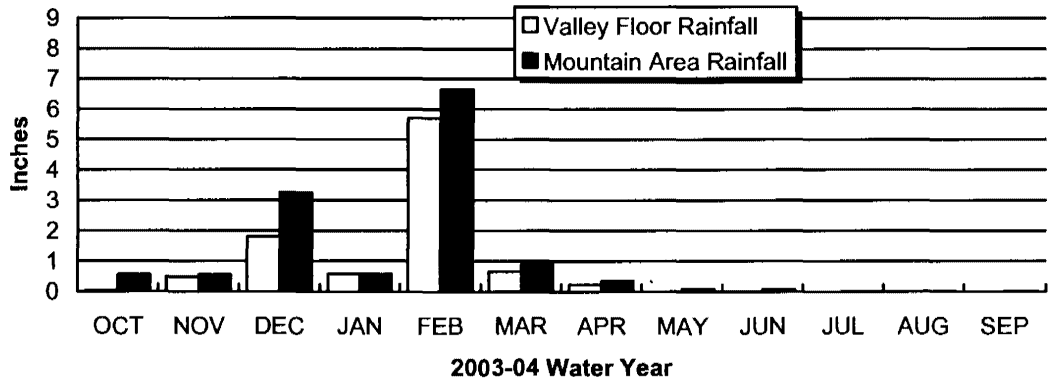


TABLE 2-1: 2003-2004 PRECIPITATION

(inches)

LACDPW Rain Gage Stations		2003-04	100-Year Mean	Percent of
No.	Name	Precipitation	(1881-1981)	100-Year Mean
	Valley Stations			
13C	North Hollywood-Lakeside	10.89	16.63	65%
1087D	Green Verdugo Pumping Plant	9.26	14.98	62%
465C	Sepulveda Dam	7.79	15.30	51%
21B	Woodland Hills	8.11	14.60	56%
23B	Chatsworth Reservoir	8.57	15.19	56%
25C	Northridge-LADWP	7.91	15.16	52%
251C	La Crescenta	13.70	23.31	59%
293B	Los Angeles Reservoir	10.33	17.32	60%
	Weighted Average[1]	**9.52**	**16.48**	**58%**
	Mountain Stations			
11D	Upper Franklin Canyon Reservoir	14.59	18.50	79%
17	Sepulveda Canyon at Mulholland	14.68	16.84	87%
33A	Pacoima Dam	12.91	19.64	66%
47D	Clear Creek - City School	18.07	33.01	55%
53D	Monte Cristo Ranger Station [3]	14.71	29.04	51%
54C	Loomis Ranch-Alder Creek	10.78	18.62	58%
210C	Brand Parks	9.90	19.97	50%
797	DeSoto Reservoir	9.95	17.52	57%
1074	Little Gleason	15.92	21.79	73%
	Weighted Average[1]	**13.04**	**21.76**	**60%**
	Weighted Average Valley/Mountain Areas[1]	**12.21**	**19.64**	**62%**

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

2.2 Runoff and Outflow from ULARA

The watershed of ULARA contains 328,500 acres, of which 205,700 acres are hills and mountains. The drainage system is made up of the Los Angeles River and its tributaries. Surface and sub-surface flow originates as runoff from the hills and mountains, runoff from the impervious areas of the valley, 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 (Plate 5 shows the location of the stations). The six gaging stations are as follows:

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

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

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

4. 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.

5. 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.

6. 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.

Table 2-2 summarizes the 2002-03 and 2003-04 monthly runoff for these stations. The lower runoff in 2003-04 is related to lower rainfall than in 2002-03. The mean daily discharge rates for these six stations during 2003-04 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	2002-03	7,380	14,870	21,940	7,710	40,170	23,350	13,210	14,110	9,970	9,330	11,160	12,690	**185,890**
L.A. River	2003-04	10,120	9,550	15,450	9,940	33,570	9,180	8,830	7,070	7,650	8,460	8,250	7,790	**135,860**
Arroyo Seco														
F-252-R	2002-03	281	564	1,120	278	1,800	1,560	864	697	378	285	284	239	**8,350**
Verdugo Wash	2003-04	247	296	750	250	1,840	452	235	137	198	284	314	316	**5,319**
E-285-R	2002-03	757	955	1,450	673	2,740	2,360	1,140	863	587	588	582	705	**13,400**
Burbank	2003-04	905	509	812	611	2,240	772	628	456	585	488	392	936	**9,334**
Storm Drain														
F-300-R	2002-03	5,300	11,320	16,790	5,300	32,210	18,370	11,390	11,950	5,520	5,720	5,830	5,740	**135,440**
L.A. River	2003-04	5,690	5,380	9,390	9,250	22,900	6,210	4,290	3,770	3,500	3,590	3,500	3,280	**80,750**
Tujunga Ave.														
F-168-R	2002-03	0	15	25	21	60	2,140	25	3,870	590	0	34	0	**6,780**
Big Tujunga	2003-04	116	3	287	2	429	1,060	177	22	0	7	9	3	**2,115**
Dam														
F-118B-R	2002-03	404	0	0	0	0	0	0	4	0	0	0	0	**408**
Pacoima Dam	2003-04	10	603	20	7	0	451	221	0	3	0	0	0	**1,315**

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.

In the Report of Referee (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 are no longer significant - 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 fallen 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" studied groundwater levels along the course of the Los Angeles River. The Watermaster provided the insight and 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 excess rising groundwater. Heavy runoff occurred during the 1978-83 period, which, combined

with reduced pumping in the Crystal Springs, Grandview, and Pollock Well Fields, caused large recoveries of groundwater levels in the Los Angeles River Narrows.

An even greater factor affecting hydrologic conditions in the Los Angeles River Narrows has been the increasing releases of treated wastewater. Releases from the Los Angeles-Glendale Plant began in 1976-77 and from the Tillman Plant in 1985-86. These large year-round releases tend to keep the alluvium of the Los Angeles River Narrows saturated, even in dry years. Nevertheless, there is some opportunity for continuing percolation in the unlined reach, 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 believed to circulate through shallow zones and re-appears as rising groundwater 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 adds to the rising groundwater conditions.

Rising groundwater also occurs above the Verdugo Wash Narrows, and in the unlined reach of the Los Angeles River upgradient from Gage F-57C-R. During dry periods, conditions in the unlined reach are stabilized with regard to percolation and rising water by releases of treated water. In wet periods, rising groundwater above Gage F-57C-R has been considered to be related to the increase of rising groundwater above the Verdugo Narrows. In 2003-04 flows of rising water at Gage F-252-R were estimated at 2,468 AF. For 2003-04 the rising groundwater flow at Gage F-57C-R was estimated at 3,330 AF.

Field inspection during 1998-99 confirmed significant unmetered flows of domestic irrigation passing through storm drains resulting in year-round flows of water from residences, golf courses and others sites that flow down to the Los Angeles River through the Sycamore Channel and several other storm drains north of Gage F-57C-R.

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

(acre-feet)

Water Year	F-57C-R Rising Groundwater*	F-57C-R Waste Discharge	F-57C-R Storm Runoff	F-57C-R Total Outflow	F-252-R Rising Groundwater*	F-252-R Storm Runoff	F-252-R Total Outflow
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

*Includes unaccounted water and the influence of treated waste water.

2.4 Groundwater Recharge

Precipitation has a marked 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 utilized to regulate storm flows and allow recapture 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. The spreading grounds are utilized for spreading native and imported water. Table 2-4 summarizes the spreading operations for the 2003-04 Water Year, Table 2-4A summarizes recharge since 1968-69 Water Year, and Plate 7 shows the locations of the spreading grounds.

TABLE 2-4: 2003-2004 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	29	21	76	36	161	33	22	13	13	13	13	14	444
	Hansen	24	144	546	284	1,540	3,380	244	195	63	4	0	0	6,424
	Lopez	0	0	4	0	0	140	0	0	0	0	0	0	144
	Pacoima	0	402	151	20	802	252	94	0	0	9	1	0	1,731
	Tujunga	0	0	10	0	254	0	0	0	0	0	0	0	264
	Tujunga Wash	87	0	119	0	264	454	134	0	0	0	0	0	1,058
	Total	**140**	**567**	**906**	**340**	**3,021**	**4,259**	**494**	**208**	**76**	**26**	**14**	**14**	**10,065**
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		**140**	**567**	**906**	**340**	**3,021**	**4,259**	**494**	**208**	**76**	**26**	**14**	**14**	**10,065**

* Reach from below Big Tujunga to Hansen Dam.

TABLE 4-A: ANNUAL SPREADING OPERATIONS IN THE SAN FERNANDO BASIN
1968-69 through 2003-04
(acre-feet)

Water Year	Los Angeles County Department of Public Works						City of Los Angeles			GRAND TOTAL	Rainfall Weighted Average Valley/Mtns.
	Branford	Hansen	Lopez	Pacoima	Tujunga	TOTAL	Headworks	Tujunga Imported	TOTAL		
2003-04	444	6424	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.	519	13,799	529	6,454	3,663	24,963	2,066	4,483	6,549	31,512	

2.5 Groundwater Extractions

The original Trial Court adjudication of groundwater rights in ULARA restricted all groundwater extractions, effective October 1, 1968. On that date, extractions were restricted to approximately 104,040 AF/Y. This amounted to a reduction of approximately 50,000 AF from the previous six-year average. The State Supreme Court's opinion, as implemented on remand in the Judgment dated on January 26, 1979, restricts groundwater pumping within 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 36 years (1968-69 to 2003-04) where imports have exceeded extractions by 110,000 to 250,000 AF/Y (Refer to Figure 2.3 - Monthly Extractions and Imports).

A total of 100,756 AF were pumped from ULARA during the 2003-04 Water Year: 89,346 AF from the SFB, 6,487 AF from the Sylmar Basin, 4,693 AF from the Verdugo Basin, and 231 AF from the Eagle Rock Basin. The respective safe yield values for the 2003-04 Water Year were 97,181 AF (Native Safe Yield of 43,660 plus an import return credit of 53,521 AF) for the SFB; 6,510 AF for the Sylmar Basin; and 7,150 AF for the Verdugo Basin. Appendix A contains a summary of groundwater extractions for the 2003-04 Water Year, Plate 8 shows the locations of the well fields, and Plate 11 illustrates the pattern of groundwater extractions.

Of the total amount pumped in the SFB (89,346 AF), 85,797 AF constitutes extractions by Parties to the Judgment; 2,163 AF constitutes nonconsumptive use; and 1,387 AF were used for physical solutions, groundwater cleanup, testing/well development, and dewatering parties (Appendix E). Table 2-5 summarizes 2003-04 private party pumping in the SFB, and Plate 3 shows the locations of the individual producers.

DS Waters (formerly Sparkletts Drinking Water Corporation and Deep Rock Water Company) is the only Physical Solution party that has a right to extract water from the Eagle Rock Basin. This party pays the City of Los Angeles for pumped groundwater pursuant to the Judgment.

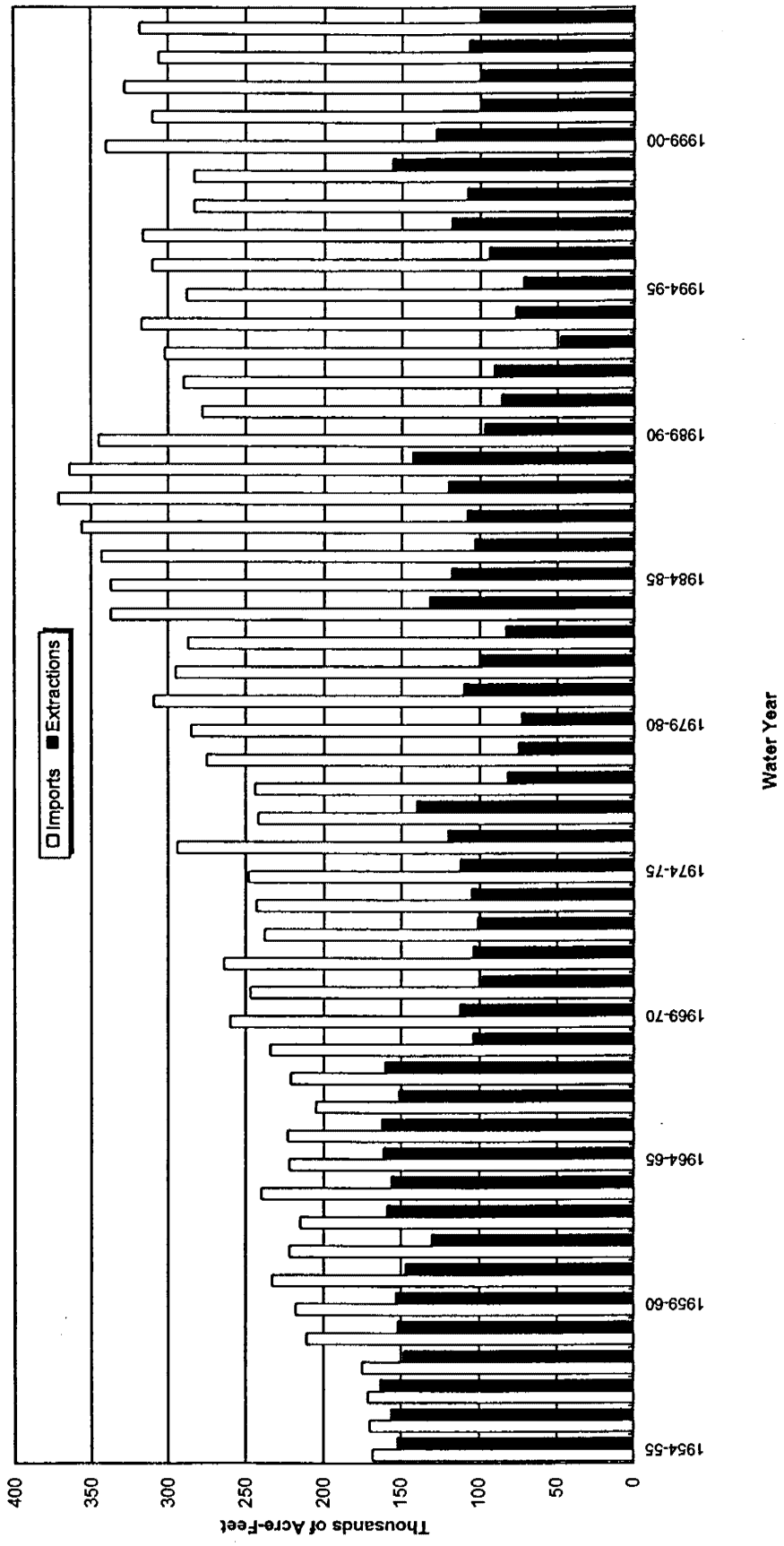


FIGURE 2.2 - YEARLY IMPORTS USED IN ULARA AND TOTAL ULARA EXTRACTIONS

TABLE 2-5: 2003-04 PRIVATE PARTY PUMPING - SAN FERNANDO BASIN

(acre-feet)

Nonconsumptive Use or Minimal Consumption		Groundwater Dewatering	
CalMat	2,152.87	Auto Stiegler	3.17
(Gravel washing)		(Charged to Los Angeles' water rights)	
Sears, Roebuck and Company	0	First Financial Plaza Site	28.71
(Air Conditioning; well disconnected 2000)		(Charged to Los Angeles' water rights)	
Sportsmens' Lodge	0.70	Trillium Corporation	42.56
Toluca Lake Property Owners	9.29	(Charged to Los Angeles' water rights)	
Walt Disney Productions	0	Metropolitan Transportation Agency	37.50
(3 wells inactive/ Not abandoned.)		(Charged to Los Angeles' water rights)	
		Metropolitan Water District (MWD)	165.60
		(Charged to Los Angeles' water rights)	
		North East Interceptor Sewer	21.88
		(Charged to Los Angeles' water rights)	
		Warner Properties Plaza 6 and 3	22.23
		(Charged to Los Angeles' water rights)	
Total	**2,162.86**	**Total**	**321.65**

Groundwater Cleanup		Physical Solution	
Raytheon (Hughes)	4.34	Forest Lawn Cemetery Assn.	457.35
(Charged to Los Angeles' water rights)		(Charged to Glendale's water rights)	
B.F.Goodrich (Menasco/Coltec)	0	Hathaway (deMille)	50.28
(Charged to Los Angeles' water rights)		(Charged to Los Angeles' water rights)	
Micro Matics USA, Inc.	5.16	Middle Ranch (deMille)	12.41
(Charged to Los Angeles' water rights)		(Charged to Los Angeles' water rights)	
Mobil Oil Corporation	0.57	Toluca Lake Property Owners	30.00
(Charged to Los Angeles' water rights)		(Charged to Los Angeles' water rights)	
3M-Pharmaceutical	61.91	Valhalla Memorial Park	396.55
(Charged to Los Angeles' water rights)		(Charged to Burbank's water rights)	
Tesoro	4.5	Waterworks District No. 21	30.72
(Charged to Los Angeles' water rights)		(Charged to Los Angeles' water rights)	
		Water Licenses	0.34
		(Charged to Los Angeles' water rights)	
		Wildlife Waystation	10.84
		(Charged to Los Angeles' water rights)	
Total	**76.48**	**Total**	**988.49**
Total Extractions	**3,549**		

2.6 Imports and Exports of Water

Residential, commercial, and industrial expansions in ULARA have required the importation of additional water supplies to supplement that provided by the groundwater basins.

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

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

Table 2-6 summarizes the imports and exports from ULARA during the 2002-03 and 2003-04 Water Years, and Figure 2.3 shows the monthly extractions and imports.

FIGURE 2.3 - TOTAL MONTHLY EXTRACTIONS AND GROSS IMPORTS

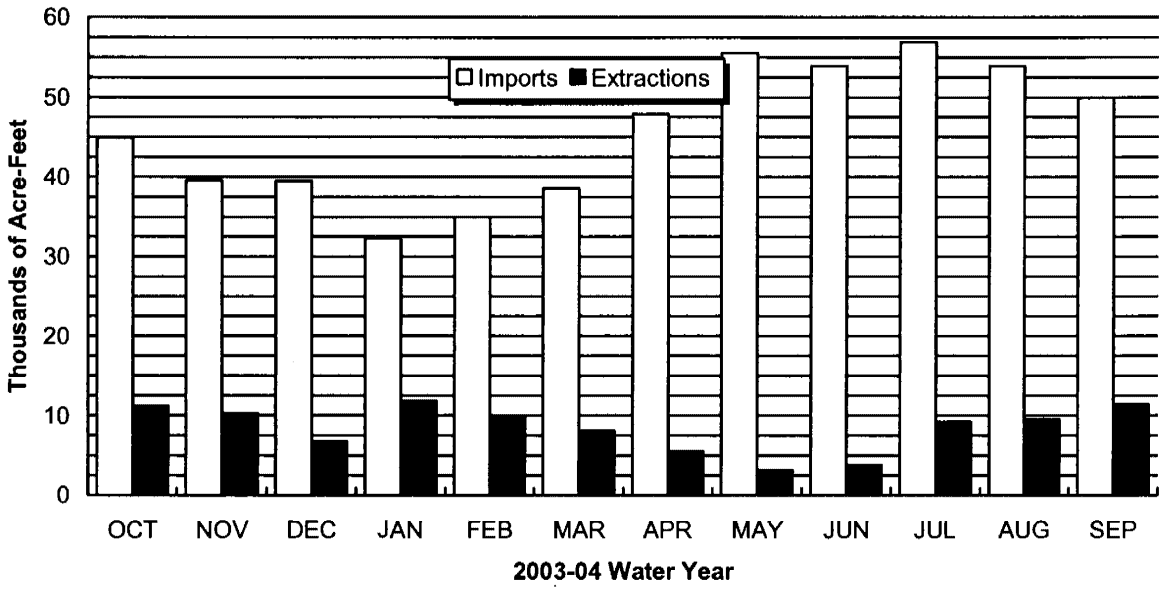


TABLE 2-6: ULARA WATER IMPORTS AND EXPORTS

(acre-feet)

Source and Agency	Water Year 2003-04	Water Year 2002-03
Gross Imported Water		
Los Angeles Aqueduct		
City of Los Angeles	212,805	219,342
MWD Water		
City of Burbank	13,751	13,158
Crescenta Valley Water District	3,298	2,868
City of Glendale	24,546	22,844
City of Los Angeles [1]	338,529	322,821
La Canada Irrigation District [1]	1,408	1,277
Las Virgenes Municipal Water District [1]	8,532	7,619
City of San Fernando	508	263
MWD Total	**390,572**	**370,850**
Grand Total	**603,377**	**590,192**
Exported Water (Pass-Through)		
Los Angeles Aqueduct		
City of Los Angeles	97,546	108,071
MWD Water		
City of Los Angeles	174,944	171,065
Total	**272,490**	**279,136**
Net Imported Water	**330,887**	**311,056**

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

2.7 Water Recycling

Water recycling presently provides a source of water for irrigation, industrial, and recreational uses. In the future, water recycling may provide water for groundwater recharge. Four wastewater reclamation plants are in operation in ULARA. The Las Virgenes Municipal Water District operates a water recycling facility outside ULARA but uses part of the treated water in ULARA. Table 2-7 summarizes the 2003-04 reclamation plant operations, and Plate 5 shows their locations.

TABLE 2-7: 2003-04 WASTEWATER RECYCLING OPERATIONS

(acre-feet)

Plant/Agency	Treated Water	Recycled Water Use	Recycled Water Use (%)	Recycled Water Delivered to SFB
City of Burbank	9,384	549 [1]	6%	549
Los Angeles-Glendale	18,866	4,390 [2]	23%	---
Los Angeles		2,727		24
Glendale		1,662		1,315
Donald C. Tillman	62,244	616 [3]	1%	0
The Independent Order of Foresters	52	52 [4]	100%	52
Las Virgenes MWD	N/A	1,792		1,792
Total	**90,546**	**7,399**		**3,731**

1. Of the total recycled water (549 AF), 53 AF was delivered to the Burbank power plant. 495 AF was used by CalTrans, DeBell Golf Course and other landscape irrigation.
2. Of the total recycled water (4,390 AF), 1,662 AF was delivered to Glendale for use in Glendale's Power Plant and for irrigation water for CalTrans, Forest Lawn and Brand Park; 931 AF was for in plant use; 867 AF was delivered to Griffith Park by Los Angeles for irrigation; and 930 AF was used by CalTrans, Lake Side, Mt. Sinai Memorial Park, Forest Lawn 2, and Universal City MCA for irrigation.
3. Recycled water was for in plant use and then discharged to the Los Angeles River.
4. Recycled water is used for irrigation.

2.8 Water Level Elevations

The 2004 contour maps for the Spring (April) and the Fall (September) were produced by 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. The RI study was funded through the EPA's Superfund program.

The model is comprised of up to four layers in the deepest portion of the eastern SFB, and includes 22,016 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 2004 contours were simulated by incorporating the estimated monthly recharge (e.g. spread water, precipitation, etc.) and discharge (groundwater extractions, rising groundwater, etc.) values for the 2003-04 Water Year. The model was then run for twelve consecutive monthly stress periods beginning October 2003 through September 2004. The simulated head values at the end of the April and September stress periods were then plotted by utilizing groundwater contouring software.

The simulated Spring and Fall 2004 Groundwater Contour Maps are shown as Plates 9 and 10. These contours are intended to depict the general trend of groundwater flow for April and September 2004. Up-to-date groundwater elevations for specific locations can be obtained by contacting the Watermaster's Office at (213) 367-0921.

Plate 11 exhibits the change in groundwater elevation from the Fall of 2003 to the Fall of 2004. The decline in groundwater levels in the north portion of the SFB, specifically near the Hansen Spreading Grounds, is attributed to the reduced volume of Native Runoff water spread at Hansen, 6,424 AF compared to the previous year of 2002-03 when 9,427 AF were spread. The area in the vicinity of Pacoima Spreading Grounds declined by about five feet from the previous year. The water spread at Pacoima decreased by about 1,808 AF compared to the 2002-03 Water Year.

The two to six foot recovery in groundwater levels near the Rinaldi-Toluca and North Hollywood Well Field areas is primarily due to decreased groundwater extractions. Extractions for these two well fields decreased by 11 percent from 2002-03 to 2003-04 (45,392 AF to 40,652 AF). The area near the Tujunga Well Field shows an increase in groundwater levels, as much as three feet, due to reduced pumping by about 3,249 AF from 2002-03 to 2003-04 (20,559 AF to 17,310 AF). The vicinity of the Burbank Well Field shows a decline in groundwater levels of

approximately four feet as a result of increased pumping from 9,170 AF to 9,660 AF. In general, the SFB shows a continuing decline in groundwater levels as a result of heavy pumping, low artificial recharge, and low precipitation.

Figure 2.4 shows historic well hydrographs of wells throughout ULARA and their locations.

