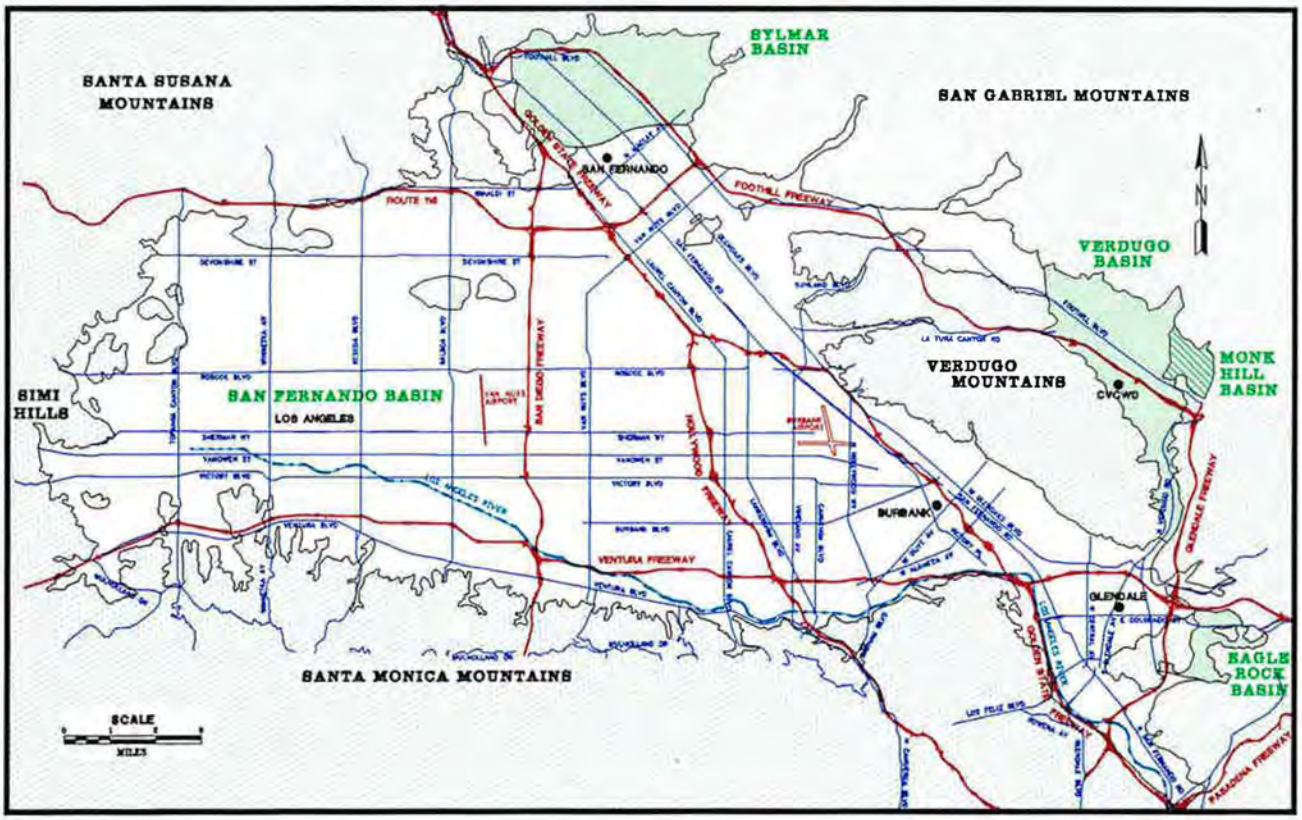
UPPER LOS ANGELES RIVER AREA WATERMASTER

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

2001-2002 WATER YEAR
OCTOBER 1, 2001 - SEPTEMBER 30, 2002



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MAY 2003

FOREWARD

As Watermaster for the Upper Los Angeles River Area (ULARA), I am pleased to submit this report of the water supply 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, 2002. In addition, this report includes background information on the history of the San Fernando Case; information regarding each basin and 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 2001-2002 Water Year pursuant to the provisions of the Judgment.

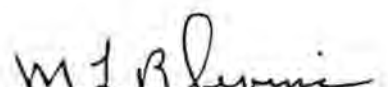
Updates on the development of "Significant Events" are discussed in Section 1.5. These include ongoing challenges presented by chromium contamination, including the publication in January 2003 of the "Watermaster Special Report Concerning the History and Occurrence of Hexavalent Chromium Contamination in the San Fernando Basin and Related Watermaster Conclusions and Recommendations"; growing interest in redevelopment of the Los Angeles River; and increased interest in using urban runoff to recharge the groundwater basins. Also, the Chromium Task Force is being re-established, with the first meeting scheduled for April 30, 2003.

Other matters under investigation include the presence of unauthorized pumpers within ULARA and dewaterers in the western portion of the San Fernando Valley.

To provide groundwater management for the ULARA basins, the Watermaster and Administrative Committee met on a quarterly basis during 2001-2002. As provided in Section 5.4 of the ULARA Policies and Procedures, the seventh ULARA Groundwater Pumping and Spreading Plan was completed and filed with the Court in July 2002.

On a personal note I am taking this opportunity to inform you that a notice was filed on February 21, 2003 with the Los Angeles Superior Court regarding my intention to resign my position as ULARA Watermaster on August 31, 2003. This notice further informed the Court that I intend to serve the ULARA Watermaster Office as a consultant during the next several years (Appendix F). It has been my pleasure to serve as the ULARA Watermaster for the past 24 years.

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.



MELVIN L. BLEVINS
ULARA Watermaster

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1. INTRODUCTION

1. INTRODUCTION

1.1 Background

The Upper Los Angeles River Area (ULARA) encompasses all the 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 mutual agreement 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 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 this 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 (i.e., total delivered water [including reclaimed water] less 105 percent of total sales by Glendale in the Verdugo Basin and its tributary hills).

Physical Solution Water

Several parties are granted limited entitlement to extract groundwater chargeable to the rights of others upon payment of specified charges. The following table 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	25

1. Van de Kamp has never pumped their 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 October 1, 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. As a successor to Meurer Engineering, M.H.C. Inc. owned Santiago Estates as of June 1998. Santiago Estates pumping is deducted from the safe yield and the two cities divide the remainder. Santiago Estates has not pumped since the 1998-1999 Water Year. The pump was removed from their well.

Stored Water

Los Angeles and San Fernando each has a right to store groundwater and the right to extract equivalent amounts.

Verdugo Basin

Native Water

Glendale and the Crescenta Valley Water District (CVWD) own 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. This year there was no extra water to pump due to the cumulative effect of low rainfall and the lack of any spreading of water that has caused the water table to fall in the Verdugo Basin. In a large basin like the San Fernando Basin changes in pumping patterns can mediate the impact, but in a small, steep basin like the Verdugo Basin a falling water table can have a significant impact. In Spring 2002 CVWD initiated a Stage One Alert to begin voluntary water conservation. CVWD has also received $250,000 under Assembly Bill 303 to install three monitoring wells and has applied for additional funding to study the potential for enhancing the conjunctive use of the basin. Neither city pumped its full water right in 2001-02.

Eagle Rock Basin

Native Water

The Eagle Rock Basin has no significant 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 entire safe yield of the basin (approximately 500 AF/Y). Los Angeles has the right to extract or allow to be extracted the safe yield of the basin.

Physical Solution Water

McKesson Water Products (successor to Sparkletts) and Deep Rock each have 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, Paragraph 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, 2003, are:

BURBANK, CITY OF
Fred Lantz (President)
Bill Mace (Alternate)

GLENDALE, CITY OF
Donald Froelich (Vice-President)
Miriam Sykes (Alternate)

SAN FERNANDO, CITY OF
Michael Drake
Harold Tighe (Alternate)

LOS ANGELES, CITY OF
Thomas Erb
Mario Acevedo (Alternate)

CRESCENTA VALLEY WATER DISTRICT
Michael Sovich
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 November, January, March, April, June, and September of 2001-02. The Committee approved the 2001-02 Watermaster Report on April 23, 2003.

1.5 Significant Events through April 2003

Burbank Operable Unit (BOU)

The Burbank Operable Unit operated by Burbank under a contract with United Water, Inc., and funded by Lockheed, 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, the EPA, and United Water have been investigating the cause of operational problems at the facility. Lockheed believed that reduced pumping was due to a lower water table. The investigation concluded that design and maintenance failures were the major contributing factors to insufficient pumping. Lockheed is cooperating fully to make design and operational changes to bring the facility back up to maximum capacity. During the 2001-02 Water Year 10,540 AF of groundwater were treated at the facility. Burbank is reducing the concentration levels of hexavalent chromium in its groundwater supply by blending with imported supplies from MWD to reduce both nitrates and hexavalent chromium before delivery to the City of Burbank.

Glendale Operable Unit (GOU)

Construction of the Glendale North/South Operable Unit was completed and the facility began operation on September 26, 2000. This facility removes VOCs and includes a water treatment plant, blending pipeline, and the refurbished Grandview Pump Station. The facility has the capability of treating up to 5,000 gpm from the Glendale North and South OU Well Fields.

As a result of community concerns regarding the presence of hexavalent chromium in the treated water, the distribution of the treated water to the City of Glendale was postponed. The treated water, nearly 8,000 AF, was discharged to the Los Angeles River between September 26, 2000 and February 2002. In February 2002 Glendale signed a stipulation agreeing to no longer discharge treated water to the river.

Glendale has proposed to USEPA an interim pumping pattern to pump at a lower rate from one high chromium well and at greater rates from the seven other lower chromium wells. Glendale has received more than $1 million from federal appropriations and the American Water Works Research Foundation to investigate technology capable of large-scale treatment of hexavalent chromium and to develop a pilot study. This study will also benefit other pumpers in the SFB including the cities of Burbank and Los Angeles. The GOU treated 6,567 AF of water and

reduced the concentration levels of hexavalent chromium by blending with imported MWD water.

North Hollywood Operable Unit (NHOU)

The NHOU, funded in part by the USEPA, treats VOCs using a system of eight wells and a vapor-phase GAC treatment facility. The City of Los Angeles submitted a Draft Feasibility Study for the Enhancement of the NHOU to the USEPA in November 2002. The study recommends drilling two or three additional wells to improve reliability and increase the rate of treatment to expedite cleanup of VOCs. In the process of locating sites for the proposed wells a source of high levels of hexavalent chromium was discovered upgradient from the NHOU. The USEPA and the City of Los Angeles are working with the Regional Board Water Quality Control Board (RBWQC) to identify the Responsible Parties. On February 21, 2003, a Cleanup and Abatement Order was issued to one of the Responsible Parties, Honeywell International Inc. (formerly Allied Signal). A total of 998 AF were treated in Water Year 2001-02.

Verdugo Park Water Treatment Plant

The City of Glendale Verdugo Park Water Treatment Plant for the treatment of turbidity and bacteria is operating at 500 gpm instead of the expected 700 gpm. Methods to increase the efficiency of Glendale's wells or to replace them are being investigated. A total of 569 AF were treated in Water Year 2001-02.

Glenwood Nitrate Removal Plant

CVWD's Glenwood Nitrate Removal Plant treated 515 AF during 2001-02 Water Year.

East Valley Water Recycling Project

The East Valley Water Recycling Project (EVWRP) was originally designed to deliver tertiary treated water from the Donald C. Tillman Water Reclamation Plant to the Hansen Spreading Grounds (HSG) for groundwater recharge, and for industrial and irrigation uses along the pipeline route. During the first phase of the project, up to 10,000 acre-feet per year of recycled water was planned for spreading in the HSG. The Los Angeles Department of Water and Power (LADWP) has suspended work on the groundwater recharge component and is focusing on on the non-potable (irrigation, industrial, commercial) aspects of the EVWRP. The Hansen Area Water Recycling Project Phase I, scheduled to be online by early 2004, will use some of the recycled water for cooling towers at the Valley Generating Station. The Hansen Area Water Recycling Project Phase II is still in a pre-design stage, and will deliver recycled water to the proposed Canyon Trails Golf Club and the Hansen Dam Recreation Area. Other areas that will

benefit from recycled water include irrigation projects in the West Valley and the Sepulveda Basin.

Headworks Well Field Remediation Project

LADWP has submitted to the California Department of Health Services (DHS) the Source Water Assessment and the Raw Water Characterization elements of DHS Policy 97-005 for the Headworks Well Field Remediation Project. In reviewing the submittals, DHS indicated that the recently established State Action Level for 1,2,3 trichloropropane of 5 parts per trillion (ppt) and the presence of this compound within the ten-year capture zone of the Headworks project would require more treatment than the proposed design. As a result, LADWP suspended activity on the Headworks Project to evaluate other options to ensure that maximum inflows can be restored to the Silver Lake Reservoir service area.

Headworks Spreading Grounds

LADWP is investigating the possibility of developing a multi-objective project to restore the historic recharge function of the Headworks Spreading Grounds while also providing an opportunity for other compatible uses of the property (e.g. establishment of riparian habitat and passive recreation). LADWP is sponsoring this project in cooperation with the U.S. Army Corps of Engineers under a Federal Funding Authority Program for improvements to the environment and ecosystem restoration. LADWP has recently commenced a study to determine the feasibility of using a portion of the spreading grounds for the construction of storage tanks to replace the function of the Silver Lake and Ivanhoe Reservoirs.

Metropolitan Transportation Authority (MTA)

On June 30, 2000 the MTA completed construction of the Metro Red Line – Segment 3 North Hollywood subway. During the six years of construction nearly 1,700 AF of groundwater were removed by dewatering along portions of the tunnel that entered the water table of the SFB. The MTA entered into a long-term agreement with the City of Los Angeles to dewater as needed in the future. The MTA pays for the extracted groundwater that is deducted from Los Angeles' water rights. Plans to construct a pedestrian underpass at the Universal Subway Station that may require dewatering have been postponed subject to the settlement of a lawsuit between the MTA and Universal Studios.

Chromium

Chromium, and in particular hexavalent chromium, has continued to concern water purveyors and regulatory agencies during the 2001-02 Water Year.

A significant hexavalent chromium groundwater plume has been documented by the USEPA (Plate 17) and is expected to become more detailed with the addition of information from the RWQCB based on its four-year long investigation of hexavalent chromium contamination in the SFB completed in December 2002. The initial investigation of over 4,000 sites identified 105 properties as potential sources of hexavalent chromium contamination, with maximum historic levels as high as 1,000,000 ppb (Plate 18). The RWQCB has begun issuing Cleanup and Abatement Orders to the Responsible Parties.

The Watermaster filed with the Los Angeles Superior Court on January 27, 2003, the "Watermaster Special Report Concerning the History and Occurrence of Hexavalent Chromium Contamination in the San Fernando Basin and Related Watermaster Conclusions and Recommendations". The report includes eyewitness accounts of hexavalent chromium contamination and the path of migration into the groundwater.

In February 1999, the Office of Environmental Health Hazard Assessment (OEHHA) of the California Environmental Protection Agency formally adopted a Public Health Goal (PHG) for total chromium at 2.5 parts per billion (ppb). The PHG assumed a concentration of 0.2 ppb for hexavalent chromium. The current State Maximum Contaminant Level (MCL) for total chromium is 50 ppb and the Federal MCL is 100 ppb. MCLs are drinking water standards established by the DHS and USEPA after a lengthy review process that considers numerous factors including health risk, cost to treat, and the feasibility to meet the standard. Hexavalent chromium is a known carcinogen when inhaled, but it has not been determined if the risk is similar when it is ingested in drinking water. In November 2001 OEHHA withdrew the PHG of 2.5 ppb after a study by the Chromium Toxicity Review Committee stated that the "current California MCL for total chromium of 50 ppb should be deemed protective of human health." The State of California will be setting a MCL for hexavalent chromium in January 2004. The ongoing National Toxicology Program study and the USEPA/Glendale Chromium 6 Removal Study by McGuire should help in setting the MCL for Chromium 6.

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 limited in above-normal runoff years

because of environmental issues associated with methane gas migration from nearby landfills. 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. A consultant is finalizing the characterization study, and has recently proposed a pilot study to install additional data collection points and to spread water while operating the gas collection system under a variety of controlled conditions.

Standard Urban Stormwater Mitigation Plan (SUSMP)

The RWQCB adopted SUSMP on March 8, 2000. It requires certain new developments and re-developments to contain the first ¾-inch of rainfall runoff from every storm by treating or infiltrating it into the subsurface. The Watermaster is concerned that infiltrating urban runoff could have a negative effect on groundwater quality. In addition, diverting this native runoff for consumptive use by third parties may be a violation of the San Fernando Judgment. The Watermaster Office is working closely with various groups and agencies and helped implement Los Angeles' Development Best Management Practices (BMP) Handbook in a manner that is protective of both water quality and water rights within ULARA. The Handbook specifically limits the use of infiltration BMPs within SFB until the effects on water quality can be determined.

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 under consideration include local infiltration of storm runoff and the acquisition of gravel pits for conversion into spreading basins. The storm runoff includes rainfall as well as urban industrial runoff that could contain contaminants that are potentially hazardous to 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.

Water Augmentation Study (WAS)

The Los Angeles and San Gabriel Rivers Watershed Council has developed a Water Augmentation Study to determine the feasibility of infiltrating urban runoff to reduce local flooding, recharge groundwater, and reduce surface water pollution. The Watermaser Office

serves on the Technical Advisory Committee and provides input with respect to water quality and water rights within ULARA. As part of the study, a storm water infiltrator was installed on the campus of the Broadous School in Pacoima. Runoff is collected from the entire campus and is routed to the infiltrator. To study the effects on groundwater quality, monitoring wells were installed upgradient and downgradient from the infiltrator, and soil moisture lysimeters were installed to track the reduction of various contaminants as the water percolates through the vadose zone. Due to the extremely low rainfall in Water Year 2001-02, sampling opportunities were limited.

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 is represented on the Management Advisory Committee and the Technical Advisory Committee, and guides the process with respect to water rights and water quality within ULARA.

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 committee to resolve these issues. A final feasibility study was issued in June 2002. The reports are available through the Coastal Conservancy.

Los Angeles City Ad Hoc Committee on the Los Angeles River

This Committee, chaired by Councilman Ed Reyes, has been formed to study the revitalization of the Los Angeles River. The Committee has been reviewing 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. 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 lost water. The City of Los Angeles is developing a dewatering ordinance. The Watermaster Office currently receives reports from several dewaterers in the SFB, and is investigating several additional possible sites.

Unauthorized Pumping within ULARA

The Watermaster has met with Supervisor Antonovich's and Supervisor Yaroslavsky's staffs to discuss pumping in areas of the ULARA that are located in unincorporated areas of the County. The water rights in these areas belong to the City of Los Angeles, but the County has not recognized Los Angeles' rights. The Watermaster is investigating this unauthorized water use. Databases and maps detailing the location of water purveyors within ULARA and developed properties outside the service areas of these water purveyors within ULARA are being reviewed. A legal agreement was reached in 2001 between the City of Los Angeles and an owner of property in a remote area that allows the owner to pump a limited amount of groundwater for domestic use. This agreement may provide a guideline for future pumping in areas of ULARA that are not served by other purveyors.

United States Forest Service (USFS)

A portion of the Angeles National Forest lies within ULARA. Water rights in this area belong to the City of Los Angeles, although the USFS has not recognized these rights. There are leased properties within this area that use surface and/or groundwater, and there may also be USFS facilities that use water owned by the City of Los Angeles. The Watermaster is investigating this water usage.

During the 2001-02 Water Year, the USFS and the United States Fish and Wildlife Service expressed a concern over several endangered species in Big Tujunga Creek below Big Tujunga Dam. In an effort to protect and enhance the habitat, they have proposed modifying the water releases from the dam in a manner that may adversely impact the ability of the County and City of Los Angeles to recharge the SFB aquifer, potentially affecting the City's water rights. The Watermaster has been meeting with the involved parties to develop a plan that will be protective of the endangered species as well as the City's water rights.

Central Basin Amicus Brief

In January 2003 the Watermaster's Amicus Brief in the matter of Central and West Basin Water Replenishment District vs. Southern California Water Company et al. was accepted by the Appeals Court. The brief supports the storage rights of water rights holders in adjudicated basins. The decision of the trial court that interpreted storage rights as a public resource threatens the storage space and water management of water rights holders in the state.

1.6 Summary of Water Supply, Operations, and Hydrologic Conditions

Highlights of operations for the 2000-01 and 2001-02 Water Years are summarized in Table 1-3. Details of the 2001-02 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 Plate 2 through Plate 9.

Average Rainfall

Precipitation on the valley floor area during Water Year 2001-02 was 5.95 inches, 36 percent of the calculated 100-year mean (16.48 inches); precipitation in the mountain areas was 7.07 inches, 32 percent of the calculated 100-year mean (21.76 inches).

Spreading Operations

A total of 2,664 AF of water were spread, an enormous decrease from the average annual spreading for the 1968-2002 period of 32,590 AF.

Extractions

Total extractions amounted to 98,625 AF. This is a decrease of 283 AF from 2000-01 and approximately equal to the 1968-2002 average of 98,593 AF. Of the total for the 2001-02 Water Year, 2,252 AF were for non-consumptive use. Appendix A contains a summary of groundwater extractions for the 2001-02 Water Year.

Imports

Gross imports (including pass-through water) totaled 576,442 AF, an increase of five percent from 2000-01. Net imports used within ULARA amounted to 327,051 AF, a 16,954 AF increase from 2001-02.

Exports

A total of 311,401 AF of water were exported from ULARA. Of the 311,401 AF exported, 62,010 AF were from groundwater extractions, and 249,391 AF were from imported supplies (pass-through).

Treated Wastewater

A total of 85,663 AF of wastewater were treated in ULARA. The majority of the treated water was discharged to the Los Angeles River, a small amount was delivered to the Hyperion Treatment Plant, and approximately ten percent was used as recycled water.

Recycled Water

Total recycled water used in ULARA was 8,360 AF, a 284 AF decrease 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 112,080 AF; this was the amount of 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 2001-02 decreased by 27,094 AF; the total cumulative increase in groundwater storage since October 1, 1968 is 122,621 AF. The 2001-02 change in storage increased at a greater rate than the prior years due to below average rainfall and reduced spreading operations. The change in groundwater storage for the Sylmar, Verdugo, and Eagle Rock Basins was +1,171, – 743, and, – 113 AF, respectively.

Wells

In the City of Glendale the decommissioning of the Grandview Wells No. 1, 2, 6, 7, 11, 12, 13, 14, 15, 16 was completed in December 2002. CVWD Well No. 15 was placed into service.

TABLE 1-3: SUMMARY OF OPERATIONS IN ULARA

Item	Water Year 2000-01	Water Year 2001-02
Active Pumpers (parties and nonparties)	27	24
Inactive Pumpers (parties within valley fill)[1]	6	9
Valley Rainfall, in inches		
Valley Floor	19.52	5.95
Mountain Area	25.05	7.07
Spreading Operations, in acre-feet	17,939	2,664
Extractions, in acre-feet		
Used in ULARA	43,168	36,615
Exported from ULARA	55,740	62,010
Total	**98,908**	**98,625**
Gross Imports, in acre-feet		
Los Angeles Aqueduct Water	258,115	195,318
MWD Water	302,571	381,124
Total	**560,686**	**576,442**
Exports, in acre-feet		
Los Angeles Aqueduct Water	126,284	93,674
MWD Water	124,305	155,717
Groundwater	55,740	62,010
Total	**306,329**	**311,401**
Net Imports Used in ULARA, in acre-feet	310,097	327,051
Reclaimed Water Use, in acre-feet	8,644	8,360
Total Water Used in ULARA, in acre-feet[2]	361,909	372,026
Treated Wastewater, in acre-feet[3]	97,015	85,663
Sewage Export to Hyperion, in acre-feet[4]	110,412	112,080

1) The nine inactive pumpers are Hinkley-Schmidt (Deep Rock), 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 reclaimed 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 2002-03 Water Year

Table 1-4 shows a summary of extraction rights for the 2002-03 Water Year and stored water credit as of October 1, 2002, 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 2002-03 WATER YEAR
(acre-feet)

	Native Safe Yield Credit[1]	Import Return Credit[2]	Total Native+Import	Stored Water Credit (as of Oct. 1, 2002)	Allowable Pumping 2002-03 Water Year
San Fernando Basin					
City of Los Angeles	43,660	45,684	89,344	254,789	344,133
City of Burbank	—	4,987	4,987	31,625	36,612
City of Glendale	—	5,585	5,585	71,761	77,346
Total	**43,660**	**56,841**	**99,916**	**358,175**	**458,091**
Sylmar Basin					
City of Los Angeles	3,255	—	3,255	6,375	9,630
City of San Fernando	3,255	—	3,255	529	3,784
Total	**6,510**	**—**	**6,510**	**6,904**	**13,414**
Verdugo Basin[3]					
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 the 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 35 inches in the San Gabriel Mountains. Approximately 80 percent of the annual rainfall occurs from December through March.

The 2001-02 Water Year experienced the lowest average rainfall since records have been kept. The valley floor received 5.95 inches of rain (36 percent of the 100-year mean), while the mountain area received 7.07 inches (32 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 6.64 inches (34 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

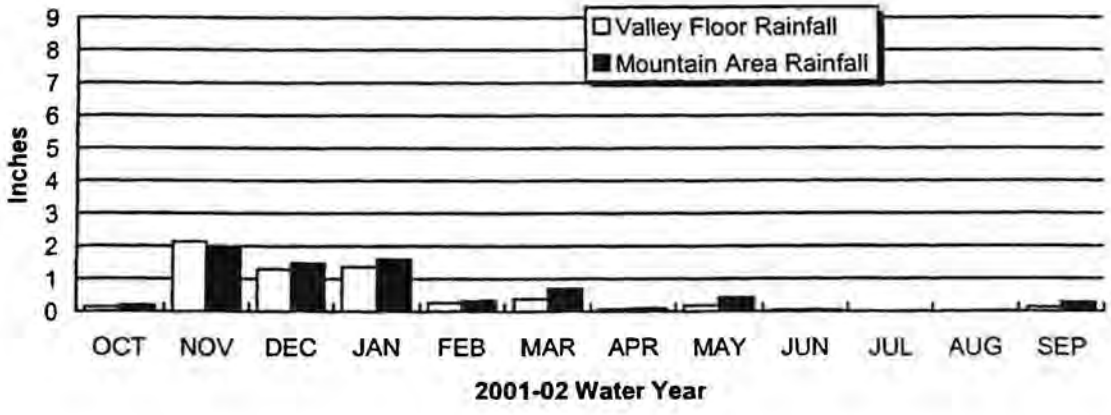


TABLE 2-1: 2001-2002 PRECIPITATION

(inches)

LACDPW Rain Gage Stations		2001-02	100-Year Mean	Percent of
No.	Name	Precipitation	(1881-1981)	100-Year Mean
	Valley Stations			
13C	North Hollywood-Lakeside	6.44	16.63	39%
1087D	Green Verdugo Pumping Plant [2]	6.64	14.98	44%
465C	Sepulveda Dam	4.38	15.30	29%
21B	Woodland Hills	4.39	14.60	30%
23B	Chatsworth Reservoir	4.66	15.19	31%
25C	Northridge-LADWP	4.27	15.16	28%
251C	La Crescenta	8.95	23.31	38%
293B	Los Angeles Reservoir	7.88	17.32	45%
	Weighted Average[1]	**5.95**	**16.48**	**36%**
	Mountain Stations			
11D	Upper Franklin Canyon Reservoir	7.16	18.50	39%
17	Sepulveda Canyon at Mulholland	3.26	16.84	19%
33A	Pacoima Dam	8.98	19.64	46%
47D	Clear Creek - City School	11.04	33.01	33%
1076B	Monte Cristo Ranger Station [3]	4.61	29.04	16%
54C	Loomis Ranch-Alder Creek	4.80	18.62	26%
210C	Brand Parks	5.43	19.97	27%
797	DeSoto Reservoir	6.90	17.52	39%
1074	Little Gleason	7.76	21.79	36%
	Weighted Average[1]	**7.07**	**21.76**	**32%**
	Weighted Average Valley/Mountain Areas[1]	**6.64**	**19.64**	**34%**

1. Weighted Average calculations performed according to Report of Referee-7/62. Mountain Station Weighted Average estimated due to incomplete data.
2. Station 1087D substituted for 14C La Tuna Canyon.
3. Station 1076B substituted for 53D.

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 2000-01 and 2001-02 monthly runoff for these stations. The higher runoff in 2000-01 is related to higher rainfall than in 2001-02. The mean daily discharge rates for these six stations during 2001-02 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	2001-02	7,860	14,630	11,830	15,410	9,730	13,170	8,850	7,460	7,150	7,610	8,740	8,360	**120,820**
L.A. River	2000-01	17,910	7,520	9,110	35,060	48,600	19,670	12,140	7,730	7,840	7,790	7,810	7,680	**188,860**
Arroyo Seco														
F-252-R	2001-02	644	1,550	932	633	262	594	499	367	368	660	364	665	**7,538**
Verdugo Wash	2000-01	498	306	327	1,110	1,910	646	628	292	492	722	576	363	**7,870**
E-285-R	2001-02	698	1,400	1,330	822	549	623	565	616	595	642	637	777	**9,254**
Burbank	2000-01	860	698	616	2,350	3,410	2,220	1,150	778	879	772	690	698	**15,121**
Storm Drain														
F-300-R	2001-02	3,260	8,560	7,130	7,530	5,000	5,250	4,170	5,120	4,710	5,120	4,710	4,950	**65,510**
L.A. River	2000-01	10,720	5,220	26,420	37,210	17,700	9,330	4,400	3,490	3,540	3,370	2,900	4,570	**128,870**
Tujunga Ave.														
F-168-R	2001-02	10	1	102	137	2	3	2	238	434	4	0	0	**932**
Big Tujunga	2000-01	3	2	287	321	1,610	3,810	778	178	27	0	0	0	**7,016**
Dam														
F-118B-R	2001-02	404	0	0	0	0	0	0	4	0	0	0	0	**408**
Pacoima Dam	2000-01	0	266	0	164	444	1,750	80	1	7	0	0	0	**2,712**

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. Reclaimed 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 (temporarily, at least) 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 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 reclaimed waters. Releases from the Los Angeles-Glendale Plant were started 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. There is opportunity for continuing percolation in the unlined reach, both upstream and downstream of the paved 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-appear 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 Narrows, and in the reach 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 water above the Verdugo Narrows. From 1991-92 (Table 2-3) to the very wet year of 1992-93 there was an increase of rising water at Gage F-252-R of about 1,900 AF. From 2000-01 to 2001-02, flows of rising water at Gage F-252-R was estimated at 1,819 AF. For 2001-02 the rising groundwater flow at Gage F-57C-R was estimated at 2,126 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. The Watermaster Office is working with the Los Angeles County Department of Public Works (LACDPW) to more precisely measure the source of surface flows and rising groundwater.

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
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	4,400	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

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 paved channels that discharge into the Los Angeles River. To partially offset the increased runoff due to urbanization, Pacoima 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 City of Los Angeles operates the Headworks Spreading Grounds, however, it is currently inactive. 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 2001-02 Water Year, and Plate 7 shows the locations of the spreading basins.

TABLE 2-4: 2001-2002 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	25	113	68	73	33	26	18	23	19	17	17	28	460
	Hansen	87	229	191	222	139	136	134	72	132	0	0	0	1,342
	Lopez	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pacoima	269	81	92	220	71	0	0	28	0	0	0	0	761
	Tujunga	51	0	9	40	1	0	0	0	0	0	0	0	101
	Total	432	423	360	555	244	162	152	123	151	17	17	28	2,664
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		432	423	360	555	244	162	152	123	151	17	17	28	2,664

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 104,000 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, entered on January 26, 1979, provides a similar restriction in groundwater pumping, but with a different legal view than the Trial Court (Judgment entered on March 15, 1968).

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 32 years (1968-69 to 2000-01) 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 98,636 AF were pumped from ULARA during the 2001-02 Water Year: 87,992 AF from the SFB, 5,005 AF from the Sylmar Basin, 5,407 AF from the Verdugo Basin, and 232 AF from the Eagle Rock Basin. The respective safe yield values for the 2001-02 Water Year were 98,485 AF (Native Safe Yield of 43,660 plus an import return credit of 54,825 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 2001-02 Water Year, Plate 8 shows the locations of the well fields, and Plate 11 describes the pattern of groundwater extractions.

Of the total amount pumped in the SFB (87,992 AF), 84,200 AF constitutes extractions by Parties to the Judgment; 2,257 AF constitutes nonconsumptive use; and 1,535 AF were used for physical solutions, groundwater cleanup, testing/well development, and dewatering parties (Appendix E). Table 2-5 summarizes 2001-02 private party pumping in the SFB, and Plate 3 shows the locations of the individual producers.

McKesson Water Products (formerly Sparkletts Drinking Water Corporation) and Deep Rock Water Company are the only Physical Solution parties that have rights to extract water from the Eagle Rock Basin. These parties pay the City of Los Angeles for pumped groundwater pursuant to the Judgment.

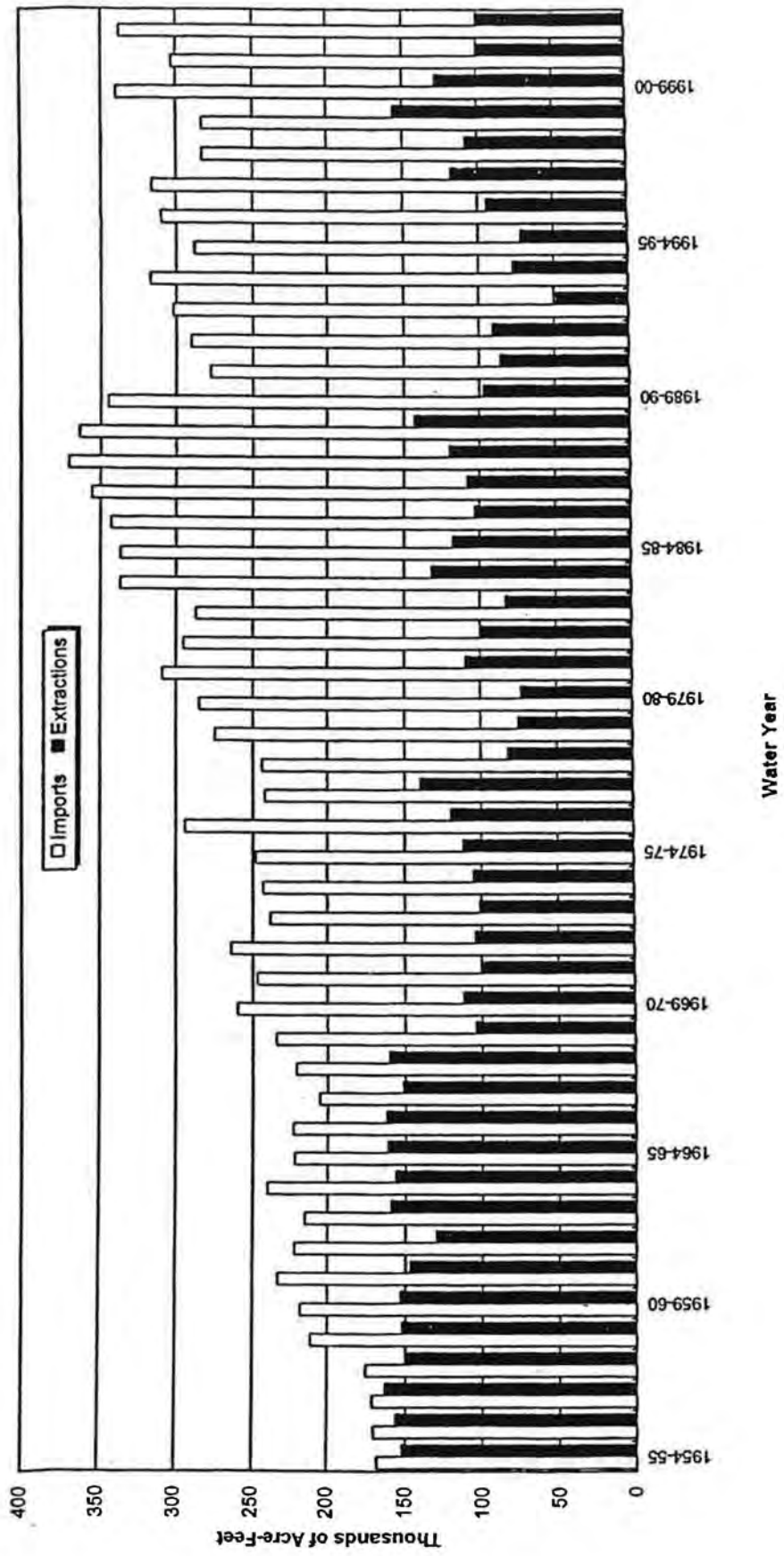


FIGURE 2.2 - YEARLY IMPORTS USED IN ULARA AND TOTAL ULARA EXTRACTIONS

TABLE 2-5: 2001-02 PRIVATE PARTY PUMPING - SAN FERNANDO BASIN

(acre-feet)

Nonconsumptive Use or Minimal Consumption		Groundwater Dewatering	
Vulcan-CalMat Division	2,250.00	Auto Stiegler	0.36
(Gravel washing)		(Charged to Los Angeles' water rights)	
Sears, Roebuck and Company	0	First Financial Plaza Site	21.55
(Air Conditioning; well disconnected 2000))		(Charged to Los Angeles' water rights)	
Sportsmen's Lodge	0.8	Trillium Corporation	35.68
Toluca Lake Property Owners	6.61	(Charged to Los Angeles' water rights)	
(Lake overflows to LA River)		Metropolitan Transportation Agenc	44.14
Walt Disney Productions	0	(Charged to Los Angeles' water rights)	
(3 wells inactive/ Not abandoned.)		Metropolitan Water District (MWD)	177.80
		(Charged to Los Angeles' water rights)	
		Warner Properties Plaza 6 and 3	24.20
		(Charged to Los Angeles' water rights)	
Total	**2,257.41**	**Total**	**303.73**
Groundwater Cleanup		**Physical Solution**	
Raytheon (Hughes)	2.28	Vulcan-CalMat Division	266.23
(Charged to Los Angeles' water rights)		(Charged to Los Angeles' water rights;	
Menasco	0.11	Amount of return in excess=156.37)	
(Charged to Los Angeles' water rights)		Forest Lawn Cemetery Assn.	415.37
Micro Matic USA, Inc.	1.77	(Charged to Glendale's water rights)	
(Charged to Los Angeles' water rights)		Hathaway (deMille)	41.90
Mobil Oil Corporation	1.84	(Charged to Los Angeles' water rights)	
(Charged to Los Angeles' water rights)		Middle Ranch (deMille)	13.89
3M-Pharmaceutical	69.58	(Charged to Los Angeles' water rights)	
(Charged to Los Angeles' water rights)		Toluca Lake Property Owners	30
Burbank Operable Unit	137.85	(Charged to Los Angeles' water rights)	
(Charged to Basin Account)		Valhalla Memorial Park	362.30
		(Charged to Burbank's water rights)	
		Waterworks District No. 21	24.0
		(Charged to Los Angeles' water rights)	
		Wildlife Waystation	2.4
		(Charged to Los Angeles' water rights)	
Total	**213.43**	**Total**	**1,156.09**
Total Extractions	**3,931**		

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 nontributary imports and exports from ULARA during the 2000-01 and 2001-02 Water Years, and Figure 2.3 shows the monthly extractions and imports.

FIGURE 2.3 - TOTAL MONTHLY EXTRACTIONS AND GROSS IMPORTS

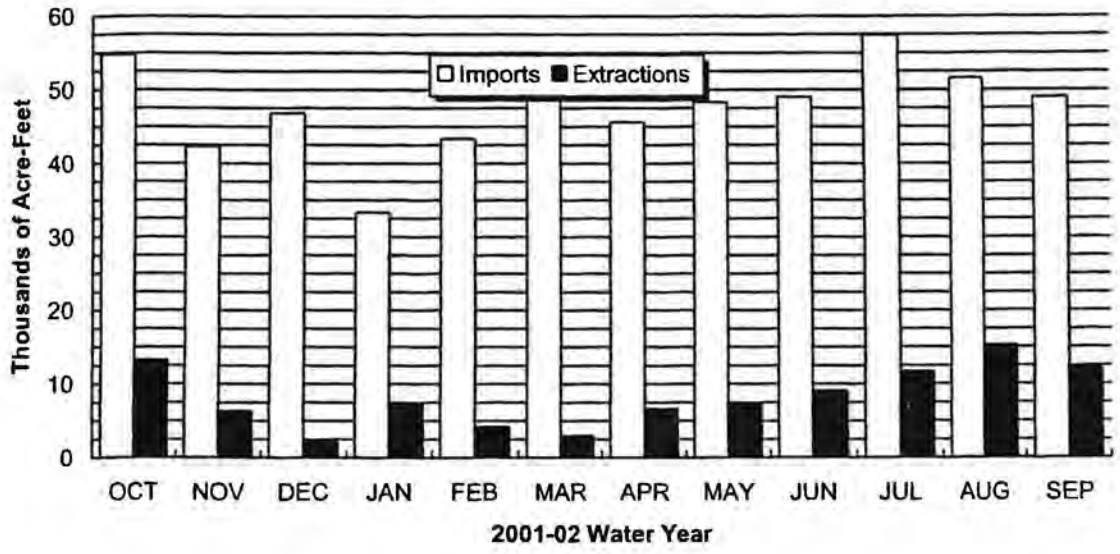


TABLE 2-6: ULARA WATER IMPORTS AND EXPORTS

(acre-feet)

Source and Agency	Water Year 2000-01	Water Year 2001-02
Gross Imported Water		
Los Angeles Aqueduct		
City of Los Angeles	258,115	195,318
MWD Water		
City of Burbank	12,447	12,086
Crescenta Valley Water District	2,002	2,556
City of Glendale	28,688	24,378
City of Los Angeles[1]	251,028	333,185
La Canada Irrigation District[1]	1,202	1,324
Las Virgenes Municipal Water District[1]	7,204	7,594
City of San Fernando	0	0
Total	**302,571**	**381,124**
Grand Total	**560,686**	**576,442**
Exported Water (Pass-Through)		
Los Angeles Aqueduct		
City of Los Angeles	126,284	93,674
MWD water		
City of Los Angeles	124,305	155,717
Total	**250,589**	**249,391**
Net Imported Water	**310,097**	**327,051**

1. Deliveries to those portions of these Districts 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. Five 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 2001-02 reclamation plant operations, and Plate 6 shows their locations.

TABLE 2-7: 2001-02 WASTEWATER RECYCLING OPERATIONS
(acre-feet)

Plant/Agency	Treated Water	Water Discharged to L.A. River	Water Discharged to Hyperion	Recycled Water	Recyled Water Delivered to SFB
City of Burbank	9,068	7,036	4,288	2,087 [1]	2,087
Los Angeles-Glendale	19,001	13,305	1,630	4,238 [2]	—
Los Angeles					72
Glendale					972
Donald C. Tillman	57,545	44,737	11,691	616 [3]	0
The Independent Order of Foresters	49	0	0	49 [4]	0
Las Virgenes MWD	—	0	0	1,370 [5]	0
Total	**85,663**	**65,078**	**17,609**	**8,360**	**3,131**

1. Of the total recycled water (2,087 AF), 1,600 AF was delivered to the Burbank power plant. Of that, 320 AF is for cooling and 1280 AF is for discharge to the Los Angeles River. 487 AF was used by CalTrans, DeBell Golf Course and other landscape irrigation.
2. Of the total recycled water (4,238 AF), 1,352 AF was delivered to Glendale for use in Glendale's Power Plant and for irrigation water for CalTrans, Forest Lawn and Brand Park; 919 AF was for in plant use; 1,074 AF was delivered to Griffith Park by Los Angeles for irrigation; and 893 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.
5. Portion of recycled water is used within ULARA for irrigation.
6. Portion used to determine Return Flow Credit for Delivered Water per Judgment Section 5.2.1.3.

2.8 Water Level Elevations

The 2002 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 2002 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 2001-02 Water Year. The model was then run for twelve consecutive stress periods beginning October 2001 through September 2002. The simulated head values at the end of the April and September stress periods were then plotted by utilizing a groundwater contour software package.

The simulated Spring and Fall 2002 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 2002. 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 2001 to the Fall of 2002. The drop in groundwater levels in the north portion of the SFB, specifically near the Hansen Spreading Grounds, is attributed to the very small volume of Native Runoff water spread at the Hansen, Pacoima, and Tujunga Spreading Grounds (2,664 AF), as compared to the long-term average of 32,590 AF/Y.

The 5 to 13 foot decline in groundwater levels as shown near the Rinaldi-Toluca and North Hollywood Well Field areas is primarily due to increased groundwater extractions. Extractions for these two well fields increased by 46 percent from 2000-01 to 2001-02 (23,216 AF to 33,994 AF). The area near the Tujunga Well Field shows a decline in groundwater levels, as much as 5 feet, due to reduced spreading at the Tujunga Spreading Grounds by about 88 percent. The vicinity of the Burbank Well Field shows a decline in groundwater levels of approximately 5 feet as a result of increased pumping from 9,132 AF to 10,539 AF. In general, the SFB shows a

continuous decline in groundwater levels as a result of low precipitation and low artificial recharge.