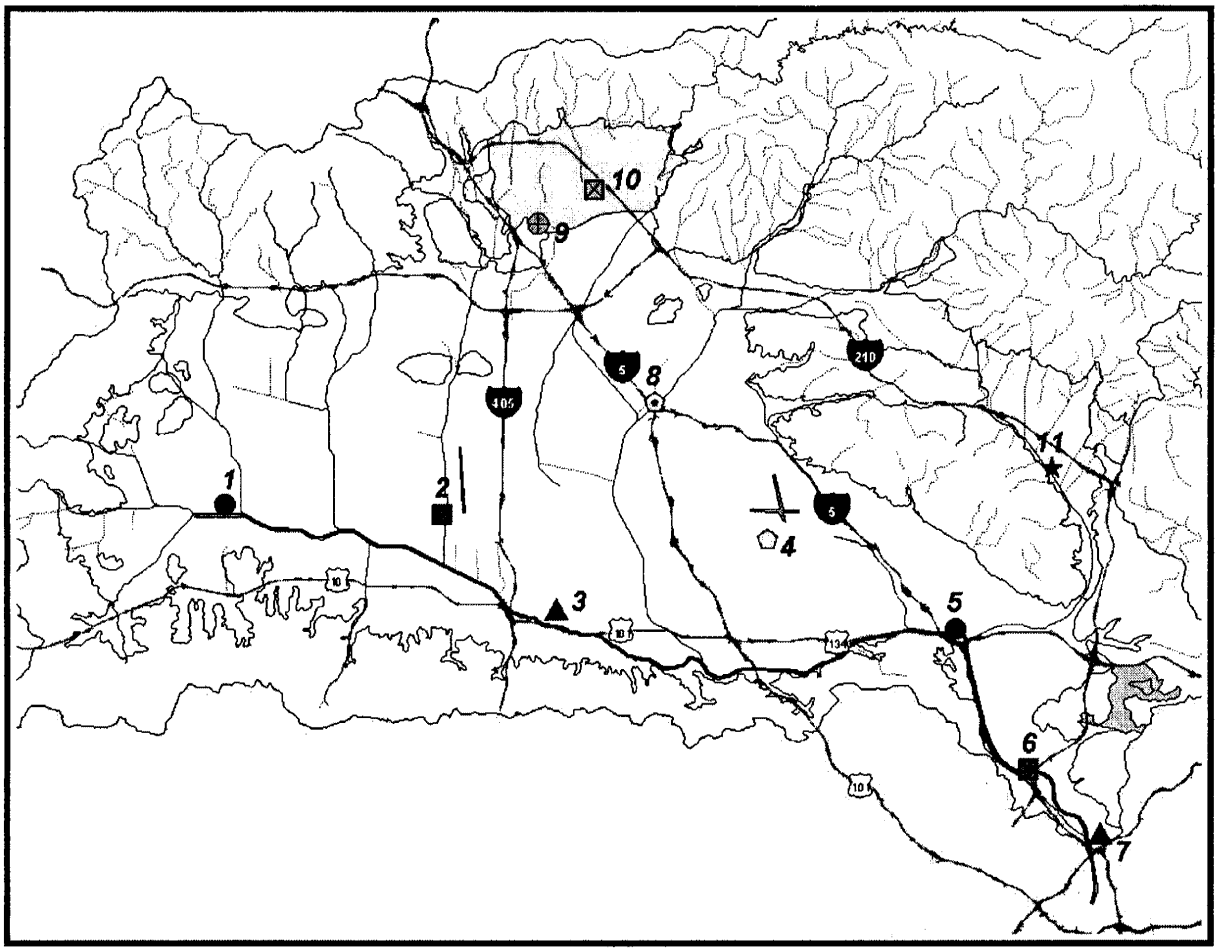
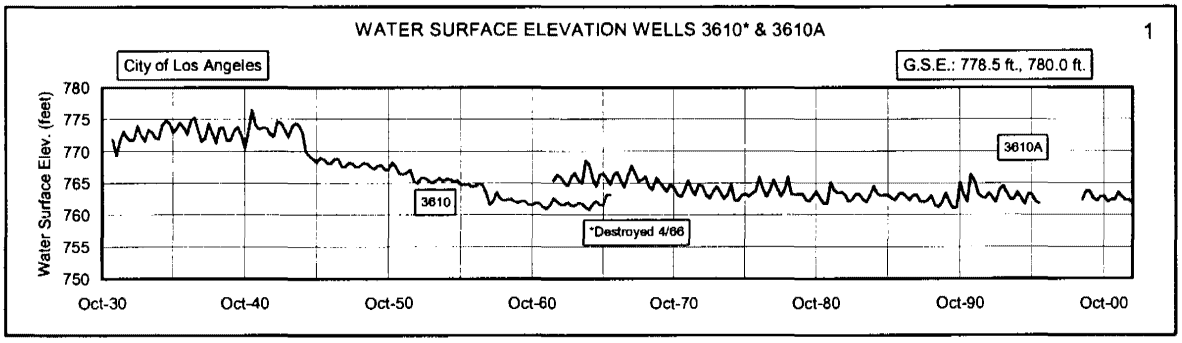
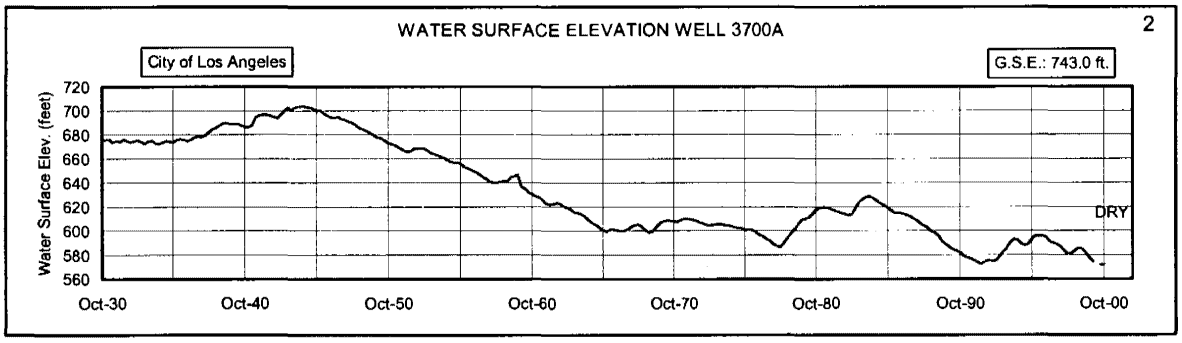
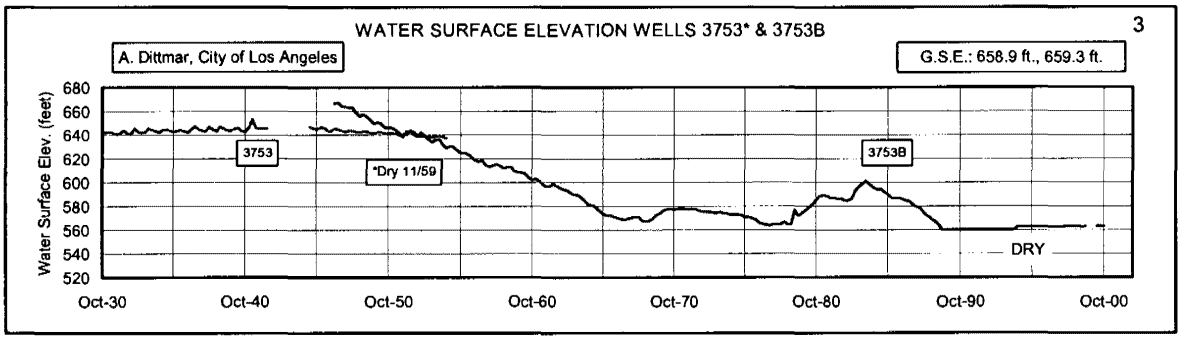


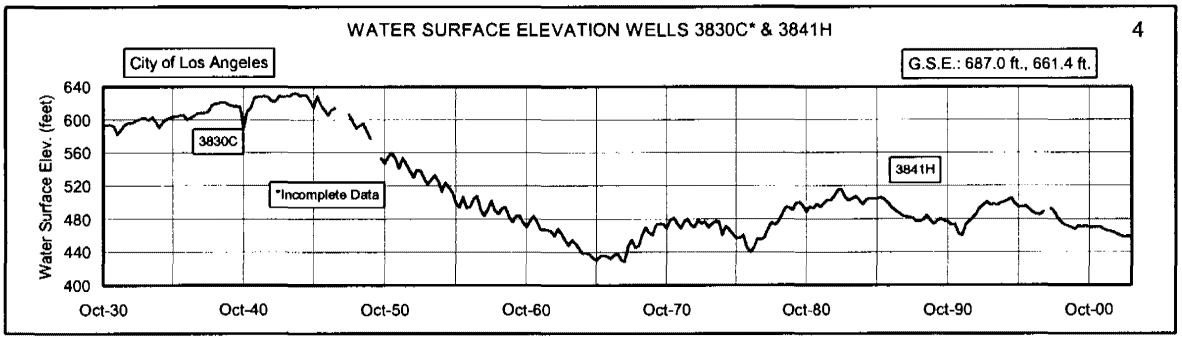
FIGURE 2.4 HYDROGRAPHS AND LOCATIONS OF WELLS THROUGHOUT ULARA

SAN FERNANDO BASIN

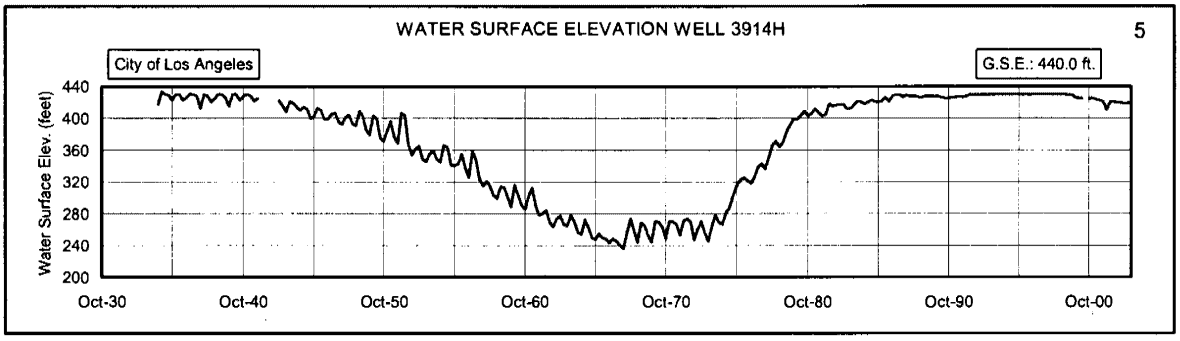


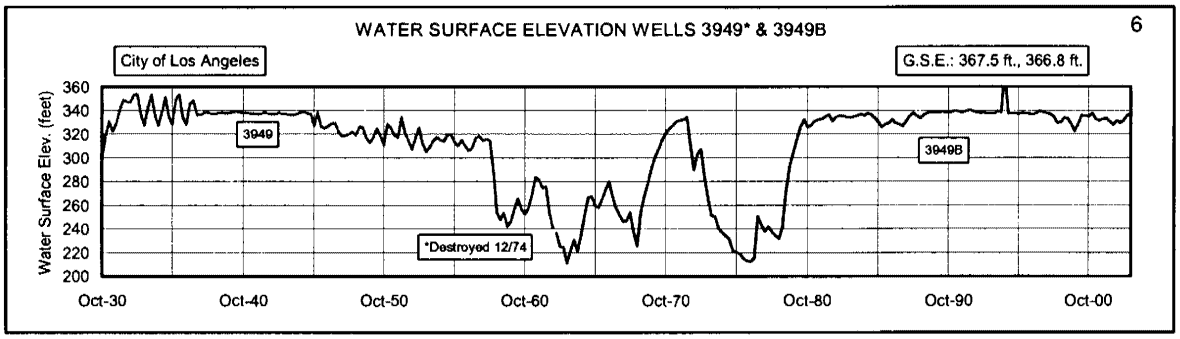


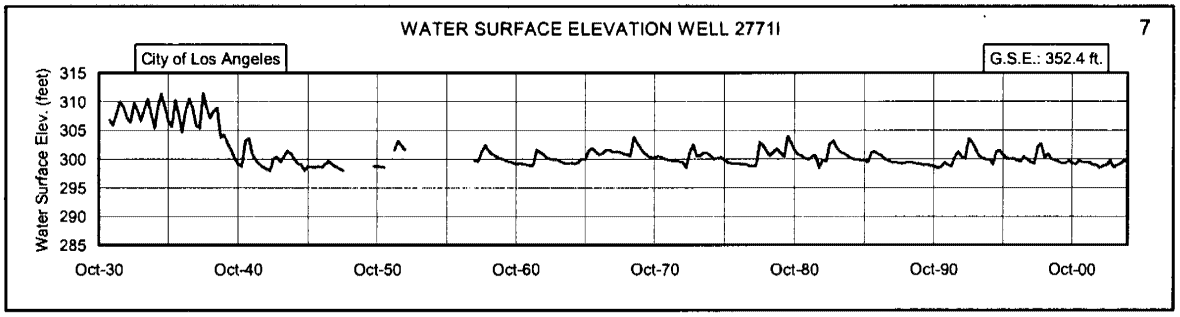


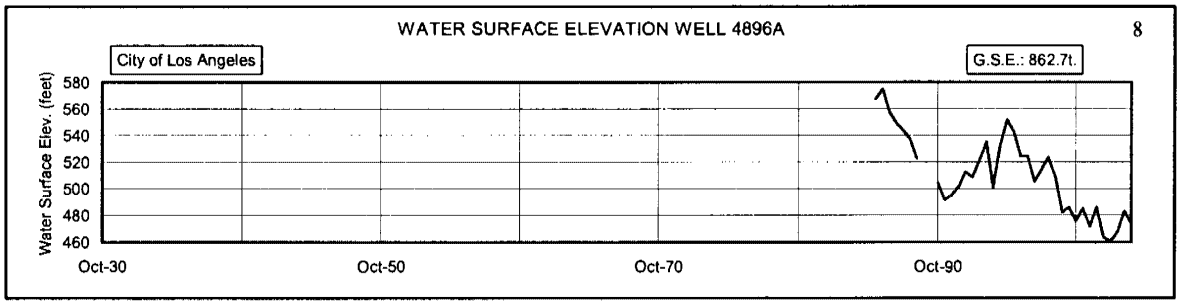


SAN FERNANDO BASIN

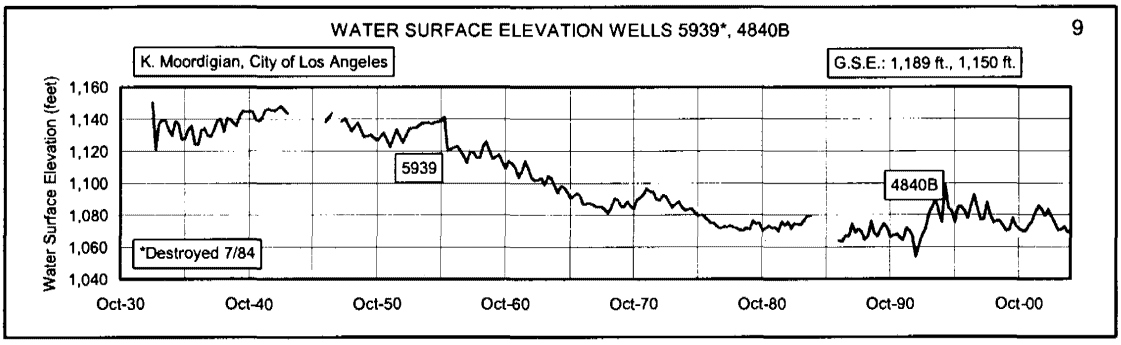


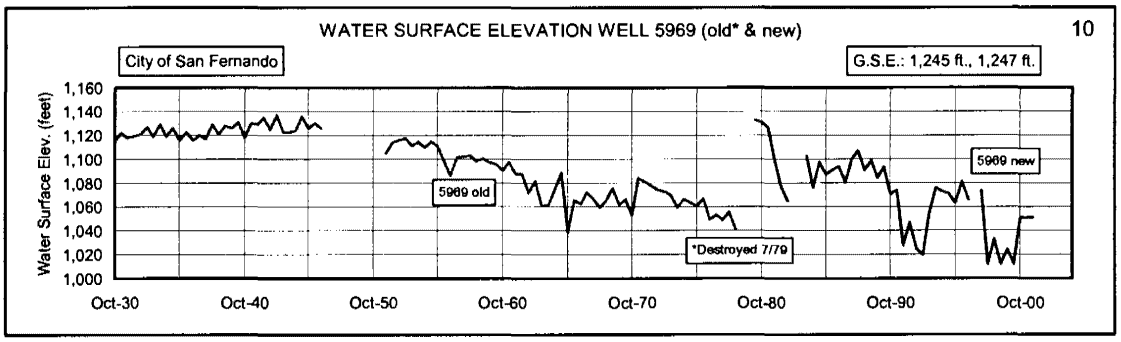






SYLMAR BASIN





VERDUGO BASIN

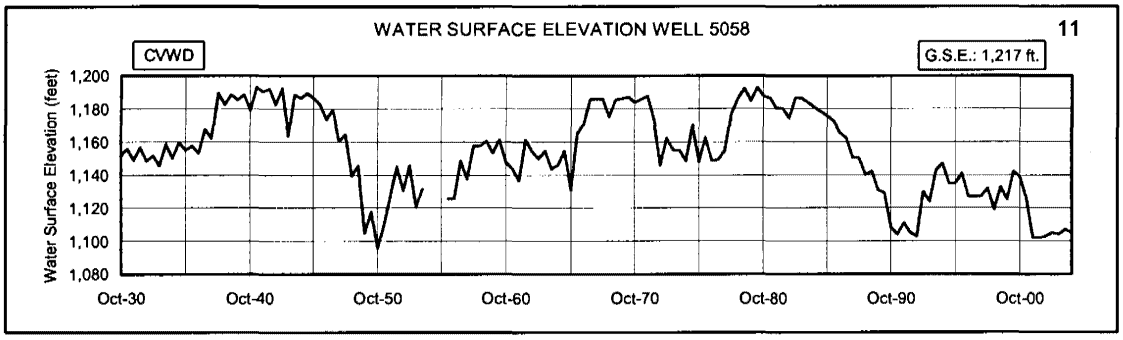


TABLE 2-8: CHANGE IN GROUNDWATER STORAGE SAN FERNANDO BASIN

Water Year	Valley Floor Precipitation (in)	Artificial Recharge (acre-feet)	Change in Storage (acre-feet)	Cumulative Change in Storage (acre-feet)	Pumping (acre-feet)
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
36 Year Average	**17.91**	**31512**	**2345**		**88,303**

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

2.9 Groundwater Storage

San Fernando Basin

The total groundwater storage capacity of the SFB was calculated by the State Water Rights Board in the Report of Referee to be approximately 3,200,000 AF. Each year the storage is evaluated in two ways - the first is between one year and the next, and then for its cumulative change since the start of Safe Yield Operation in 1968.

In Fall 1968, following the Trial Court Judgment, Safe Yield Operation of the SFB was instituted to halt the overdraft in groundwater levels that began in 1954 (Plate 13). Methodology established by the State Water Rights Board 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 boundary of 210,000 AF above 1954 levels was based on the need to prevent excess rising groundwater from leaving the basin, and the lower boundary of 150,000 AF below 1954 levels provided storage space for wet year supply. Ideally, the basin should be operated between the upper and lower boundaries of the regulatory storage range.

The calculated change in groundwater storage in the SFB from 2002-03 to 2003-04 is (–22,367) AF (Table 2-8). At the start of Safe Yield Operation there was a cumulative change in storage of (-655,370) AF referenced to 1928 water levels. From 1968 through 2004, the amount of groundwater in storage has increased by +89,419 AF for a cumulative change of (–570,951) AF, referenced to 1928 water levels.

However, since Fall 1978 there has been an accumulation of 374,085 AF of Stored Water Credit through in-lieu activities of the parties (leaving groundwater in storage rather than pumping it). Stored groundwater can be extracted by the credited parties in excess of normal pumping rights with the approval of the Watermaster. If this groundwater was pumped, the cumulative change in storage since 1928 would be (–946,036) AF. As a result, the basin would be 290,666 AF below the beginning of the Safe Yield Operation that began in 1968. The difference between actual groundwater in storage and Stored Water Credit continues to increase (Plate 13-A).

Plate 13 also illustrates a general 24-year decline in basin water levels below the regulatory storage range beginning in 1980. The trend becomes clearer when the temporary effects of above-normal rainfall years of 1982-83, 1992-93, 1994-95, and 1997-98 are excluded. Since 1980 the basin has declined approximately 189,571 AF, or an average of approximately 7,898

AF/Y, despite an increase in storage credits of approximately 224,869 AF. If that rate of annual decline continues, it is likely that within 11 years the basin will be at or below the level at which Safe Yield Operation commenced in 1968, and very near the lowest historic level (1977). Probable causes of this decline include increased urbanization and runoff leaving the SFB, reduced artificial recharge, and continued heavy pumping.

It is not too early to begin addressing this issue. Efforts to reduce this trend are currently underway, such as exploring ways to increase artificial recharge, and capturing and beneficially using urban runoff. Clearly, the long-term solution will require close cooperation between the three major pumping parties in the SFB - Los Angeles, Glendale, and Burbank.

The Watermaster is required to continue evaluating the change in groundwater storage and the safe yield within ULARA, to notify the parties of significant changes, and to consider corrective measures for the future if the imbalance continues.

Although Los Angeles, Glendale, and Burbank have stored significant amounts of water through in-lieu storage, consideration should also be given to other types of conjunctive use programs such as storage of imported water. Although these programs would not address the structural cause of the decline, they can use the available storage to take advantage of imported supplies when and where they occur, as well as provide future drought protection. In addition, grants and other financial incentives may make such programs economically attractive. Basin storage space is a valuable resource, and the Watermaster Office supports its wise use for the benefit of the public.

Sylmar Basin

The groundwater storage capacity of the Sylmar Basin is approximately 310,000 AF. The estimated change in storage from 2002-03 to 2003-04 is (-708) AF, and the cumulative change in storage from 1968-69 through 2003-04 is (–3,799) AF.

Verdugo Basin

The groundwater storage capacity of the Verdugo Basin is approximately 160,000 AF. The estimated change in storage for 2002-03 compared to 2003-04 is (–427) AF, and the cumulative change in storage from 1968-69 through 2002-03 is (–18,389) AF.

The long-term decline in Verdugo Basin groundwater was partially reversed by the heavy rains of 2004-05. It will not be known until next year's calculations how significant the reversal trend

will be. The probable causes of the decline seen in the past years include increased urbanization and runoff leaving the basin, and a significant reduction in groundwater recharge from septic systems following the installation of sewers beginning in the 1980s. An evaluation of the basin is currently underway, and should be completed by May 2005.

Eagle Rock Basin

The estimated change in storage from 2002-03 to 2003-04 is + 27 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 Report of Referee.

2.11 Extraction Rights and Stored Water Credit - Basin Summaries

San Fernando Basin

Tables 2-10A and 2-11A show the calculation of SFB extraction rights for the 2004-05 Water Year and Stored Water Credit (as of October 1, 2004) for the Cities of Burbank, Glendale, and Los Angeles. All rights are based on the City of Los Angeles vs. City of San Fernando, et al., Judgment, dated January 26, 1979.

Sylmar Basin

Tables 2-10B and 2-11B show the calculation of Sylmar Basin extraction rights for the 2004-05 Water Year and Stored Water Credit (as of October 1, 2004) 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 increase the safe yield from 6,210 AF/Y to 6,510 AF/Y.

Verdugo Basin

Glendale and CVWD have rights to extract 3,856 and 3,294 AF/Y respectively. Glendale has never pumped its full right. In the past, CVWD has extracted in excess of its right with the permission of Glendale and the approval of the Watermaster. During the 2003-04 Water Year, CVWD was unable to pump its entire right due to the declining groundwater level in the basin.

Los Angeles has a right to extract its Import Return Flows 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 requirements. DS Waters pumped 231 AF in the 2003-04 Water Year.

TABLE 2-9A: SUMMARY OF 2003-04 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	9,660	7,511	68,626	---	0	85,797
Basin Account		0	0	---	0 [1]	0
Physical Solution	397 [2]	457 [2]	135	---	---	988
Cleanup/Dewaterers	---	---	398	---	---	398
Non-consumptive Use	---	---	---	---	2,163	2,163
Total	**10,057**	**7,968**	**69,159**	**0**	**2,163**	**89,346**
Imports						
LA Aqueduct Water	---	---	212,805	---	---	212,805
MWD Water	13,751	24,546	296,808	462	8,532 [3]	344,099
Groundwater from						
Sylmar Basin	---	---	3,033	3,143	---	6,176
Verdugo Basin		656				656
Total	**13,751**	**25,202**	**512,645**	**3,606**	**8,532**	**563,736**
Delivered Reclaimed Water	549	1,315	2,727 [4]	0	1,792	6,383
Exports						
LA Aqueduct Water						
out of ULARA	---	---	97,546	---	---	97,546
to Verdugo Basin			340			340
to Sylmar Basin			4,589			4,589
to Eagle Rock Basin	---	---	205	---	---	205
MWD Water						
out of ULARA	---	---	137,002	---	---	137,002
to Verdugo Basin	---	3,528	470	---	---	3,997
to Sylmar Basin	---	---	6,337	---	---	6,337
to Eagle Rock Basin			283			283
Groundwater	121 [5]	927 [5]	64,801	---	0	65,850
Total	**121**	**4,455**	**311,573**	**0**	**0**	**316,150**
Delivered Water						
Hill & Mountain Areas	---	---	55,667	---	---	55,667
Total - All Areas	24,235	30,030	272,957	3,606	10,324 [3]	341,152
Water Outflow						
Surface (Sta. F-57C-R)	---	---	---	---	135,860	135,860
Subsurface	---	---	---	---	402	402
Sewage	2,597	17,075	76,275	2,359	---	98,306
Reclaimed Water to						
the LA River	7,773	4,153	47,836	---	---	59,762
Hyperion			28,516 [6]			28,516
Total	**10,370**	**21,228**	**152,627**	**2,359**	**136,262**	**322,846**

1. Basin Account water for Burbank.
2. Includes Valhalla (Burbank) and Forest Lawn (Glendale).
3. Las Virgenes Municipal Water District
4. LA total recycled water is 2,727 AF of which 24 AF were delivered to valley fill and 2,703 delivered to hill/mountains.
5. Glendale OU and Burbank OU treated groundwater discharged to Los Angeles River.
6. Water discharged from Tillman and LA-Glendale plants. Cities proportional contribution unknown at LAG.

TABLE 2-9B: SUMMARY OF 2003-04 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	3,033	3,454	0 [1]	6,487
Imports				
LA Aqueduct Water	4,589	--	--	4,589
MWD Water	6,337	46	--	6,383
Total	**10,927**	**46**	**0**	**10,972**
Exports - Groundwater to San Fernando Basin	3,033	3,143	0	6,176
Total Delivered Water	10,927	357	0	11,283
Water Outflow				
Surface	5,000 [2]			5,000
Subsurface	460 [3]	--	--	460
Sewage	830 [3]	212	--	1,042
Total	**6,290**	**212**	**0**	**6,502**

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

TABLE 2-9C: SUMMARY OF 2003-04 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	2,568	2,117	---	---	8 [1]	4,693
Imports						
LA Aqueduct Water	---	---	---	340		340
MWD Water	3,298	3,528	1,408	470		8,703
Total	3,298	3,528	1,408	810		9,043
Exports to San Fernando Basin	0	656	0	0		656
Delivered Reclaimed Water		383				383
Total Delivered Water	5,865	5,372	1,408	810	8	13,463
Water Outflow						
Surface (Sta. F-252)					5,319	5,319
Subsurface to:						
Monk Hill Basin	---	---	---	---	300	300 [2]
San Fernando Basin	---	---	---	---	80	80 [2]
Sewage	914	1,069	0	473		2,456
Total	**914**	**1,069**	**0**	**473**	**5,699**	**8,155**

1. Private party extractions.
2. Estimated.

TABLE 2-9D: SUMMARY OF 2003-04 WATER SUPPLY AND DISPOSAL EAGLE ROCK BASIN

(acre-feet)

Water Source and Use	City of Los Angeles	DS Waters	Total
Total Extractions	0	231 [1]	231
Imports			
LA Aqueduct Water	205	--	205
MWD Water (25+35)	283		283
MWD Water (17)	41,721		41,721
Groundwater from SFB	0	--	0
Total	**42,209**	**0**	**42,209**
Exports			
MWD Water (17)	37,942		37,942
Groundwater	0	231	231
Total Delivered Water	4,267	0	4,267
Water Outflow			
Surface	--	--	-- [4]
Subsurface	50 [2]	--	50
Sewage	1,940 [3]	0	1,940
Total	**1,990**	**0**	**1,990**

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 2004-05 EXTRACTION RIGHTS SAN FERNANDO BASIN

(acre-feet)

	City of Burbank	City of Glendale	City of Los Angeles
Total Delivered Water, 2003-04	24,235	30,030	272,957
Water Delivered to Hill and Mountain Areas, 200-2004	---	---	55,667
Water Delivered to Valley Fill, 2003-2004	24,235	30,030	217,290
Percent Recharge Credit	20.0%	20.0%	20.8%
Return Water Extraction Right	4,847	6,006	45,196
Native Safe Yield Credit	---	---	43,660
Total Extraction Right for the 2004-2005 Water Year[1]	**4,847**	**6,006**	**88,856**

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

TABLE 2-10B: CALCULATION OF 2004-2005 EXTRACTION RIGHT SYLMAR BASIN

(acre-feet)

	City of Los Angeles	City of San Fernando	All Others
Extraction Right for the 2003-2004 Water Year[1]	3,255	3,255	--- [2]

1. Does not include Stored Water Credit. The safe yield of the Sylmar Basin was increased to 6,510 AF/YR effective 7/16/1996. 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) stopped pumping in 1999.

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

(acre-feet)

	City of Burbank	City of Glendale	City of Los Angeles
1. Stored Water Credit (as of October 1, 2003)	27,429	68,408	270,113
1a. Credits and debits.	44 [1]	(44) [1]	(863) [2]
2. Extraction Right for the 2003-04 Water Year	4,622	5,805	86,754
3. 2003-04 Extractions			
Party Extractions	9,660	7,511	68,626
Physical Solution Extractions	397	457	135
Clean-up/Dewaterers			398
Total	10,057	7,968	69,159
4. Total 2003-04 Spread Water	0	0	0
5. Stored Water Credit [3] (as of October 1, 2004)	**22,038**	**66,201**	**286,846**

1. Burbank and Glendale conducted an internal transfer of water between them in April 2004.
2. City of Los Angeles debited for loss of rising water at Pollock. See Appendix H.
3. Item 5 = 1 +1a + 2 – 3 + 4.

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

(acre-feet)

	City of Los Angeles	City of San Fernando
1. Stored Water Credit (as of October 1, 2003)	6,081	426
2. Extraction Right for the 2003-04 Water Year [1]	3,255	3,255
3. Total 2003-04 Extractions	3,033	3,454
Santiago Estates[2]	0.0	0.0
4. Stored Water Credit[3] (as of October 1, 2004)	**6,303**	**227**

1. The safe yield of the Sylmar Basin was increased to 6,510 AF/YR as of 7/16/1996.
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 parts per million (ppm) for 30 years before 1969. The highest on record was 320 ppm on April 1, 1946. TDS concentration on May 17, 2004 was 237 ppm.

2. *COLORADO RIVER* water is predominantly sodium-calcium sulfate in character, changing to sodium sulfate after treatment to reduce total hardness. Samples taken at the Burbank turnout between 1941 and 1975 indicated a high TDS concentration of 875 ppm in August 1955 and a low of 625 ppm in April 1959. The average TDS concentration over the 34-year period was approximately 740 ppm. Tests conducted at Lake Matthews showed an average TDS concentration of 594 ppm for Fiscal Year 2004.

3. *NORTHERN CALIFORNIA* water (State Water Project) is sodium bicarbonate-sulfate in character. It generally contains less TDS and is softer than local and Colorado River water. Since its arrival in Southern California in April 1972, the water has had a high TDS concentration of 410 ppm and a low of 247 ppm. Tests conducted at the Joseph Jensen Filtration Plant showed an average TDS concentration of 269 ppm during Fiscal Year 2004.

4. *COLORADO RIVER/NORTHERN CALIFORNIA* water were first blended at the Weymouth Plant in May 1975. Blending ratios vary, and tests are taken from the effluent. Tests conducted at the Weymouth Plant showed an average TDS concentration of 422 ppm during Fiscal Year 2004.

Surface Water

Surface runoff contains salts dissolved from rocks in the tributary areas and is sodium-calcium, 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 ppm and a total

hardness of 270 ppm. 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 RWQCB Amended Resolution No. 90-04 was rescinded by Resolution No. 97-02 on chlorides. Water quality objectives for chloride for certain surface waters were revised to accommodate fluctuations in chloride concentrations that may be caused by future droughts. The Amendment to the Water Quality Control Plan to Incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters for ULARA in the Waterbody – Los Angeles River - between Sepulveda Flood Control Basin and Figueroa Street (including Burbank Western Channel only) currently has a maximum of 190 ppm. Chloride levels are reported in Appendix D.

Nitrites in Surface Water

The Regional Board has ordered the cities of Burbank and Los Angeles as part of a nitrogen TMDL program to determine the source of nitrates and nitrites in the Los Angeles River either from stormwater or rising groundwater entering the river. The Los Angeles City Bureau of Sanitation and the City of Burbank have contracted with a consultant to conduct the first phase of the study.

Groundwater

Groundwater in ULARA is 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 ULARA, it is calcium sulfate-bicarbonate in character, while in the eastern part, including Sylmar and Verdugo Basins, it is calcium bicarbonate in character.

Groundwater is generally within the recommended limits of the California Title 22 Drinking Water Standards, except for: 1) areas of the eastern SFB where high concentrations of Trichloroethylene (TCE), Tetrachloroethylene (PCE), Hexavalent Chromium, and nitrates are present; 2) areas in the western end of the SFB having excess concentrations of sulfate and TDS; and 3) areas throughout the Verdugo Basin that have high concentrations of nitrate. In each area the groundwater delivered is either being treated or blended to meet State Drinking Water Standards.

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

3.2 Groundwater Quality Management Plan

During the 2003-04 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 held in ULARA. Special emphasis is placed on monitoring and removing the organic contaminants TCE and PCE found 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 parts per billion (ppb) for TCE and 5 ppb for PCE.

TABLE 3-1: 2003-04 NUMBERS 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	16	13	12	137
	Number of Wells Exceeding Contaminant Level[1]													
TCE Levels µg/L														
5-20	10	6	2	0	2	4	7	2	0	**33**	0	0	0	**29**
20-100	6	0	1	0	0	2	2	1	5	**17**	7	3	0	**27**
>100	1	0	0	3	0	0	0	0	2	**6**	8	4	0	**18**
Total	17	6	3	3	2	6	9	3	7	**56**	15	7	0	**78**
PCE Levels µg/L														
5-20	8	0	1	0	0	2	2	1	5	**19**	1	3	0	**23**
20-100	0	0	1	1	0	0	0	0	2	**4**	3	3	0	**10**
>100	0	0	0	2	0	0	0	0	0	**2**	11	1	0	**14**
Total	8	0	2	3	0	2	2	1	7	**25**	15	7	0	**47**

1. Wells are categorized based upon maximum TCE and PCE values measured during the 2003-04 Water Year. Where data was not available for 2003-04, data from the most recent water year was used. No data was available for some old inactive wells.
2. Includes active, inactive, and stand-by wells.
3. Well Fields: NH - North Hollywood; P - Pollock; HW - Headworks; E - Erwin; W - Whitnall; 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 2003-04 Water Year, a total of 39 sites were remediated under the direction of the LAFD. Currently, the Environmental Unit of the LAFD is monitoring the remediation of 89 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 prevent contamination of the underlying groundwater. If a site investigation indicates groundwater contamination, the site is referred to the RWQCB for further action. Since October 1, 2003, 50 sites have been assigned to the Underground Tank Plan Check Unit, and of these, 24 sites have been remediated.

3.4 Private Sewage Disposal Systems (PSDS)

In order to 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, a total of twelve areas have had construction completed, and 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 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 these 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 assessable costs for the projects.

The majority of the responding owners of each of the following five GIDs: GID No. 3 (Raymer St. Nr. Fulton Ave.), GID No. 17 (Glenoaks Blvd. Nr. Roxford St.), GID No. 19 (Sherman Way Nr. Balboa Blvd.), and GID No. 5 (Chandler Blvd. Nr. Lankershim Blvd.) and GID No. 12 (San Fernando Rd. Nr. Brazil St.) voted against construction of the assessment projects. These projects are now postponed indefinitely. The responding owners serviced by GID No. 4 (San Fernando Rd. Nr. Keswick St.) voted in favor of the project. Right-of-way acquisition for that project is nearly complete. The City Council will adopt a "condemnation" through which the remaining right-of-way is expected to be available by July 2005. Project construction commencement is scheduled for September 1, 2005.

Work on the five postponed 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 Bureau of Sanitation updated the database for water users not being billed for sewer usage. The analysis initially revealed that in the San Fernando Basin approximately 5,700 of these properties are located within 50 feet of an existing sewer, and 7,700 of these properties are more than 50 feet from an existing sewer. The Bureau of Sanitation has prepared a map that covers the unsewered properties and municipal water supply wells within ULARA. The map will assist Bureau of Sanitation in prioritizing field inspections, beginning with unsewered properties within 1,000 feet of a production well.

The Bureau of Sanitation field checked hundreds of addresses in the past year. 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 are on septic tanks in areas were there are no sewers.

City Councilman Alex Padilla, Council District 7, obtained federal funds to subsidize sewer installation for lower-income families in the northeast San Fernando Valley. Funding

applications, which became available in March 2001, are currently being processed only for properties that have an existing available sewer to which connections can be made without construction of new public sewers. .

In 2004 a settlement was reached between Santa Monica Baykeeper et al., Plaintiff, and the City of Los Angeles Bureau of Sanitation to reduce or eliminate sewage releases to surface waters. The settlement will reduce nitrate levels in the SFB only indirectly as a result of the effort to reduce sewer overflows through increased sewer inspection, maintenance, cleaning, replacement, etc. This Capital Improvement Program is expected to cost approximately $2 Billion over a 10-year period.

The Industrial Waste Management Division (IWMD) of the Bureau of Sanitation continued to pursue the enforcement provisions of the PSDS elimination program.

3.5 Landfills

The Solid Waste Assessment Test (SWAT) reports for major SWAT Rank 1 to 4 landfills in the Los Angeles area have been completed and submitted to the RWQCB for approval. The reports reviewed by the RWQCB 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.

BFI, the Sunshine Canyon Landfill operator, is proceeding with the court's order to install a double liner at Sunshine Canyon Landfill.

An application to increase the trash height at Bradley West Landfill is pending.

TABLE 3-2: LANDFILLS WITH SWAT INVESTIGATIONS

(reported to Interagency Coordinating Committee)

Name	Rank	Status	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
Bradley West	1	Open	WMDSC	Sun Valley, SE of Sheldon St.	6/87	11/90		4/92	G	NHA (I/O)	3
Sheldon-Arleta	1	Closed	City of Los Angeles Bureau of Sanitation	Sun Valley District near Hollywood & Golden State Fwys	5/87	5/87		2/90	G	MSW	4,7
Scholl Canyon	1	Open	City of Glendale	San Rafael Hills, 1 mile West of Rose Bowl	7/87	4/88		8/90	G	NHA (I/O)	3
Scholl Canyon	2	Closed	City of Glendale	San Rafael Hills, 1 mile West of Rose Bowl	7/87	8/90		12/93	G	NHA	5
Bradley East	2	Closed	WMDSC	SE of Sheldon St	6/87	11/90		4/92	G	NHA (I/O)	4, 8
Bradley West Extension	3	Open	WMDSC	Near Canyon Blvd & Sheldon St	7/88	7/89		4/92	G	MSW	3, 8
Sunshine Cyn. LA City	2	Closed	Browning - Ferris Industries	SE Santa Susana Mtns W of Golden State Fwy	7/88	7/89		4/94	G	MSW	6
Sunshine Cyn. LA County	2	Open	Browning - Ferris Industries	SE Santa Susana Mtns W of Golden State Fwy	7/88	7/89		4/94		MSW	6
Gregg Pit/Bentz	2	Closed	CalMat Properties	Between Pendleton St & Tujunga Ave	7/89	7/89		2/90	G	NHA	4
Branford	2	Closed	City of Los Angeles Bureau of Sanitation	Sun Valley District, NW of Tujunga Wash	7/88	10/90	X	6/92		MSW	4,7
CalMat (Sun Valley #3)	2	Open	CalMat Properties	Sun Valley District, NE of Glenoaks Blvd	7/88	11/90		6/92	N	Inert site	N,7
Lopez Canyon	2	Closed	City of Los Angeles Bureau of Sanitation	N of Hansen Dam near Lopez and Kagel Cyn	6/88	6/88	X				8
Toyon Canyon	2	Closed	City of Los Angeles Bureau of Sanitation	Griffith Park	6/88	3/89		4/91	L	NHA (I/O MSW)	3
Tuxford Pit	2	Closed	Aadlin Bros. (LA By-Products Co.)	Sun Valley District, SW of Golden State Fwy & Tujunga Ave	6/88	12/90		6/92		MSW	4, 8, 9
Penrose	2	Closed	Los Angeles (LA By-Products Co.)	N of Strathern St, Tujunga Ave	6/88	7/89		9/89	G	NHB (I/O)	4
Newberry	3	Closed	Los Angeles (LA By-Products Co.)	N of Strathern St, Tujunga Ave	6/88	7/89		9/89	G	NHB (I/O)	4
Hewitt Pit	2	Closed	CalMat Properties	North Hollywood District Hollywood Fwy, Laurel	6/88	7/89		5/91	G	NHB (I)	N
Pendleton St.	4	Closed	City of Los Angeles Bureau of Sanitation	Sun Valley, Pendelton St & Glenoaks Blvd	7/90	5/91		6/92	N	Inert Site	5
Stough Park	2	Open	City of Burbank	Bel Air Drive & Cambridge Drive	6/88	12/88		4/90	G	NHA Inert Site	3
Strathern			Never completed. Application 12/88.	Strathern St. & Tujunga Ave							10

1. G – Gas, L – Liquid. MSW – Municipal Solid Waste
2. 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. EPA 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 and their contamination with TCE and PCE. The LADWP was selected by the USEPA to serve as the lead agency in conducting the RI and 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, Incorporated to serve as its consultant to perform various RI tasks.

The report, "Remedial Investigation of Groundwater Contamination in the San Fernando Valley," was completed in December 1992 and is a comprehensive, five-volume report that presents the findings and characterizations of the SFB and the Verdugo Basin with regard to their geology, hydrogeology, and nature and extent of contamination. The RI report also provides a description and the documentation of the SFB Groundwater Flow Model, summarizes the RI field investigation activities, and evaluates potential risks to human health and the environment.

The SFB Groundwater Flow Model was developed as a part of the San Fernando Valley Remedial Investigation 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 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 LADWP, other municipalities, and various agencies and 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 semi-annual sampling reports are available for public use 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 generation of groundwater contour maps and contaminant plume maps. CH2M HILL forwards current 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 Glendale North and South Operable Units, which are part of the USEPA's overall, long-term groundwater remediation activities in the SFB. The OUs are described below.

1. *NORTH HOLLYWOOD OU* - The North Hollywood OU (NHOU) was funded by the USEPA and the DHS. The NHOU removes VOCs by air-stripping. In 2003-04, 400.3 million gallons (1,228 AF) of groundwater were treated. This represents 600 AF less than the 2002-03 Water Year and is in part due to the declining water table that has dropped below the depth of some wells in the system.

   The facility was shut down in September 2003 for the granular activated carbon (GAC) change out in the Emission Control Unit. After the GAC was replaced the operation was resumed on October 9, 2003 with all seven water supply wells on line.

   Air discharged to the atmosphere was monitored for VOCs on a quarterly basis. All four quarters of VOC monitoring data were in conformance with permit requirements of the South Coast Air Quality Management District.

   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 hexavalent chromium groundwater plume has been identified nearby, adding to the complexity of the problem. If production capacity of the

NHOU is increased it might also capture the hexavalent chromium, which the NHOU is not designed to remove.

2. *BURBANK OU* - The Burbank OU, funded by Lockheed-Martin under a USEPA Consent Decree and operated by Burbank, uses aeration and liquid-phase GAC to remove VOCs from high nitrate groundwater and then blends it with water from the Metropolitan Water District for delivery to the City of Burbank.

   Burbank assumed operation and maintenance of the BOU in 2001. Since that time, the facility has been unable to sustain operation at the designed treatment rate of 9,000 gpm. Burbank, Lockheed-Martin, USEPA, and the Watermaster Office have been cooperating in an effort to determine the cause(s) of the reduced treatment capacity. As a result, several modifications were found to be needed to the liquid-phase and vapor-phase GAC vessels. The modification of the liquid-phase GAC vessels is complete, and the vapor-phase modification is scheduled for completion in late 2005. In addition, the study showed that additional well capacity may be required to sustain operation at 9,000 gpm.

   In order to increase production, Burbank has begun a Well Field Performance Attainment Study. Montgomery Watson Harza has been selected to perform the study, which is currently underway. Other options to increase production include drilling additional wells, and building a pipeline to blend MWD water with high chromium groundwater from the Lake Street wells.

   Burbank is also concerned about hexavalent chromium in water produced at the BOU and has been blending with imported water to keep the level of hexavalent chromium at, or below, 5 ppb. The BOU was not designed to treat chromium.

   A total of 9,660 AF were treated in the 2003-04 Water Year.

3. *GLENDALE NORTH AND SOUTH OUS.* Construction of the Glendale North and South Operable Units was completed and treated water was ready for delivery on September 26, 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 process uses aeration and liquid-phase GAC to treat groundwater contaminated with VOCs and then blends it with MWD water at the refurbished Grandview Pump Station. A total of 7,283 AF were treated in 2003-04.

In 2004 the USEPA accepted Glendale's temporary pumping plan to minimize chromium levels by reducing pumping in wells with elevated levels of chromium and increasing the pumping rate from the other wells.

4. *Verdugo Basin Superfund Study Area.* In October 2003, the USEPA published a Fact Sheet announcing that the Verdugo Study Area Site, located in the Verdugo Basin, requires no remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Study Area was initially created as a result of low levels of VOCs detected in the 1980s and early 1990s.

   Monitoring wells used by the study will continue to be used for general groundwater quality sampling and water level measurements.

Other Treatment Facilities

1. *VERDUGO PARK WATER TREATMENT PLANT (VPWTP)* – Glendale's VPWTP produces about 500 gpm and serves as a chlorination and turbidity treatment facility. A total of 656 AF were treated in 2003-04.

2. *GLENWOOD NITRATE WATER TREATMENT PLANT* - CVWD's Glenwood Nitrate Water Treatment Plant, which uses an ion-exchange process for nitrate removal, continued to operate satisfactorily during the 2003-04 Water Year. A total of 53 million gallons (164 AF) of water were treated. The 24 percent decline in the amount of treated water is due to the lower water table that has reduced the availability of groundwater, necessitating an increase in purchases of imported water. In addition, nitrate levels in the groundwater have declined during the past several years.

3. *POLLOCK WELLS TREATMENT PLANT* (PWTP) – The 3,000-gpm PWTP was dedicated on March 17, 1999. The treatment plant restored Pollock Wells No. 4 and No. 6 to operation. The operation of these production wells reduces groundwater discharge to the Los Angeles River due to excess rising groundwater in the area. The treated water is chlorinated before distribution in the water system. The PWTP uses four GAC vessels in two sets operating in series to remove VOCs. The PWTP was shut down on April 28, 2004 for GAC change-out. A total of 1,137 AF of groundwater were treated during the year. This is the lowest amount produced since the facility began pumping in 1999. The 863 AF lost as excess rising water has been deducted from Los Angeles' stored credit (Appendix H).

4. *BURBANK GAC TREATMENT PLANT* - The City of Burbank GAC system (Lake St. wells) was shut down in March 2001 due to the levels of hexavalent chromium in the groundwater and remained out of service during the 2003-04 Water Year. The City of Burbank has a goal of accepting a maximum of 5 ppb of hexavalent chromium after blending for distribution to its water system. If the plant is returned to service, production may be considered as part of the designated average pumping goal of 9,000 gpm for the Burbank OU.

3.8 Groundwater Quality Investigations

There are several ongoing groundwater quality investigations in the San Fernando Basin. 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 in the 1950s and 1960s. As a result, soil and groundwater became contaminated with TCE and perchlorate. Several hundred monitoring wells have been installed and are being sampled and tested. Contaminated soil and groundwater are being remediated at selected locations.

DriLube, 711 W. Broadway, Glendale

DriLube Company, a plating facility located in Glendale, was issued a Cleanup and Abatement Order (CAO) by the RWQCB on March 29, 2002. DriLube was named a Responsible Party by the USEPA for discharging contaminants to the Glendale South Operable Unit from its site. The results of subsurface investigations have detected soil and groundwater contaminated with chlorinated solvents, petroleum hydrocarbons, PCBs, and heavy metals including chromium. On November 15, 2002 a fire at the Drilube Company totally destroyed the Plant 1 facility and records. The property has been purchased by two parties. The RWQCB is considering the legal implications for the new owners.

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

The RWQCB issued a Cleanup and Abatement Order to PRC-DeSoto (formerly Courtaulds Aerospace) 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 involve chemical formulation of adhesives and sealants used by the U.S. Department of Defense for various aerospace applications. Periodic groundwater monitoring and reporting has been conducted at the site since 1994. Trichloroethane (1,1,1-TCA), dichloroethane (DCE), TCE, PCE, and hexavalent chromium have been found in soil and groundwater beneath the site. The third quarter 2004 sampling indicated hexavalent chromium concentrations of 630 ppb in groundwater beneath the site.

Excello Plating, 4057 Goodwin Ave., Los Angeles

The RWQCB issued a Cleanup and Abatement Order to Excello Plating on June 20, 2003. This facility has been named a responsible party for releasing volatile organic compounds, hexavalent chromium, nickel, cadmium, zinc and lead. The purpose of this CAO is to ensure that the Discharger completes assessment on-site and off-site to delineate the lateral and vertical extent of heavy metal contaminants (specifically chromium) and, as necessary, undertake remediation of the affected soil and groundwater, on-site and off-site. Groundwater samples from the Glendale South Operable Unit wells adjacent to the Excello site in 2002 indicated levels of hexavalent chromium above 54 ppb.

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. The firm submitted to the RWQCB a workplan for review in October 2004. Preparations are now being made to begin field work.

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

The RWQCB issued a Cleanup and Abatement Order to Coltec Industries, Inc. on July 5, 2002. This facility has been named a Responsible Party by the USEPA for discharging contaminants to the Glendale North Operable Unit. The facility's former industrial activities involve machining, manufacturing, metal plating and anodizing of parts and equipment used by the U.S. Department of Defense for various aerospace applications. TCE, PCE, DCE, 1,1,1-TCA and hexavalent chromium have been detected on this site. The third quarter 2004 sampling indicated maximum hexavalent chromium concentrations of 1,500 ppb in groundwater.

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

Home Depot intends to construct a store 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, PCBs, mercury and hexavalent chromium. In 2004 Home Depot built a slurry wall under the site to prevent lateral migration of contamination. A naturally occurring low-permeability zone located 50 feet below the ground surface is expected to prevent vertical migration of the contaminants. In preparation for the Remedial Action Plan implementation and in accordance with the mitigation measures set forth in the EIR, in late 2003, Home Depot installed four groundwater monitoring wells ouside of the planned location of the slurry wall to monitor the baseline condition. ITT, the firm responsible for the contamination of the site, conducted its annual sampling event of on-site wells and also upgradient and downgradient wells.

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

Progress has been made in the Pacoima Area investigation by a coordinated effort between Cal-EPA DTSC, the RWQCB, LADWP, and the Watermaster Office. A VOC contaminant 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, which can supply up to 120 cfs of groundwater. LADWP installed two monitoring wells downgradient of the contaminant plume. Under DTSC guidance, Brenntag has installed a soil vapor extraction system. Brenntag installed two new wells along Sutter Avenue to the southeast of the site in spring 2003. Brenntag now has 16 monitoring wells - nine on-site and seven off-site. Since start up of the SVE system in January 2003 through February 2004 more than 18,500 lbs. of VOCs have been removed.

The Paxton Street site (formerly Price Pfister), located southeast of Brenntag, has been directed to delineate the extent of VOC contamination with on-site and off-site monitoring wells. The data will provide plume definition and help determine if the VOC plumes have merged. The RWQCB is the lead agency in enforcing cleanup of this site. Soil vapor extraction began in September 2002 and air sparging began in June 2003. Both systems were turned off in April 2004 to prevent damage while buildings were being demolished. The soil excavation should be completed in early 2005. The groundwater investigation should also be completed in 2005, followed by a determination of whether groundwater cleanup is required.

A series of community meetings were held in the Pacoima Area in 2004 by Councilmember Alex Padilla to address concerns for the development of the Price Pfister site as a Lowe's Home Center that is expected to bring employment to this neighborhood. The contamination investigation and cleanup will continue during and after the construction.

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

Honeywell was issued a Clean Up and Abatement Order February 21, 2003 and an amended Clean Up and Abatement Order in September 2004. The firm was directed to prepare a workplan for additional on-site and off-site subsurface assessment of soil and groundwater. Honeywell has also provided previously unreported monitoring data from on-site wells between 1997 and 2003 that indicate TCE levels of 610 ppb in June 2003. Beginning in February 2005 four additional off-site wells were drilled. Samples from all existing wells were provided to the USEPA in December 2004.

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

The most prominent contaminant has been 1,1-DCE with lesser amounts of TCE, PCE, TCA, BTEX and 1,1-DCA. TDS is in excess of the Basin Plan objectives, so the treated water may not be discharged to the Los Angeles River even though the origin of the high TDS is related to the naturally occurring groundwater. As a result of the high TDS, the treatment plant effluent is stored in holding tanks, and used for on-site irrigation.

Due to significant decreases in contaminant concentrations, the RWQCB has approved groundwater sampling and analyses on a semiannual basis. The remediation system has reduced the extent of the plume by more than 50 percent. A work plan submitted to the RWQCB to perform a pilot test for the effectiveness of enhanced in-situ bioremediation was

approved by the RWQCB and initial fieldwork began in September 2003. Pilot test sampling has indicated that site conditions are conducive for the reductive-dechlorination process to be enhanced by the injection of an electron donating compound. The pilot test result was submitted in July 2004 and the full scale implementation workplan was submitted to the RWQCB in late 2004. Although the property is now owned by other entities, Raytheon is the current operator of the soil and groundwater treatment system.

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

Contaminants at this site include chloroform, 1,2-DCE, and Freon 11. There has been a groundwater extraction and air-stripping treatment system in operation since 1997. There are numerous monitoring wells on the property, and off-site to the south. During the 2003-04 Water Year, 61.91 acre-feet of groundwater were treated, of which 50% was beneficially reused in the plant for rotoclones (dust collectors). From start-up through January 2005, approximately 14,400 pounds of VOCs have been removed from the soil and 4,770 pounds of VOCs from the groundwater. The RWQCB has approved a plan by 3M to re-use all treated water on the site for landscaping irrigation and industrial uses. Due to naturally high TDS, the cooling towers will utilize a once-through process, minimizing the potential for fouling. Construction of the irrigation system should be completed in early 2005.

Micro Matics, 19791 Bahama St., Northridge

The Micro Matics site is located adjacent to 3M. The soil and groundwater beneath a portion of the property are contaminated with PCE and 1,1,1-TCA. The plume has also moved off-site 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 RWQCB to inject a hydrogen donating compound into the aquifer to degrade the VOCs in-situ.

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

Tesoro Petroleum is the owner of a gas station site that was leased to Fast Fuel. A leaking underground tank has caused a plume of gasoline hydrocarbons and MTBE in the groundwater that has migrated off-site toward several wells in LADWP's Whitnall Well Field. Tesoro has been performing soil remediation using soil vapor extraction. Tesoro has also been working with LADWP, Watermaster, and RWQCB to address the MTBE plume, and the parties are

developing a groundwater cleanup plan that includes in-situ bioremediation and re-injection of the treated water. Tesoro treated 4.5 AF of contaminated groundwater in the 2003-04 Water Year.

Taylor Yard (Los Angeles River Narrows Area)

The remediation of the Taylor Yard of the Union Pacific Railroad Company is under the jurisdiction of the Cal-EPA DTSC. The Taylor Yard has been divided into two parts - active yard and sale parcel.

The 25-acre active yard is contaminated with VOCs, SVOCs, fuel hydrocarbons, and metals. Three soil vapor extraction systems have removed a total of 1,110 pounds of VOCs to date. There are currently 38 groundwater wells in the monitoring program, eight of which are sampled quarterly and 21 are sampled semi-annually.

Chromium

In January 2003 the ULARA Watermaster published a report on hexavalent chromium contamination in the SFB. The RWQCB 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 jeopardizes the Operable Units constructed with funding from the USEPA to clean up VOCs on a regional basis. The Operable Units that treat VOCs in the groundwater were not 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 federal and state drinking water MCLs for total chromium are 100 ppb and 50 ppb, respectively. There are no separate standards for hexavalent chromium. Until hexavalent standards are developed, the total chromium standards will continue to be used.