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

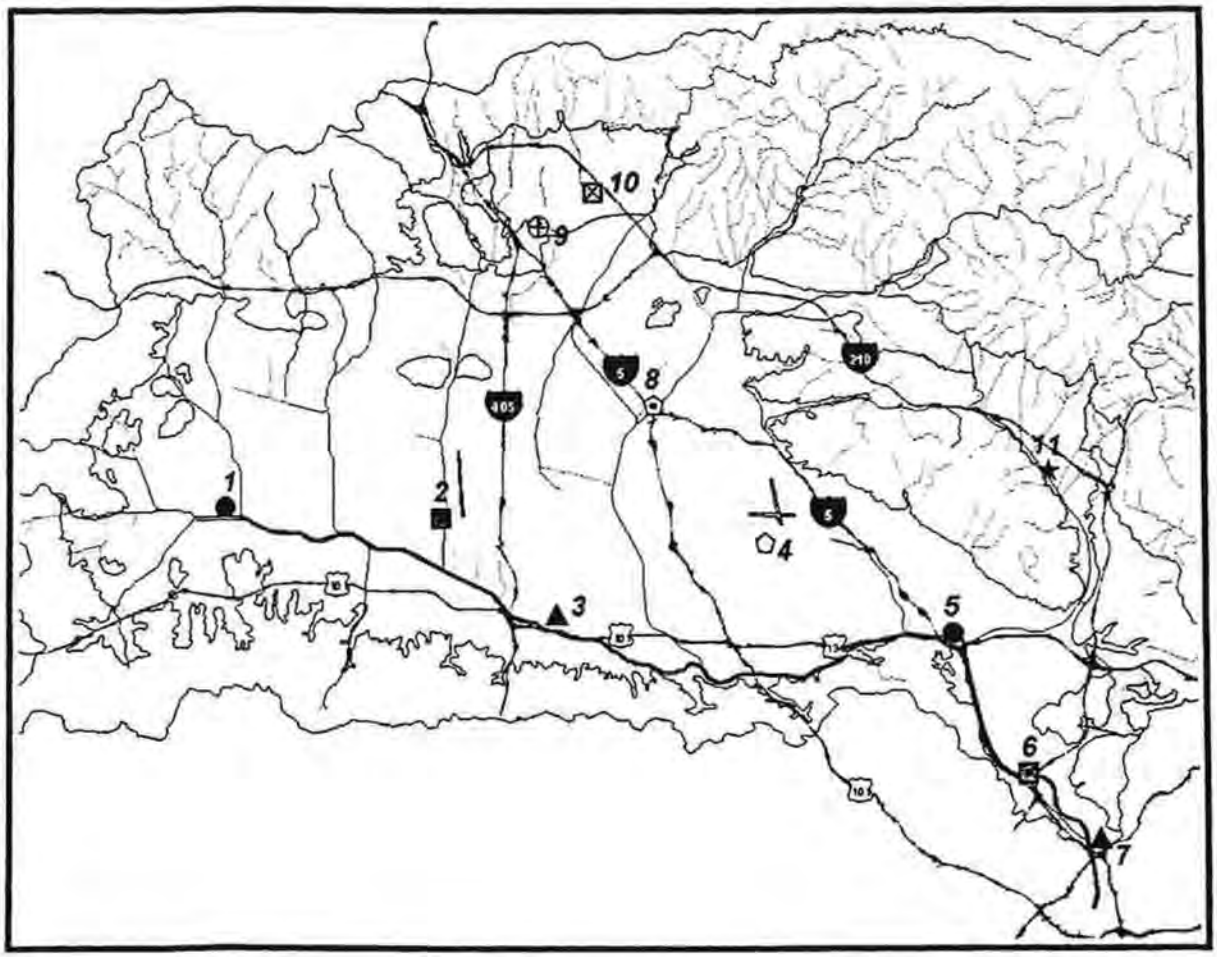
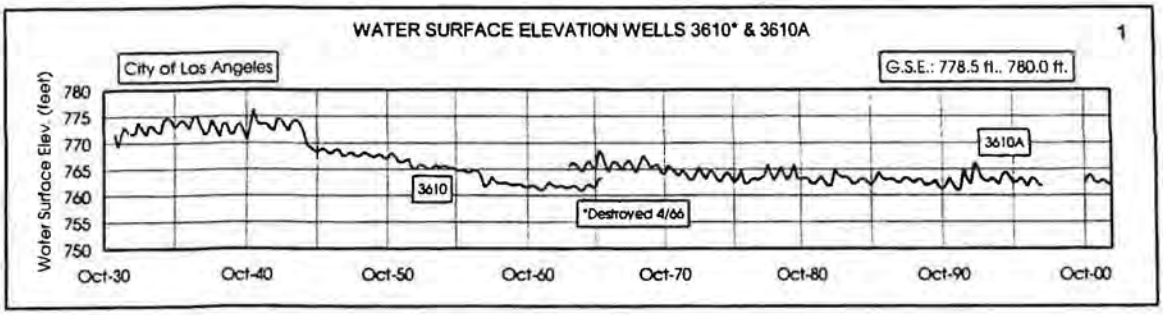
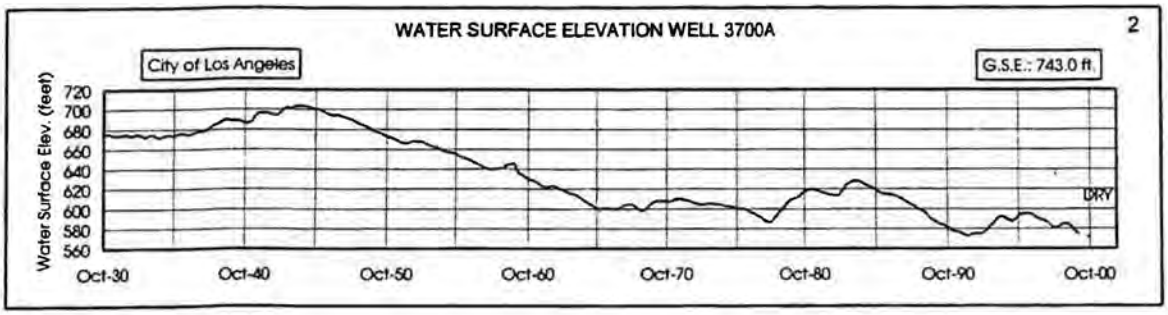
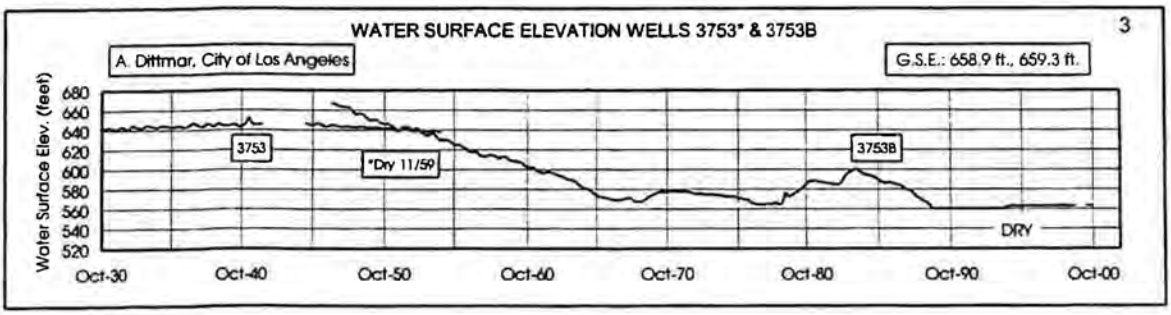


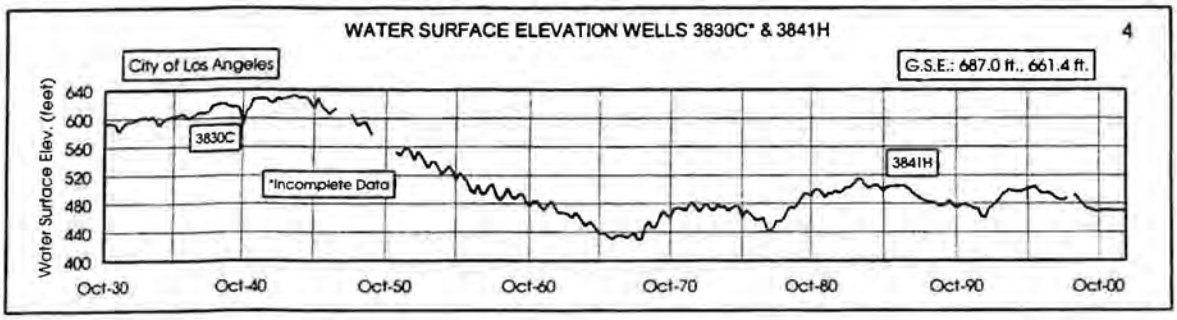
FIGURE 2.4 HYDROGRAPHS AND LOCATIONS OF WELLS THROUGHOUT ULARA

SAN FERNANDO BASIN

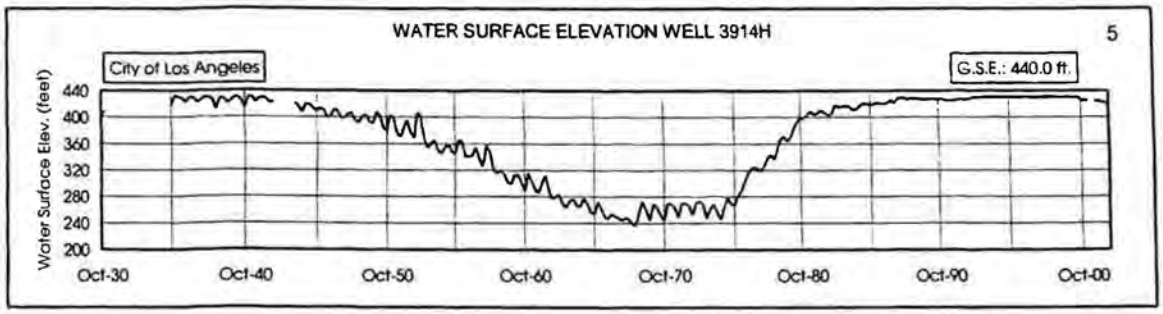


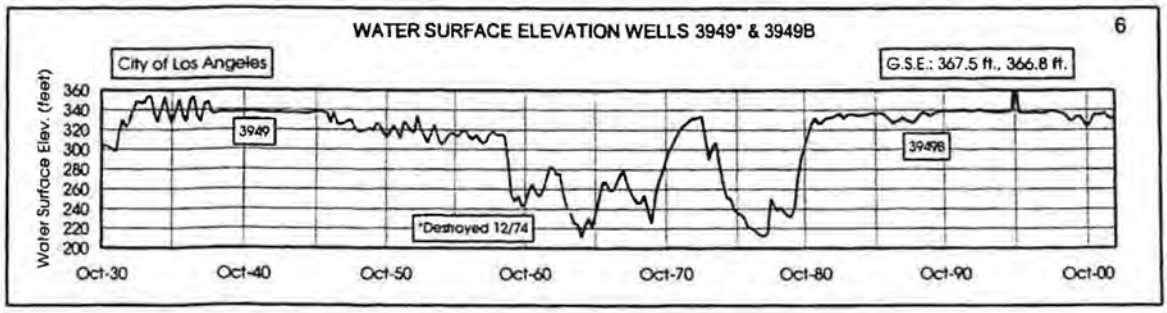


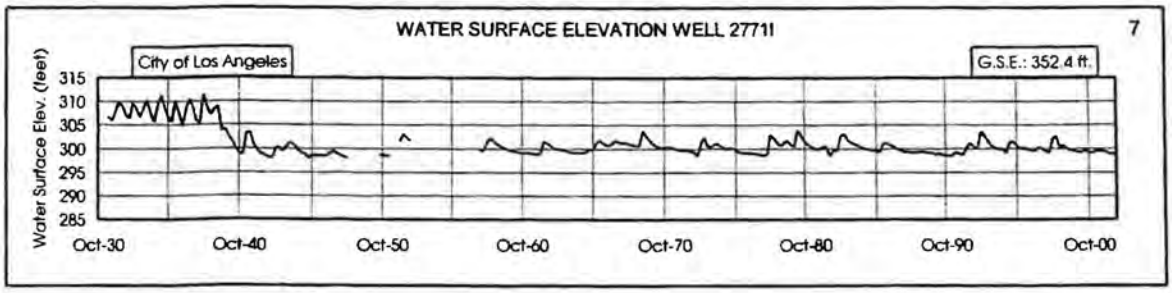


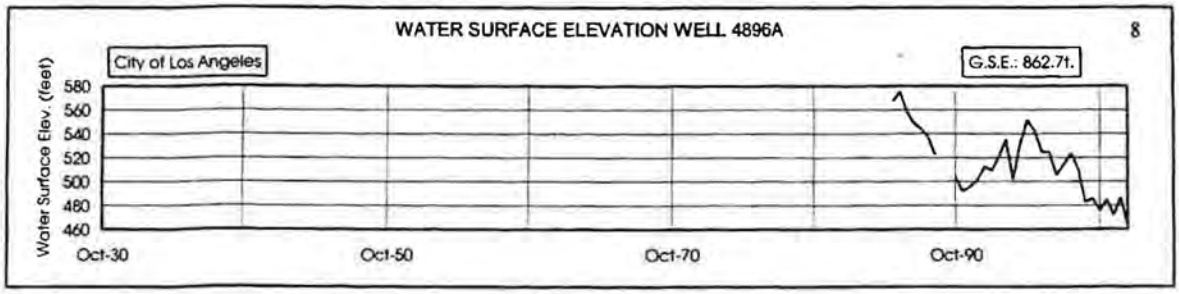


SAN FERNANDO BASIN

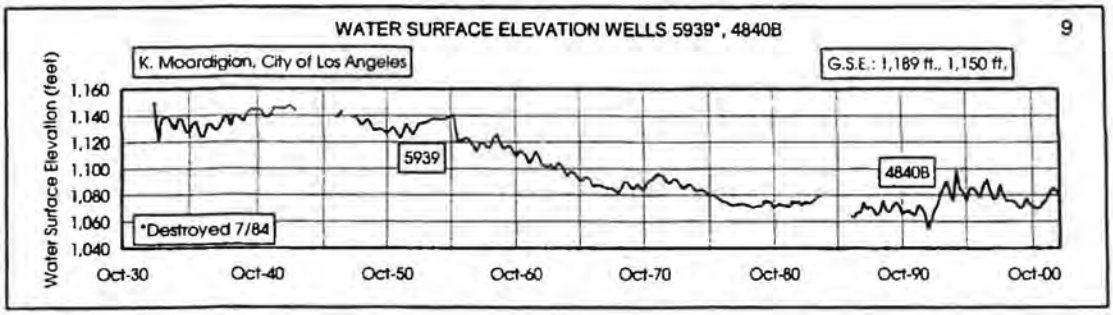


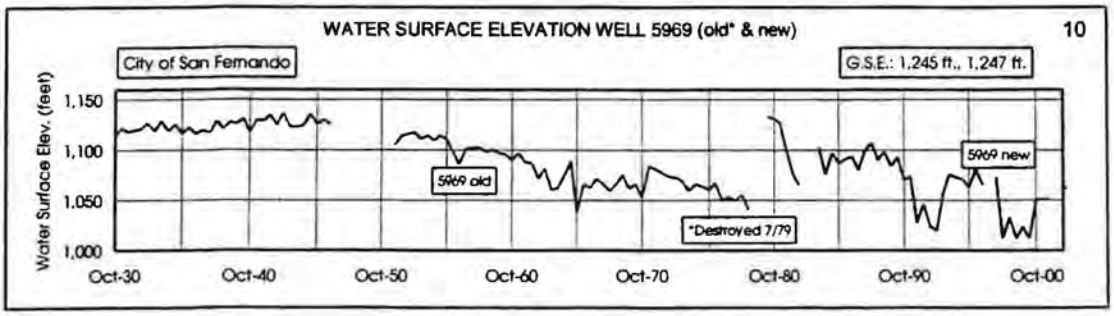






SYLMAR BASIN





VERDUGO BASIN

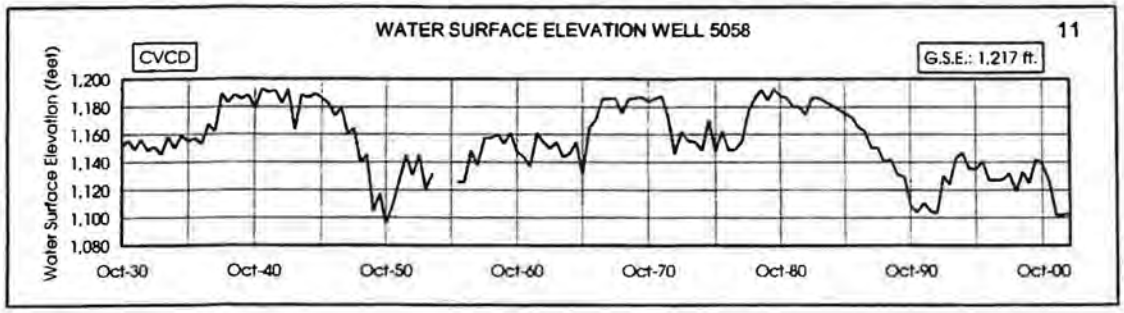


TABLE 2-8: CHANGE IN GROUNDWATER STORAGE SAN FERNANDO BASIN

Water Year	Valley Floor Precipitation (in)	Artificial Recharge (acre-feet)	Change in Storage (acre-feet)	Cumulative Change in Storage (acre-feet)	Pumping (acre-feet)
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
34 Year Average	**18.45**	**33,983**	**4,895**		**88,099**

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 Resources Board in the Report of Referee to be approximately 3,200,000 AF, of which a regulatory storage capacity of 360,000 AF is required. Each year the storage is evaluated in two ways, the first is between one year and the next, and then it is evaluated for its gradual cumulative change before and since the start of Safe Yield Operation in 1968. There were no Stored Water Credits established until 1979-80.

The calculated change in groundwater storage in the SFB from 2000-01 to 2001-02 is –27,094 AF (Table 2-8). Fall 1968 was the start of the Safe Yield Operation at a cumulative change in storage of -655,370 AF referenced to the Fall 1928 water levels (Plate 13). From the start of Safe Yield Operation in the Fall of 1968 through Fall of 2002, the amount of groundwater in storage has increased by +122,621 AF for a cumulative change of –532,749 AF, referenced to the Fall 1928 water levels. However, during the 1979-2002 period there has been an accumulation of 358,175 AF of Stored Water Credit through spreading and 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 were to be removed, the cumulative change in groundwater storage since the Fall of 1928 would be –890,924 AF. As a result, the basin would be 235,554 AF below the beginning of the Safe Yield Operation that began in the Fall of 1968. Thus, the difference between actual groundwater in storage and Stored Water Credit continues to increase (Plate 13-A).

Since rainfall in the past 34 years (1968 thru 2002) has been nearly normal (18.11 inches compared to 19.66 inches), the Watermaster has been evaluating the apparent downward trend in the groundwater levels in the San Fernando Basin and the probable cause(s) of the imbalance. When basin water levels fail to rise during years of above normal rain as seen in 1992-93, 1994-95, and 1997-98, it may be an indication of a more permanent decline taking place. Plate 13 illustrates a downward trend from the above normal rainfall year of 1982-83 that has never been attained again during the past two decades. The causes of this downward trend are varied, including increased urbanization and storm water runoff from ULARA, combined with reduced rainfall and recharge. The final solution to the imbalance will require

the combined efforts of all the parties. Efforts are underway to correct the declining levels of water stored in the SFB before further imbalance can occur. The Watermaster is required to continue evaluating the change in groundwater storage and the safe yield within ULARA, to notify the parties of the situation, and to consider corrective measures for the future if the imbalance continues.

Sylmar Basin

The groundwater storage capacity of the Sylmar Basin is approximately 310,000 AF. The estimated change in storage for 2001-02 is +1,171 AF, and the cumulative change in storage from 1968-69 through 2001-02 is –2,582 AF.

Verdugo Basin

The groundwater storage capacity of the Verdugo Basin is approximately 160,000 AF. The estimated change in storage for 2001-02 compared to 2000-01 is – 743 AF, and the cumulative change in storage from 1968-69 through 2001-02 is – 17,290 AF.

Eagle Rock Basin

The estimated change compared to 2000-01 is –113 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. The Watermaster made computations of outflows based on similar 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 2001-02 Water Year and Stored Water Credit (as of October 1, 2002) 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.

An adjustment was made to the Total Extraction Rights of the City of Los Angeles for the 2001-02 Water Year. A credit of 498 AF was made to Los Angeles' Total Extraction Right to correct the omission of reclaimed water in the 2000-01 Table 2-10A calculation. 498 AF of Import Return Credit is the product of 20.8% of 2,395 AF of Reclaimed Water delivered in 2000-01 that was omitted last year and credited in this report.

Sylmar Basin

Tables 2-10B and 2-11B show the calculation of Sylmar Basin extraction rights for the 2001-02 Water Year and Stored Water Credit (as of October 1, 2002) 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 (filed with the Superior Court) 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

During the past several years CVWD has extracted in excess of its full water rights of 3,294 AF with the approval of the Watermaster and the permission of the City of Glendale, which has a water right of 3,856 AF. The water table in the Verdugo Basin has dropped significantly, impacting the ability of either city to pump its water right. CVWD was unable to pump its full water right in Water Year 2001-02.

TABLE 2-9A: SUMMARY OF 2001-02 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	10,402	6,837	66,823	—	0	84,062
Basin Account		0	0	—	138 [2]	138
Physical Solution	362 [1]	415 [1]	—	—	379	1,156
Cleanup/Dewaterers	—	—	—	—	379	379
Non-consumptive Use	—	—	—	—	2,257	2,257
Total	**10,764**	**7,253**	**66,823**	**0**	**3,153**	**87,992**
Imports						
LA Aqueduct Water	—	—	195,318	—	—	195,318
MWD Water (25+35)	12,086	24,378	328,787	0	7,594 [3]	372,845
Groundwater from						
Sylmar Basin	—	—	1,240	3,389	—	4,629
Verdugo Basin		569				
Total	**12,086**	**24,947**	**525,345**	**3,389**	**7,594**	**572,792**
Delivered Reclaimed Water	2,087	972	2,886 [5]	0	1,419	7,364
Exports						
LA Aqueduct Water						
out of ULARA	—	—	93,674	—	—	93,674
to Verdugo Basin	—	—	314	—	—	314
to Sylmar Basin			3,847			3,847
MWD Water						
out of ULARA	—	—	155,717	—	—	155,717
to Verdugo Basin	—	3,486	534	—	—	4,020
to Sylmar Basin	—	—	6,550	—	—	6,550
Groundwater	—	1,760 [4]	60,019	—	—	61,779
Total	**0**	**5,246**	**320,655**	**0**	**0**	**325,901**
Delivered Water						
Hill & Mountain Areas	—	—	54,764	—	—	54,764
Total - All Areas	24,937	27,925	274,398	3,389	12,166	342,247
Water Outflow						
Surface (Sta. F-57C-R)	—	—	—	—	—	120,800
Subsurface	—	—	—	—	—	390
Sewage	4,288	17,626	80,530	2,409	—	104,853
Reclaimed Water to						
the LA River	7,036	—	58,042	—	—	65,078
Total	**11,324**	**17,626**	**138,572**	**2,409**	**0**	**291,121**

1. Includes Valhalla (Burbank) and Forest Lawn (Glendale).
2. Basin Account water for Burbank.
3. Las Virgenes Municipal Water District.
4. Glendale groundwater not delivered to municipal system.
5. LA total recyled water is 2,886 AF of which 72 AF were delivered to valley fill and 2,814 delivered to hill/mountains.

TABLE 2-9B: SUMMARY OF 2001-02 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	1,240	3,766	0 [1]	5,005
Imports				
LA Aqueduct Water	3,847	–	–	3,847
MWD Water	6,550	0	–	6,550
Total	**10,397**	**0**	**0**	**10,397**
Exports - Groundwater				
San Fernando Basin	1,240	3,389	0	4,629
Total Delivered Water	10,397	377	0	10,774
Water Outflow				
Surface	5000 [2]			5,000
Subsurface	460 [3]	–	–	460
Sewage	830 [4]	217	–	1,047
Total	**1,290**	**217**	**0**	**6,507**

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.
4. Estimated.