A National Toxicology Program study is underway to determine a safe federal Maximum Contaminant Level (MCL) for hexavalent chromium, and should be completed in 2006. In the meantime, according to normal procedures for a contaminant under review, the existing MCL will be used.

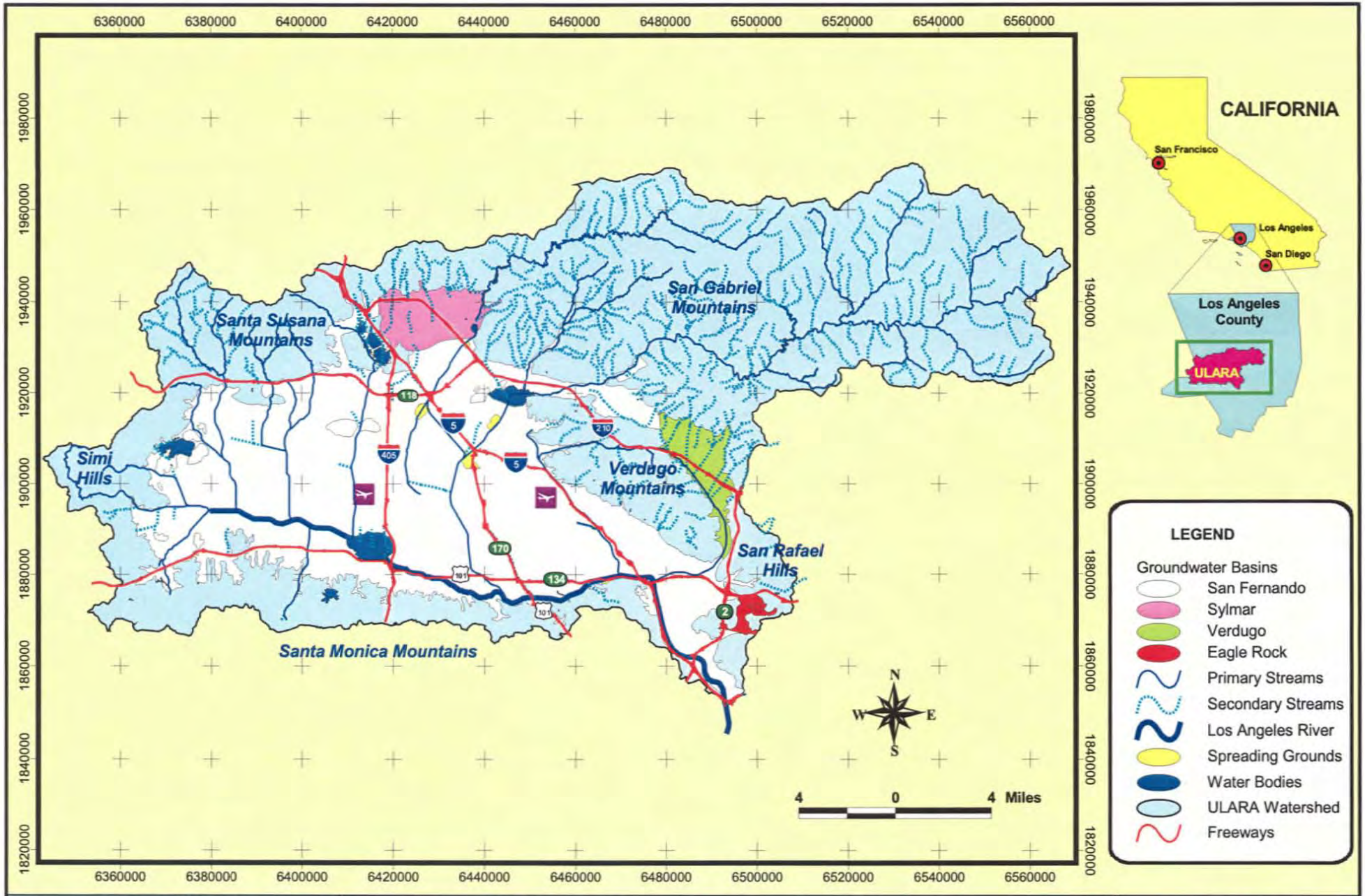
At the State level, the Governor approved State Senate Bill 2127 in November 2000. This bill requires the DHS to determine the levels of chromium in the drinking water supplied by public water systems from the SFB aquifer and, in consultation with OEHHA, to assess the exposures and risks to the public. The report was due January 1, 2002 but has not been published as of this writing.

The Consent Decrees between the USEPA and the responsible parties require that certain pumping rates be maintained to control VOC plume migration and 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 Operable Units. Fortunately, the levels are currently low enough to allow blending with imported water to levels that meet all drinking water standards. However, it is expected that at some point in the future the levels may become too high to allow blending to reduce chromium to acceptable levels. At that time, the Operable Units would have to be shut down, and VOC removal and containment would cease.

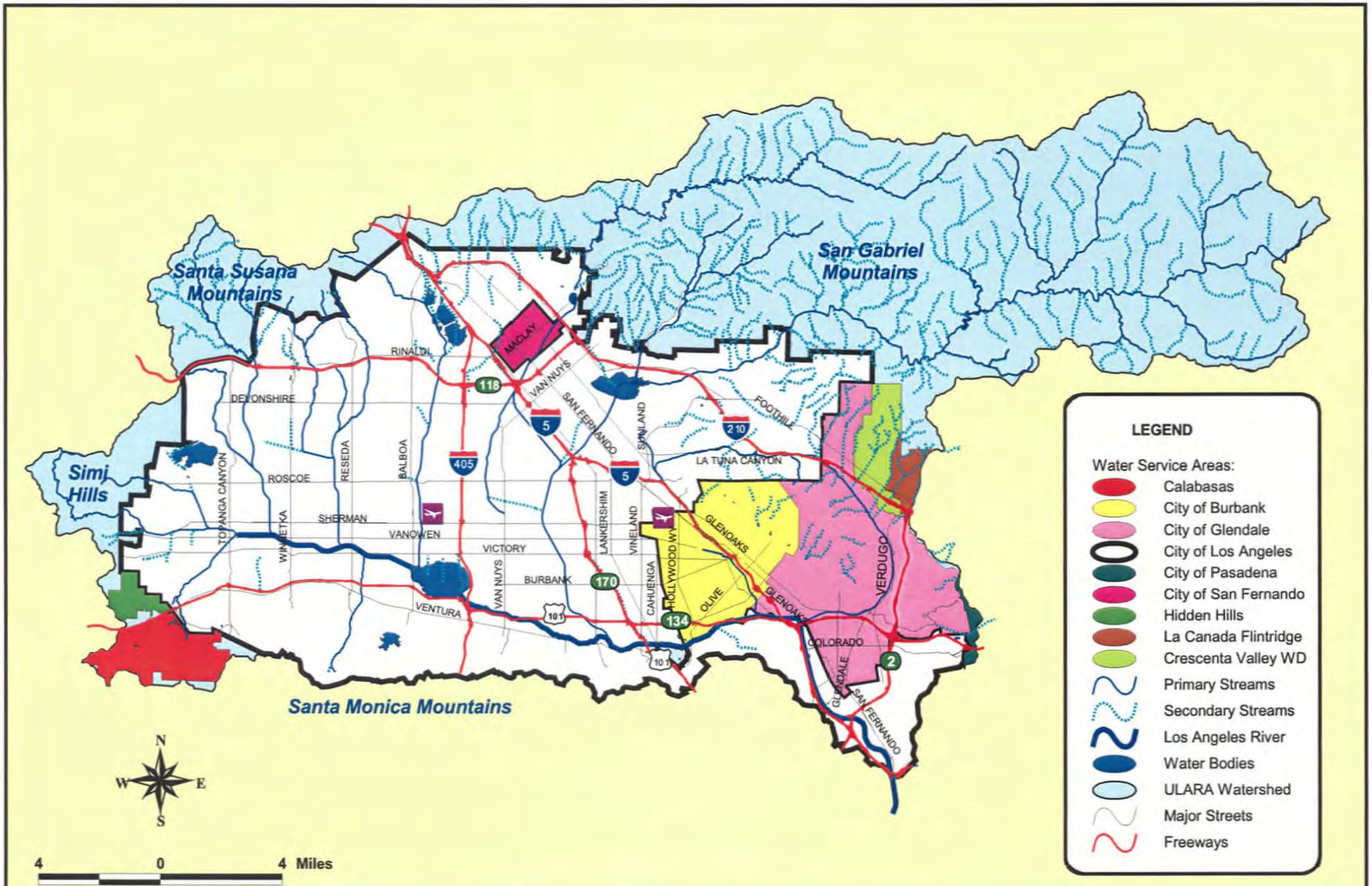
The RWQCB, with assistance from the USEPA and the cities of Burbank, Glendale, and Los Angeles has received temporary staff support to expedite investigation of possible hexavalent chromium contaminated sites. The focus is on the several sites identified last year by the RWQCB with the highest reported levels of hexavalent chromium and the greatest potential impact on the three cities' Operable Units and well fields.

A study is underway by McGuire Environmental Consultants to identify a cost-effective technology to remove chromium to very low levels. The USEPA, American Water Works Research Foundation, and the cities of Glendale, Los Angeles, and Burbank are funding the project. Three promising treatment technologies have been identified: weak base anion exchange; strong base anion exchange; and precipitation-coagulation-filtration. Cost comparisons of each of these technologies are being prepared, and funding is being secured to build a demonstration-scale facility on one or more high-chromium wells.

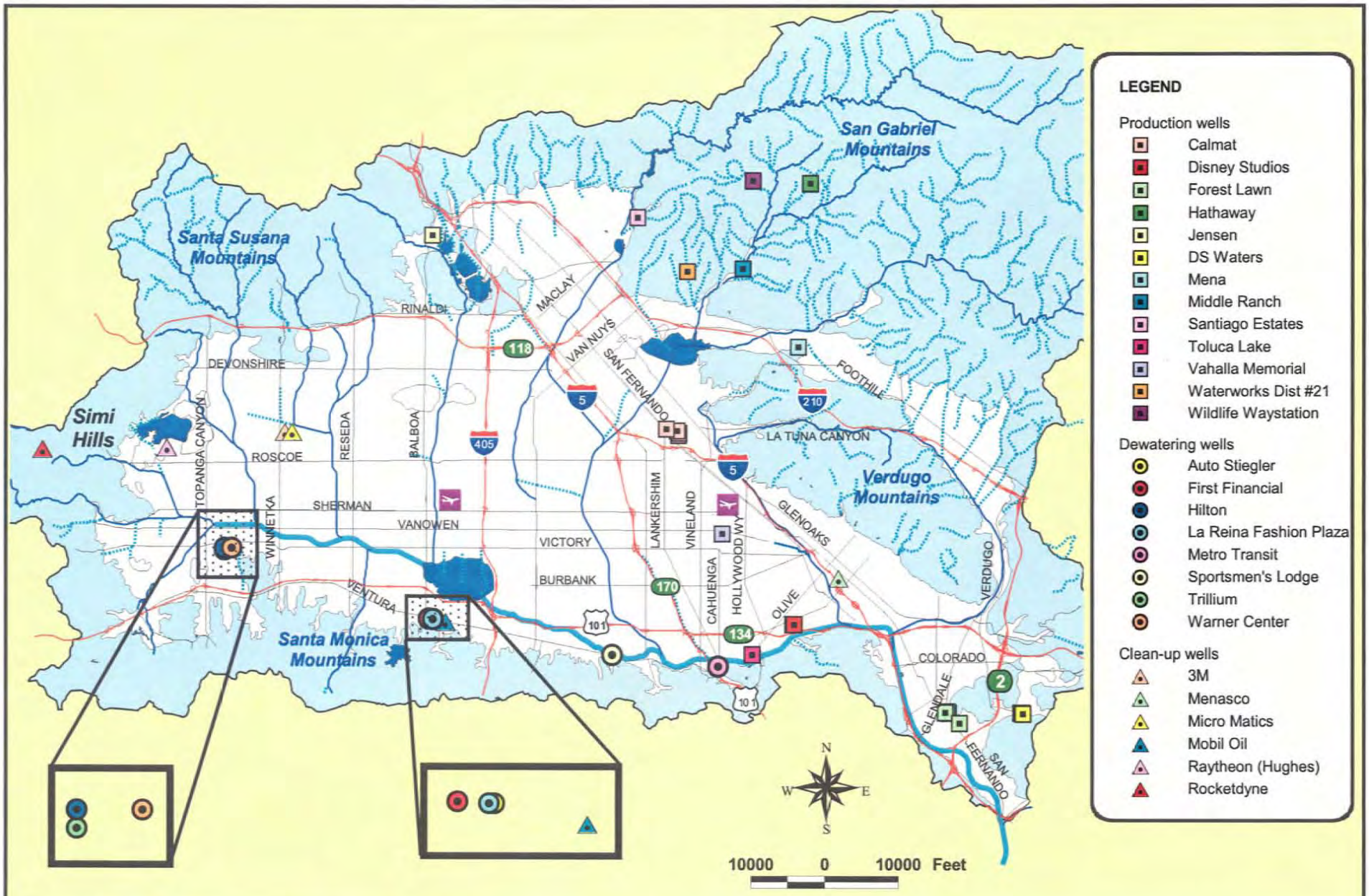
PLATES



2003-04 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Vicinity and Location Map**	**PLATE 1**



2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Water Service Areas of Public Agencies	PLATE 2



2003-04 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

- X-X-X-X 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

0 4,000 8,000 12,000 16,000 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

Forestore Wastewater Treatment Plant

CYCWD Wastewater Treatment Plant

L.A. - Glendale Wastewater Treatment Plant

City of Burbank Wastewater Treatment Plant

PACOIMA RESERVOIR

SAN FERNANDO

SYLMAR

GRANADA HILLS

CHATSWORTH

NORTHRIDGE

CANOGA PARK

WOODLAND HILLS

TARZANA

ENCINO RESERVOIR

SHERMAN OAKS

VAN NUYS

RESEDA

TUJUNGA

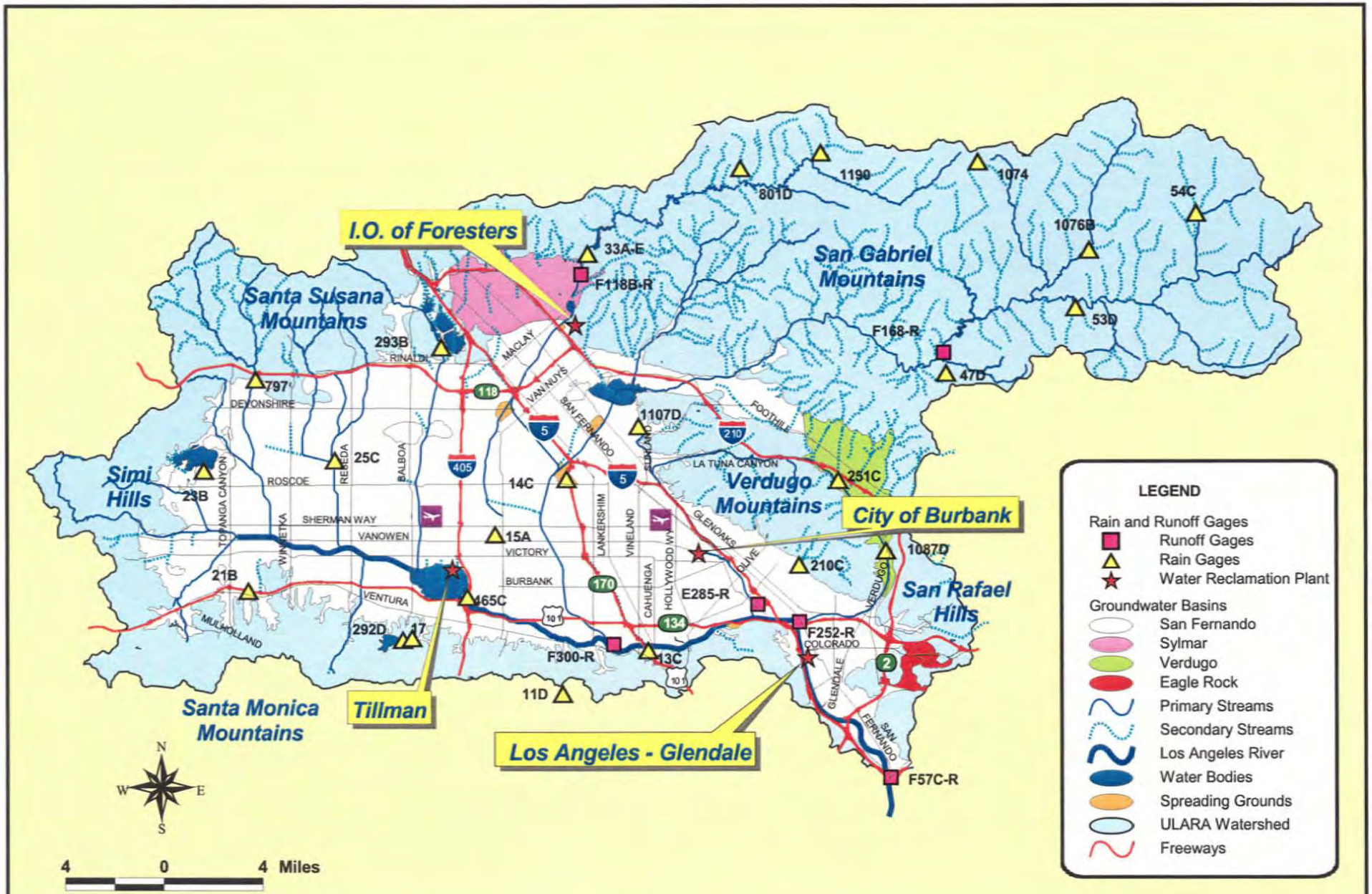
BURBANK

GLENDALE

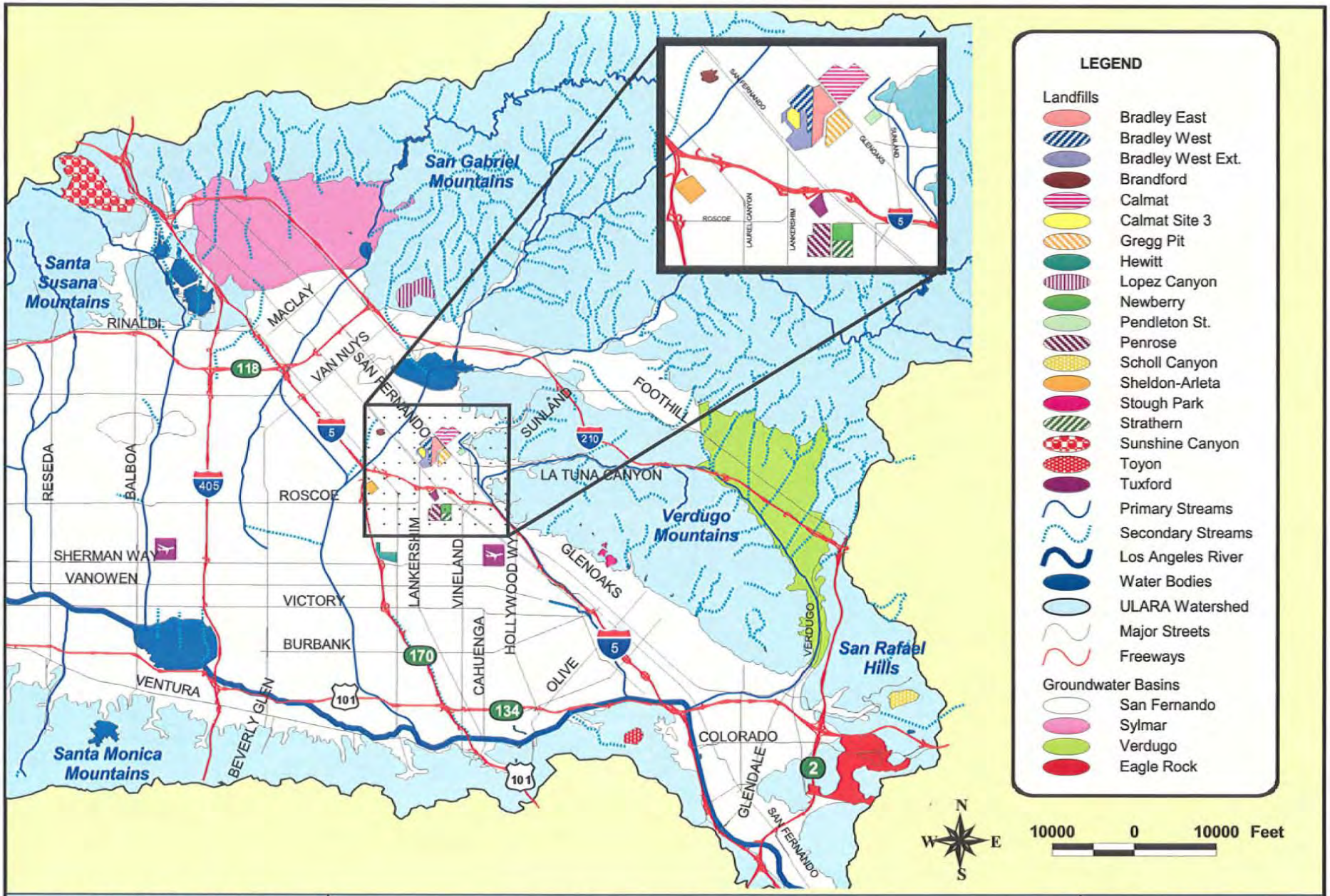
EAGLE ROCK

GROUNDWATER DIVIDE

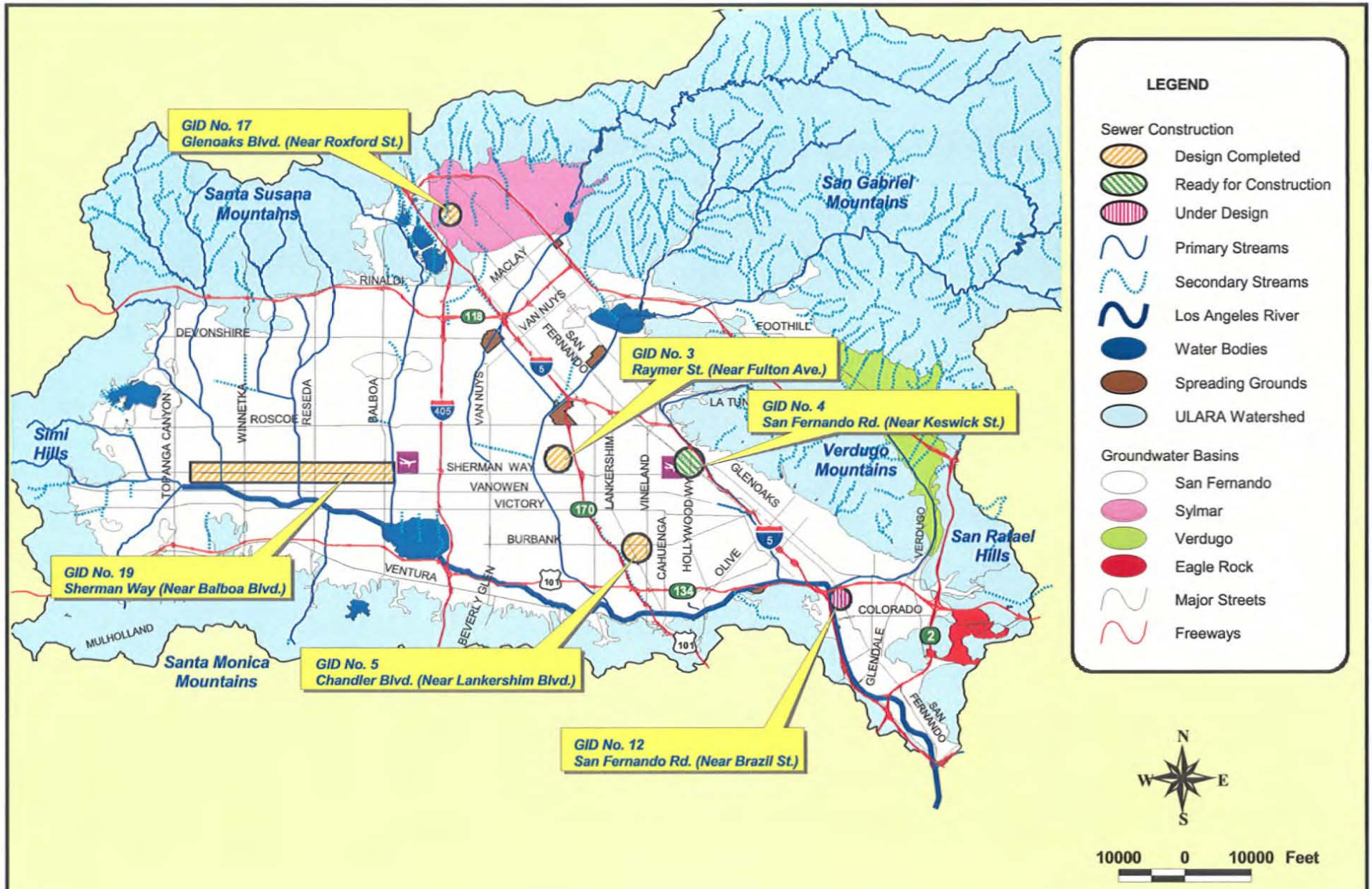
NOTE: 4.25 miles to Tapia Water Reclamation Plant which delivers water to a portion of the west end of VLARA area.