TABLE 2-9C: SUMMARY OF 2001-02 WATER SUPPLY AND DISPOSAL VERDUGO BASIN

(acre-feet)

Water Source and Use	Crescenta Valley Water District	City of Glendale	La Canada Irrigation District	City of Los Angeles	Other	Total
Total Extractions	3,266	2,129	—	—	11.0 [1]	5,407
Imports						
LA Aqueduct Water	—	—	—	314		314
MWD Water	2,556	3,486	1,324	534		7,901
Total	2,556	3,486	1,324	848		8,215
Exports to San Fernando Basin	0	569	0	0		569
Reclaimed Water		453				
Total Delivered Water	5,823	5,500	1,324	848	11.0	13,053
Water Outflow						
Subsurface to:						
Monk Hill Basin	—	—	—	—		300 [2]
San Fernando Basin	—	—	—	—		70 [2]
Sewage	2,029	1,143	0	473 [2]		3,645
Total	**2,029**	**1,143**	**0**	**473**		**4,015**

1. Private party extractions and Basin Account.
2. Estimated.

TABLE 2-9D: SUMMARY OF 2001-02 WATER SUPPLY AND DISPOSAL EAGLE ROCK BASIN

(acre-feet)

Water Source and Use	City of Los Angeles	Deep Rock Water Company	McKesson Water Products Co.	Total
Total Extractions	0	0 [1]	232 [1]	232
Imports				
LA Aqueduct Water	16	–	–	16
MWD Water (25+35)	28			28
MWD Water (17)	4,370			4,370
Groundwater from SFB	0	–	–	0
Total	4,414	0	0	4,414
Exports				
Groundwater	0	0	232	232
Total Delivered Water	4,414	0	0	4,414
Water Outflow				
Surface	–	–	–	0
Subsurface	0 [2]	–	–	0
Sewage	2,535 [3]	0	0	2,535
Total	2,535	0	0	2,535

1. Deep Rock Water Co. and McKesson Water Products Co. (formerly Sparkletts Drinking Water Co.) are allowed to pump under a stipulated agreement with the City of Los Angeles; extractions are limited to 500 AF/year, and they are allowed to export equivalent amounts.
2. Estimated in Supplement No. 2 to Report of Referee for dry years 1960-61. Currently considered insignificant.
3. Estimated.

TABLE 2-10A: CALCULATION OF 2002-03 EXTRACTION RIGHTS SAN FERNANDO BASIN

(acre-feet)

	City of Burbank	City of Glendale	City of Los Angeles
Total Delivered Water, 2001-02	24,937	27,925	274,398
Water Delivered to Hill and Mountain Areas, 2001-02	—	—	54,764
Water Delivered to Valley Fill, 2001-02	24,937	27,925	219,634
Percent Recharge Credit	20.0%	20.0%	20.8%
Return Water Extraction Right	4,987	5,585	45,684
Native Safe Yield Credit	—	—	43,660
Total Extraction Right for the 2002-03 Water Year[1]	**4,987**	**5,585**	**89,344**

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

TABLE 2-10B: CALCULATION OF 2002-03 EXTRACTION RIGHTS SYLMAR BASIN

(acre-feet)

	City of Los Angeles	City of San Fernando	All Others
Extraction Right for the 2002-2003 Water Year[1]	3,255	3,255	--- [2]

1. Does not include Stored Water Credit. The safe yield of the Sylmar Basin has been increased on a trial basis to 6,510 AF/YR effective 10/1/95. 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, 2001)	37,265	73,254	234,270
2. Extraction Right for the 2001-02 Water Year	5,124	5,760	87,601
Correction under calculation return flow [1]			498
3. 2001-02 Extractions			
Party Extractions	10,402	5,078	66,823
Physical Solution Extractions	362	415	379
Clean-up/Dewaterers			379
Glendale OU Discharge to LAR		1,760	
Total	10,764	7,253	67,580
4. Total 2001-02 Spread Water	0	0	0
5. Stored Water Credit [2] (as of October 1, 2002)	**31,625**	**71,761**	**254,789**

1. This represents 20.8% credit on 2,395 AF of Delivered Reclaimed Water omitted from calculation in 2000-01 report.
2. Item 5 = 1 + 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, 2001)	4,360	1,040
2. Extraction Right for the 2000-01 Water Year	3,255	3,255
3. Total 2001-02 Extractions	1,240	3,766
Santiago Estates[2]	0.0	0.0
4. Stored Water Credit[3] (as of October 1, 2002)	**6,375**	**529**

1. The safe yield of the Sylmar Basin has been increased on a trial basis to 6,510 AF/YR as of 10/1/95.
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 February 6, 2002 was 268 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 575 ppm for Fiscal Year 2001-02.

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 316 ppm during Fiscal Year 2001-02.

4. *COLORADO RIVER/NORTHERN CALIFORNIA* water were first blended at 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 511 ppm during Fiscal Year 2001-02.

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 reach 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 due to 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.

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) wells 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 2001-02 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: 2001-02 NUMBER OF WELLS IN THE ULARA WELL FIELDS EXCEEDING STATE MCL FOR TCE AND PCE

	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]	36	15	3	4	7	8	12	5	7	97	10	15	12	134
TCE Levels ppb	Number of Wells Exceeding Contaminant Level[1]													
5-20	9	5	2	0	2	3	8	1	1	31	0	3	0	34
20-100	7	0	1	0	0	3	0	2	4	17	6	4	0	27
>100	2	0	0	3	0	0	0	0	2	7	3	2	0	12
Total	18	5	3	3	2	6	8	3	7	55	9	9	0	73
PCE Levels ppb	Number of Wells Exceeding Contaminant Level[1]													
5-20	8	0	1	0	0	1	2	1	5	18	1	2	0	21
20-100	0	0	2	1	0	0	0	0	2	5	2	0	0	7
>100	0	0	0	2	0	0	0	0	0	2	6	0	0	8
Total	8	0	3	3	0	1	2	1	7	25	9	2	0	36

1. Wells are categorized based upon maximum TCE and PCE values attained during the 2001-02 Water Year. Where data was not available for 2001-02, 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 2001-02 Water Year, a total of 161 sites were remediated under the direction of the LAFD. Currently, the Environmental Unit of the LAFD is monitoring the remediation of 363 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 contamination, the site is referred to the RWQCB for further action. Since October 1, 1988, 4,627 sites have been assigned to the Underground Tank Plan Check Unit, and of these, 2,143 sites have been remediated. In addition, 1,190 sites have been referred to the RWQCB to investigate groundwater contamination.

3.4 Private Sewage Disposal Systems (PSDS)

In order to eliminate existing commercial and industrial PSDS and their discharges of nitrates to the groundwater basin, a sanitary sewer construction program has been in progress for many years. This program is continuing to systematically install sanitary sewers in eighteen designated areas 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 8 shows the locations of the Districts.

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 areas.

Toward the end of the 1998-99 Water Year, inquiries by the Watermaster regarding scheduling for the completion of the remaining six designated area projects 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. Of the six remaining projects as of December 2001, four were voted down: Groundwater Improvement District (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). One project, GID No. 4 (San Fernando Rd. Nr. Keswick St.) received a yes-vote, and GID No. 12 (San Fernando Rd. Nr. Brazil St.) will go to a preliminary vote. The Bureau of Engineering will secure an easement for GID No. 4. The project is expected to be constructed in one year. The Bureau of Engineering and the Bureau of Sanitation will seek guidance from the City Council for the four projects that did not receive voter approval for an assessment.

In order to accurately 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 will continue its follow-up work with the communities to confirm connections to 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 sewer to which connections can be made without construction of new public sewers. Seven property owners have applied for the low-income loans.

The Industrial Waste Management Division (IWMD) of the Bureau of Sanitation continued to pursue the enforcement provisions of the PSDS elimination program. There has been good compliance with the mandatory sewer connection ordinance, and more than 2,025 properties have already abandoned PSDS and connected to the public sewer. As of December 2001, all properties owning or operating a PSDS referred to IWMD that were found to be subject to the City Code (LAMC Section 64.26) provisions that require abandonment of their PSDS and connection to the City sewer, will either have to connect to the sewer or will be granted a variance, but only in those instances that stipulate a variance. Continuation of this effort depends upon completion of the sanitary sewer construction 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.

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
Slough 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 since 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 was funded by the USEPA and the DHS. In 2001-02, 325 million gallons (998 AF) of groundwater were treated. During the year, one of the Aeration Facility water supply wells that had a total chromium level less than 50 ppb, but exceeding 20 ppb, and had been off, was returned to service when the chromium level dropped below 20 ppb.

   The quality of air discharged to the atmosphere from the Aeration Facility was monitored on a regular basis to verify its conformance with permit requirements of the South Coast Air Quality Management District. The facility was shut down in March 2002 for a week for the granular activated carbon (GAC) replacement in the Emission Control Unit.

   A draft feasibility study to enhance the NHOU is being reviewed by the USEPA. This plan includes the development of two or three new wells northwesterly of the NHOU. The discovery of hexavalent chromium above 5,000 ppb upgradient of the proposed well locations has temporarily halted implementation of the plan. The USEPA, the City of Los Angeles, and the RWQCB are investigating the source of the hexavalent chromium contamination.

2. *BURBANK OU* - The Burbank OU, funded by the USEPA and initially operated by Lockheed, 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. Lockheed started pumping and delivering groundwater to Burbank on January 3, 1996, pursuant to Phase I of the Consent Decree. In anticipation of taking over custody of the facility in Phase II of the Consent Decree, Burbank reviewed maintenance records for the wells and treatment plant and inspected all the equipment. This inspection revealed maintenance and design failures that contributed to an inability to sustain the 9,000 gpm design capacity. As provided in the Consent Decree, Lockheed filed a "force majeure" claiming that the basin was incapable of sustaining a pumping rate of 9,000 gpm.

   As a result of its review, the USEPA decided that Burbank should assume operation and maintenance of the Burbank Operable Unit in March 2001 and continue with the repair work necessary to maximize groundwater flows and treatment. Extensive examinations of the facility were made during the 2000-01 Water Year and continued into the 2001-02 Water Year to determine the cause of reduced pumping capacity. In addition, the Watermaster provided groundwater modeling and a review of well data. The USEPA ruled in favor of Burbank in Lockheed's "force majeure", and determined the cause of reduced pumping was primarily due to flawed design and inadequate maintenance of equipment rather than a falling water table. Lockheed has cooperated with Burbank to solve the design and maintenance problems.

   Burbank is also concerned about hexavalent chromium in its production water and has been blending with imported water to keep the level of hexavalent chromium at, or below, 5 ppb. A total of 10,539 AF were treated in the 2001-02 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. This project is being funded by the USEPA. 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 6,566 AF were treated in 2001-02.

Glendale has proposed to the USEPA a pumping plan to minimize chromium levels by reducing pumping in one well with elevated levels of chromium and maximizing the pumping rate from the remaining seven wells. The USEPA is concerned that the proposed plan may not control VOC plume migration as well as the plan outlined in the Consent Decree. Glendale has agreed to submit the plan to USEPA's consultant CH2M HILL to verify VOC plume containment using groundwater modeling. If the proposed plan is rejected, Glendale may consider VOC wellhead treatment for the high-chromium well and using the treated water in the reclaimed water system.

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 569 AF were treated in 2001-02.

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 2001-02 Water Year. A total of 167.8 million gallons (515 AF) of water were treated. The 50 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.

3. *POLLOCK WELLS TREATMENT PLANT PROJECT* – The LADWP 3,000 gpm Pollock Wells Treatment Plant Project 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 facility uses four liquid-phase GAC vessels to treat for VOCs. The plant was shut down in December 2001 and January 2002 for repairs. A total of 535 million gallons (1,643 AF) of groundwater were treated during the year.

4. *BURBANK GAC TREATMENT PLANT* - The City of Burbank GAC system was shut down in March 2001 due to the levels of hexavalent chromium in the groundwater and remained out of service during the 2001-02 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. The treatment plant has been incorporated into Phase II of the Consent Decree (Burbank OU) between USEPA, Lockheed, and Burbank. If the plant is returned to service, production will be considered as part of the designated average pumping goal of 9,000 gpm for the Burbank OU.

3.8 Groundwater Quality Investigations

During the 2001-02 Water Year, several groundwater contamination investigations were performed at various sites. As part of these investigations, groundwater monitoring wells have been drilled, and groundwater has been extracted for the purpose of testing or cleanup. Some of the major sites and their activities through April 2002 are summarized below:

Boeing (Rockwell-Rocketdyne, 6633 Canoga Avenue, Canoga Park)

Contaminants at this site include chloroform; TCE; PCE; 1,1-DCE; TCA and Freon 113. There were also free-floating hydrocarbons from several upgradient service stations. Based on groundwater monitoring results between June 1999 and March 2000 the RWQCB decided that the groundwater treatment at the Canoga Park facility was no longer necessary. The treatment system was removed in December 2000. The Boeing Company submitted plans for Phase II of the remediation plan to the Regional Board.

Drilube, 711 W. Broadway, Glendale

DriLube Company, a plating facility located in Glendale, was issued a Cleanup and Abatement order 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. During recent semi-annual groundwater monitoring maximum concentrations of TCE, PCE and hexavalent chromium were detected at 1,480 ppb, 262 ppb, and 2,620 ppb in MW3, respectively. On November 15, 2002 a fire at the Drilube Company totally destroyed the Plant 1

facility. The City of Glendale has prevented entry onto the site until its investigation is complete. The DriLube Company expects entry in February 2003.

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. Maximum historical groundwater concentrations of trichloroethane (1,1,1-TCA), dichloroethylene (DCE) TCE, PCE, and hexavalent chromium were detected at 340 ppb, 210 ppb, 150 ppb, 92 ppb, and 24,000 ppb. PRC-DeSoto has been required to perform assessment, periodic monitoring, and cleanup of contaminated soil and groundwater emanating from the site.

Coltec Industries, Inc. (formerly Menasco), 100 E. Cedar Ave., Burbank

The RWQCB issued a Cleanup and Abatement Order to Coltec Industries, Inc. on July 5, 2002. This facility, located in Burbank, has been named a Responsible Party by the USEPA for discharging contaminants to the Glendale North Operable Unit. The facility's industrial activities involved machining, manufacturing, metal plating and anodizing of parts and equipment used by the U.S. Department of Defense for various aerospace applications. Maximum groundwater concentrations since 1994 of TCE, PCE, DCE, 1,1,1-TCA and hexavalent chromium were detected at 4,300 ppb, 106 ppb, 5,550 ppb, 390 ppb and 600 ppb respectively. The facility has begun implementing cleanup of soil and groundwater beneath the site.

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

Home Depot intends to construct a store at the former ITT Aerospace Controls site located in Burbank. 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. A plan has been proposed to build a slurry wall under the site along the property boundaries 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. A NPDES permit was approved by the RWQCB in December 2002 for the discharge of treated water from within the slurry wall perimeter.

Recently, a site upgradient from Home Depot has been identified as the source of diesel fuel releases in the range of 10,000 to 40,000 gallons. When the Home Depot slurry wall is constructed, it could divert the diesel plume toward the City of Glendale and lead to diesel contamination beneath other properties.

Holchem/Price Pfister - Pacoima Area Groundwater Investigation

Progress has been made in the Pacoima Area investigation by a coordinated effort with the lead agency Cal-EPA DTSC, the RWQCB, LADWP, and the Watermaster Office. A groundwater contaminant plume was identified in the Pacoima area near the intersection of the Simi Valley Freeway (118 Freeway) and San Fernando Road. The contaminant plume is comprised of VOCs with levels of 12,000 ppb of TCE; 3,900 ppb of PCE; and 7,600 ppb of 1,1,1-TCA. 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, Holchem has installed a soil vapor extraction system. Holchem installed three new wells in March 2002. Price Pfister has been directed to delineate the extent of the contamination with off-site monitoring of groundwater. Two additional monitoring wells were installed between Holchem and Price Pfister. The data will provide plume definition and help determine if there is one plume or two separate plumes.

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. Since September 1995, approximately 6,880 pounds of hydrocarbons and 505 pounds of chlorinated hydrocarbons have been removed from the soil. Approximately 25 pounds of VOCs have been removed from the groundwater. 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. In January 2002 Raytheon installed 17 triple nested sparging wells along the northwest boundary and connected them to the existing sparge system. A work plan submitted to the RWQCB to perform a pilot test for the effectiveness of enhanced in-situ bioremediation has been approved and is in the permitting

process. Although the property is now owned by other entities, Raytheon Company 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 an interim groundwater extraction and treatment system since 1988. There are numerous monitoring wells on the property, and off-site to the south. Two additional wells were incorporated into the system in November 2000. During the 2001-02 Water Year, 69.58 acre-feet of groundwater were treated, of which 50% was beneficially reused in the plant for rotoclones (dust collectors). From start-up through the beginning of December 2002, approximately 14,400 pounds of VOCs have been removed from the soil and 4,092 pounds of VOCs from the groundwater. The soil remediation systems have completed cleanup of the soil. The RWQCB has reviewed and approved 3M's request for closure of the soil treatment system. 3M will submit to the RWQCB a landscape irrigation proposal that would beneficially use all the remaining treated groundwater. 3M has been working with the adjoining property owned by Micro Matic to continue cleanup.

Micro Matic, 19791 Bahama St., Northridge

The Micro Matic 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. Groundwater treatment currently consists of liquid-phase GAC. The groundwater contamination plume extends across the property boundary onto the 3M site. 3M converted one of its monitoring wells in the northeast corner of their property to an extraction well. Groundwater extracted from this well will be treated by Micro Matic's remediation system. In February 2002 Micro Matic received authorization to connect up to the 3M well.

In February 2003 a meeting was held to discuss two proposals for in-situ treatment of VOCs in the groundwater. One proposal would use polylactate ester, and the other would use modified Fenton's Reagent. The selected method would be combined with vapor extraction in the area of highest soil concentration.

Marquardt (16555 Saticoy Street, Van Nuys)

VOCs and perchlorate have contaminated the soil and groundwater beneath the site, and arsenic has been detected in the soil. A soil vapor extraction program has been implemented by the facility. Off-site migration of the VOC groundwater plume onto the adjacent Van Nuys airport property is being investigated. The facility has submitted a RCRA Facility Investigation

Report to the lead agency, DTSC. DTSC has issued a Corrective Action Order, which has been appealed.

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 sampleld biannually.

A 40-acre portion of the sale parcel has been sold to the California State Department of Parks and Recreation (State Parks Department), and they are currently negotiating the purchase of an additional 18-acre riverfront parcel.

Several organizations, including the State Parks Department, have expressed interest in purchasing the remaining unsold property because it is a large open area that may be suitable for riparian habitat restoration. In June 2002 the Coastal Conservancy released the Taylor Yard Multiple Objective Feasibility Study Final Report for review. The study assessed the feasibility of implementing a multiple objective project including habitat restoration, flood control, and recreation and evaluates the impacts of water rights, water quality, cost, and regulatory oversight. Four alternatives were considered and one alternative has been recommended for further review.

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 several cities including Burbank, Glendale, and Los Angeles, and jeopardizes the Operable Units constructed with funding from the USEPA to clean up VOCs on a regional basis.

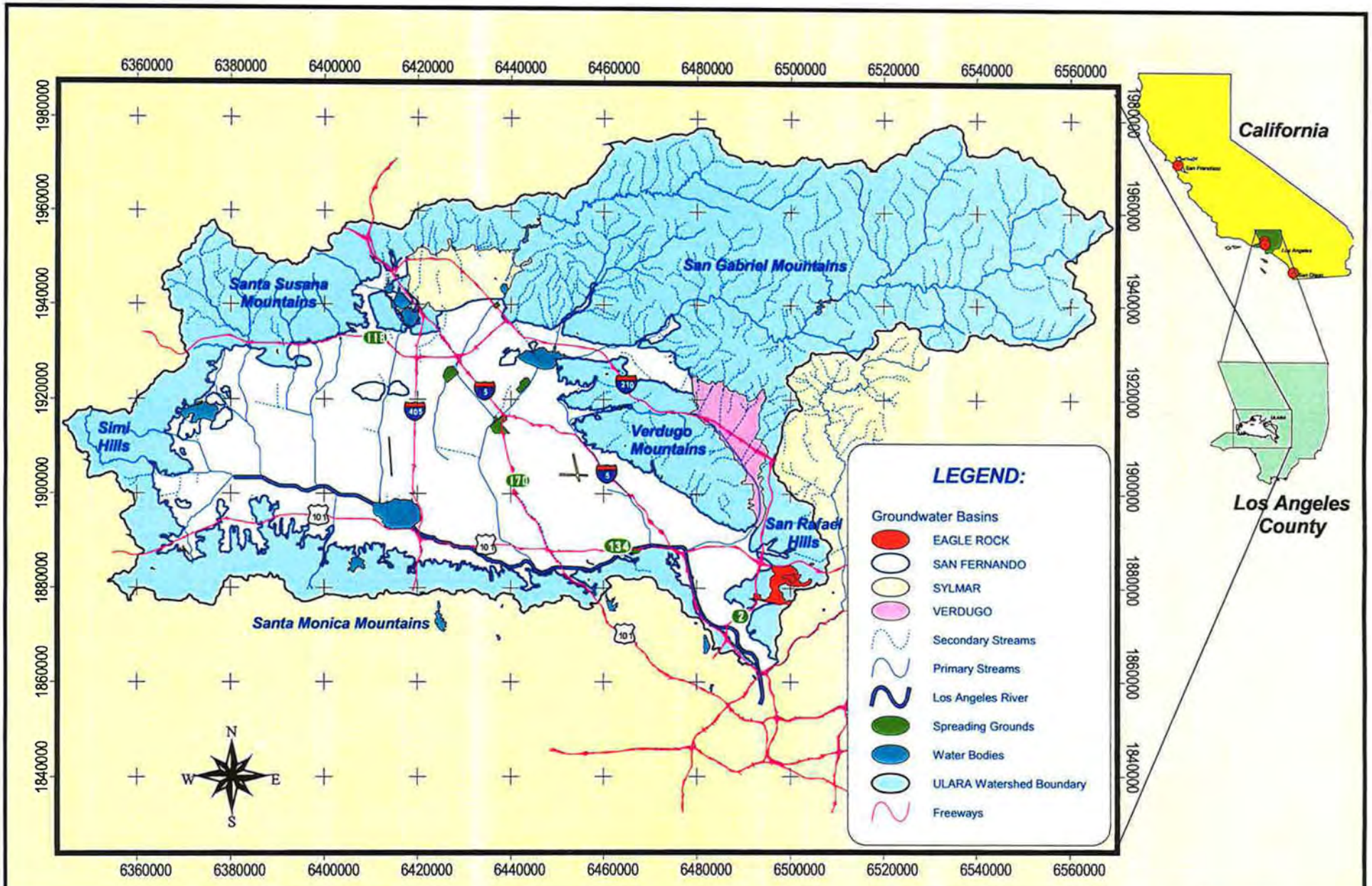
The drinking water served by these cities meets all applicable standards. However, the Operable Units that treat VOCs in the groundwater were not designed to treat chromium. The Consent Decrees between the USEPA and the responsible parties require that certain pumping rates be maintained to control VOC 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. 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.

Recognizing this problem, the Watermaster interviewed several persons who provided eyewitness accounts of historical chromium leaks, spills, and disposals that contributed to the existing problem. These accounts are compiled in the aforementioned "Watermaster Special Report Concerning the History and Occurrence of Hexavalent Chromium Contamination in the San Fernando Valley and Related Watermaster Conclusions and Recommendations", dated January 2003. Furthermore, the report urges regulatory agencies to take an assertive approach to addressing the chromium contamination before it causes the shutdown of the Operable Units.

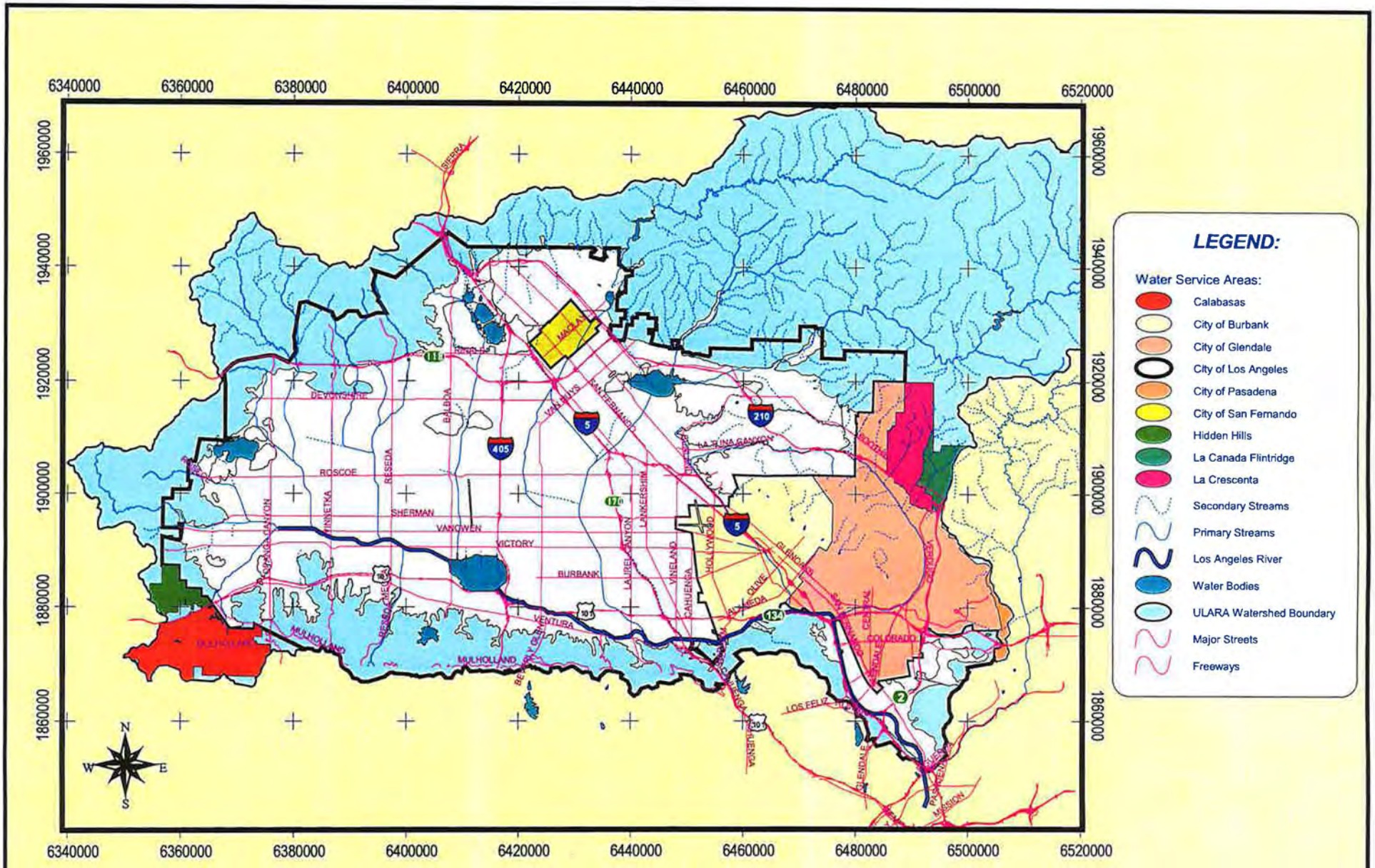
At the State level, the Governor approved State Senate Bill 2127 in November 2000. This bill requires the DHS to determine the levels of chromium in the drinking water supplied by public water systems from the SFB aquifer and, in consultation with OEHHA, to assess the exposures and risks to the public.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

In addition, the Public Health Goal for Total Chromium of 2.5 ppb was withdrawn by OEHHA, complicating the issue of determining risk to the public. Until the ongoing toxicological studies are completed and a new State of California MCL is established (due January 1, 2004), the risks will be difficult to evaluate.

PLATES



2001-02 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Vicinity and Location Map	PLATE 1

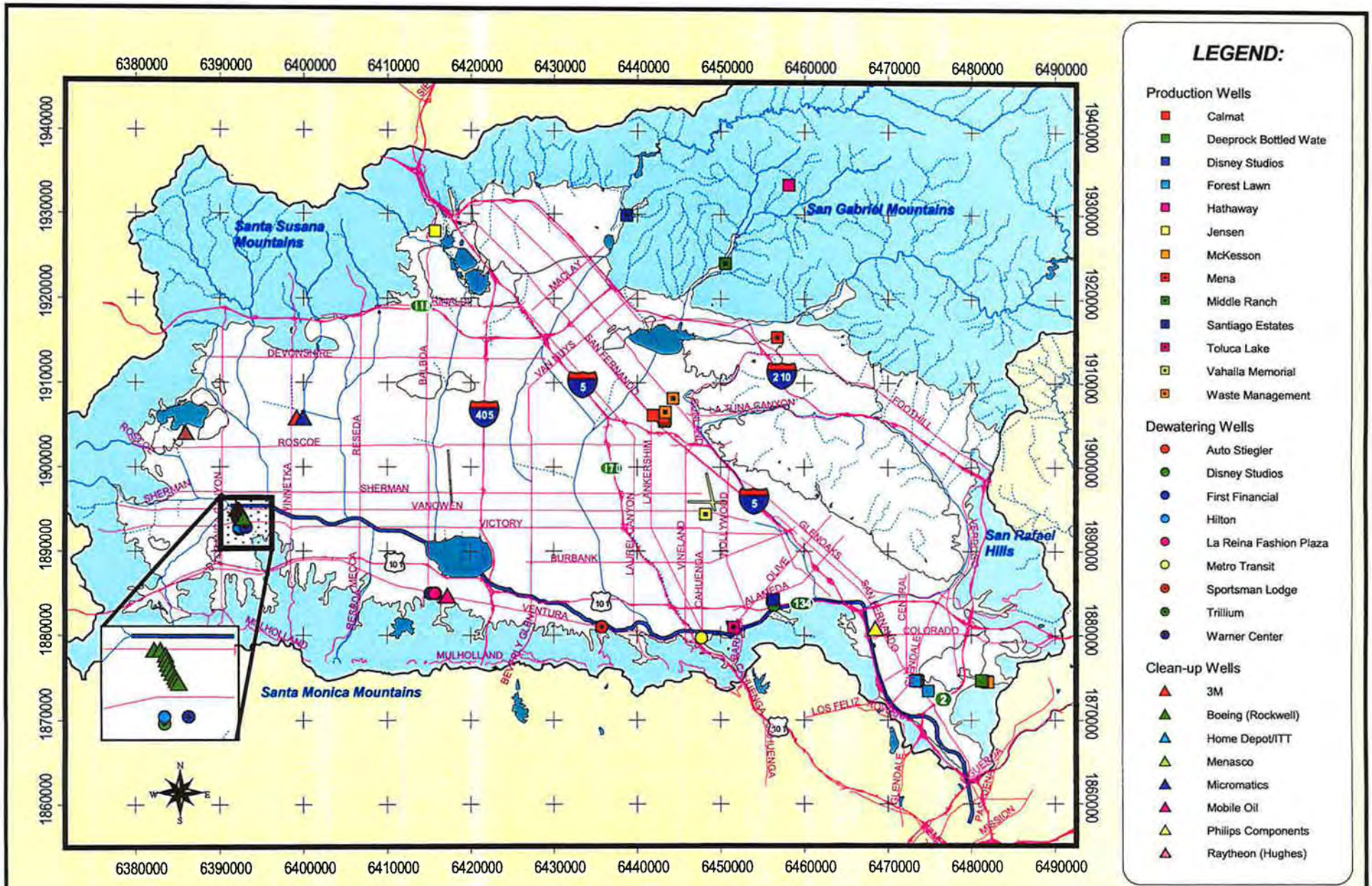


LEGEND:

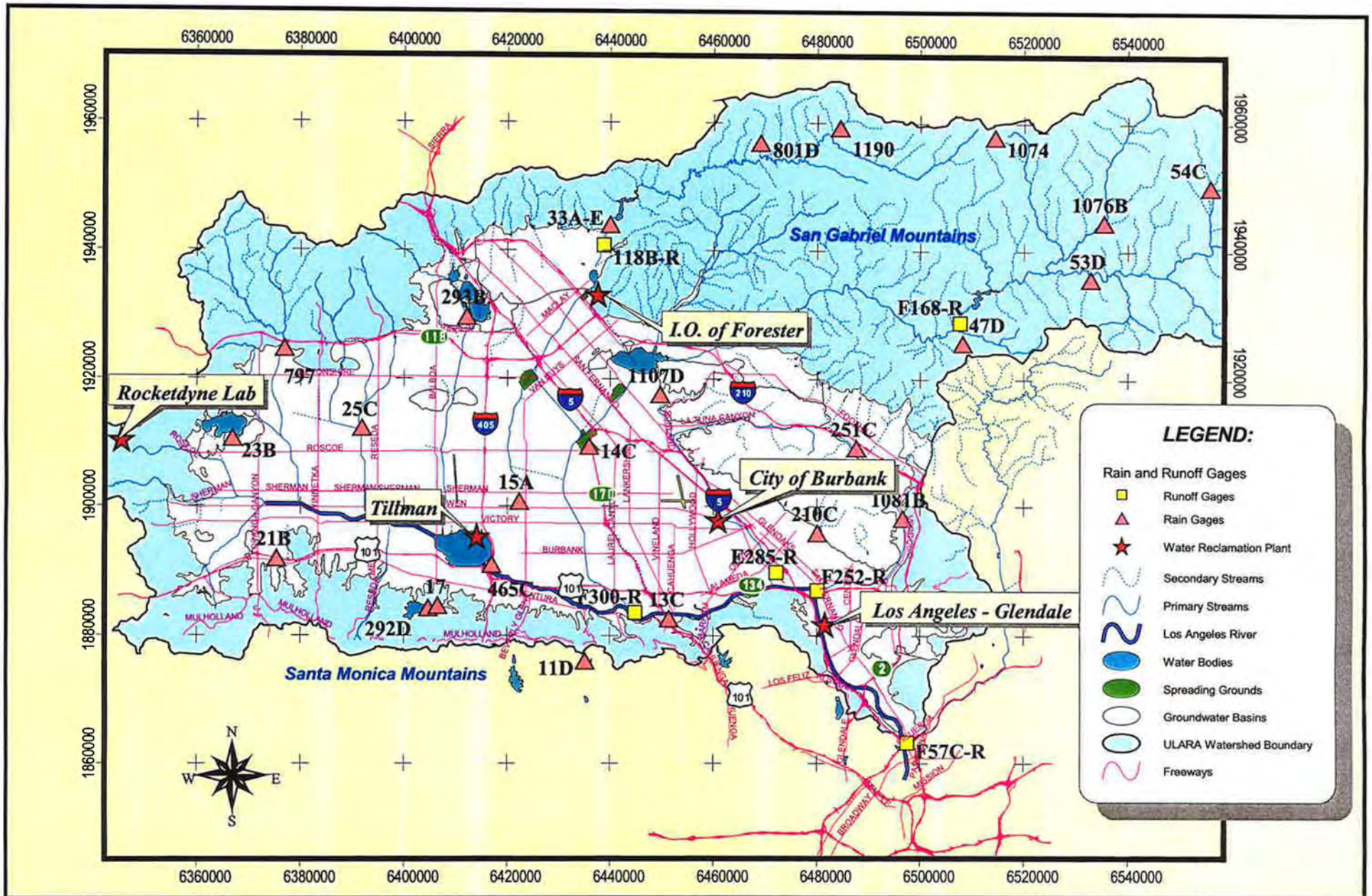
Water Service Areas:

- Calabasas
- City of Burbank
- City of Glendale
- City of Los Angeles
- City of Pasadena
- City of San Fernando
- Hidden Hills
- La Canada Flintridge
- La Crescenta
- Secondary Streams
- Primary Streams
- Los Angeles River
- Water Bodies
- ULARA Watershed Boundary
- Major Streets
- Freeways

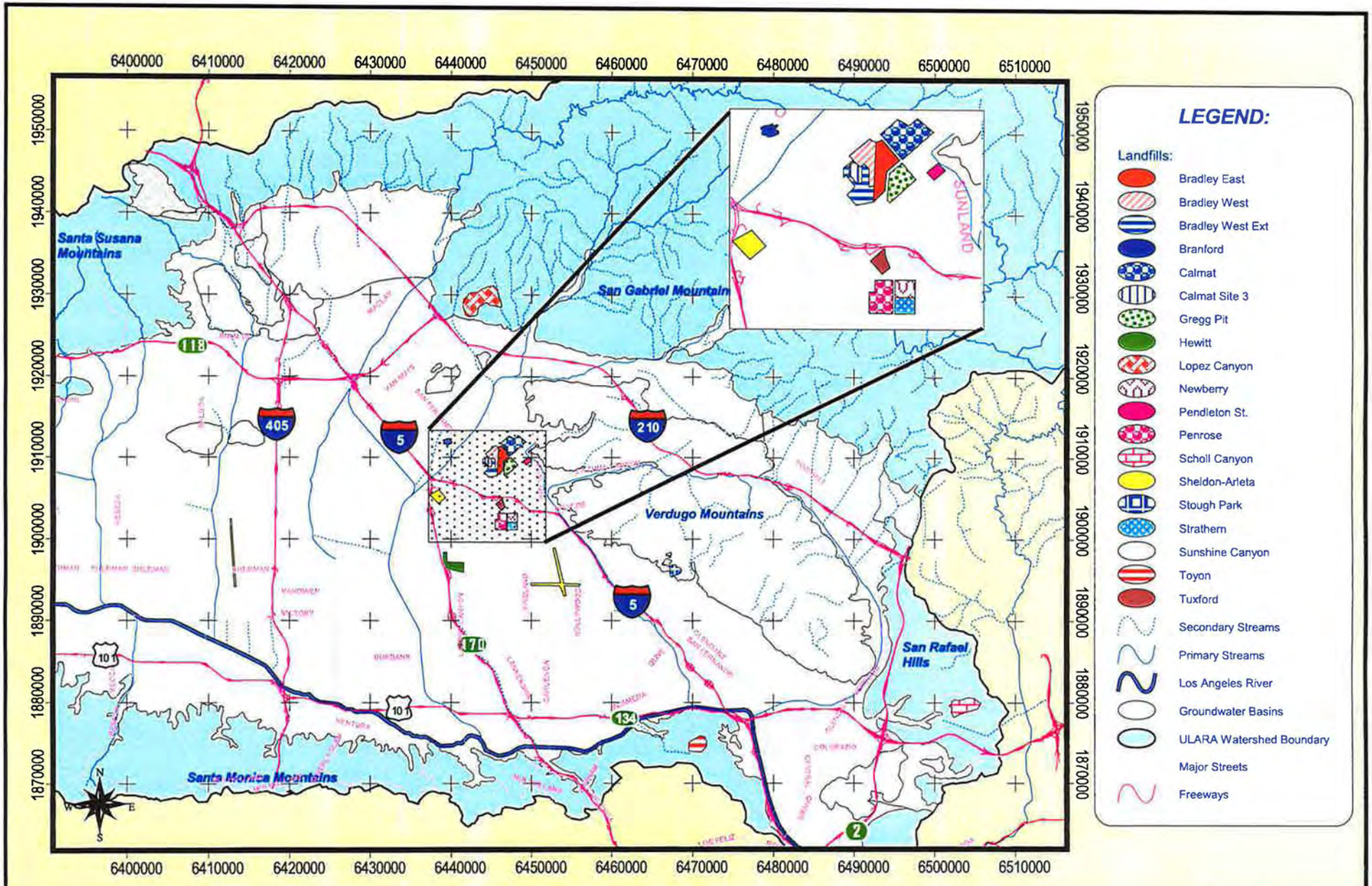
2001-02 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area:** **Water Service Areas of Public Agencies**	PLATE **2**



2001-02 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Location of Individual Producers**	PLATE **3**

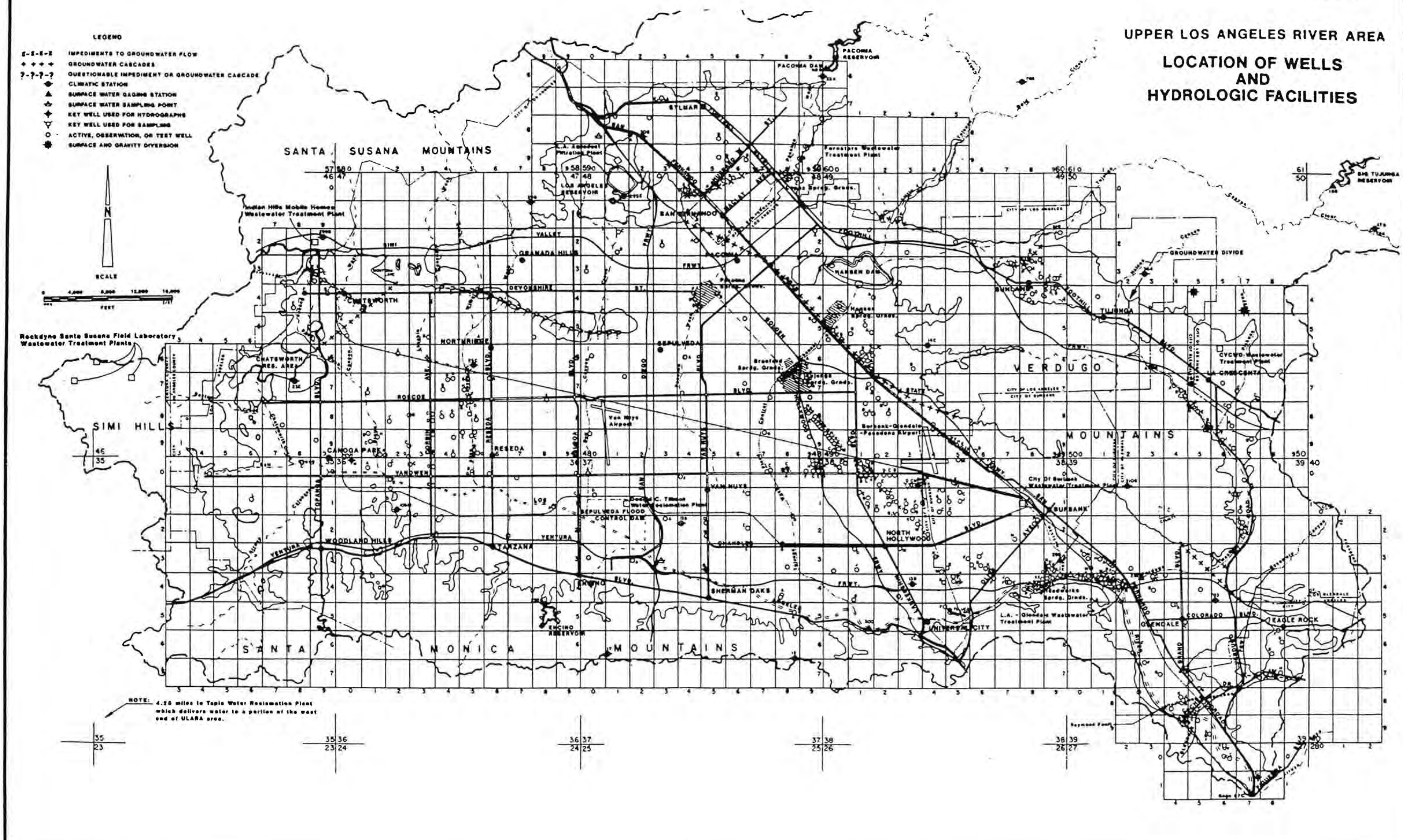


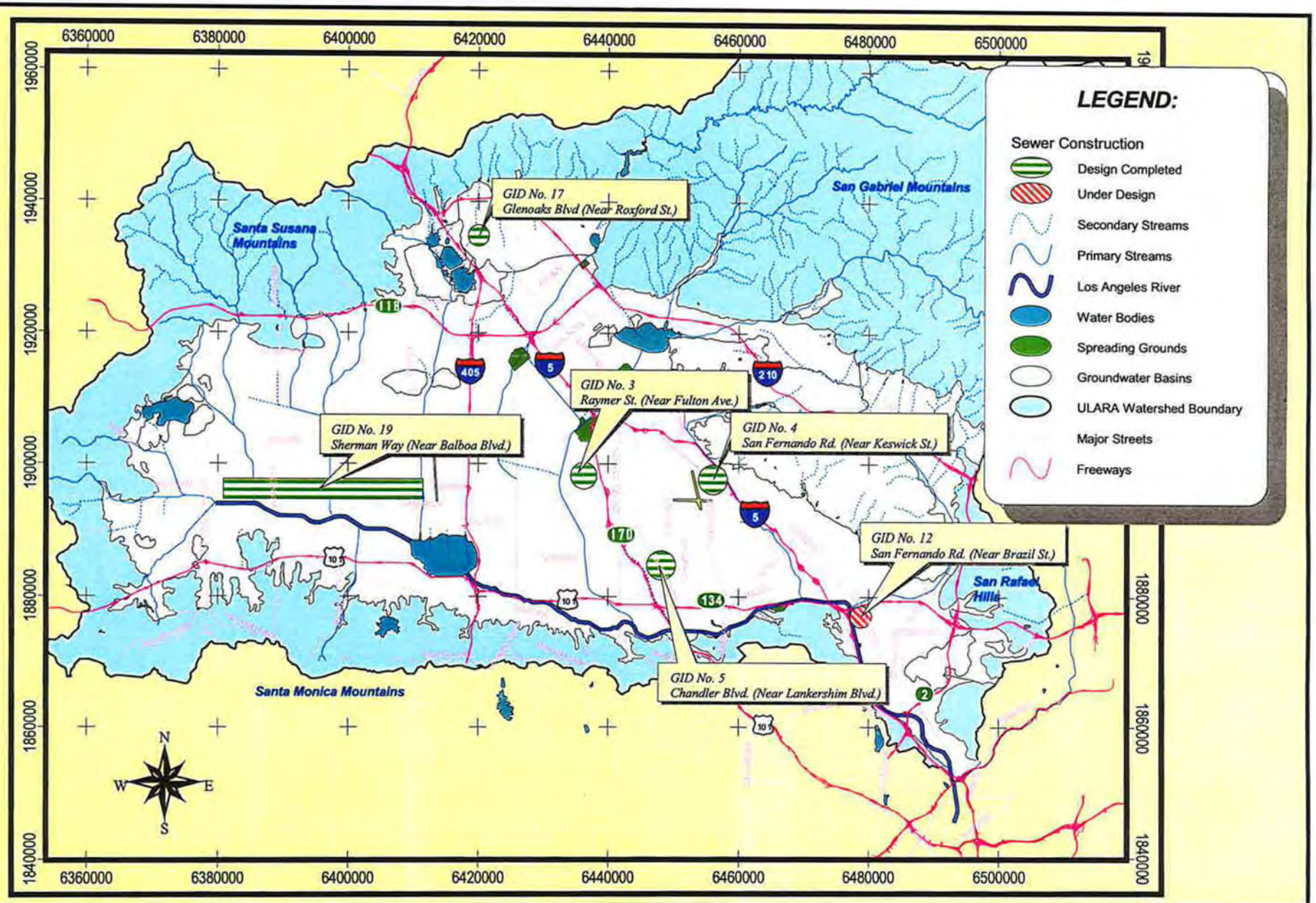
2001-02 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Water Reclamation Plant and Rain-Runoff Gages	PLATE 5