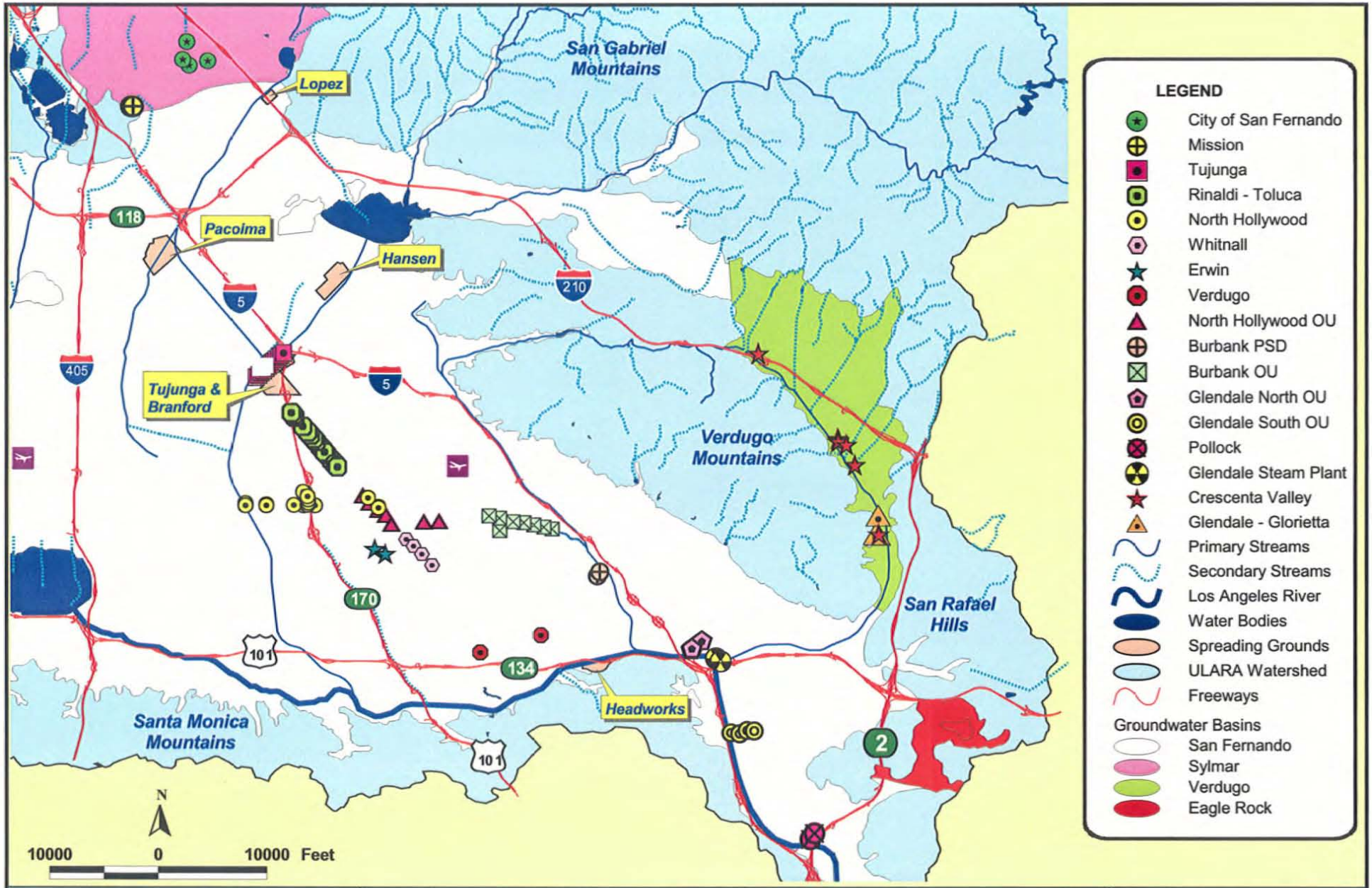
2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Water Reclamation Plants and Rain-Runoff Gages	PLATE 5



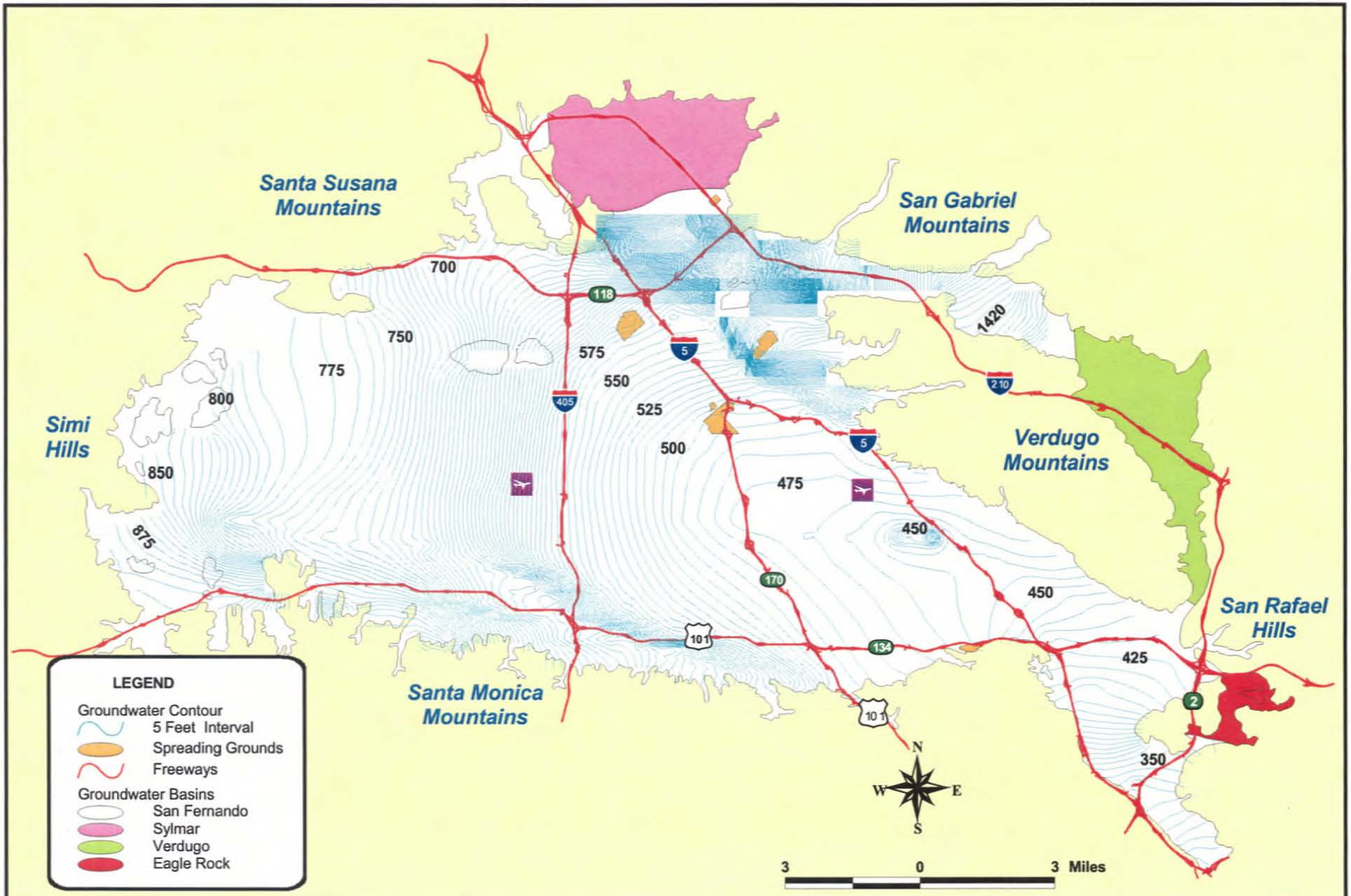
2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Landfill Locations	PLATE 6



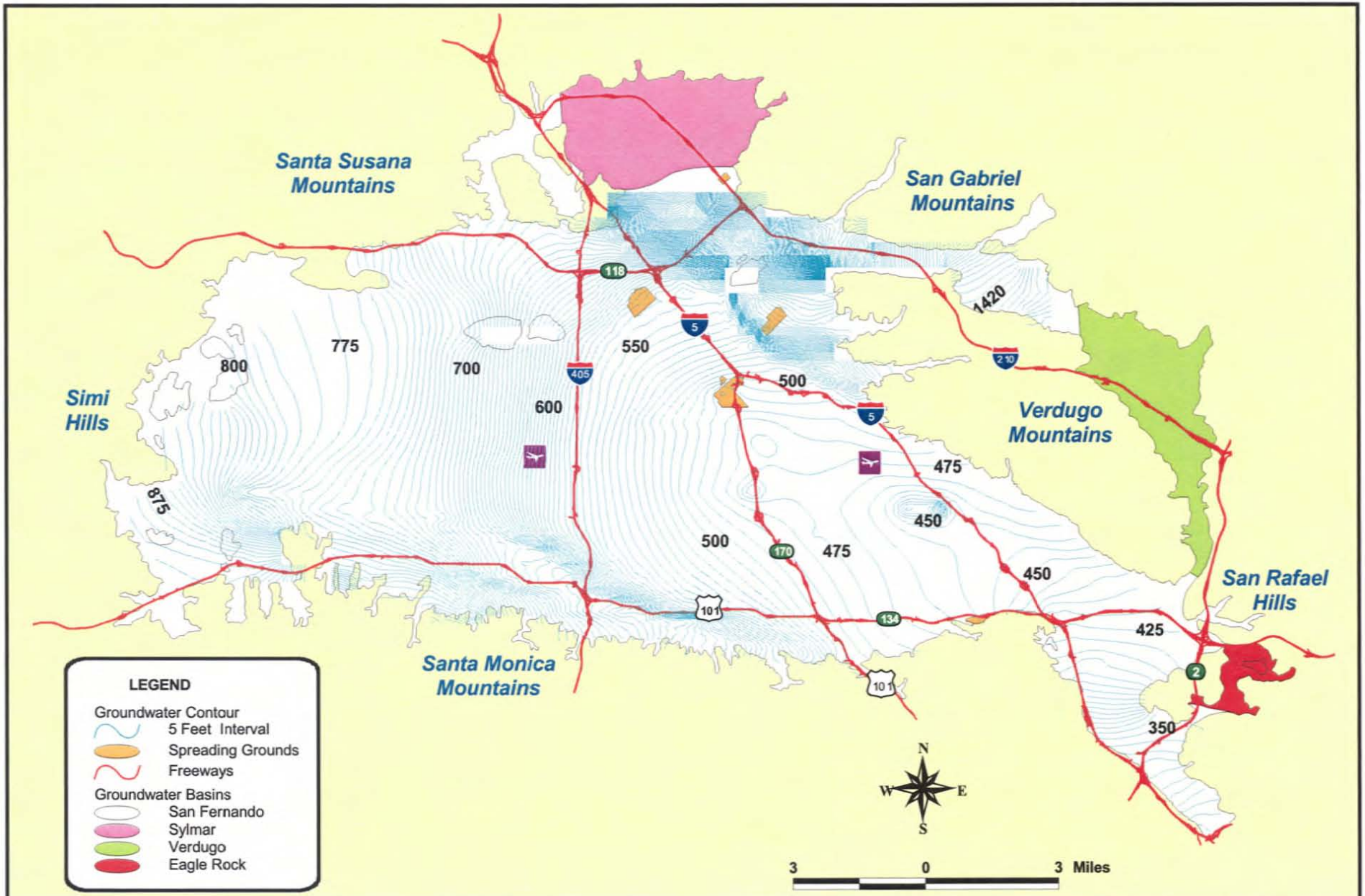
2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Los Angeles Bureau of Sanitation Sewer Construction Program for Commercial Parcels	PLATE 7



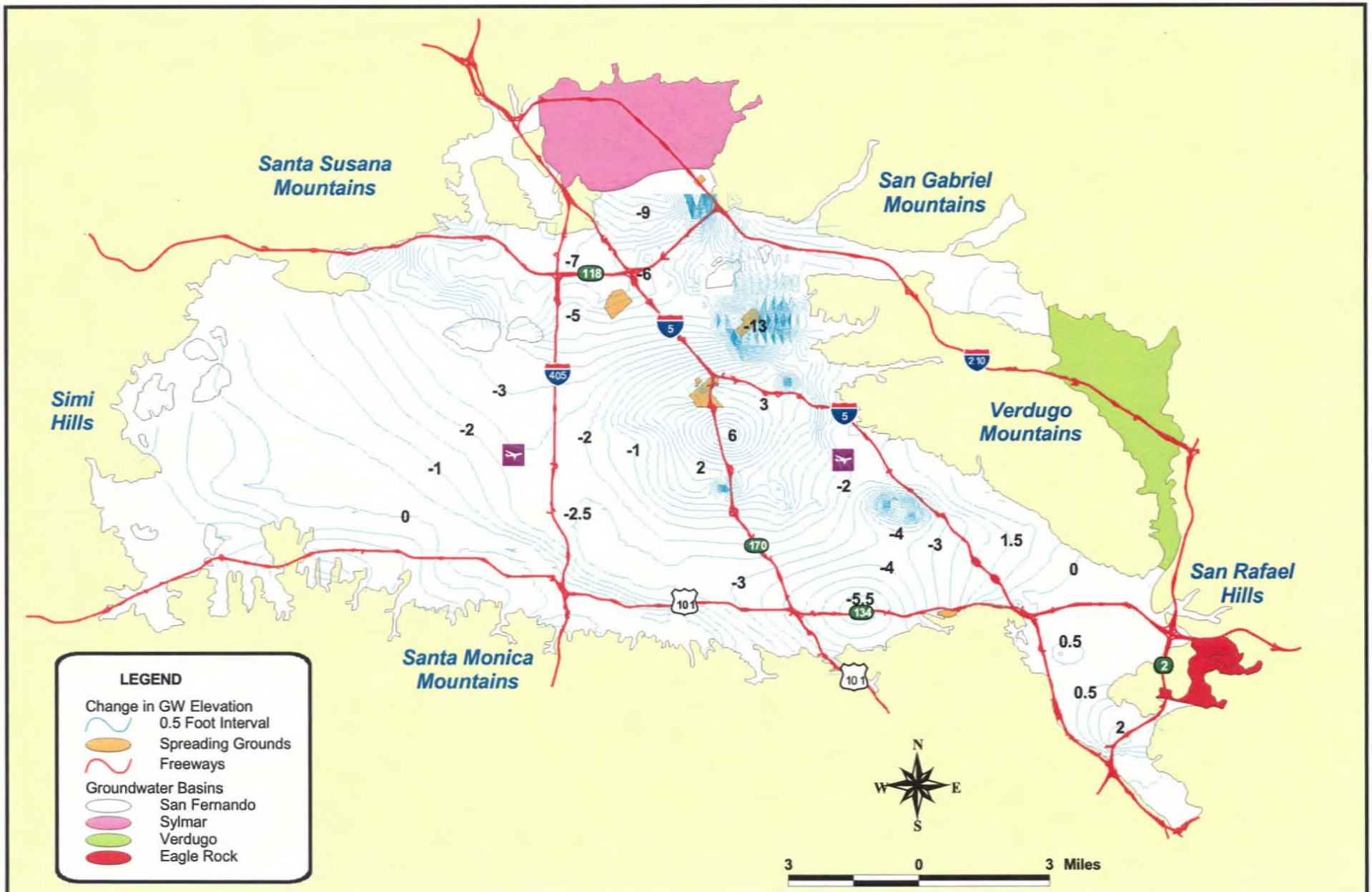
2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Major Well Fields and Spreading Grounds	PLATE 8



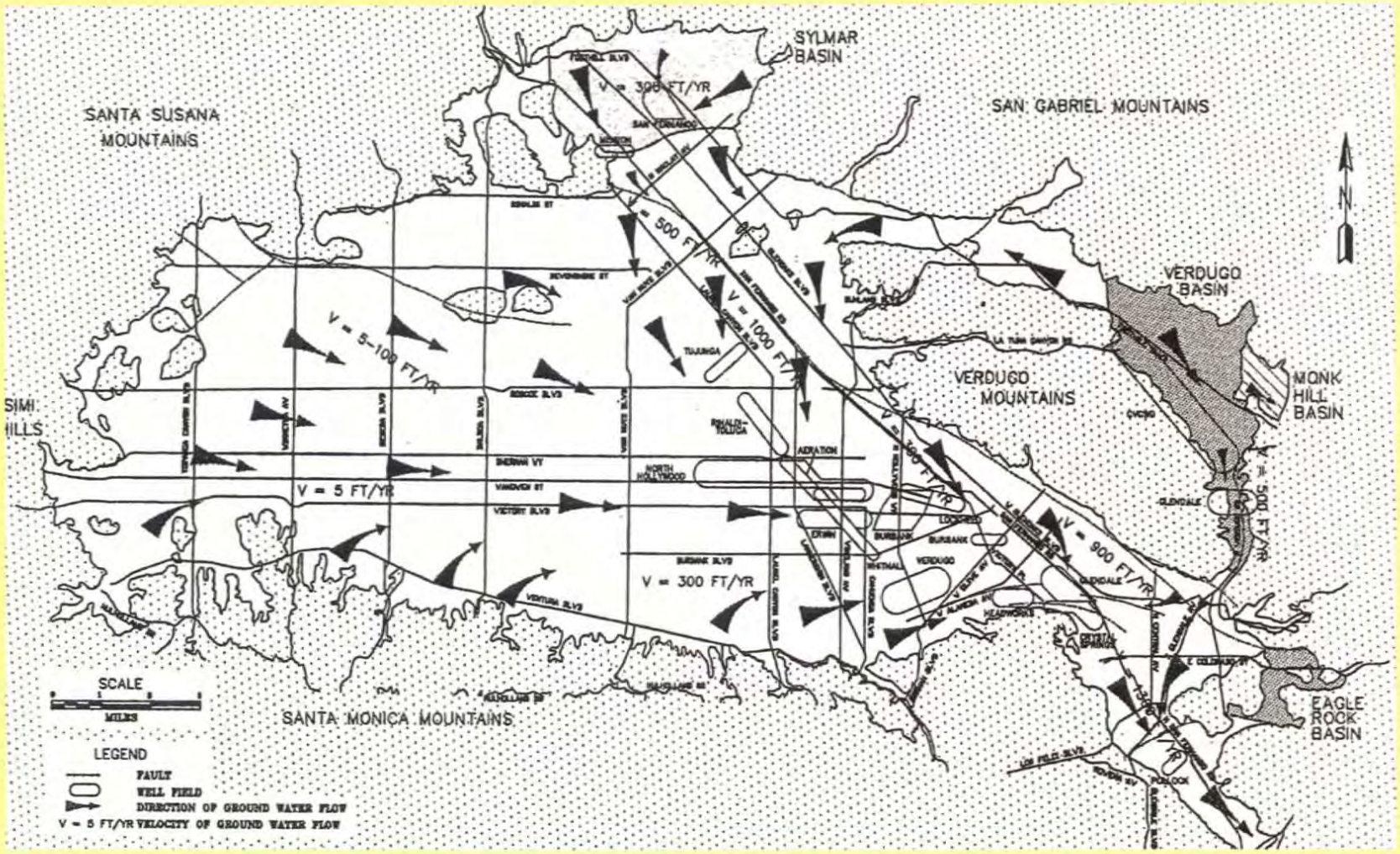
2003-04 Water Year ULARA Watermaster Report	Simulated Groundwater Contours Spring (April) 2004	PLATE 9



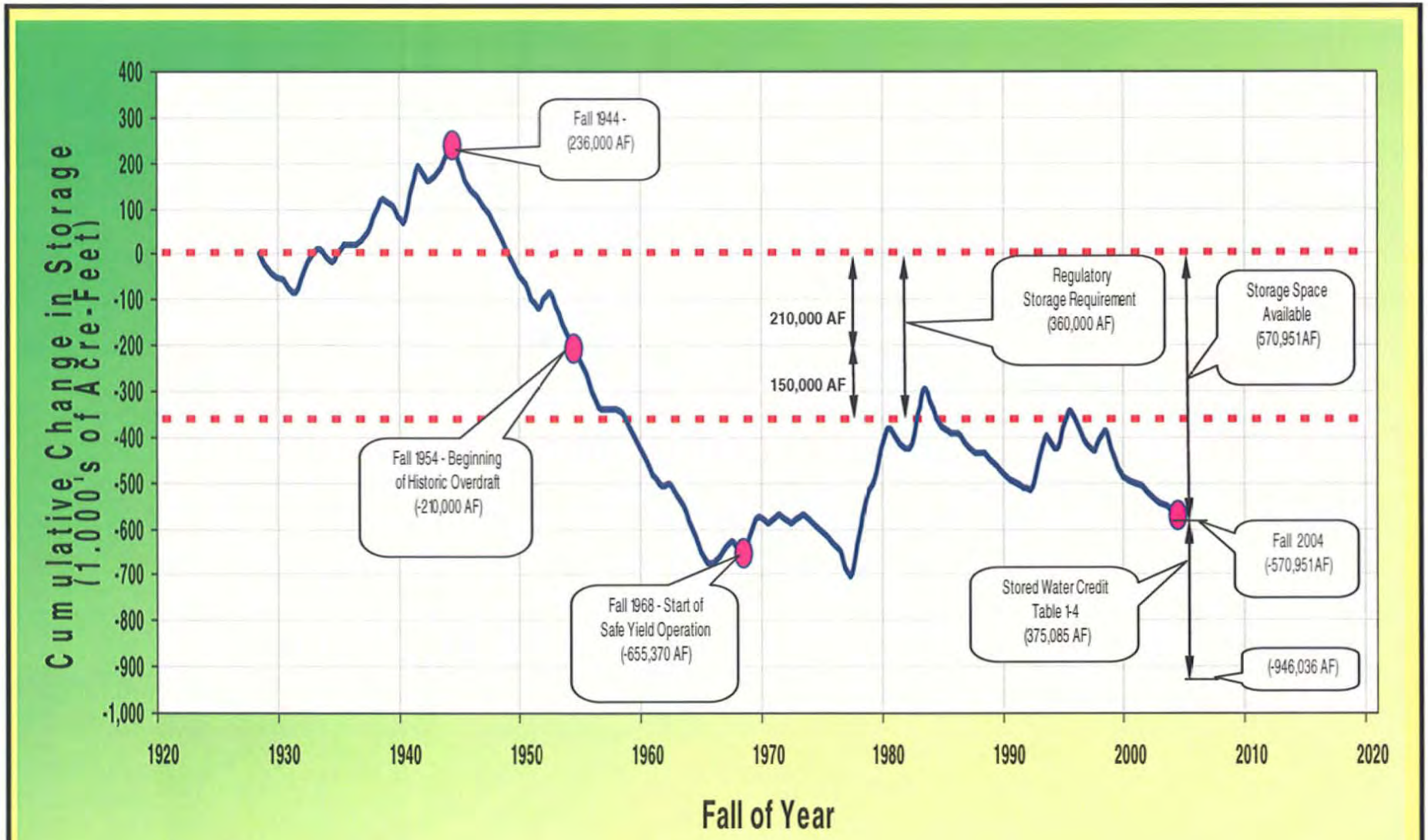
2003-04 Water Year ULARA Watermaster Report	**Simulated Groundwater Contours Fall (September) 2004**	PLATE 10



2003-04 Water Year ULARA Watermaster Report	Change in Groundwater Elevations Fall 2003 - Fall 2004	PLATE 11



2003-04 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Estimated Directions and Velocities of Groundwater**	PLATE **12**



2003-04 Water Year ULARA Watermaster Report	San Fernando Basin: Cumulative Change in Groundwater Storage	PLATE 13

Calculated Change in Storage vs. Stored Water Credit in San Fernando Basin

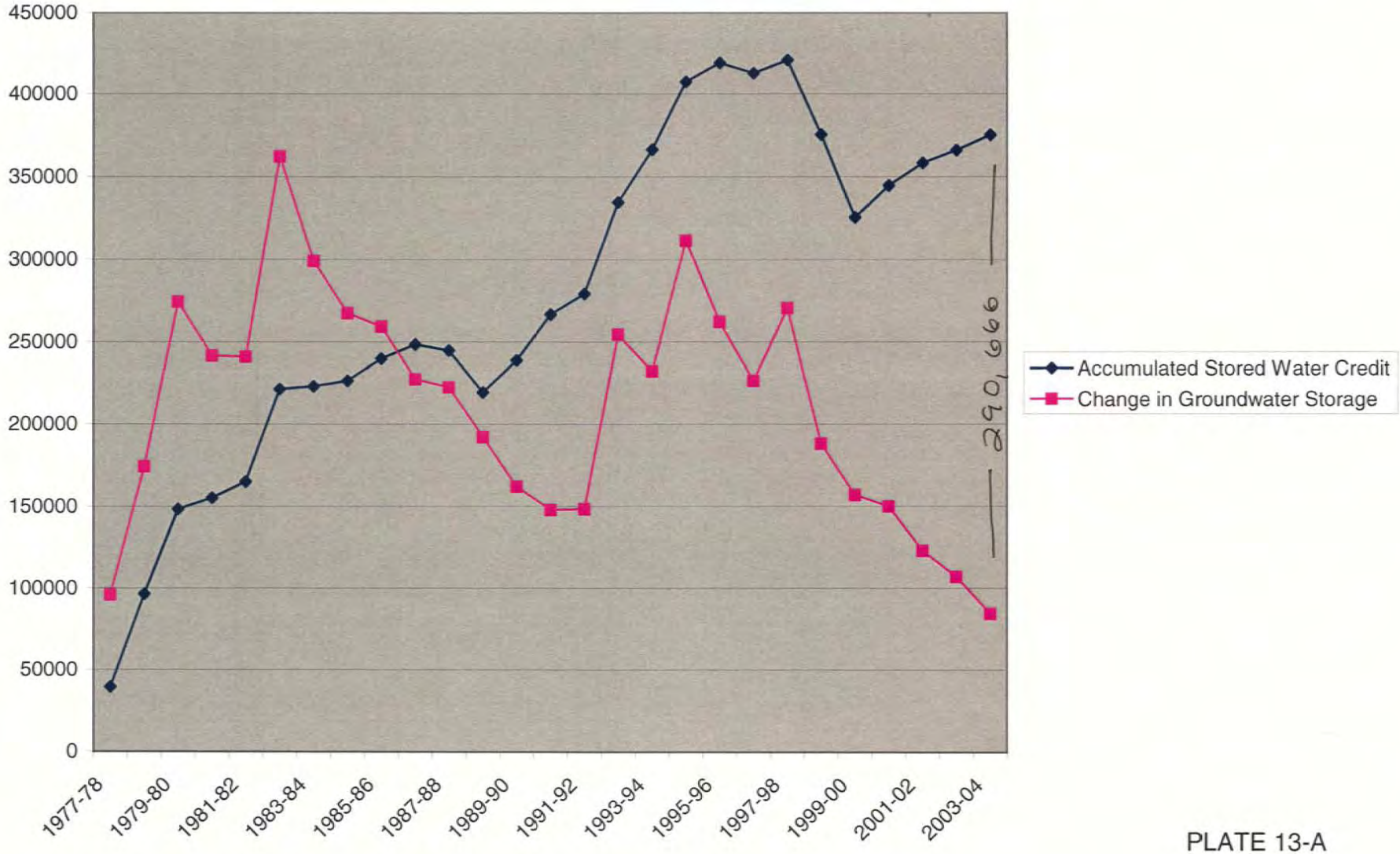


PLATE 13-A

PLATE 13 B - ULARA WATERMASTER REPORT

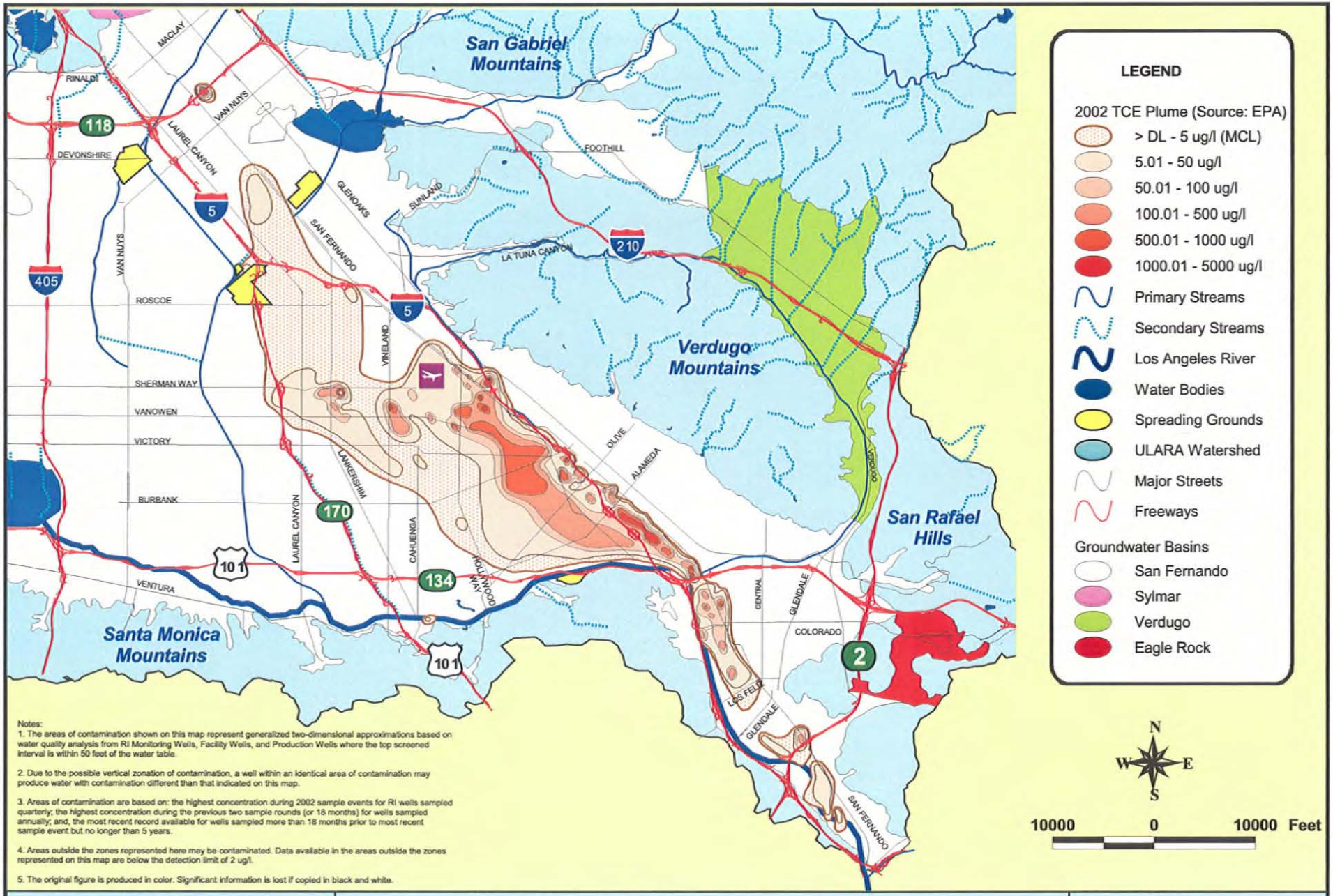
SAN FERNANDO BASIN
CUMULATIVE CHANGE IN GROUNDWATER STORAGE
(acre-feet)

Fall of Year	Change in Storage	Cumulative Chg. in Storage (1928)	Cumulative Chg. in Storage/1,000 AF	Cumulative Chg. in Storage (1944)	Cumulative Chg. in Storage/1,000 AF
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

PLATE 13 B - ULARA WATERMASTER REPORT

SAN FERNANDO BASIN
CUMULATIVE CHANGE IN GROUNDWATER STORAGE
(acre-feet)

Fall of Year	Change in Storage	Cumulative Chg. in Storage (1928)	Cumulative Chg. in Storage/1,000 AF	Cumulative Chg. in Storage (1944)	Cumulative Chg. in Storage/1,000 AF
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
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	44113	-385,008	-385	-621,378	-621
1999	-82673	-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



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.