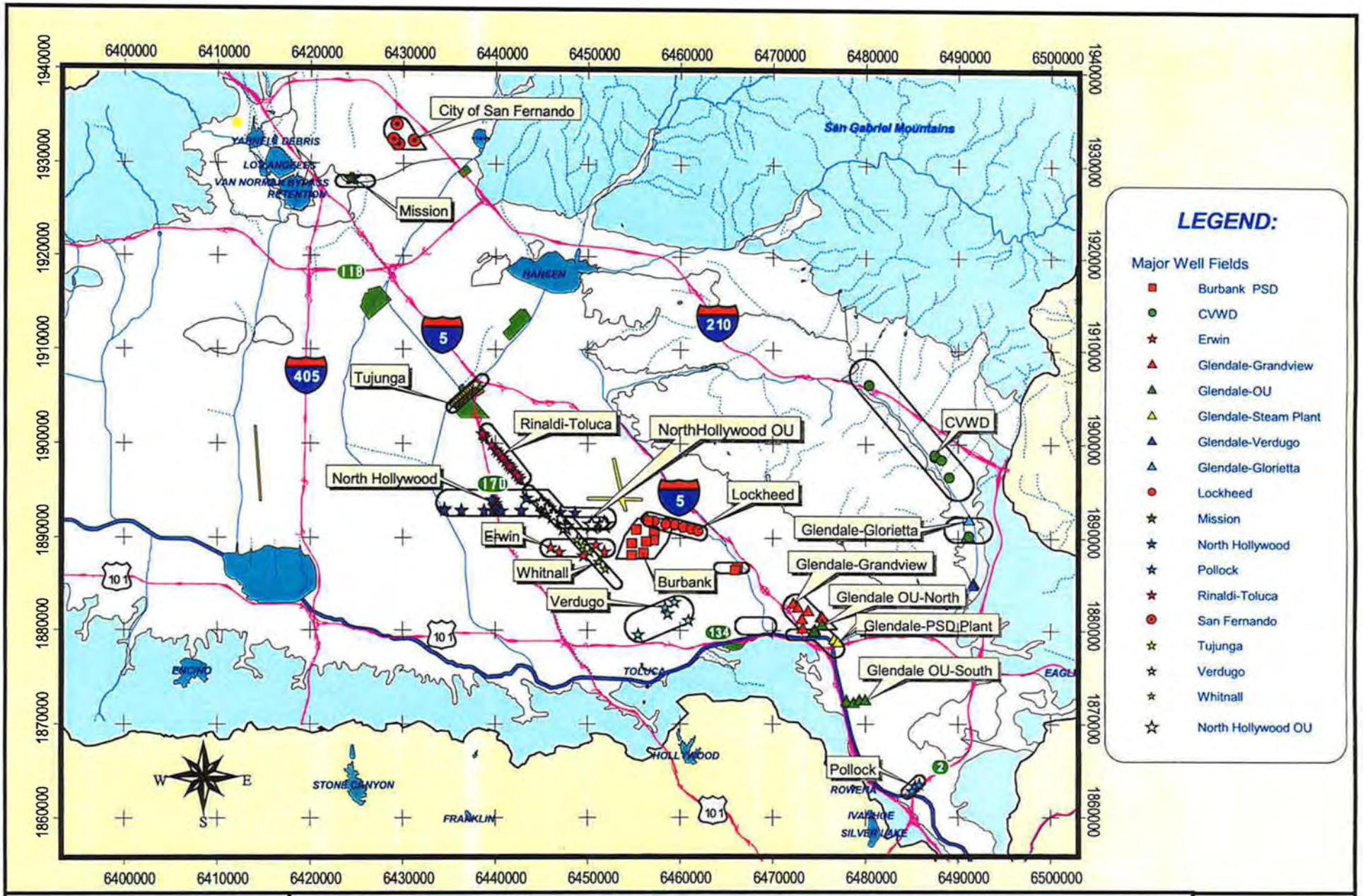
2001-02 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Landfill Locations**	PLATE **6**

Plate 4


UPPER LOS ANGELES RIVER AREA
LOCATION OF WELLS
AND
HYDROLOGIC FACILITIES
LEGEND
IMPEDIMENTS TO GROUNDWATER FLOW
GROUNDWATER CASCADES
QUESTIONABLE IMPEDIMENT OR GROUNDWATER CASCADE
CLIMATIC STATION
SURFACE WATER GAGING STATION
SURFACE WATER SAMPLING POINT
KEY WELL USED FOR HYDROGRAPHS
KEY WELL USED FOR SAMPLING
ACTIVE, OBSERVATION, OR TEST WELL
SURFACE AND GRAVITY DIVERSION
SCALE
FEET
SANTA SUSANA MOUNTAINS
SIMI HILLS
SANTA MONICA MOUNTAINS
VERDUGO MOUNTAINS
Rockdyne Santa Susana Field Laboratory Wastewater Treatment Plants
Indian Hills Mobile Homes Wastewater Treatment Plant
CHATSWORTH
CHATSWORTH RES. AREA
NORTHRIDGE
GRANADA HILLS
SEPULVEDA
CANOGA PARK
RESEDA
WOODLAND HILLS
TARZANA
ENCINO
ENCINO RESERVOIR
Van Nuys Airport
SEPULVEDA FLOOD CONTROL DAM
VAN NUYS
SHERMAN OAKS
NORTH HOLLYWOOD
UNIVERSAL CITY
SAN FERNANDO
PACOIMA
PACOIMA DAM
PACOIMA RESERVOIR
SYLMAR
LOS ANGELES RESERVOIR
HANSEN DAM
SUNLAND
TUJUNGA
LA CRESCENTA
BIG TUJUNGA RESERVOIR
GROUNDWATER DIVIDE
BURBANK
Burbank-Glendale-Pasadena Airport
City Of Burbank Wastewater Treatment Plant
L.A.-Glendale Wastewater Treatment Plant
GLENDALE
EAGLE ROCK
COLORADO
NOTE: 4.25 miles to Tapia Water Reclamation Plant which delivers water to a portion of the west end of ULARA area.



2001-02 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area:** **Los Angeles Bureau of Sanitation Sewer Construction Program for Commercial Parcels**	PLATE 7



2001-02 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area: Major Well Fields

PLATE 8

2001-02 Water Year ULARA Watermaster Report	**Simulated Groundwater Contours SPRING (April) 2002**	**PLATE 9**

2001-02 Water Year ULARA Watermaster Report

Simulated Groundwater Contours

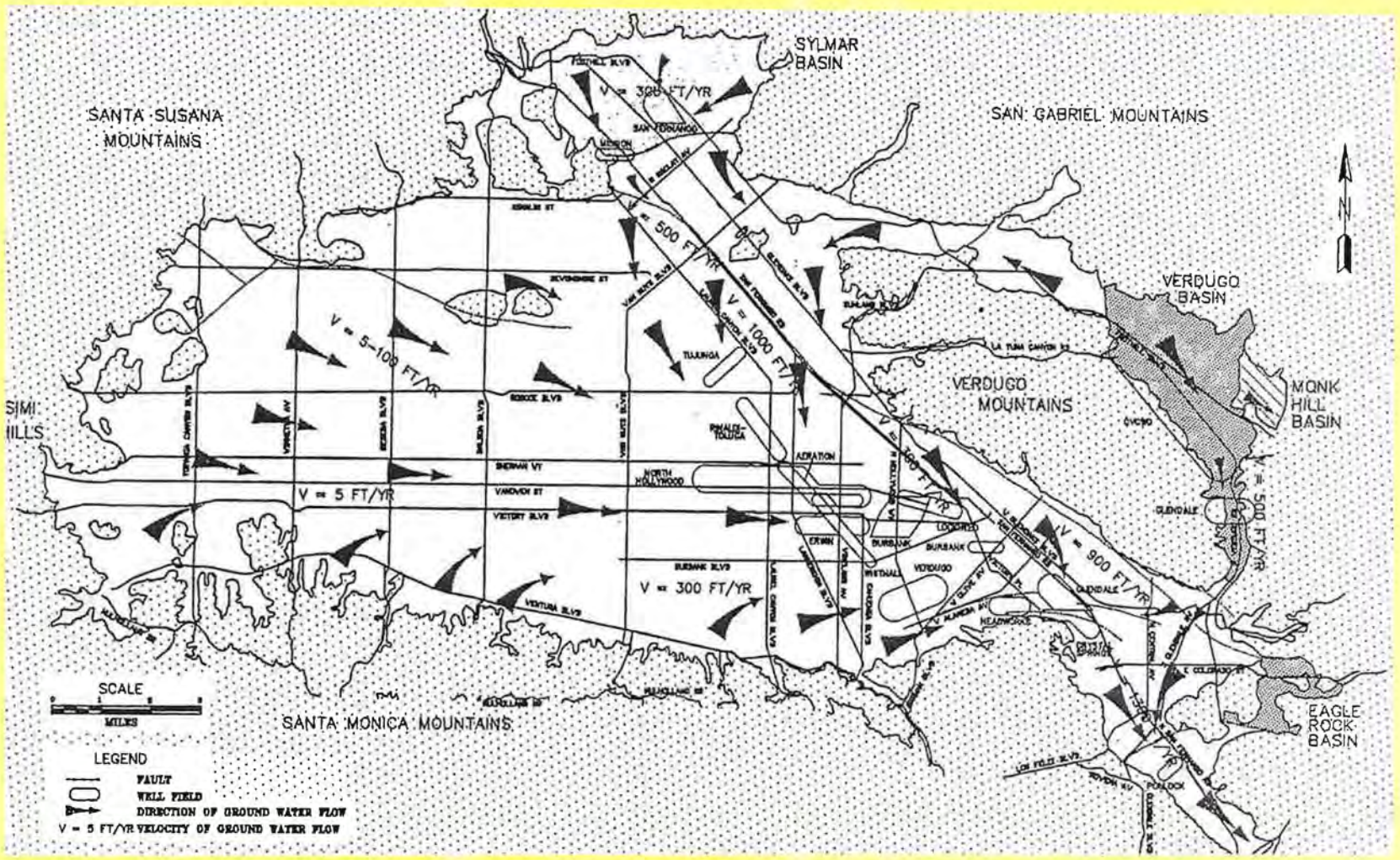
FALL (September) 2002

PLATE 10

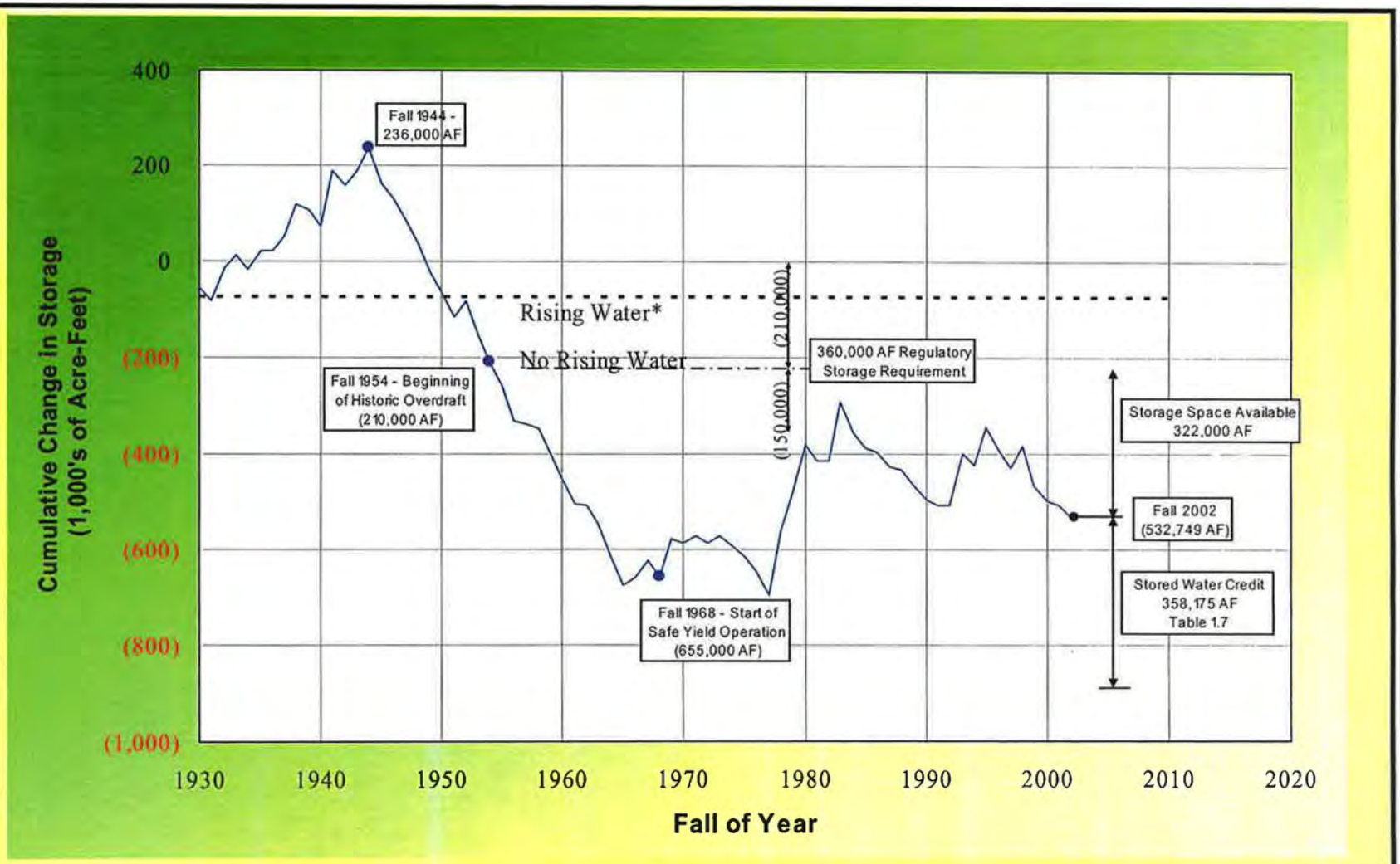
2001-02 Water Year
ULARA Watermaster
Report

Change in Groundwater Elevations
Fall 2001 - Fall 2002

PLATE
11



2001-02 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Estimated Directions and Velocities of Groundwater**	PLATE **12**



2001-02 Water Year ULARA Watermaster Report	**San Fernando Basin:** **Cumulative Change in Groundwater Storage**	PLATE **13**

PLATE 13 - ULARA WATERMASTER REPORT

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

Fall of Year	Change in Storage	Cumulative Chg. in Storage	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 - ULARA WATERMASTER REPORT

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

Fall of Year	Change in Storage	Cumulative Chg. in Storage	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

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

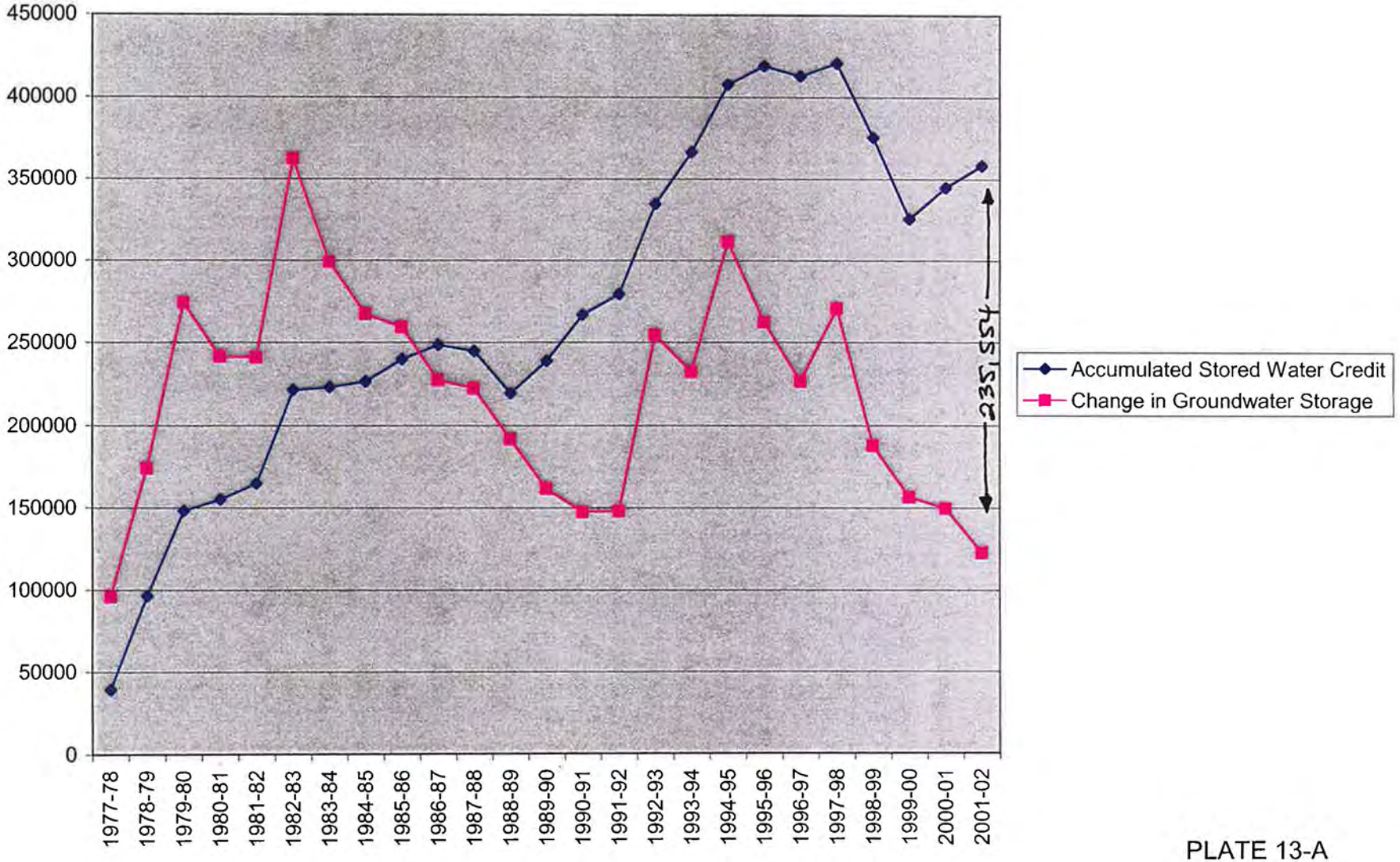
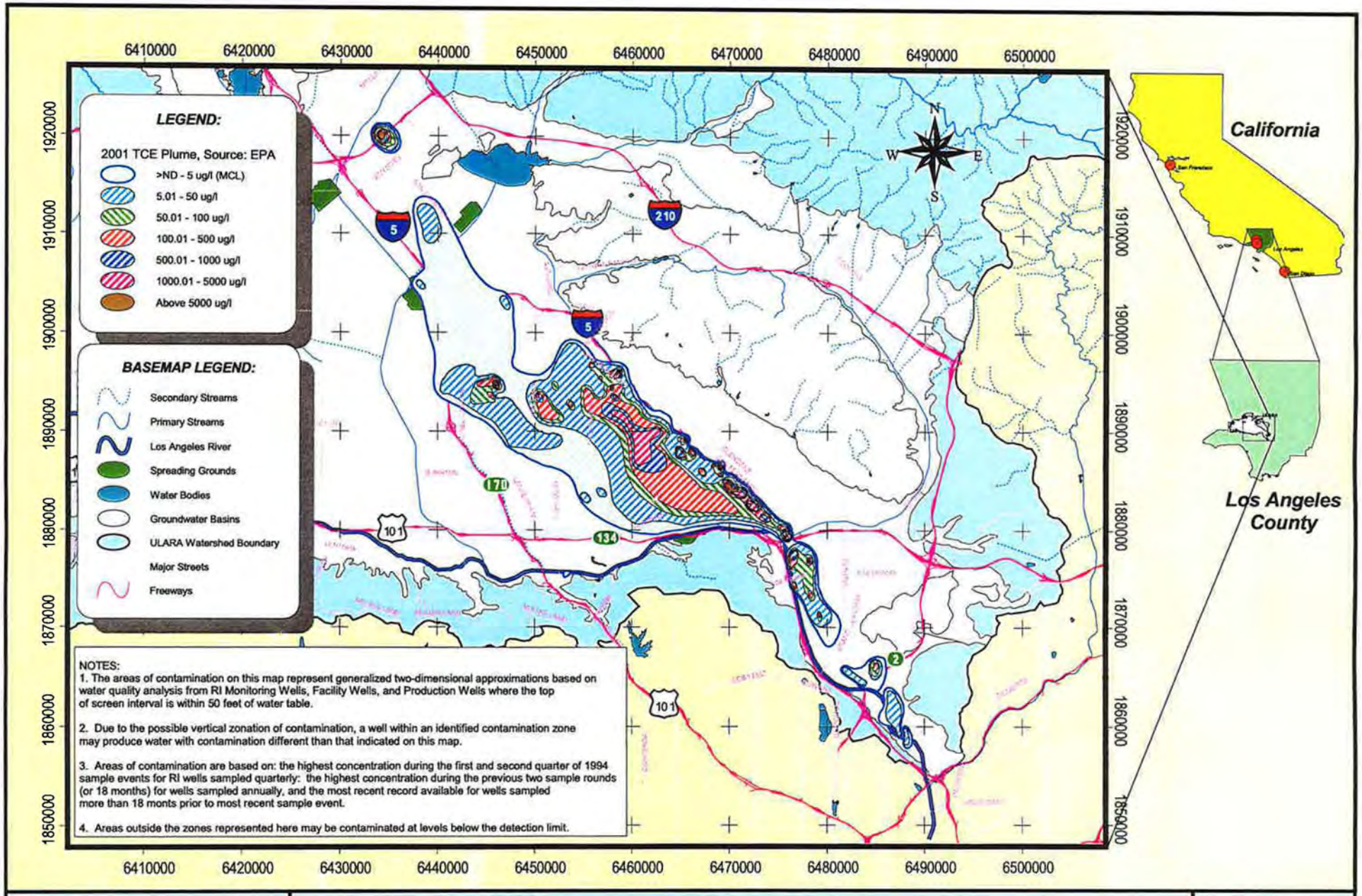
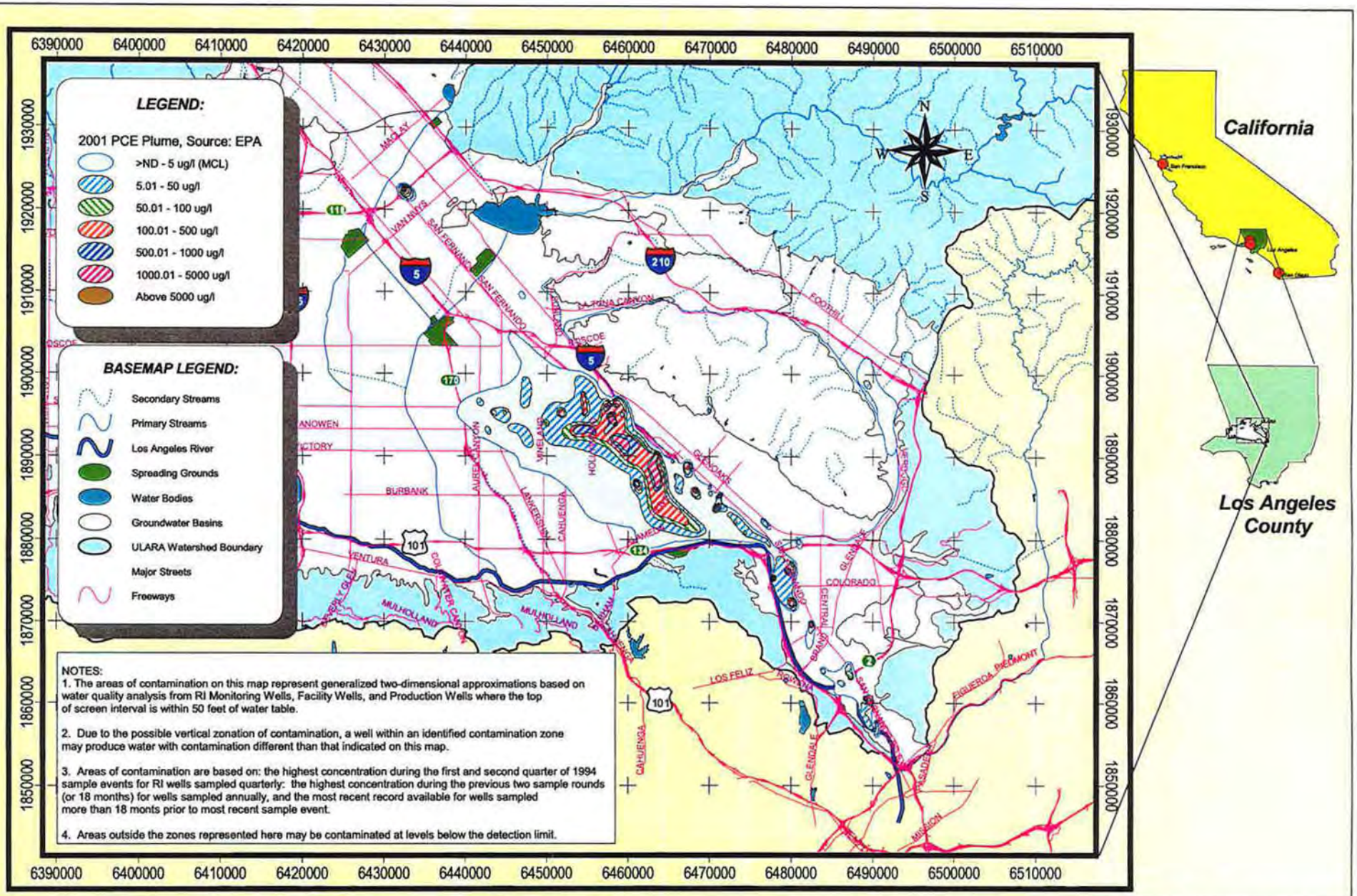


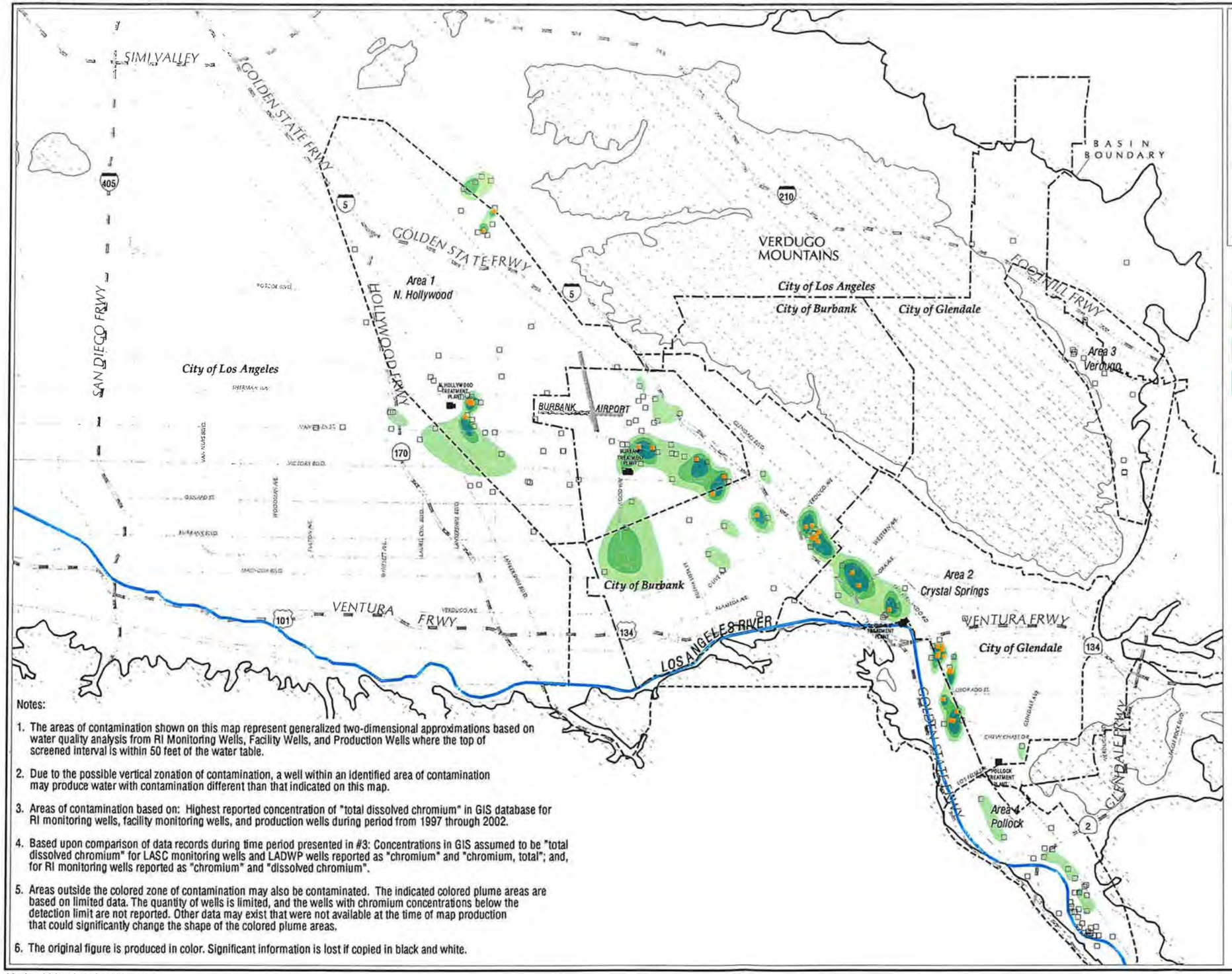
PLATE 13-A

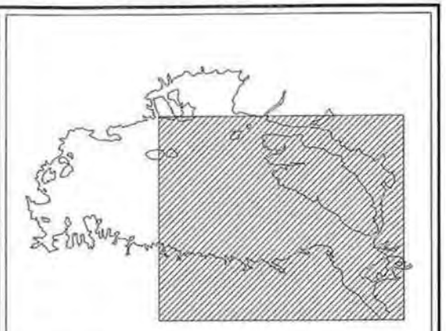


2001-02 Water Year **ULARA Watermaster Report**	**Upper Los Angeles River Area:** **TCE Contamination (ug/l) in the Upper Zone (2001)**	**PLATE** **14**



2001-02 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: PCE Contamination (ug/l) in the Upper Zone (2001)	PLATE 15





LOCATION MAP

LEGEND

- 5 - 25 µg/L
- 25.01 - 50 µg/L (MCL)
- > 50 µg/L
- Treatment Plant
- Well with less than 50 µg/L
- Well with more than 50 µg/L
- Concentration Contour Line
- Concentration Contour Line, when inferred
- Municipal Boundary
- Investigation Areas Boundary

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 of screened interval is within 50 feet of the water table.
2. Due to the possible vertical zonation of contamination, a well within an identified area of contamination may produce water with contamination different than that indicated on this map.
3. Areas of contamination based on: Highest reported concentration of "total dissolved chromium" in GIS database for RI monitoring wells, facility monitoring wells, and production wells during period from 1997 through 2002.
4. Based upon comparison of data records during time period presented in #3: Concentrations in GIS assumed to be "total dissolved chromium" for LASC monitoring wells and LADWP wells reported as "chromium" and "chromium, total"; and, for RI monitoring wells reported as "chromium" and "dissolved chromium".
5. 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 areas.
6. The original figure is produced in color. Significant information is lost if copied in black and white.

SAN FERNANDO VALLEY BASIN

Total Dissolved Chromium
Contamination (µg/L)
in Shallow Zone in 2002

N
W
E
S

0 3500 7000 14000
FEET

d:/projects/sfplume/maps/small/plotcrt.aml
24 Mar 03 16:18:41 Monday

Plate 17

HISTORICAL HIGH CHROMIUM VI CONCENTRATIONS IN GROUNDWATER

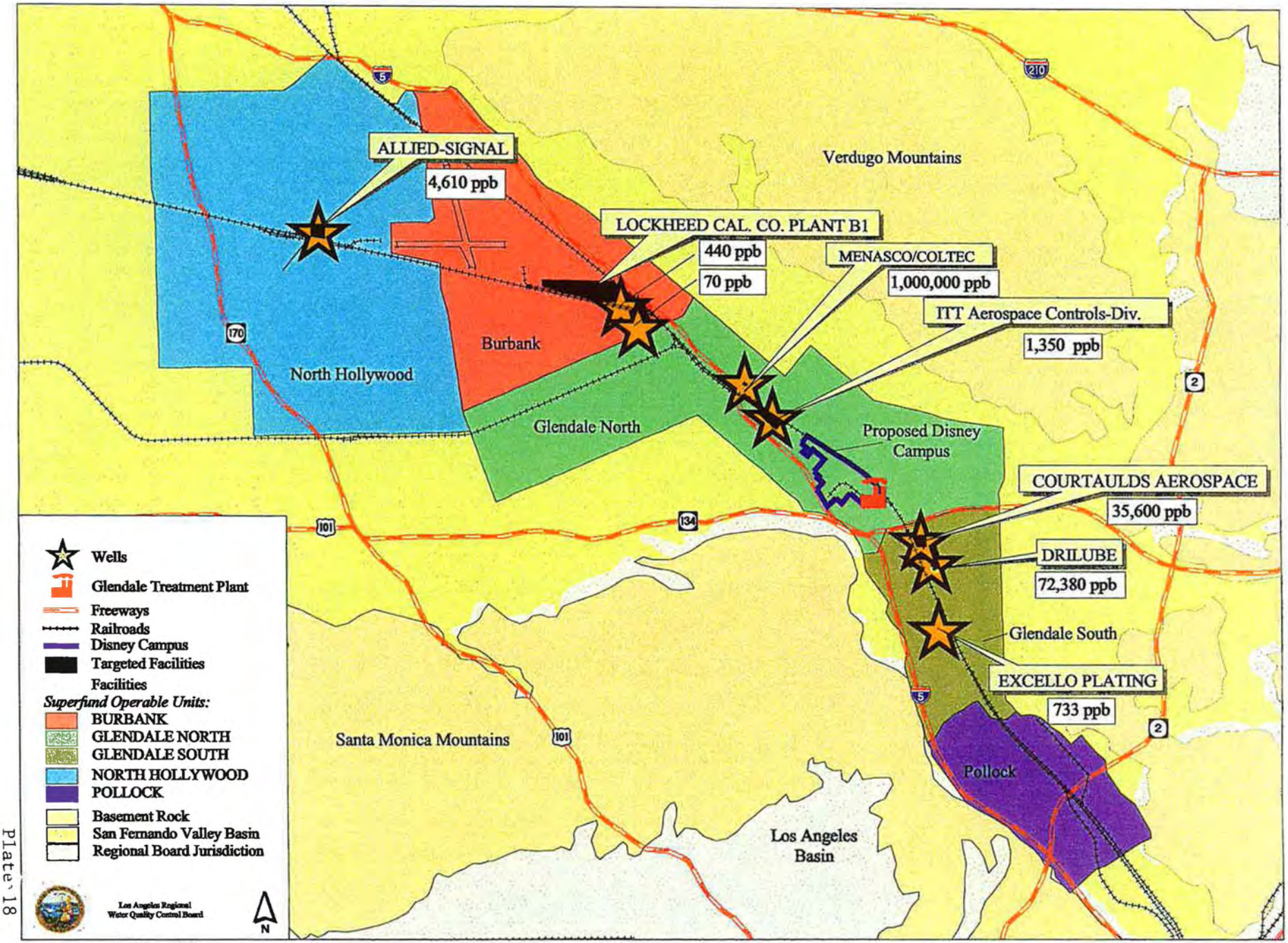


Plate 18

Ref. 39

Figure 4

APPENDIX A
GROUNDWATER EXTRACTION

2001-2002 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	Nov.	Dec.	2002 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin														
A. W. Warner Properties														
Plaza Six		1.25	1.10	1.09	1.07	1.11	1.14	1.16	1.14	1.14	1.05	1.05	0.99	13.29
A. W. Warner Properties														
Plaza Three		1.03	0.92	1.09	0.71	0.93	0.94	0.95	0.93	0.93	0.85	0.84	0.79	10.91
Angelica Healthcare Services		(abandoned 12/97)												
3934A	M050A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Auto Stiegler														
—	—	0.00	0.07	0.07	0.02	0.04	0.05	0.08	0.03	0.00	0.00	0.00	0.00	0.36
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	0.52	0.77	31.26	107.74	94.17	88.63	72.87	1.12	0.57	2.08	44.60	50.59	494.92
3861G	VO-2	108.28	145.09	113.51	128.91	86.77	135.09	125.03	130.25	123.13	118.12	114.39	106.90	1,435.47
3861K	VO-3	73.98	22.01	0.01	3.20	0.00	0.00	26.26	163.08	160.73	160.62	166.74	144.02	920.65
3861L	VO-4	112.82	0.84	0.09	0.00	75.89	124.58	144.13	143.75	127.91	127.41	90.86	49.23	997.51
3850X	VO-5	149.62	142.66	124.50	146.50	118.23	126.38	144.14	149.01	138.78	132.94	95.57	138.45	1,606.78
	VO-6	148.23	213.25	24.20	137.39	129.24	90.93	136.68	195.27	200.44	88.17	1.64	143.52	1,508.96
3850AB	VO-7	179.57	174.63	121.89	162.72	129.53	160.71	157.99	154.50	138.77	130.13	129.66	116.55	1,756.65
3851C	V0-8	201.08	198.87	174.82	197.46	153.16	157.72	96.86	0.00	60.28	192.64	192.12	193.57	1,818.58
	Total:	974.10	898.12	590.28	883.92	786.99	884.04	903.96	936.98	950.61	952.11	835.58	942.83	10,539.52
CalMat														
4916A	2	53.89	34.97	12.44	23.49	0.00	0.40	0.00	2.75	31.30	27.81	18.70	17.79	223.54
4916	3	126.89	102.54	86.04	86.16	71.54	75.67	75.46	70.02	51.97	55.94	55.66	47.64	905.53
4916(x)	1	122.10	96.73	68.00	76.44	69.97	81.72	76.18	69.69	85.88	93.00	91.30	82.69	1,013.70
Sheldon Pond		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.33	98.71	104.69	101.37	373.10
	Total:	302.88	234.24	166.48	186.09	141.51	157.79	151.64	142.46	237.48	275.46	270.35	249.49	2,515.87
First Financial Plaza Site														
N/A	F.F.P.S.	1.72	1.65	1.76	1.59	1.42	1.63	2.58	2.10	1.79	1.69	1.79	1.83	21.55

2001-2002 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	2001 Nov.	2001 Dec.	2002 Jan.	2002 Feb.	2002 Mar.	2002 Apr.	2002 May	2002 June	2002 July	2002 Aug.	2002 Sept.	TOTAL
						San Fernando Basin (cont'd)								
Forest Lawn Memorial Park														
3947A	2	16.48	3.62	1.17	3.67	7.98	14.15	13.79	26.86	22.65	21.69	16.05	5.58	153.69
3947B	3	15.67	3.47	1.14	2.58	7.67	13.45	13.16	25.73	21.75	20.99	15.42	5.47	146.50
3947C	4	14.00	3.04	0.97	3.10	6.66	12.06	11.82	8.53	18.77	18.02	13.46	4.75	115.18
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:	46.15	10.13	3.28	9.35	22.31	39.66	38.77	61.12	63.17	60.70	44.93	15.80	415.37
Glendale, City of														
3924N	STPT 1	25.60	30.69	17.22	15.38	11.51	11.26	5.77	14.03	20.32	27.22	44.29	46.16	269.45
3924R	STPT 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	0.00	1.78
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:	25.60	30.69	17.22	15.38	11.51	11.26	5.77	14.03	20.32	27.22	46.07	46.16	271.23
Glendale North/South														
	GN-1	76.60	52.25	43.05	59.29	79.96	87.54	82.79	85.55	79.15	82.10	84.97	82.29	895.54
	GN-2	87.43	59.70	49.01	45.62	84.95	98.60	94.63	97.81	90.73	89.14	85.46	71.52	954.60
	GN-3	11.96	9.34	0.00	0.00	34.66	23.18	34.63	35.73	37.54	51.76	69.30	72.48	380.58
	GN-4	218.88	213.08	222.55	221.56	196.17	216.60	208.09	214.34	197.64	211.27	210.88	201.53	2,532.59
	GS-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.73	50.18	38.80	55.41	174.12
	GS-2	40.95	0.00	39.11	50.49	67.22	71.93	69.77	71.76	51.87	70.72	73.89	72.02	679.73
	GS-3	11.48	4.12	3.95	0.00	6.00	43.98	34.56	34.56	37.23	45.46	38.28	33.29	292.91
	GS-4	40.83	0.00	0.00	48.35	67.95	71.88	70.01	71.89	70.03	77.50	72.07	66.26	656.77
	Total:	488.13	338.49	357.67	425.31	536.91	613.71	594.48	611.64	593.92	678.13	673.65	654.80	6,566.84
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	3.02	0.96	0.47	1.05	1.26	2.28	1.14	2.35	2.65	2.84	1.61	1.89	21.52
	2	0.95	1.38	0.65	0.94	0.81	0.79	0.97	1.24	1.24	1.26	1.45	1.40	13.08
	3	0.48	0.51	0.45	0.55	0.44	0.25	0.47	0.50	0.80	0.94	1.01	0.90	7.30
	Total:	4.45	2.85	1.57	2.54	2.51	3.32	2.58	4.09	4.69	5.04	4.07	4.19	41.90
Menasco/Coltec Site														
—		0.04	0.00	0.00	0.01	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.11
Mena, John & Barbara														
4973J		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
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	0.86	0.52	0.38	0.54	0.49	0.33	0.41	0.86	0.36	0.42	0.46	0.30	5.93
—	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	4.25	3.10	2.45	3.66	3.07	2.66	2.86	4.25	3.49	3.05	3.36	2.01	38.21
—	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:	5.11	3.62	2.83	4.20	3.56	2.99	3.27	5.11	3.85	3.47	3.82	2.31	44.14

2001-2002 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	Nov.	Dec.	2002 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin (cont'd)									
Metropolitan Water District														
	Jensen	14.30	13.90	15.10	15.10	14.30	16.40	16.10	16.90	15.90	13.30	13.30	13.20	177.80
Mobil Oil Corporation														
—	—	0.12	0.37	0.26	0.21	0.13	0.18	0.34	0.09	0.00	0.04	0.04	0.06	1.84
Middle Ranch (Successor to deMille)														
4931 x	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4940-1	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
new	5	0.00	0.00	0.00	0.05	0.07	0.09	0.05	0.00	0.00	0.00	0.03	0.03	0.32
4940-3	6	0.42	0.00	0.00	0.00	0.00	0.00	0.31	0.03	0.05	0.06	0.03	0.01	0.91
4940-2	7	0.33	0.70	0.23	0.29	0.46	0.56	0.42	0.93	1.19	1.03	1.19	0.96	8.29
new	8	0.77	0.40	0.22	0.10	0.32	0.18	0.14	0.21	0.73	0.37	0.37	0.00	3.81
	Spring 1&2	0.05	0.03	0.03	0.04	0.04	0.04	0.06	0.06	0.06	0.04	0.06	0.05	0.56
	Total	1.57	1.13	0.48	0.48	0.89	0.87	0.98	1.23	2.03	1.50	1.68	1.05	13.89
Micro Matics														
JEW	1	0.29	0.22	0.04	0.13	0.03	0.10	0.05	0.00	0.00	0.00	0.08	0.21	1.15
JEW	2	0.15	0.12	0.01	0.04	0.01	0.04	0.02	0.00	0.00	0.00	0.03	0.09	0.51
RMW	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	
	Total	0.44	0.34	0.05	0.17	0.04	0.14	0.07	0.00	0.00	0.00	0.14	0.38	1.77
Raytheon (Formerly Hughes Missile Systems)														
—	—	0.21	0.22	0.15	0.04	0.21	0.18	0.15	0.25	0.25	0.14	0.18	0.30	2.28
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	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.08
3M-Pharmaceuticals														
—	—	3.25	6.34	5.85	6.37	5.57	6.09	6.59	6.36	5.49	5.14	6.48	6.05	69.58
Toluca Lake Property Owners Association														
3845F	3845F	4.78	2.86	0.51	0.44	1.40	5.55	3.57	6.90	3.03	5.25	0.99	1.33	36.61
Trillium Corporation														
Well #1	—	3.07	0.76	1.10	2.21	2.18	2.36	2.56	1.73	2.18	2.28	2.32	1.49	24.24
Well #2	—	1.56	1.19	1.19	1.31	1.22	1.34	1.43	0.96	0.01	0.00	0.00	1.23	11.44
	Total:	4.63	1.95	2.29	3.52	3.40	3.70	3.99	2.69	2.19	2.28	2.32	2.72	35.68
Valhalla Memorial Park and Mortuary														
3840K	4	10.86	3.24	3.23	10.78	28.95	29.00	29.00	64.19	64.19	64.19	9.37	45.30	362.30
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

2001-2002 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	Nov.	Dec.	2002 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														
—	—	2.86	1.88	2.07	2.59	1.57	1.99	1.54	0.80	0.04	1.79	3.60	3.27	24.00
Wildlife Waystation		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	2.40
Los Angeles, City of														
Aeration (A)														
3800E	A-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810U	A-2	0.02	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.02	0.00	0.00	0.10
3810V	A-3	17.24	0.00	9.32	22.65	23.30	13.17	24.33	15.33	3.51	5.73	39.78	31.33	205.69
3810W	A-4	16.13	0.00	0.00	20.27	25.45	16.85	26.65	14.27	2.52	2.91	15.31	12.99	153.35
3820H	A-5	7.96	0.00	1.33	5.64	5.34	5.78	6.01	6.15	0.50	2.43	8.70	3.09	52.93
3821J	A-6	29.84	0.00	4.56	21.80	20.45	25.22	22.13	22.58	1.37	6.12	7.98	11.34	173.39
3830P	A-7	35.56	0.00	4.91	36.27	21.62	25.06	0.00	0.00	0.00	0.45	16.23	4.24	144.34
3831K	A-8	39.32	0.00	5.23	38.86	23.25	28.25	25.48	25.55	1.53	8.05	37.97	34.84	268.33
	A Total:	146.07	0.00	25.35	145.49	119.41	114.35	104.64	83.88	9.43	25.71	125.97	97.83	998.13
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	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
3811F	E-10	77.82	62.19	0.20	36.17	20.56	0.11	59.04	95.70	77.18	81.74	92.53	69.23	672.47
	E Total:	77.82	62.19	0.20	36.17	20.56	0.11	59.04	95.70	77.18	81.74	92.53	69.23	672.47
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