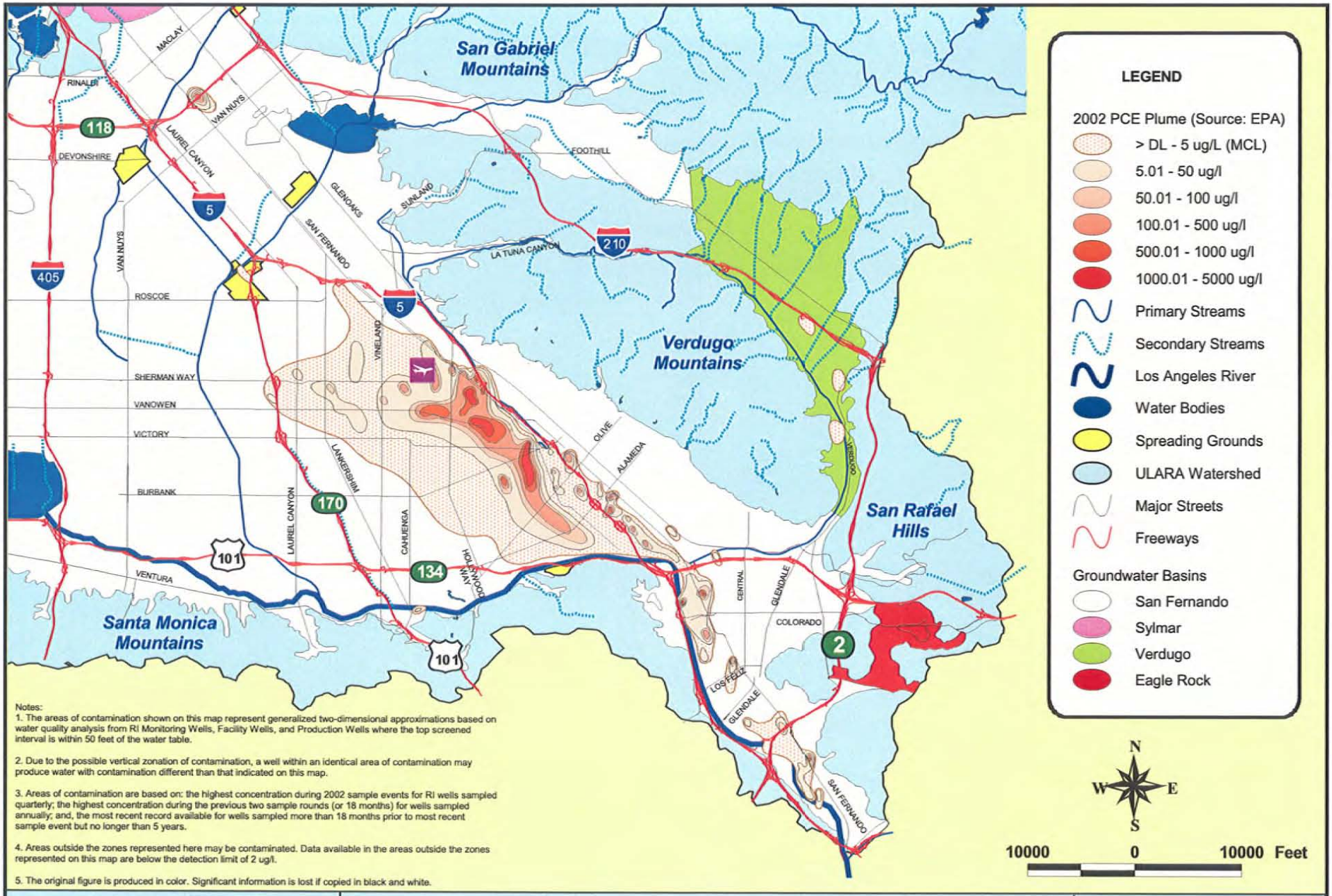
2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on: the highest concentration during 2002 sample events for RI wells sampled quarterly; the highest concentration during the previous two sample rounds (or 18 months) for wells sampled annually; and, the most recent record available for wells sampled more than 18 months prior to most recent sample event but no longer than 5 years.

4. Areas outside the zones represented here may be contaminated. Data available in the areas outside the zones represented 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.

2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: TCE Contamination (ug/L) in Shallow Zone in 2002	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.

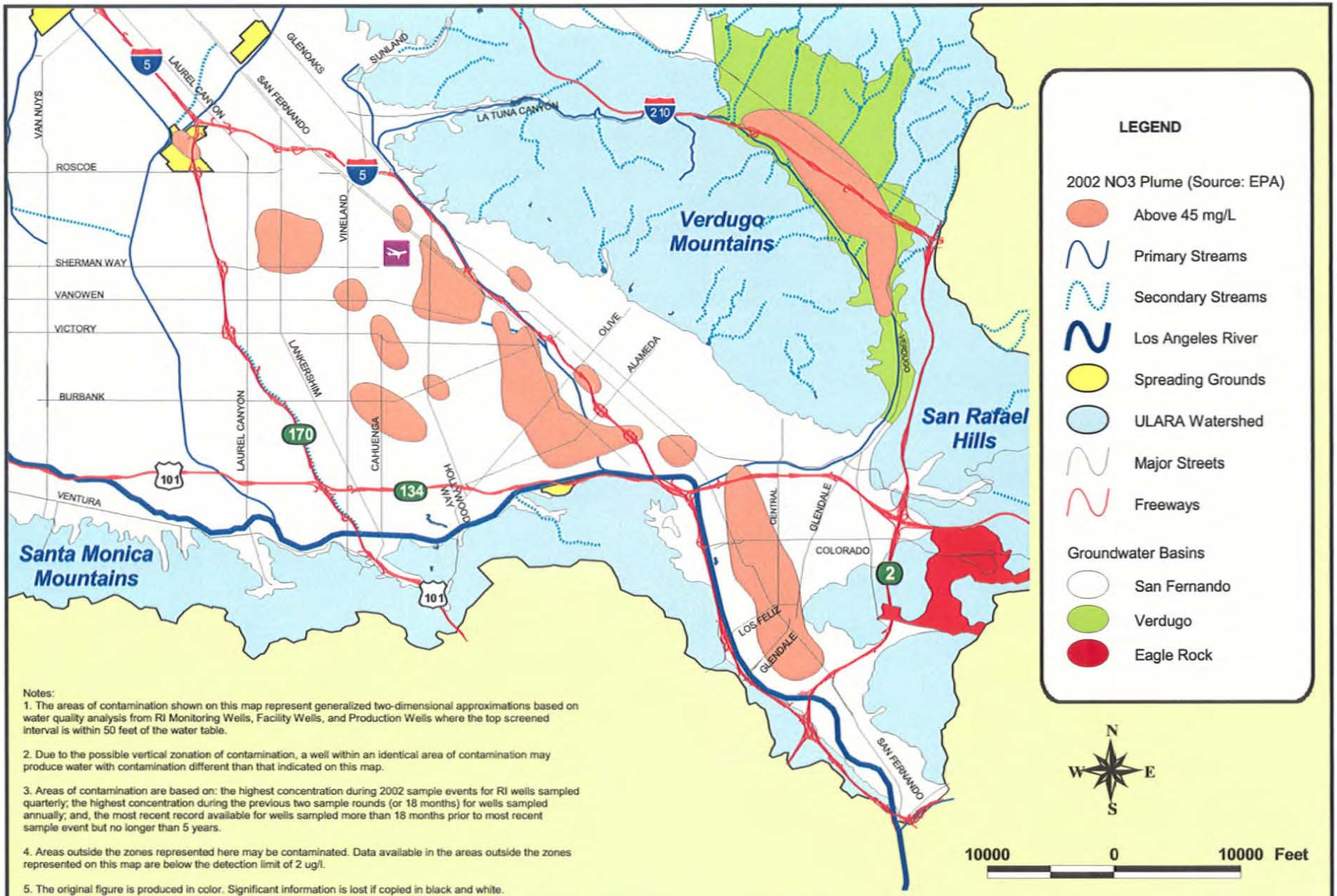
2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on: the highest concentration during 2002 sample events for RI wells sampled quarterly; the highest concentration during the previous two sample rounds (or 18 months) for wells sampled annually; and, the most recent record available for wells sampled more than 18 months prior to most recent sample event but no longer than 5 years.

4. Areas outside the zones represented here may be contaminated. Data available in the areas outside the zones represented 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.

2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: PCE Contamination (ug/L) in Shallow Zone in 2002	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.

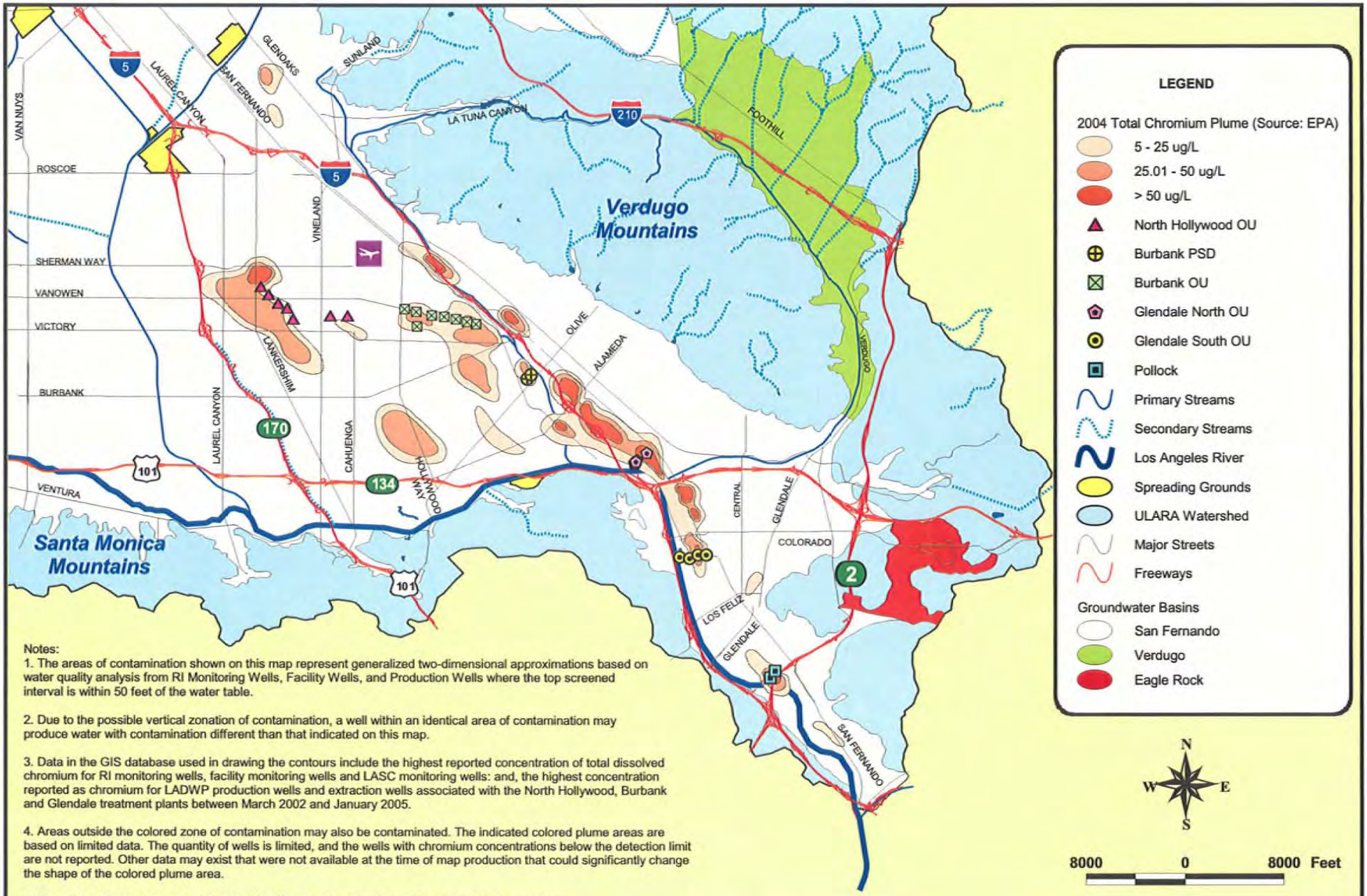
2. Due to the possible vertical zonation of contamination, a well within an identical area of contamination may produce water with contamination different than that indicated on this map.

3. Areas of contamination are based on: the highest concentration during 2002 sample events for RI wells sampled quarterly; the highest concentration during the previous two sample rounds (or 18 months) for wells sampled annually; and, the most recent record available for wells sampled more than 18 months prior to most recent sample event but no longer than 5 years.

4. Areas outside the zones represented here may be contaminated. Data available in the areas outside the zones represented 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.

2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: NO3 Contamination (mg/L) in Shallow Zone in 2002	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. Data in the GIS database used in drawing the contours include the highest reported concentration of total dissolved chromium for RI monitoring wells, facility monitoring wells and LASC monitoring wells: and, the highest concentration reported as chromium for LADWP production wells and extraction wells associated with the North Hollywood, Burbank and Glendale treatment plants between March 2002 and January 2005.

4. Areas outside the colored zone of contamination may also be contaminated. The indicated colored plume areas are based on limited data. The quantity of wells is limited, and the wells with chromium concentrations below the detection limit are not reported. Other data may exist that were not available at the time of map production that could significantly change the shape of the colored plume area.

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

2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Total Dissolved Chromium Contamination (ug/L) in Shallow Zone in 2004	PLATE 17

APPENDIX A
GROUNDWATER EXTRACTION

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin														
A. W. Warner Properties														
Plaza Six		1.00	0.92	0.95	0.99	1.12	1.13	1.11	1.10	1.09	1.02	0.84	0.90	12.17
A. W. Warner Properties														
Plaza Three		0.82	0.75	0.80	0.83	0.95	0.90	0.92	0.92	0.87	0.83	0.72	0.75	10.06
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	
Auto Stiegler														
---	---	0.37	0.06	0.00	0.00	0.36	0.63	0.30	0.30	0.25	0.63	0.12	0.15	3.17
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
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	0.57	5.77	17.40	4.47	3.34	25.10	112.25	77.88	0.42	24.84	106.74	110.16	488.94
3861G	VO-2	134.53	109.75	109.37	127.26	106.54	101.25	118.66	92.82	83.10	121.39	107.45	100.43	1,312.55
3861K	VO-3	122.31	110.43	92.55	77.97	124.12	90.51	120.82	123.69	124.91	122.44	117.09	111.74	1,338.58
3861L	VO-4	28.69	133.96	125.18	124.38	100.93	103.44	105.06	87.29	31.69	72.69	102.55	80.29	1,096.15
3850X	VO-5	0.00	0.00	0.00	0.00	0.00	0.00	0.53	126.13	124.71	142.39	138.16	130.27	662.19
3850Z	VO-6	137.03	132.29	148.24	165.16	192.42	170.76	208.46	171.26	142.36	114.26	100.33	48.28	1,730.85
3850AB	VO-7	15.55	113.14	73.13	116.98	118.18	67.48	112.49	89.64	22.82	124.28	124.28	109.65	1,087.62
3851C	V0-8	163.34	151.01	164.81	152.46	141.11	169.46	168.67	171.34	162.45	164.31	160.16	174.38	1,943.50
	Total:	602.02	756.35	730.68	768.68	786.64	728.00	946.94	940.05	692.46	886.60	956.76	865.20	9,660.38
CalMat														
4916A	2	42.94	29.25	19.29	3.91	0.00	17.07	28.36	32.34	31.00	27.70	39.90	32.05	303.81
4916	3	92.41	58.72	45.39	40.15	45.47	54.79	16.27	0.12	0.00	22.81	59.06	49.25	484.44
4916(x)	1	104.22	74.94	43.62	19.71	0.00	42.77	43.83	49.08	32.22	82.15	34.38	28.62	555.54
Sheldon Pond		144.50	104.83	13.02	76.88	88.66	25.30	21.93	0.00	21.70	82.29	103.87	126.10	809.08
	Total:	384.07	267.74	121.32	140.65	134.13	139.93	110.39	81.54	84.92	214.95	237.21	236.02	2,152.87
B.F. Goodrich (Menasco/Coltec Site)														
---		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
First Financial Plaza Site														
N/A	F.F.P.S.	2.16	2.01	1.95	2.68	2.14	3.54	2.58	2.52	2.49	2.04	2.45	2.15	28.71

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Forest Lawn Memorial Park														
3947A	2	23.11	4.63	4.20	8.85	5.60	10.01	21.08	23.55	15.42	17.65	10.45	17.05	161.60
3947B	3	22.36	4.50	0.18	0.68	0.12	9.43	19.30	23.18	17.98	17.60	10.29	20.11	145.73
3947C	4	20.29	3.86	3.76	8.00	5.06	8.91	18.84	21.29	16.05	16.19	9.45	18.32	150.02
3858K	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	65.76	12.99	8.14	17.53	10.78	28.35	59.22	68.02	49.45	51.44	30.19	55.48	457.35
Glendale, City of														
3924N	STPT 1	56.99	9.97	13.35	55.40	14.27	12.98	11.05	19.18	1.44	15.65	8.84	3.10	222.22
3924R	STPT 2	0.31	0.03	0.06	1.69	0.00	0.00	0.00	0.00	0.00	4.60	0.00	0.00	6.69
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:	57.30	10.00	13.41	57.09	14.27	12.98	11.05	19.18	1.44	20.25	8.84	3.10	228.91
Glendale North/South														
	GN-1	91.83	92.02	95.36	93.45	89.04	94.63	91.97	95.58	91.59	91.93	71.06	67.17	1,065.63
	GN-2	82.65	86.85	90.15	90.36	88.11	88.53	91.22	91.99	89.57	91.78	69.14	56.68	1,017.03
	GN-3	61.81	53.18	56.71	52.89	48.29	49.63	32.89	44.18	49.59	22.62	0.00	49.07	520.86
	GN-4	198.51	190.44	195.88	192.86	180.51	191.87	155.01	192.65	182.96	85.24	127.49	229.61	2,123.03
	GS-1	57.12	55.62	56.28	56.94	49.07	51.48	45.33	57.46	55.23	23.82	0.00	44.11	552.46
	GS-2	81.71	79.07	80.75	81.29	76.50	81.87	77.76	81.93	78.81	81.94	37.92	53.84	893.39
	GS-3	39.35	37.20	34.69	37.58	29.20	31.65	27.70	41.20	22.78	8.51	0.00	28.14	338.00
	GS-4	67.06	63.43	63.16	67.24	64.13	68.30	71.06	75.41	74.39	75.11	31.97	49.96	771.22
	Total:	680.04	657.81	672.98	672.61	624.85	657.96	592.94	680.40	644.92	480.95	337.58	578.58	7,281.62
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
Hathaway (successor to deMille)														
---	1	2.06	1.66	0.68	1.04	1.04	1.49	1.97	1.82	1.87	2.37	1.67	1.94	19.61
	2	1.87	0.47	2.29	1.03	1.03	1.21	0.94	1.60	1.59	2.53	1.98	1.87	18.41
	3	0.22	1.00	1.33	1.00	1.00	1.09	1.37	1.04	1.06	1.23	0.94	0.98	12.26
	Total:	4.15	3.13	4.30	3.07	3.07	3.79	4.28	4.46	4.52	6.13	4.59	4.79	50.28
Jose Diaz														
---		0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.04	0.04	0.04	0.04	0.03	0.34
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	0.29	0.30	0.40	0.32	0.37	0.39	0.37	0.28	0.40	0.42	0.30	0.28	4.12
---	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	3.30	3.17	3.17	2.45	3.32	3.34	2.83	2.49	2.71	1.91	1.55	3.14	33.38
---	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:	3.59	3.47	3.57	2.77	3.69	3.73	3.20	2.77	3.11	2.33	1.85	3.42	37.50

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Metropolitan Water District														
	Jensen	14.20	13.50	13.90	14.10	12.70	14.80	13.60	14.20	13.60	14.00	13.80	13.20	165.60
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	0.04	0.01	0.01	0.01	0.01	0.03	0.04	0.04	0.03	0.03	0.12	0.05	0.42
4940-3	6	0.65	0.08	0.08	0.09	0.00	0.01	0.14	0.14	0.11	0.11	0.47	0.02	1.90
4940-2	7	0.10	0.20	0.20	0.28	0.29	0.60	0.66	0.66	0.21	0.21	1.39	0.98	5.78
new	8	0.62	0.20	0.20	0.23	0.00	0.48	0.36	0.37	0.31	0.11	0.77	0.14	3.79
	Spring 1&2	0.05	0.02	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.17	0.05	0.52
	Total	1.46	0.51	0.52	0.64	0.33	1.14	1.23	1.24	0.69	0.49	2.92	1.24	12.41
Micro Matics														
JEW	1	0.29	0.03	0.22	0.29	0.30	0.33	0.37	0.30	0.33	0.34	0.33	0.36	3.49
JEW	2	0.04	0.00	0.01	0.03	0.03	0.02	0.05	0.03	0.03	0.05	0.05	0.06	0.40
RMW	10	0.12	0.01	0.09	0.11	0.10	0.12	0.11	0.09	0.13	0.12	0.12	0.15	1.27
	Total	0.45	0.04	0.32	0.43	0.43	0.47	0.53	0.42	0.49	0.51	0.50	0.57	5.16
Mobil Oil Corporation														
---	---	0.03	0.09	0.10	0.06	0.00	0.11	0.00	0.02	0.09	0.00	0.07	0.00	0.57
(NEIS) Northeast Interceptor Sewer City of LA BOS														
---	---		0.00	0.04	5.01	0.80	7.02	2.20	2.25	2.47	1.11	0.58	0.40	21.88
Raytheon (Formerly Hughes Missile Systems)														
----	-----	0.18	0.46	0.16	0.20	0.19	0.22	1.75	0.12	0.14	0.38	0.39	0.15	4.34
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	0.01	0.01	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.01	0.00		0.07
3M-Pharmaceuticals														
---	---	4.18	4.54	5.70	4.87	5.79	4.95	5.41	5.86	4.72	5.50	5.38	5.01	61.91
Tesoro Petroleum Corporation														
---	MW-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.89	0.91	1.08	1.27	4.50
Toluca Lake Property Owners Association														
3845F	3845F	3.50	2.51	1.52	1.19	0.49	2.66	1.42	5.31	5.84	3.11	6.58	5.16	39.29
Trillium Corporation														
Well #1	---	2.51	2.14	2.24	2.49	2.05	2.71	3.58	0.41	2.61	3.55	3.54	1.89	29.72
Well #2	---	0.00	0.49	0.56	0.31	0.89	1.26	1.35	0.80	1.97	2.44	1.23	1.54	12.84
	Total:	2.51	2.63	2.80	2.80	2.94	3.97	4.93	1.21	4.58	5.99	4.77	3.43	42.56
Valhalla Memorial Park and Mortuary														
3840K	4	23.19	23.19	9.16	11.69	12.37	24.78	46.32	35.21	55.48	57.53	57.53	40.10	396.55
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

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
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														
---	---	1.27	1.18	2.56	2.27	1.46	2.22	1.63	2.77	4.62	3.61	2.46	4.67	30.72
Wildlife Waystation														
Rehab Canyon		2.02	2.23	2.38	2.55	0.14	0.24	0.18	0.20	0.15	0.22	0.10	0.15	10.56
Foreman Hill Spring		0.05	0.06	0.06	0.07	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.28
	Total:	2.07	2.29	2.44	2.62	0.15	0.25	0.19	0.21	0.15	0.22	0.10	0.15	10.84
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	3.00	19.12	8.75	15.11	8.13	5.05	3.17	11.59	11.78	15.13	10.35	12.10	123.28
3810V	A-3	3.14	13.96	6.22	13.02	10.40	6.57	3.97	6.98	0.00	8.31	12.14	12.10	96.81
3810W	A-4	2.82	6.73	4.96	6.01	3.26	5.05	6.75	4.09	7.19	9.21	3.95	1.03	61.05
3820H	A-5	0.41	3.47	1.88	2.55	24.47	1.12	1.61	3.10	3.60	3.81	3.35	4.29	53.66
3821J	A-6	2.34	26.79	21.10	35.95	28.05	28.74	25.14	34.02	27.69	31.11	17.19	5.83	283.95
3830P	A-7	2.54	27.92	7.02	25.73	21.92	22.15	1.93	15.06	19.97	20.64	17.15	16.67	198.70
3831K	A-8	2.38	30.03	23.35	39.07	28.99	30.37	29.45	28.40	28.37	32.55	26.72	32.39	332.07
	A Total:	16.63	128.02	73.28	137.44	125.22	99.05	72.02	103.24	98.60	120.76	90.85	84.41	1,149.52
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821H	E-6	205.25	178.40	125.34	290.63	129.82	94.56	0.00	0.00	0.00	0.00	48.92	197.96	1,270.88
3811F	E-10	84.20	72.77	47.52	108.98	47.29	35.17	0.00	0.00	0.00	0.00	0.00	0.00	395.93
	E Total:	289.45	251.17	172.86	399.61	177.11	129.73	0.00	0.00	0.00	0.00	48.92	197.96	1,666.81
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

2003-2004 Water Year
(acre-feet)

LACDPW	Owner	2003			2004									
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	119.00	119.67	89.42	137.86	107.44	115.36	2.96	0.00	0.00	0.00	50.57	127.09	869.37
3810S	NH-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
3770	NH-7	88.08	85.77	58.22	96.03	71.85	77.87	52.00	0.11	0.05	124.75	68.57	93.02	816.32
3810	NH-11	0.00	0.30	,09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.94
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	21.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.57
3790C	NH-22	0.00	322.18	215.40	401.12	210.31	285.06	0.00	0.00	0.00	0.00	48.97	237.10	1,720.14
3790D	NH-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.90	276.54	278.17
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	1.42
3790E	NH-26	174.95	238.54	154.02	270.45	137.01	140.47	0.00	0.30	0.00	0.00	163.75	150.23	1,429.72
3820F	NH-27	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
3810K	NH-28	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.00	1.52
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
3810T	NH-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.07
3770C	NH-32	167.05	155.99	116.55	195.48	147.91	161.87	105.30	0.34	0.14	207.99	113.57	159.34	1,531.53
3780C	NH-33	246.18	245.45	170.78	280.74	213.96	230.51	48.12	0.25	0.23	0.11	15.40	241.57	1,693.30
3790G	NH-34	258.01	250.34	0.00	33.86	235.22	21.67	0.18	0.53	0.00	498.42	325.09	254.98	1,878.30
3830N	NH-35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.23
3790H	NH-36	176.46	242.31	172.80	312.08	159.00	29.02	0.37	0.21	0.00	78.26	0.00	148.35	1,318.86
3790J	NH-37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.00	0.18
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	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
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	273.25	361.41	255.23	460.97	240.89	247.54	0.25	0.55	0.23	492.88	318.14	243.09	2,894.43
3790L	NH-44	180.62	80.67	0.00	0.23	197.50	232.39	0.00	0.37	0.23	432.09	289.53	240.36	1,653.99
3790M	NH-45	332.32	449.84	316.21	571.51	296.74	296.74	0.00	0.00	0.34	590.82	397.57	328.83	3,580.92
	NH Total:	2,037.49	2,552.84	1,549.34	2,760.33	2,017.83	1,838.50	209.18	2.75	1.52	2,426.14	1,793.85	2,501.92	19,691.69

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Pollock (P)														
3959E	P-4	0.00	0.00	0.00	47.75	208.91	167.13	172.43	47.57	0.00	0.00	0.00	0.00	643.79
3958H	P-6	195.29	161.98	135.17	0.48	0.09	0.25	0.11	0.00	0.00	0.00	0.00	0.00	493.37
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:	195.29	161.98	135.17	48.23	209.00	167.38	172.54	47.57	0.00	0.00	0.00	0.00	1,137.16
Rinaldi-Toluca (RT)														
4909E	RT-1	0.20	0.23	0.00	0.37	0.48	0.48	0.00	0.00	0.23	0.57	0.73	0.48	3.77
4898A	RT-2	451.33	56.63	0.00	80.23	265.40	0.00	0.28	0.00	24.77	314.30	168.09	313.96	1,674.99
4898B	RT-3	519.21	401.49	190.06	645.52	323.23	0.41	11.48	0.00	65.47	484.55	527.36	492.68	3,661.46
4898C	RT-4	450.22	347.59	164.65	557.97	382.58	163.93	0.32	0.05	58.63	425.53	457.99	423.35	3,432.81
4898D	RT-5	431.06	330.39	159.18	514.05	255.95	183.61	241.48	0.00	59.27	425.85	440.61	286.94	3,328.39
4898E	RT-6	411.27	0.00	0.00	84.39	394.03	271.83	248.42	0.00	31.93	423.14	452.20	355.26	2,672.47
4898F	RT-7	54.84	52.20	0.34	64.67	340.75	233.59	8.52	0.00	43.30	0.30	0.34	0.28	799.13
4898G	RT-8	366.36	274.06	128.88	349.98	87.67	183.59	169.34	0.00	0.05	0.41	0.21	0.34	1,560.89
4898H	RT-9	111.66	393.76	185.33	632.35	443.14	305.35	0.60	0.00	0.90	281.96	491.02	385.10	3,231.17
4909G	RT-10	114.85	76.33	0.00	0.55	0.62	0.00	0.55	0.57	0.62	0.28	317.54	64.85	576.76
4909K	RT-11	0.20	0.30	0.00	0.41	0.46	0.00	0.21	0.48	0.37	0.25	1.12	0.28	4.08
4909H	RT-12	0.25	0.25	0.00	0.37	0.37	0.00	0.30	0.46	0.34	0.23	1.03	0.41	4.01
4909J	RT-13	0.29	0.37	0.00	0.00	0.23	0.00	0.00	0.53	0.32	0.18	0.85	0.23	3.00
4909L	RT-14	1.07	0.34	0.00	0.32	0.67	0.00	0.25	0.18	0.21	0.51	0.87	0.25	4.67
4909M	RT-15	0.00	0.76	0.00	0.41	0.46	0.00	0.21	0.00	0.00	0.16	0.41	0.30	2.71
	RT Total:	2,912.81	1,934.70	828.44	2,931.59	2,496.04	1,342.79	681.96	2.27	286.41	2,358.22	2,860.37	2,324.71	20,960.31
Tujunga (T)														
4887C	T-1	30.18	48.99	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	1.77	146.85	228.48
4887D	T-2	425.78	456.20	206.27	145.45	318.66	457.51	391.39	0.67	95.96	317.36	417.17	620.43	3,852.85
4887E	T-3	493.84	524.75	248.44	183.38	382.18	547.70	468.02	0.55	117.31	387.40	506.63	744.44	4,604.64
4887F	T-4	449.12	473.03	217.24	494.28	112.70	0.25	0.71	0.53	103.83	340.15	445.32	655.72	3,292.88
4887G	T-5	462.14	149.22	0.00	0.67	0.34	0.41	0.62	0.62	0.00	0.55	0.00	0.67	615.24
4887H	T-6	0.73	0.00	0.00	203.58	396.81	266.67	0.67	0.78	0.73	0.00	209.94	320.39	1,400.30
4887J	T-7	0.22	0.28	0.00	0.30	0.34	0.39	0.53	1.17	0.28	0.34	0.37	0.69	4.91
4887K	T-8	0.25	0.37	0.00	0.32	0.32	0.30	0.64	0.73	0.00	0.28	0.34	0.32	3.87
4886B	T-9	0.27	0.32	0.00	0.30	187.99	0.28	0.55	1.10	0.00	0.37	0.00	0.00	191.18
4886C	T-10	0.27	135.28	222.50	313.77	0.30	89.83	0.28	0.37	0.00	0.28	0.32	361.87	1,125.07
4886D	T-11	0.68	0.69	0.00	0.28	0.69	0.00	0.64	0.00	0.28	0.00	0.69	0.37	4.32
4886E	T-12	0.27	92.52	82.62	493.37	346.97	349.68	453.97	0.00	141.23	25.37	0.46	0.30	1,986.76
	T Total:	1,863.75	1,881.65	977.07	1,836.39	1,747.30	1,713.02	1,318.02	6.52	459.62	1,072.10	1,583.01	2,852.05	17,310.50

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin (cont'd)									
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	196.69	190.06	174.13	220.04	220.04	0.00	127.04	0.00	94.95	196.07	244.95	220.55	1,884.52
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	279.77	286.11	270.18	326.74	263.22	186.07	0.00	0.00	134.04	279.27	362.19	320.94	2,708.53
	V Total:	476.46	476.17	444.31	546.78	483.26	186.07	127.04	0.00	228.99	475.34	607.14	541.49	4,593.05
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	0.00	0.00	0.00	0.51	0.23	0.16	0.00	0.00	0.90
3821E	W-5	314.76	0.80	0.00	0.11	0.00	0.00	0.00	0.60	0.14	0.11	0.00	0.00	316.52
3831J	W-6A	75.32	276.12	189.26	439.51	192.93	178.47	109.18	0.00	0.00	0.00	0.00	278.56	1,739.35
3832K	W-7	0.00	59.80	0.00	0.14	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.10
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:	390.08	336.72	189.26	439.76	193.09	178.47	109.18	1.11	0.37	0.27	0.00	278.56	2,116.87
Los Angeles, City of Total:		8,181.96	7,723.25	4,369.73	9,100.13	7,448.85	5,655.01	2,689.94	163.46	1,075.51	6,452.83	6,984.14	8,781.10	68,625.91
San Fernando Basin Total:		10,036.32	9,489.46	5,967.08	10,812.94	9,068.53	7,298.55	4,502.10	2,033.93	2,654.83	8,213.41	8,661.50	10,607.02	89,345.67

Plant	Mission						**Sylmar Basin**							
Los Angeles, City of														
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	168.15	168.85	172.44	172.44	67.17	68.78	177.69	146.21	142.40	81.22	0.00	0.00	1,365.35
4840S	7	205.57	206.45	206.45	206.45	74.79	82.35	212.74	171.67	192.88	107.93	0.00	0.00	1,667.28
		373.72	375.30	378.89	378.89	141.96	151.13	390.43	317.88	335.28	189.15	0.00	0.00	3,032.63
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

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					Sylmar Basin (cont'd)									
San Fernando, City of														
5969D	2A	143.78	5.02	9.12	118.09	106.96	158.90	149.10	191.38	171.58	209.29	206.11	199.39	1,668.72
5959	3	111.36	6.83	7.44	77.50	73.28	73.43	79.85	102.16	100.75	103.97	106.89	104.96	948.42
5969	4	20.28	1.72	1.95	20.66	18.14	21.14	19.03	20.53	20.33	23.93	18.30	16.71	202.72
5968	7A	81.11	5.18	7.24	55.70	49.84	48.58	58.92	62.07	66.65	67.09	71.92	59.94	634.24
	Total:	356.53	18.75	25.75	271.95	248.22	302.05	306.90	376.14	359.31	404.28	403.22	381.00	3,454.10
	Sylmar Basin Total:	730.25	394.05	404.64	650.84	390.18	453.18	697.33	694.02	694.59	593.43	403.22	381.00	6,486.73

					Verdugo Basin									
Crescenta Valley County Water District														
5058B	1	28.54	24.53	10.57	0.09	11.62	23.75	35.54	34.45	25.01	30.61	24.04	26.02	274.77
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	56.64	37.51	63.08	64.57	56.99	23.86	13.62	66.00	57.50	63.43	61.82	58.36	623.38
5058	6	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.12	0.00	1.12	1.35
5047B	7	22.52	21.25	11.96	0.01	0.13	17.57	22.45	19.39	23.51	15.13	18.53	14.88	187.33
5069J	8	33.38	30.45	30.12	12.79	0.00	0.00	1.07	36.71	34.58	22.93	36.21	31.81	270.05
5047D	9	11.55	6.46	3.52	0.00	0.00	0.28	0.82	9.05	25.16	14.81	20.08	19.59	111.32
5058D	10	2.23	16.63	18.80	23.13	17.08	17.10	0.00	13.07	20.42	9.73	16.10	15.61	169.90
5058E	11	15.55	15.29	14.64	15.44	14.27	16.72	18.90	18.28	16.26	16.53	15.14	14.55	191.57
5058J	12	27.62	25.12	24.42	20.59	19.69	20.41	24.78	24.47	20.58	21.13	24.78	14.98	268.57
5069F	14	25.69	28.60	31.33	30.79	28.05	31.54	28.25	37.74	35.83	37.14	37.01	33.92	385.89
	15	5.92	2.36	1.23	2.13	1.32	2.38	5.66	5.28	3.85	3.74	3.36	3.58	40.81
	PICKENS (CVWD)	3.94	3.79	3.85	3.77	3.51	3.75	3.58	2.66	3.29	3.51	3.73	3.33	42.71
	Total:	233.58	211.99	213.52	173.31	152.66	157.47	154.67	267.10	265.99	238.81	260.80	237.75	2,567.65
Knowltons														
	PICKENS	0.69	0.66	0.69	0.69	0.64	0.69	0.66	0.69	0.66	0.66	0.69	0.66	8.08
Glendale, City of														
3961-3971	GL3-4	90.20	85.66	79.36	75.75	68.12	69.20	66.04	67.41	63.34	62.11	71.84	69.39	868.42
3970	GL-6	56.97	57.15	52.05	50.94	44.65	47.41	44.95	47.27	44.76	48.52	49.94	47.78	592.39
---	VPCKP	59.99	55.83	46.71	53.15	43.86	60.08	55.54	56.88	56.54	58.23	54.92	54.77	656.50
---	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:	207.16	198.64	178.12	179.84	156.63	176.69	166.53	171.56	164.64	168.86	176.70	171.94	2,117.31
	Verdugo Basin Total:	441.43	411.29	392.33	353.84	309.93	334.85	321.86	439.35	431.29	408.33	438.19	410.35	4,693.04

2003-2004 Water Year
(acre-feet)

LACDPW Well No.	Owner Well No.	2003 Oct.	Nov.	Dec.	2004 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					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	5.23	4.13	4.38	4.16	3.89	6.12	4.33	5.72	6.08	5.18	5.67	6.25	61.14
3987F	3	5.28	4.30	4.72	4.64	4.16	5.68	4.73	5.46	5.42	3.57	5.32	6.68	59.96
3987G	4	10.20	7.00	8.70	7.73	8.03	10.05	8.04	8.31	10.34	10.29	8.58	12.22	109.49
	Total:	20.71	15.43	17.80	16.53	16.08	21.85	17.10	19.49	21.84	19.04	19.57	25.15	230.59
Eagle Rock Basin Total:		20.71	15.43	17.80	16.53	16.08	21.85	17.10	19.49	21.84	19.04	19.57	25.15	230.59

ULARA Total:		11,228.71	10,310.23	6,781.85	11,834.15	9,784.72	8,108.43	5,538.39	3,186.79	3,802.55	9,234.21	9,522.48	11,423.52	100,756.02

APPENDIX B
KEY GAGING STATIONS SURFACE RUNOFF

Los Angeles County Dept of Public Works USDAY V43 Output 10/14/2004

Summary Report

Site: F57C Los Angeles River Above Arroyo Seco
USGS #:
Beginning Date: 10/01/2003
Ending Date: 09/30/2004

Daily Mean Discharge in Cubic feet/second Water Year Oct 2003 to Sep 2004

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	184	662	165	90.8	134	497	509	134	109	112	146	120
2	193	127	184	825	1020	820	134	122	114	110	141	125
3	189	138	196	123	469	104	106	125	119	109	143	133
4	179	131	191	92.7	139	98.2	105	121	125	111	138	137
5	164	137	162	94.1	102	97.0	107	120	131	115	135	135
6	170	127	190	113	101	97.3	106	120	131	129	132	134
7	172	127	295	155	101	97.8	110	115	130	141	134	146
8	176	124	182	148	99.5	101	112	119	130	154	134	134
9	180	137	157	150	103	102	114	119	114	160	138	139
10	172	138	171	143	102	104	125	114	105	173	149	133
11	166	129	162	142	105	104	123	113	104	174	156	131
12	155	227	148	120	106	106	125	113	111	178	165	128
13	157	133	142	104	106	108	131	112	117	161	153	124
14	158	129	328	108	107	106	134	114	121	128	131	132
15	161	142	161	107	106	108	156	117	130	111	128	130
16	159	178	130	117	110	109	154	115	139	119	121	130
17	156	144	130	151	114	112	178	116	146	123	129	126
18	156	144	129	163	617	115	156	115	146	127	133	132
19	155	140	136	169	142	115	151	113	144	134	125	132
20	151	141	138	170	189	121	145	113	140	145	139	135
21	154	146	146	181	309	119	145	114	140	152	142	129
22	151	138	143	161	2610	122	143	113	140	144	131	125
23	155	140	178	169	726	129	137	115	135	165	124	133
24	152	147	292	171	126	121	151	113	130	161	130	132
25	150	147	2880	172	2130	125	157	113	125	159	125	136
26	139	155	183	176	6560	128	156	108	130	125	128	135
27	140	150	95.2	180	166	127	152	102	133	115	121	128
28	145	138	90.2	128	124	126	147	113	148	119	124	128
29	146	149	94.5	124	100	131	144	110	142	137	122	123
30	150	150	96.8	130	------	136	140	105	130	136	121	122
31	269	------	95.1	134	------	140	------	106	------	139	119	------
Total	5104	4815	7790.8	5011.6	16923.5	4626.3	4453	3562	3859	4266	4157	3927
Mean	165	161	251	162	584	149	148	115	129	138	134	131
Max	269	662	2880	825	6560	820	509	134	148	178	165	146
Min	139	124	90.2	90.8	99.5	97.0	105	102	104	109	119	120
Acre-Ft	10120	9550	15450	9940	33570	9180	8830	7070	7650	8460	8250	7790

Wtr Year 2004	Total	68495.2	Mean	187	Max	6560	Min	90.2	Acre-Ft 135900
Cal Year 2003	Total	89197.0	Mean	244	Max	13100	Min	90.0	Acre-Ft 176900

Los Angeles County Dept of Public Works

USDAY V43 Output 10/07/2004

Summary Report

Site: F118B Pacoima Creek Flume below Pacoima Dam
USGS #:
Beginning Date: 10/01/2003
Ending Date: 09/30/2004

Daily Mean Discharge in Cubic feet/second Water Year Oct 2003 to Sep 2004

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	10.3	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	1.68	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	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	36.0	0	0	0	0	0	0
16	0	0	0	0	0	68.1	0	0	0	0	0	0
17	0	0	0	0	0	76.5	0	0	0	0	0	0
18	0	89.4	0	0	0	46.9	0	0	0	0	0	0
19	0	133	0	0	0	0	0	0	0	0	0	0
20	0	81.3	0	0	0	0	63.9	0	0	0	0	0
21	5.13	.19	0	3.55	0	0	47.5	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	------	0	0	0	0	0	0	0
31	0	------	0	0	------	0	------	0	------	0	0	------
Total	5.13	303.89	10.3	3.55	0	227.5	111.4	0	1.68	0	0	0
Mean	.17	10.1	.33	.11	0	7.34	3.71	0	.056	0	0	0
Max	5.13	133	10.3	3.55	0	76.5	63.9	0	1.68	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Acre-Ft	10	603	20	7.0	0	451	221	0	3.3	0	0	0

Wtr Year 2004	Total	663.45	Mean	1.81	Max	133	Min	0	Acre-Ft 1320
Cal Year 2003	Total	1481.48	Mean	4.06	Max	133	Min	0	Acre-Ft 2940

Summary Report

Site: F168 Big Tujunga Creek Below Big Tujunga Dam
USGS #:
Beginning Date: 10/01/2003
Ending Date: 09/30/2004

Daily Mean Discharge in Cubic feet/second Water Year Oct 2003 to Sep 2004

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.34	0	.02	.05	20.0	.11	.64	0	0	3.58	.02
2	0	.10	0	.02	.24	20.1	.11	.48	0	0	.03	.01
3	0	.10	0	.02	.21	92.1	.12	.49	0	0	0	.01
4	0	.09	0	.02	.07	88.1	.11	.50	0	0	0	.01
5	0	.08	0	.02	.06	49.2	.10	.53	0	0	.01	.01
6	0	.07	0	.02	.05	47.8	.10	.58	0	0	.01	.01
7	0	.06	0	.02	.05	44.4	.04	.47	0	0	.01	.01
8	0	.05	0	.03	.05	42.7	0	.27	0	0	0	0
9	0	.05	0	.03	.05	27.7	0	.10	0	0	0	0
10	0	.05	0	.03	.04	.21	0	.04	0	0	0	.01
11	0	.04	0	.03	.04	.08	0	0	0	0	0	.01
12	0	.04	0	.03	.04	.07	0	0	0	0	0	.02
13	0	.04	0	.03	.04	.07	0	0	0	0	0	.02
14	0	.03	0	.03	.03	.06	0	0	0	0	0	.02
15	0	.03	0	.03	.03	.06	0	0	0	0	0	.03
16	0	.05	0	.04	.03	.05	0	0	0	0	0	.04
17	0	.04	0	.05	.03	.05	0	0	0	0	0	.04
18	0	.04	0	.05	.07	.05	0	0	0	0	0	.04
19	10.6	.03	0	.05	.07	.04	0	0	0	0	0	.04
20	13.1	.02	0	.05	.07	.04	0	2.07	0	0	0	.05
21	9.19	.02	0	.05	.07	.04	0	.56	0	0	0	.05
22	9.35	.02	0	.05	.23	20.0	0	.67	0	0	.02	.18
23	9.35	.02	0	.05	.10	34.0	0	.69	0	0	.05	.04
24	4.79	.01	0	.05	9.10	30.4	0	.66	0	0	.06	.07
25	.24	.01	.29	.05	78.9	17.5	0	.61	0	0	.07	.08
26	.15	.01	33.4	.05	66.7	.34	11.3	.52	0	0	.08	.08
27	.12	0	54.6	.05	20.0	.18	19.8	.45	0	0	.08	.08
28	.10	0	46.7	.05	20.0	.14	20.8	.40	0	0	.08	.09
29	.08	0	8.64	.05	19.9	.11	21.3	.30	0	.01	.09	.10
30	1.09	0	.93	.05	------	.11	15.4	.13	0	.04	.08	.10
31	.38	------	.04	.05	------	.10	------	.03	------	3.57	.05	------
Total	58.54	1.44	144.60	1.17	216.32	535.80	89.29	11.19	0	3.62	4.30	1.27
Mean	1.89	.048	4.66	.038	7.46	17.3	2.98	.36	0	.12	.14	.042
Max	13.1	.34	54.6	.05	78.9	92.1	21.3	2.07	0	3.57	3.58	.18
Min	0	0	0	.02	.03	.04	0	0	0	0	0	0
Acre-Ft	116	2.9	287	2.3	429	1060	177	22	0	7.2	8.5	2.5

Wtr Year 2004	Total	1067.54	Mean	2.92	Max	92.1	Min	0	Acre-Ft 2120
Cal Year 2003	Total	3749.68	Mean	10.3	Max	341	Min	0	Acre-Ft 7440

Summary Report

Site: F300 Los Angeles River at Tujunga Avenue
USGS #:
Beginning Date: 10/01/2003
Ending Date: 09/30/2004

JLE
3

Daily Mean Discharge in Cubic feet/second Water Year Oct 2003 to Sep 2004

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78.6	303	93.7	76.7	80.2	318	284	59.7	58.8	60.6	65.0	56.8
2	88.6	86.1	96.2	733	642	445	69.9	60.8	57.5	57.5	61.7	56.3
3	96.6	96.2	90.0	101	255	90.5	62.1	64.0	56.7	58.1	57.4	57.2
4	93.1	85.2	77.4	80.1	93.5	87.6	64.4	61.1	57.5	57.5	54.8	56.5
5	90.2	88.9	74.6	81.3	77.7	84.9	62.4	61.5	54.5	55.6	58.1	54.6
6	96.0	80.1	84.5	132	76.6	84.4	67.0	60.5	57.5	59.0	58.3	53.1
7	96.0	78.7	142	184	72.6	82.9	63.2	58.6	59.9	59.4	59.9	55.7
8	97.8	84.9	85.8	168	75.1	83.4	64.2	60.4	58.5	58.3	56.2	42.0
9	98.7	93.5	79.3	161	76.4	84.5	64.3	63.0	57.6	57.7	56.8	53.9
10	99.8	89.6	84.9	153	76.3	85.4	68.0	61.3	56.3	57.6	56.4	54.8
11	97.2	84.7	82.6	139	79.3	83.1	65.5	62.6	57.0	52.9	55.7	54.1
12	92.5	96.4	82.3	99.9	76.4	84.3	62.4	62.7	59.0	56.5	59.0	55.3
13	79.7	89.5	79.1	84.7	76.3	81.4	60.9	62.9	59.1	57.5	57.5	54.2
14	78.1	70.5	229	86.2	74.2	80.3	60.3	66.4	59.7	55.1	56.8	57.2
15	92.9	71.6	89.8	85.5	73.4	83.2	61.9	62.9	59.4	55.6	58.5	58.0
16	89.7	84.0	76.7	111	76.6	82.6	73.1	62.2	61.2	56.4	55.8	58.7
17	89.7	70.7	79.3	144	78.3	83.7	81.8	61.4	62.9	56.0	58.5	56.2
18	87.7	70.8	76.0	173	401	82.3	65.4	63.7	60.3	52.8	58.3	57.0
19	86.1	72.5	78.8	185	95.1	80.0	64.9	63.3	61.5	56.6	45.7	55.6
20	86.8	71.4	80.8	178	135	81.3	64.5	62.5	58.7	57.9	56.8	54.8
21	86.8	88.0	84.0	188	318	78.8	66.3	61.8	60.4	59.4	57.1	50.1
22	86.6	68.3	83.5	166	1980	80.9	64.2	59.9	62.5	46.4	57.5	53.6
23	86.6	80.0	139	167	459	84.5	61.5	62.0	59.9	59.6	57.0	56.8
24	86.9	68.0	287	167	97.0	69.5	63.9	61.8	52.5	63.2	59.5	57.9
25	84.5	88.4	1730	170	1900	72.0	63.0	62.2	60.6	64.3	58.1	57.4
26	81.3	98.7	140	172	3710	78.5	62.5	62.0	59.9	59.2	57.8	54.4
27	86.2	89.5	78.0	149	192	77.3	65.4	50.4	58.7	61.7	48.5	55.4
28	89.2	85.2	78.2	86.6	107	78.4	63.0	61.7	57.5	63.3	54.8	56.3
29	88.4	87.6	83.8	77.9	89.6	80.6	62.4	61.3	57.9	65.4	55.0	55.5
30	88.3	88.3	86.2	82.1	------	81.0	62.3	59.1	58.7	65.0	54.3	56.6
31	190	------	80.8	79.8	------	82.4	------	58.9	------	64.3	55.4	------
Total	2870.6	2710.3	4733.3	4661.8	11543.6	3132.7	2164.7	1902.6	1762.2	1810.4	1762.2	1656.0
Mean	92.6	90.3	153	150	398	101	72.2	61.4	58.7	58.4	56.8	55.2
Max	190	303	1730	733	3710	445	284	66.4	62.9	65.4	65.0	58.7
Min	78.1	68.0	74.6	76.7	72.6	69.5	60.3	50.4	52.5	46.4	45.7	42.0
Acre-Ft	5690	5380	9390	9250	22900	6210	4290	3770	3500	3590	3500	3280

Wtr Year 2004	Total	40710.4	Mean	111	Max	3710	Min	42.0	Acre-Ft 80750
Cal Year 2003	Total	61793.4	Mean	169	Max	11000	Min	64.6	Acre-Ft 122600

Los Angeles County Dept of Public Works USDAY V43 Output 10/12/2004

Summary Report

JLE 7

Site: E285 Burbank-Western Storm Drain
USGS #:
Beginning Date: 10/01/2003
Ending Date: 09/30/2004

Daily Mean Discharge in Cubic feet/second Water Year Oct 2003 to Sep 2004

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.7	21.8	9.05	8.53	9.08	32.9	66.2	7.38	9.76	9.62	6.34	6.72
2	16.0	9.25	10.1	14.5	95.9	77.9	24.1	6.82	9.43	8.87	9.33	12.8
3	14.2	7.14	9.37	8.84	9.46	19.5	11.0	6.71	8.91	8.91	9.06	12.8
4	15.4	7.11	9.29	8.86	7.50	9.70	9.30	6.74	8.75	8.96	8.21	12.8
5	14.0	7.11	8.99	8.99	8.14	8.26	8.50	6.77	8.80	8.55	7.31	13.5
6	15.8	7.62	9.53	9.14	7.92	7.97	8.39	6.80	8.84	7.90	6.37	14.3
7	15.3	9.04	15.2	9.49	8.18	7.99	7.95	6.83	8.89	7.94	6.04	15.4
8	15.8	9.05	7.95	9.71	7.76	8.35	8.48	6.86	8.93	7.72	5.31	16.7
9	16.0	9.05	7.19	9.13	9.06	8.52	8.52	6.89	8.98	7.20	4.50	16.8
10	15.1	9.05	7.74	9.36	11.2	8.80	8.65	6.92	9.03	7.23	7.47	17.5
11	14.8	9.05	8.20	9.28	12.9	8.75	8.86	6.96	9.07	7.26	9.27	18.2
12	14.5	10.4	7.88	10.1	12.7	8.87	9.18	6.99	9.12	7.98	9.38	18.2
13	13.7	11.8	7.70	9.86	12.4	9.20	8.97	6.41	9.16	8.21	9.33	18.3
14	15.3	10.8	17.0	10.4	12.1	9.08	8.75	6.26	9.21	8.26	9.22	11.1
15	15.6	10.5	10.5	10.0	11.9	9.55	8.28	6.29	9.44	8.30	9.75	12.8
16	15.9	9.53	8.19	10.5	12.3	9.54	8.84	6.32	10.5	8.76	12.0	16.2
17	15.1	7.90	7.90	10.5	12.4	9.19	8.89	6.35	10.6	8.78	8.68	16.6
18	15.0	7.90	7.90	10.2	45.9	9.18	8.08	6.45	10.6	8.61	7.52	16.5
19	17.2	7.90	7.59	9.99	9.20	9.71	8.78	7.20	10.7	8.48	7.11	16.7
20	17.0	7.90	7.78	10.2	11.8	9.80	8.16	7.23	10.7	8.52	6.72	16.6
21	12.0	7.90	7.90	9.71	31.0	10.6	7.92	7.26	10.7	8.57	6.07	16.7
22	12.5	7.54	7.83	11.7	91.3	11.1	7.67	7.30	10.8	8.37	5.19	16.8
23	12.0	6.52	7.56	9.90	30.3	10.3	7.88	8.21	10.8	8.17	4.11	18.0
24	10.7	6.32	8.65	10.4	8.03	9.49	5.46	8.26	10.9	7.67	3.48	17.2
25	9.96	6.32	131	10.3	218	9.45	5.78	8.30	10.9	7.70	3.81	16.1
26	9.99	6.32	19.0	10.4	396	9.33	6.44	8.34	11.0	7.46	4.07	17.1
27	10.9	6.32	9.84	9.94	10.7	9.57	6.52	8.49	10.5	6.97	3.29	18.0
28	8.52	5.76	9.05	10.4	8.09	9.36	6.55	9.48	9.86	7.00	2.82	17.7
29	7.85	6.26	7.85	9.96	10.3	9.21	7.25	9.65	9.91	6.40	2.37	16.8
30	6.73	7.59	7.11	8.75	------	9.50	7.40	9.70	9.96	5.94	2.04	17.2
31	47.9	------	8.70	9.15	------	8.47	------	9.75	------	5.56	1.58	------
Total	456.45	256.75	409.54	308.19	1131.52	389.14	316.75	229.92	294.75	245.87	197.75	472.12
Mean	14.7	8.56	13.2	9.94	39.0	12.6	10.6	7.42	9.83	7.93	6.38	15.7
Max	47.9	21.8	131	14.5	396	77.9	66.2	9.75	11.0	9.62	12.0	18.3
Min	6.73	5.76	7.11	8.53	7.50	7.97	5.46	6.26	8.75	5.56	1.58	6.72
Acre-Ft	905	509	812	611	2240	772	628	456	585	488	392	936

Wtr Year 2004	Total	4708.75	Mean	12.9	Max	396	Min	1.58	Acre-Ft 9340
Cal Year 2003	Total	6280.17	Mean	17.2	Max	845	Min	5.76	Acre-Ft 12460

DVW 12/13/04

Summary Report

Site: F252 Verdugo Wash At Estelle Avenue
USGS #:
Beginning Date: 10/01/2003
Ending Date: 09/30/2004

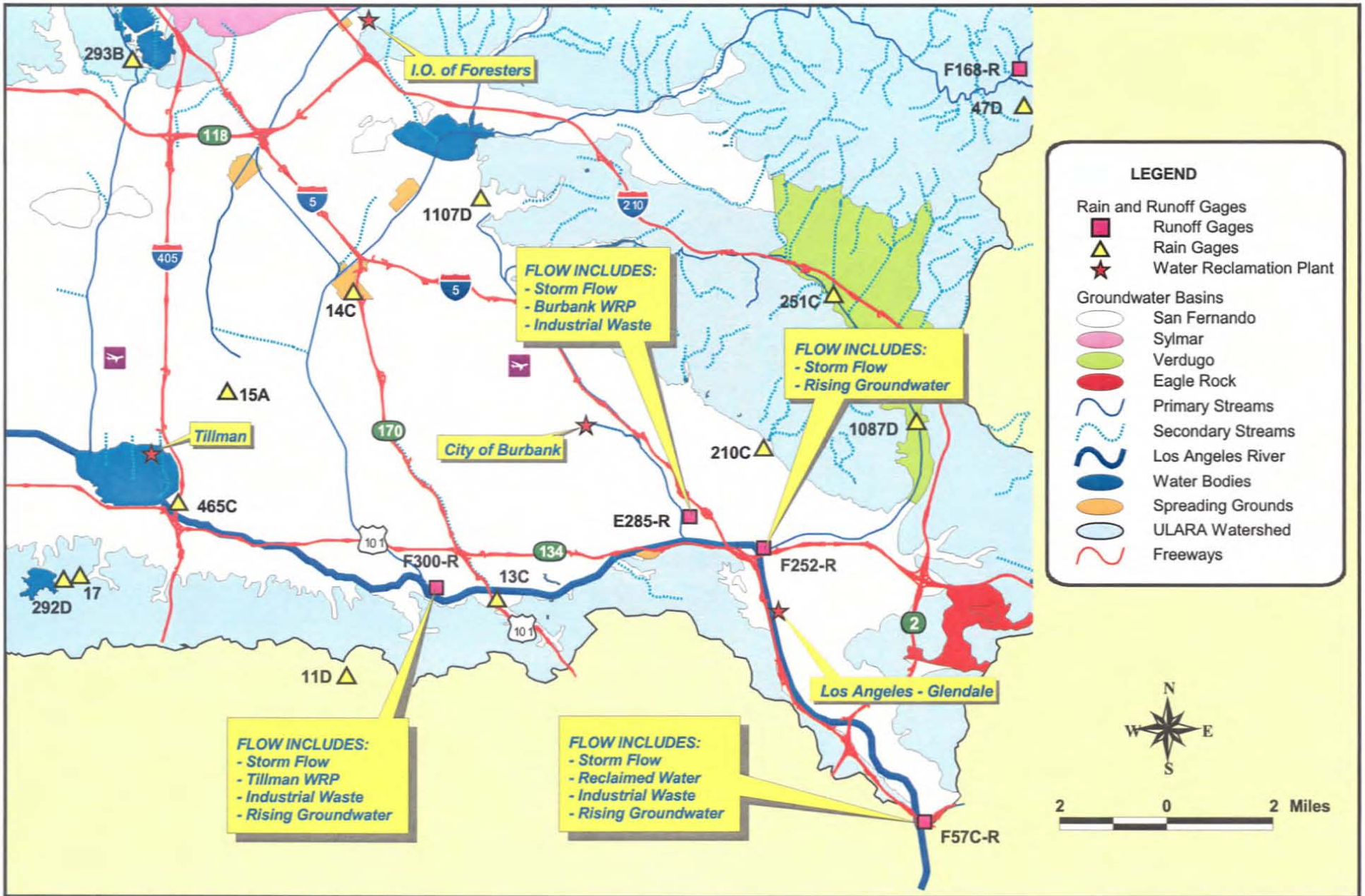
JLE
7

Daily Mean Discharge in Cubic feet/second Water Year Oct 2003 to Sep 2004

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.25	27.8	4.16	3.21	3.23	93.5	25.2	2.01	3.90	3.73	4.81	5.42
2	6.26	3.38	6.32	21.7	105	37.2	3.87	1.76	3.23	3.96	4.65	5.42
3	6.24	5.82	9.91	4.15	8.08	7.89	3.33	1.46	2.82	4.01	4.65	5.42
4	5.85	7.97	9.47	3.23	3.83	4.20	3.27	1.46	3.17	4.05	4.65	5.42
5	5.41	9.72	4.83	3.39	3.58	4.26	4.13	1.46	3.21	4.10	5.15	5.42
6	4.65	3.39	3.85	3.41	3.40	3.21	4.02	1.46	3.21	4.15	5.42	5.42
7	4.39	3.37	12.5	3.53	3.19	3.21	3.83	1.46	3.21	4.20	5.42	5.42
8	3.90	3.23	5.78	3.22	3.07	3.28	2.91	1.46	3.21	4.70	5.42	5.42
9	3.24	3.37	3.31	3.32	3.98	3.24	2.87	1.42	3.21	4.88	5.42	5.42
10	3.21	3.50	4.69	3.35	3.28	2.93	2.75	1.74	3.21	4.34	5.42	5.42
11	2.68	3.39	3.51	3.40	3.44	2.77	2.40	1.98	3.21	4.39	5.42	5.42
12	2.57	9.33	4.62	4.87	3.31	3.08	2.39	1.86	3.21	4.44	5.42	5.42
13	2.57	5.22	4.02	3.45	3.21	2.43	2.50	1.46	3.21	4.49	5.42	5.42
14	2.04	3.64	8.58	3.44	3.56	2.23	3.07	1.46	3.21	4.54	5.36	5.42
15	1.98	3.73	4.60	3.34	3.22	2.83	2.59	1.66	3.21	4.59	4.65	5.42
16	2.01	6.47	3.28	3.44	3.21	3.07	2.91	1.98	3.72	4.64	4.65	5.42
17	2.57	4.01	3.21	3.45	3.30	3.01	6.24	2.91	3.90	4.69	4.65	5.42
18	2.57	3.73	3.50	3.89	33.3	3.33	4.74	3.21	3.90	4.74	4.65	5.42
19	2.57	3.21	3.33	3.48	4.29	3.48	3.36	3.21	3.90	4.79	4.65	5.42
20	2.57	3.21	3.21	3.69	14.0	3.62	2.60	3.21	3.81	4.84	4.65	5.42
21	2.57	3.29	3.41	3.87	20.3	2.46	3.11	2.99	3.21	4.89	4.65	4.75
22	2.89	3.14	3.36		89.4	3.31	4.02	2.57	3.21	4.94	4.65	4.65
23	3.21	2.86	4.23	4.12	25.9	3.50	3.21	2.57	3.21	4.99	5.24	4.65
24	3.21	3.21	4.73	4.63	4.61	3.57	2.97	2.57	3.21	5.04	5.42	4.65
25	3.21	3.21	232	3.44	152	2.76	2.57		3.21	5.09	5.42	4.87
26	3.21	3.21	7.18	3.61	401	3.05	2.92	3.19	3.21	5.14	5.42	5.42
27	3.21	3.21	3.92	3.76	7.10	3.14	2.76	3.21	3.21	5.19	5.42	5.42
28	3.21	3.21	3.21	3.53	5.78	2.72	2.57	3.21	3.21	5.24	5.42	5.42
29	3.21	3.22	3.21	3.49	5.69	4.07	2.57	3.21	3.21	5.01	5.42	5.42
30	3.66	3.21	3.21	3.27	------	3.40	2.57	3.21	3.21	4.57	5.42	5.42
31	21.5	------	3.21	3.31	------	3.21	------	3.64	------	4.62	5.42	------
Total	124.62	149.26	378.35	125.99	927.26	227.96	118.25	69.00	99.76	142.99	158.43	159.07
Mean	4.02	4.98	12.2	4.20	32.0	7.35	3.94	2.30	3.33	4.61	5.11	5.30
Max	21.5	27.8	232	21.7	401	93.5	25.2	3.64	3.90	5.24	5.42	5.42
Min	1.98	2.86	3.21	3.21	3.07	2.23	2.39	1.42	2.82	3.73	4.65	4.65
Acre-Ft	247	296	750	250	1840	452	235	137	198	284	314	316

Wtr Year 2004	Total	2680.94	Mean	7.37	Max	401	Min	1.42	Acre-Ft 5320
Cal Year 2003	Total	3867.50	Mean	10.6	Max	524	Min	1.98	Acre-Ft 7670

APPENDIX C
COMPONENTS OF LOS ANGELES RIVER FLOW



2003-04 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Components of Los Angeles River	PLATE C.1

UPPER LOS ANGELES RIVER AREA: COMPONENTS OF LOS ANGELES RIVER FLOW							
2003-04 WATER YEAR							
TOTAL FLOW AT GAGE F-57C-R			F-57C-R: Storm, Reclaimed, Industrial, Rising Ground				
			F300-R: Storm, Tillman, Industrial Waste, and Rising				
Total:	135,860		E285-R :Storm, Burbank WRP, Industrial Waste				
			F252-R: Storm, Rising Water				
I. RECLAIMED WATER DISCHARGED TO L.A. RIVER IN ULARA							
Tillman:	39010	: Record					
L.A.-Glendale:	12980	: Record					
Burbank WRP:	7773	: Record					
Total:	**59763**						
II. INDUSTRIAL WATER and STORM FLOWS DISCHARGED TO L.A. RIVER IN ULARA							
Upstream of F300-R							
Industrial Water	13560	: From F300-R separation of flow					
F168	1320						
F118	2120						
Storm Flows @300	24740	Storm flows less F168 and F118)					
	41740						
Between F300-R and E-285							
Burbank OU	121	Burbank Operable Unit					
MTA	38						
Storm Drains and Unaccounted water	5781	:8 cfs assumes 5,781					
Headworks:	0	:pilot project record					
Western Drain:	13560	: From E285-R separation of flow					
Storm Flows @285	1563						
	21063						
Between E-285 and F57C-R							
Storm Flows@ 252	2677						
Irrigation and Industrial Flows	172	:From F252-R separation of flow					
Glendale Operable Unit	939						
Eagle Rock Blow Off	2000						
Pollock Treatment	863						
Sycamore Canyon	1100	Estimated from historic flows					
Storm Drains and Unaccounted water	2210	:2.8 cfs assumes 2210					
	9961						
Total Part II	**72764**						
III. RISING WATER IN L.A. RIVER IN ULARA							
Total:	3333	: 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. µmho/c	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	2004FY	726	8.2	40	19	75	34	0	113	135	80	1.9	0.17	0.13	422	178
LA Aqueduct Influent	5/17/2004	409	8.3	30	7.3	44.8	4.5	0	126	34.2	27.6	ND	0.81	0.71	237	113
LA Aqueduct/MWD Filtration Plant Influent	5/17/2004	456	8.2	30	11.1	47.8	3.3	0	94	40.7	56.6	1.98	0.34	0.36	246	108
State Water Project at Joseph Jensen Filtration Plant (Influent)	2004FY	488	7.9	24	13.5	50	2.8	0	101	44	67	2.7	0.12	0.19	269	116
Surface Water																
Tillman Rec. Plant Discharge to LA River	2004FY	7.4	-	-	-	-	-	-	-	93	124	0.36	0.9	0.62	533	151
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	2004FY	-	7.2	52	20	124	-	-	-	128	138	2.61	0.31	0.44	622	228
Ground Water																
(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)																
4840J (Mission No. 5)	6/27/2002	627	7.7	79.8	17.3	28.4	3.69	0	256	60.9	25.5	28.7	0.31	-	396	287
5969 (San Fernando No. 4A)	5/28/2003	445	7.8	48	9.3	27	4.3	0.72	175	47	13	15.4	0.21	-	280	158
(Verdugo Basin)																
3971 (Glorietta No. 3)	3/20/2003	1045	6.8	111	36.3	43.8	3.69	-	-	239	125	79.2	34.7	-	546	196
5069F (CVWD No. 14)	2/3/2004	33	7.2	11	16	34	3.3	ND	200	100	62	47	0.32	ND	540	330

APPENDIX E
DEWATERING AND REMEDIATION PROJECTS

DEWATERING PROJECTS

No.	Company	Contact	Address	ID	Start Date
1	Danalax Engineering Corp.	Krell, Alex	11239 Ventura Blvd.	P	
2		Henkin, Doug	8806 Etiwanda Ave.	P	
3	Delta Tech. Engineering	Abbasi, Z. A.	12800 Ventura Blvd.	P	
4	Commercial Project	Helfman, Haloosim & Assoc.: Varadi, Ivan	5550 Topanga Canyon	D	Jun 19, 1989
5	Encino Spectrum Project	Helfman, Haloosim & Assoc.: Varadi, Ivan	15503 Ventura Blvd.	D	Jun 14, 1989
6	Home Savings of America	Eli Silon & Associates	13949 Ventura Blvd.	D	Jun 14, 1989
7	Warner Center Ent. Complex	Tsuchiyama and Kaino	5955 Owensmouth Ave.	D	Jun 26, 1989
8	T Violes Construction Company	Viole, Tim, Jr.	15840 Ventura Blvd.	P	
9		Eccleston, C. W.	22020 Clarendon St.	P	
10		Marks, Ronald	5348 Topanga Canyon	P	
11	Helfman, Haloosim & Assoc.	Varadi, Ivan	21820 Burbank Blvd.	P	
12	Park Hill Medical Plaza	Anjomshoaa, Mahmoud	7303 Medical Center Dr.	D	Dec 27, 1989
13	Danalex Engineering		12050 Ventura Blvd.	P	
14	Ellis Plumbing Co.	Ellis, Chris	4235 Mary Ellen Ave.	P	
15	Tarzana Office Plaza	Varadi Engineering	18701 Burbank Ave.	P	
16	Helfman, Haloosim & Associates	Varadi, Ivan	5350 White Oak Ave.	P	
17	First Financial Plaza Site	Slade, Richard	16830 Ventura Blvd.	D	Oct 9, 1987
18	Trillium	Arnold, Daryl	6310 Canoga Ave.	D	Apr 27, 1988
19	LAMCO	O'Neil, John	21300 Victory Blvd	D	Apr 27, 1988
20	La Reina Fashion Plaza	Blumenfeld, Dolores	14622 Ventura Blvd.	D	Apr 27, 1988
21	Auto Stiegler	Stiegler, John	16721 Ventura Blvd.	D	Oct 31, 1987
22	Sherway Properties	Vasquez, Rodney	4477 Woodman Ave.	P	
23	Ellis Plumbing Co.	Ellis, Chris	19951 Roscoe Blvd.	P	
24	Metropolitan Transportation Authority	Laury, Victor	Metro Red Line	D	April 1, 1995
25		Carter, Dennis	4547 Murietta Ave	P	Jan 16, 1997
26	MWD Sepulveda Feeder Pipeline Cons	David Dean	Jensen Plant	TD	August 1, 1998
27	A H Warner Properties Plaza 3	Bernier, Dave	21650 Oxnard	D	June 4, 1997
28	A H Warner Properties Plaza 6	Bernier, Dave	21700 Oxnard	D	June 4, 1997
29	Brent & Miller	Brent, Stanley	4328 Mammoth Ave	D	January 13, 2000
30	Northeast Interceptor Sewer	Nick Demos	Bureau of Engineering	TD	October 1, 2001
31	MTA Underground Pedestrian Crossing	Tim Lindholm	MTA	TD	November 1, 2001

Notes:

1) ID - Refers to the type of project;

D: Permanent dewatering required.

P: No dewatering required presently, however there is potential for dewatering in the future.

TD: Temporary Dewatering

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

REMEDIATION PROJECTS

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

Notes:

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

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

APPENDIX F
RESIGNATION FROM ADMINISTRATIVE COMMITTEE
AND NEW REPRESENTATIVE: BURBANK

December 16, 2004

Mr. Mark Mackowski
ULARA Watermaster
111 N. Hope Street, Room 1368
Los Angeles, CA 90012

Dear Mr. Mackowski:

SUBJECT: RESIGNATION FROM WATERMASTER ADMINISTRATIVE COMMITTEE

Effective December 30, 2004, I submit my resignation as Burbank representative to the Upper Los Angeles River Area Watermaster Administrative Committee.

Effective December 31, 2004, Bill Mace will be the primary representative for the City of Burbank and Bassil Nahhas will be the designated alternate.

It has been a pleasure serving with the Watermaster for the past 17+ years. I wish the Watermaster and the Administrative Committee the best for the future.

Sincerely,

Fred Lantz

Fred Lantz,
Assistant General Manager – Water Systems

cc: R. Davis
B. Mace
B. Nahhas
Chron File

FL:ll
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APPENDIX G
BASIN WATER CREDIT TRANSFERS: BURBANK AND GLENDALE

December 15, 2004

Mr. Mark Mackowski
ULARA Watermaster
111 N. Hope Street, Room 1368
Los Angeles, CA 90012

Dear Mr. Mackowski:

SUBJECT: BASIN WATER CREDIT TRANSFER BETWEEN GLENDALE AND BURBANK

The Cities of Burbank and Glendale conducted an internal transfer of water between them in April of 2004 in conjunction with a MWD pipeline shut-down. To complete this transfer, the cities request that 44.2 Acre Feet of Basin Water Credits be transferred from the City of Glendale to the City of Burbank.

Respectfully submitted,

Fred Lantz,
Assistant General Manager – Water Systems

Peter Kavounas,
Water Services Administrator

FL:ll
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cc: Chron File

APPENDIX H
POLLOCK WELL FIELD REMEDIATION PROJECT
PRODUCTION

UPPER LOS ANGELES RIVER AREA WATERMASTER

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

MARK G. MACKOWSKI -- WATERMASTER

OFFICE LOCATION:
111 North Hope Street, Room 1450
Los Angeles, CA 90012-2607
TELEPHONE: (213) 367-0896
FAX: (213) 367-0939

MAILING ADDRESS:
ULARA WATERMASTER
P.O. Box 51111, Room 1450
Los Angeles, CA 90051-5700

January 4, 2005

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

Dear Mr. Erb:

Subject: Pollock Well Field Remediation Project

The Pollock Well Field Remediation Project (Pollock) was constructed primarily to reduce or eliminate excess rising groundwater from entering the Los Angeles River, leaving the San Fernando Basin (SFB) as surface flow, and wasting to the ocean. This groundwater belongs to Los Angeles under its Pueblo and import return water rights.

The 1994 Project Description and California Environmental Quality Act (CEQA) Negative Declaration for Pollock acknowledge the need to eliminate this excess rising groundwater. In addition, a letter dated November 8, 1994 from the Los Angeles Department of Water and Power (LADWP) to the Los Angeles Regional Water Quality Control Board requests a National Pollutant Discharge Elimination System (NPDES) permit for Pollock so that this excess rising groundwater can be minimized. According to these and other documents, the facility was designed to operate at approximately 2,300 acre-feet per year (AF/yr.) to preserve Los Angeles' water rights in the SFB.

Since the 1998-1999 Water Year, annual pumping at Pollock has been as follows:

Water Year	Annual Pumping (AF)
1998-1999	1,512.98
1999-2000	1,851.37
2000-2001	1,255.98
2001-2002	1,642.55
2002-2003	1,720.41
2003-2004	1,137.16

LADWP's July 26, 2001 letter to the Watermaster states, "...LADWP respects the need to operate the Pollock Wells for approximately six months per year to achieve a long-term average of 2,400 AF/yr. of groundwater pumping." And, "Year-to-year fluctuations

in the date of operation commencing for the Pollock Plant do not inhibit LADWP's effectiveness in addressing the excess rising groundwater discharges to the Los Angeles River so long as the long-term average of 2,400 AF/yr. of Pollock Plant operation is satisfied. In satisfying the long-term average of Pollock Plant operation, the City of Los Angeles is able to maintain its SFB water right."

On August 2, 2001, the Watermaster Office sent you a letter reducing the required baseline extraction rate to 2,000 AF/yr. in an effort to help Los Angeles preserve its water rights. Based on the data in the above table, pumping has never reached 2,000 AF/yr. for a single year, much less 2,400 AF/yr. The long-term average pumping is 1,520 AF/yr.

Pumping during the recent 2003-2004 Water Year again failed to meet the required 2,000 AF/yr. baseline by 862.84 AF. Therefore, we will be debiting 862.84 AF from Los Angeles' pumping credits. This debit is necessary to account for actual losses of groundwater from the SFB and to provide a realistic view of water in storage.

We hope that pumping in the current and future years can be increased to at least 2,000 AF/yr. to preserve Los Angeles' water rights in the San Fernando Basin.

Sincerely,

Mark G. Mackowski
ULARA Watermaster

MGM:bw
A:\Pollock2\MGM02
c: Administrative Committee Members
Mr. Bill Mace, City of Burbank
Mr. David Lawrence, City of San Fernando
Mr. Dennis Erdman, Crescenta Valley Water District
Mr. Peter Kavounas, City of Glendale

Watermaster Office
Mr. Mark G. Mackowski, Watermaster
Mr. Frederic Fudacz, Special Counsel
Mr. Melvin L. Blevins, Consultant to the Watermaster
Ms. Patricia T. Kiechler, Assistant Watermaster

bc: ULARA Watermaster File

APPENDIX I
WELLS DRILLED OR ABANDONED

WELLS DRILLED OR ABANDONED

2003-2004 WATER YEAR

City of Los Angeles
The City of Los Angeles destroyed North Hollywood Well No. 10 (3810) and Foothill Well No.2 (4994-C) and Foothill Well No. 3 (4994-B).

APPENDIX J
ACTION ITEMS 2004-05

ACTION ITEMS

WATERMASTER ACTIVITIES FOR 2004-05 WATER YEAR

- 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 public interest groups, such as the Los Angeles and San Gabriel Rivers Watershed Council, the Sun Valley Watershed Committee, Bureau of Sanitation Integrated Resources Plan Committee, the Los Angeles City Ad Hoc Committee on the Los Angeles River, and others to support and promote the goals of the parties and the overall health of the basins within ULARA.

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

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

- Continue to support the ongoing Verdugo Basin Groundwater Evaluation, and investigate ways to maximize conjunctive use in the Verdugo Basin.

- Continue exploring ways to maximize spreading at the Tujunga/Hansen Spreading Grounds.

- Continue to investigate the unauthorized use of groundwater in unincorporated areas of ULARA and develop processes to expedite water license agreements and access to well drilling permits for property owners.

- Continue to work with the U.S. Forest Service, U.S. Fish and Wildlife Service, LACDPW, and LADWP to support the seismic retrofit of Big Tujunga Dam, with the goal of providing maximum water conservation, protection against flood damage, preservation of habitat for endangered species, and protection of Los Angeles' Pueblo water right.

APPENDIX K
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
.....= 1,1613.01 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 milligrams per liter (mg/L) = 1.0 parts per million (ppm)

.....1.0 micrograms per liter (μg/L) = 1.0 parts per billion (ppb)

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

APPENDIX L
LIST OF ABBREVIATIONS

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
OEHHA	Office of Environmental Health Hazard Assessment
OU	Operable Unit
PCE	Tetrachloroethylene
PHG	Public Health Goal
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
ug/L	Micrograms per Liter
ULARA	Upper Los Angeles River Area
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VPWTP	Glendale-Verdugo Park Water Treatment Plant
USGS	United States Geological Survey