2001-2002 WATER YEAR

(acre-feet)

LACDPW	Owner	2001			2002									TOTAL
Well No.	Well No.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
						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	2.38	0.00	0.00	31.10	67.88	0.00	0.22	0.00	0.00	0.00	0.00	88.24	189.82
3770	NH-7	101.07	91.85	18.96	20.59	45.54	0.16	65.88	104.36	97.49	87.55	107.64	54.13	795.22
3810	NH-11	0.00	0.00	0.00	1.05	0.00	0.00	0.00	0.48	0.00	0.09	0.00	0.00	1.62
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
3820D	NH-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820C	NH-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820B	NH-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830D	NH-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830C	NH-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830B	NH-21	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
3790C	NH-22	240.26	221.71	46.41	0.00	0.11	0.00	10.78	0.00	0.00	0.00	0.00	0.00	519.27
3790D	NH-23	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
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	0.00	0.00
3790E	NH-26	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
3820F	NH-27	0.00	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
3810K	NH-28	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.22	0.00	0.13	0.00	0.00	1.47
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	0.25	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.11	0.81
3770C	NH-32	201.05	186.27	39.07	42.03	93.41	0.22	43.75	163.42	202.54	183.88	229.10	109.59	1,494.33
3780C	NH-33	261.08	244.32	50.66	53.44	119.30	46.16	303.69	265.42	255.78	234.36	294.32	8.93	2,137.46
3790G	NH-34	0.18	0.22	0.25	0.16	0.55	0.00	0.96	0.52	0.00	0.18	0.45	0.00	3.47
3830N	NH-35	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
3790H	NH-36	264.07	238.36	50.87	54.59	123.34	46.78	310.78	266.55	242.92	214.37	280.89	166.06	2,259.58
3790J	NH-37	0.13	0.09	0.32	0.13	0.25	0.00	31.56	0.00	0.00	0.11	0.36	0.00	32.95
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	0.89	0.39	0.29	0.00	0.00	0.94	0.00	0.27	0.43	0.00	3.21
3810Q	NH-41	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
3810R	NH-42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790K	NH-43A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790L	NH-44	290.74	375.43	0.39	81.63	184.91	70.82	471.74	409.53	394.35	369.32	533.76	265.51	3,448.13
3790M	NH-45	469.42	438.82	0.59	95.45	218.25	81.61	538.86	473.32	459.94	435.81	625.11	321.00	4,158.18
	NH Total:	1,830.38	1,797.11	208.41	383.29	853.94	245.75	1,778.22	1,684.76	1,653.02	1,526.52	2,072.06	1,013.57	15,047.03

2001-2002 WATER YEAR
(acre-feet)

LACDPW	Owner	2001			2002								
Well No.	Well No.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
San Fernando Basin (cont'd)														
Pollock (P)														
3959E	P-4	85.21	97.84	0.00	0.00	22.06	37.35	234.80	218.04	113.36	0.04	59.25	97.15	965.10
3958H	P-6	179.68	0.18	0.00	0.00	0.18	0.18	0.11	0.13	14.21	221.28	175.43	84.85	676.23
3958J	P-7	0.82	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	1.22
	P Total:	265.71	98.20	0.00	0.00	22.24	37.53	234.91	218.17	127.79	221.32	234.68	182.00	1,642.55
Rinaldi-Toluca (RT)														
4909E	RT-1	0.00	154.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	384.55	538.72
4898A	RT-2	0.00	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.00	0.00	77.64	395.18	474.33
4898B	RT-3	530.69	0.00	0.00	345.89	0.00	0.00	0.00	0.06	243.15	464.37	542.03	384.20	2,510.39
4898C	RT-4	0.00	150.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.58	412.44	741.98
4898D	RT-5	0.00	142.42	0.00	0.00	0.00	0.00	1.26	0.00	0.00	0.00	272.91	392.21	808.80
4898E	RT-6	520.73	142.19	0.00	340.44	0.00	0.00	1.35	0.06	248.94	477.82	558.81	392.17	2,682.51
4898F	RT-7	494.67	144.81	0.00	325.68	0.00	0.00	2.89	0.00	238.65	462.32	533.97	391.59	2,594.58
4898G	RT-8	492.37	163.24	0.00	321.32	0.00	0.00	0.84	0.13	242.90	462.53	541.32	485.39	2,710.04
4898H	RT-9	485.35	0.00	0.00	331.65	0.00	0.00	0.09	0.06	238.45	455.23	527.34	0.00	2,038.17
4909G	RT-10	541.89	0.29	0.00	360.12	0.00	0.00	0.00	0.13	268.50	521.92	579.54	456.81	2,729.20
4909K	RT-11	0.00	0.39	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	1.42	2.26
4909H	RT-12	322.10	0.20	0.00	0.43	0.00	0.00	0.18	0.06	1.01	0.29	381.10	1.74	707.11
4909J	RT-13	0.00	0.20	0.00	0.36	0.00	0.00	0.27	0.09	0.00	0.25	0.25	1.65	3.07
4909L	RT-14	0.20	0.00	0.00	0.48	0.00	0.00	0.22	0.04	1.10	0.32	0.00	0.00	2.36
4909M	RT-15	0.48	0.00	0.00	0.50	0.00	0.00	0.00	0.00	1.01	0.45	0.00	400.78	403.22
	RT Total:	3,388.48	898.87	0.00	2,026.87	0.00	0.00	9.06	0.63	1,483.71	2,845.50	4,193.49	4,100.13	18,946.74
Tujunga (T)														
4887C	T-1	368.15	0.71	0.00	454.48	142.17	33.08	511.98	444.60	0.00	0.00	0.00	0.00	1,955.17
4887D	T-2	528.16	85.05	0.00	423.89	131.01	29.47	465.05	521.99	424.58	493.20	571.90	474.70	4,149.00
4887E	T-3	606.15	113.68	0.00	0.02	0.00	36.61	185.19	0.00	299.15	574.05	693.20	570.77	3,078.82
4887F	T-4	0.32	1.14	0.52	0.00	0.50	0.52	0.43	0.29	191.82	550.13	624.17	516.48	1,886.32
4887G	T-5	0.00	0.78	0.57	0.32	0.32	0.55	0.84	130.62	466.50	616.02	89.60	0.34	1,306.46
4887H	T-6	473.85	0.29	0.57	0.20	0.78	0.36	317.40	0.34	0.50	134.18	634.50	206.38	1,769.35
4887J	T-7	0.45	0.00	2.06	0.39	0.34	0.55	0.80	0.34	0.36	0.39	0.25	0.29	6.22
4887K	T-8	468.11	0.00	1.90	0.32	0.52	0.41	0.36	0.29	0.41	0.29	454.54	205.14	1,132.29
4886B	T-9	459.43	0.00	2.93	471.87	143.34	0.71	0.66	0.34	0.36	0.27	442.24	224.97	1,747.12
4886C	T-10	558.47	112.69	1.12	476.17	143.75	0.29	0.45	0.71	0.00	0.96	419.42	541.75	2,255.78
4886D	T-11	0.00	0.00	1.03	0.00	0.68	0.27	0.68	0.27	0.00	0.68	0.00	0.00	3.61
4886E	T-12	374.79	0.00	2.34	490.63	143.73	0.78	45.91	683.95	533.47	561.91	533.37	558.93	3,929.81
	T Total:	3,837.88	314.34	13.04	2,318.29	707.14	103.60	1,529.75	1,783.74	1,917.15	2,932.08	4,463.19	3,299.75	23,219.95

2001-2002 WATER YEAR
(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	Nov.	Dec.	2002 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	225.06	191.34	0.00	44.32	51.72	0.00	147.45	235.37	181.63	234.13	231.88	158.83	1,701.73
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	329.54	274.67	0.00	62.14	72.52	0.00	205.89	336.96	264.69	339.50	336.47	232.04	2,454.42
	V Total:	554.60	466.01	0.00	106.46	124.24	0.00	353.34	572.33	446.32	573.63	568.35	390.87	4,156.15
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	0.13	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.24
3821E	W-5	0.00	0.00	0.00	1.51	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	1.69
3831J	W-6A	306.22	248.07	0.00	55.89	65.22	0.09	71.46	217.24	263.47	281.81	303.48	0.00	1,812.95
3832K	W-7	139.04	107.59	0.00	27.57	32.20	0.00	18.04	0.06	0.06	0.06	0.00	0.00	324.62
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:	445.26	355.66	0.00	85.10	97.42	0.38	89.50	217.30	263.53	281.87	303.48	0.00	2,139.50
Los Angeles, City of Total:		10,546.20	3,992.38	247.00	5,101.67	1,944.95	501.72	4,158.46	4,656.51	5,978.13	8,488.37	12,053.75	9,153.38	66,822.52
San Fernando Basin Total:		12,439.89	5,546.71	1,420.55	6,671.76	3,510.45	2,282.55	5,926.24	6,535.76	7,949.36	10,587.93	13,974.21	11,146.45	87,991.85

							Sylmar Basin							
Los Angeles, City of														
Plant	Mission													0.00
Well	5	0.00	0.00	0.00	1.28	0.00	0.00	0.75	1.85	0.09	0.18	0.32	0.00	4.47
Well	6	0.00	0.00	0.00	0.22	0.00	0.00	0.59	13.45	166.50	98.04	192.53	90.17	561.50
Well	7	0.00	0.00	0.00	0.06	0.00	0.00	0.02	14.43	196.05	116.41	234.18	112.51	673.66
		0.00	0.00	0.00	1.56	0.00	0.00	1.36	29.73	362.64	214.63	427.03	202.68	1,239.63
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

2001-2002 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	Nov.	Dec.	2002 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
							Sylmar Basin (cont'd)							
San Fernando, City of														
5969D	2A	205.59	156.69	167.49	145.94	141.55	184.46	187.25	211.65	223.58	229.60	216.99	225.05	2,295.84
5959	3	35.08	22.51	15.12	14.97	12.35	9.81	20.88	17.71	32.41	45.31	57.43	62.02	345.60
5969	4	22.74	21.56	12.45	18.85	13.51	19.53	21.65	23.90	25.58	33.27	31.87	7.63	252.54
5968	7A	68.20	61.20	47.99	69.11	80.25	66.54	63.99	78.76	77.02	93.11	86.97	78.58	871.72
	Total:	331.61	261.96	243.05	248.87	247.66	280.34	293.77	332.02	358.59	401.29	393.26	373.28	3,765.70
	Sylmar Basin Total:	331.61	261.96	243.05	250.43	247.66	280.34	295.13	361.75	721.23	615.92	820.29	575.96	5,005.33

							Verdugo Basin							
Crescenta Valley County Water District														
5058B	1	34.53	34.28	16.22	18.73	32.66	26.13	39.92	38.76	37.55	27.21	30.94	29.18	366.11
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	82.56	72.36	79.82	73.85	62.87	25.23	49.93	24.57	39.80	69.97	70.73	60.64	712.33
5058	6	0.37	0.48	0.04	0.06	0.07	0.04	0.14	0.12	0.10	0.43	0.42	0.23	2.50
5047B	7	14.48	26.95	21.40	29.52	19.06	28.26	29.28	30.36	29.34	27.96	25.24	24.30	306.15
5069J	8	36.52	0.00	40.55	18.13	34.49	45.43	42.60	40.94	38.20	38.35	36.52	36.51	408.24
5047D	9	29.32	17.68	8.40	19.64	13.39	9.30	16.89	14.98	9.07	10.64	13.37	11.31	173.99
5058D	10	43.08	26.94	9.62	24.88	14.80	19.25	20.51	5.37	4.78	15.61	28.46	13.45	226.75
5058E	11	23.34	21.62	18.51	0.00	1.92	8.99	23.29	24.37	23.58	25.28	20.48	16.81	208.19
5058J	12	16.33	31.59	24.83	30.53	23.58	24.69	26.21	33.58	32.29	28.77	22.61	24.65	319.66
5069F	14	41.55	43.45	41.75	42.70	38.61	40.22	41.40	40.44	38.50	38.51	36.80	36.32	480.25
	15	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.13	1.26	4.89	3.79	3.35	14.03
	PICKENS (CVWD)	4.37	3.18	4.57	4.40	3.96	4.39	2.43	4.33	4.16	4.12	4.21	4.17	48.29
	Total:	326.45	278.53	265.71	262.44	245.41	231.93	293.21	257.95	258.63	291.74	293.57	260.92	3,266.49
Knowltons														
	PICKENS	0.96	0.93	0.96	0.96	0.87	0.96	0.93	0.93	0.96	0.96	0.96	0.69	11.07
Glendale, City of														
3961-3971	GL3-5	99.11	93.97	91.46	86.38	75.47	79.81	75.17	73.14	64.88	63.38	55.88	40.60	899.25
3970	GL-6	0.00	76.08	73.59	69.85	59.77	62.95	57.15	55.75	51.93	53.56	51.40	49.42	661.45
—	VPCKP	58.81	58.03	70.93	68.12	47.82	30.28	0.00	0.00	38.18	67.11	67.95	61.42	568.65
—	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:	157.92	228.08	235.98	224.35	183.06	173.04	132.32	128.89	154.99	184.05	175.23	151.44	2,129.35
	Verdugo Basin Total:	484.37	506.61	501.69	486.79	428.47	404.97	425.53	386.84	413.62	475.79	468.80	412.36	5,395.84

2001-2002 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2001 Oct.	2001 Nov.	2001 Dec.	2002 Jan.	2002 Feb.	2002 Mar.	2002 Apr.	2002 May	2002 June	2002 July	2002 Aug.	2002 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	5.63	4.64	3.83	4.61	4.50	5.03	4.47	5.33	5.30	6.55	5.44	5.33	60.66
3987F	3	5.88	4.73	5.01	4.86	4.53	5.18	5.58	4.84	5.31	6.41	5.98	5.11	63.42
3987G	4	9.87	7.81	7.69	8.02	7.75	8.46	8.73	9.50	9.34	7.42	13.20	9.69	107.48
	Total:	21.38	17.18	16.53	17.49	16.78	18.67	18.78	19.67	19.95	20.38	24.62	20.13	231.56
Eagle Rock Basin Total:		21.38	17.18	16.53	17.49	16.78	18.67	18.78	19.67	19.95	20.38	24.62	20.13	231.56

ULARA Total:		13,277.25	6,332.46	2,181.82	7,426.47	4,203.36	2,986.53	6,665.68	7,304.02	9,104.16	11,700.02	15,287.92	12,154.90	98,624.58

APPENDIX B
KEY GAGING STATIONS SURFACE RUNOFF

Enclosure D1

Los Angeles County Dept of Public Works

USDAY V30 Output 10/24/2002

Summary Report

Station: F57 Los Angeles River Above Arroyo Seco
USGS #:
Beginning Date: 10/01/2001
Ending Date: 09/30/2002

Daily Mean Discharge in Cubic feet/second Water Year Oct 2001 to Sep 2002

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	120	95.1	138	134	174	170	132	124	125	126	140
2	135	134	92.0	152	136	184	164	128	118	132	135	118
3	134	137	322	417	141	190	165	126	129	129	135	129
4	130	132	97.7	152	145	203	155	127	141	126	125	151
5	121	133	94.8	144	144	218	155	122	139	123	126	159
6	150	109	66.1	150	139	233	160	121	155	120	128	166
7	133	130	88.0	159	135	514	147	124	136	121	130	157
8	116	145	106	182	152	213	154	119	118	126	137	143
9	113	150	266	192	158	219	148	119	110	134	144	138
10	136	150	138	193	157	227	144	115	112	137	152	135
11	139	197	107	193	169	229	132	117	114	135	165	136
12	116	1110	107	192	178	220	155	112	109	136	176	140
13	120	215	105	198	180	222	163	111	109	121	169	135
14	119	102	195	216	183	211	150	112	111	110	148	147
15	121	99.0	136	217	191	223	193	107	116	116	138	137
16	118	102	120	440	187	227	159	108	114	122	138	144
17	120	102	125	190	548	273	163	107	126	127	127	154
18	120	101	136	191	170	317	156	109	121	124	132	178
19	114	103	139	181	162	186	151	107	122	135	139	137
20	119	105	496	178	163	194	146	286	121	136	129	107
21	118	108	888	187	200	198	143	118	126	106	108	112
22	124	109	139	199	164	199	130	103	116	106	107	111
23	117	107	122	192	160	222	126	103	107	106	127	116
24	122	2540	123	190	158	186	144	104	110	112	127	133
25	109	159	121	203	159	176	138	109	111	118	135	131
26	112	91.9	127	206	159	165	136	107	113	132	140	135
27	124	91.3	142	1560	170	176	130	111	118	139	159	139
28	114	90.3	140	544	167	163	126	118	123	135	174	158
29	117	392	797	148	------	149	127	126	120	105	189	222
30	245	109	165	133	------	153	131	136	115	115	184	109
31	153	------	168	132	------	177	------	130	------	128	155	------
Total	3962	7373.5	5963.7	7769	4909	6641	4461	3774	3604	3837	4404	4217
Mean	128	246	192	251	175	214	149	122	120	124	142	141
Max	245	2540	888	1560	548	514	193	286	155	139	189	222
Min	109	90.3	66.1	132	134	149	126	103	107	105	107	107
Acre-Ft	7860	14630	11830	15410	9730	13170	8850	7480	7150	7610	8740	8360

Wtr Year 2002	Total	60915.2	Mean	167	Max	2540	Min	66.1	Acre-Ft	120800
Cal Year 2001	Total	95150.2	Mean	261	Max	7980	Min	66.1	Acre-Ft	188800

Enclosure D2

Los Angeles County Dept of Public Works

USDAY V30 Output 10/15.2002

Summary Report

Station: F118 Pacoima Creek Flume Below Pacoima Dam
USGS #:
Beginning Date: 10/01/2001
Ending Date: 09/30/2002

Daily Mean Discharge in Cubic feet/second Water Year Oct 2001 to Sep 2002

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	0	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	1.81	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	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	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	44.5	0	0	0	0	0	0	0	0	0	0	0
24	62.9	0	0	0	0	0	0	0	0	0	0	0
25	61.6	0	0	0	0	0	0	0	0	0	0	0
26	34.7	.01	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
30	0	0	0	0	------	0	0	0	0	0	0	------
31	0	------	0	0	------	0	------	0	------	0	0	0
Total	203.7	0.01	0	0	0	0	0	1.81	0	0	0	0
Mean	6.57	0	0	0	0	0	0	.058	0	0	0	0
Max	62.9	.01	0	0	0	0	0	1.81	0	0	0	0
Min	0	0	0	0	0	0	0	0	0	0	0	0
Acre-Ft	404	.01	0	0	0	0	0	3.6	0	0	0	0

Wtr Year 2002	Total	205.52	Mean	.56	Max	62.9	Min	0	Acre-Ft	408
Cal Year 2001	Total	1440.60	Mean	3.95	Max	62.9	Min	0	Acre-Ft	2860

Enclosure D3

Los Angeles County Dept of Public Works

USDAY V30 Output 10/24/2002

Summary Report

Station: F300 Los Angeles River At Tujunga Avenue
USGS #:
Beginning Date: 10/01/2001
Ending Date: 09/30/2002

Daily Mean Discharge in Cubic feet/second Water Year Oct 2001 to Sep 2002

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.3	63.5	73.3	76.5	79.3	84.7	72.3	76.5	60.5	87.7	88.5	62.1
2	49.5	71.8	71.1	91.0	71.5	84.4	72.9	79.8	56.7	95.7	91.9	60.1
3	47.4	70.8	270	260	73.7	82.7	70.6	79.5	73.8	89.6	93.8	73.1
4	44.3	65.9	72.3	82.1	71.5	85.7	70.8	82.4	80.8	89.2	94.5	82.6
5	49.1	62.1	59.1	74.7	76.6	85.0	70.1	79.0	77.3	89.0	90.0	86.9
6	60.7	38.9	26.6	74.0	70.6	74.4	76.0	79.8	90.8	90.0	82.6	82.7
7	44.8	62.0	56.9	79.7	67.8	241	69.8	82.2	74.3	90.6	83.4	82.2
8	39.7	65.8	79.6	94.5	78.6	88.5	78.3	81.8	58.7	99.4	78.7	80.1
9	38.7	68.6	85.5	96.8	76.0	85.9	69.0	82.7	58.6	99.8	82.4	82.3
10	54.0	59.1	81.4	89.3	74.2	85.8	64.0	78.9	73.4	88.8	80.2	85.8
11	54.8	104	77.9	89.4	80.2	83.3	53.6	81.9	76.9	79.4	81.4	85.7
12	44.0	662	74.1	79.5	88.5	80.6	71.3	78.8	78.0	89.3	81.0	83.5
13	45.3	98.4	69.3	81.2	84.8	79.5	73.1	78.9	73.2	89.7	70.2	83.8
14	45.6	62.6	149	85.0	82.3	79.5	72.5	81.4	78.8	85.3	65.0	84.2
15	45.1	61.6	84.3	82.4	83.8	80.9	85.3	76.8	81.7	91.7	76.9	78.8
16	46.6	64.7	76.1	276	73.7	77.1	74.8	78.3	85.8	90.0	72.7	78.2
17	47.3	62.3	77.8	82.2	296	93.7	76.9	77.2	95.4	82.7	62.4	85.3
18	49.2	61.2	80.3	79.1	85.2	116	73.0	78.2	87.6	77.4	60.6	87.9
19	46.0	59.8	78.3	71.4	82.6	72.3	72.3	76.1	86.1	82.0	64.3	87.5
20	47.8	62.0	300	71.0	85.4	79.9	69.3	263	86.2	72.5	63.1	87.1
21	50.7	61.9	426	75.6	129	79.3	69.1	79.0	87.9	68.9	51.3	87.6
22	56.9	61.2	87.2	77.9	87.8	79.8	51.9	73.2	88.1	72.9	61.3	87.1
23	61.7	56.5	75.9	71.6	86.1	96.0	60.8	71.4	81.6	70.2	81.7	88.1
24	50.0	1490	74.8	75.6	84.1	77.8	70.3	74.0	85.3	70.5	80.3	95.8
25	44.9	104	73.1	79.0	87.4	71.2	72.2	75.5	86.4	71.1	84.4	83.9
26	48.5	63.5	75.4	77.3	87.6	68.2	67.2	75.1	84.1	71.1	79.1	84.0
27	53.6	59.7	79.2	840	90.6	73.9	67.7	72.3	86.9	70.4	82.5	85.1
28	48.6	62.1	75.9	235	86.6	63.0	67.4	75.1	89.2	70.7	81.3	84.3
29	51.4	345	490	91.4	------	58.8	69.6	72.9	75.8	70.9	83.4	94.2
30	166	85.7	107	78.9	------	63.4	71.6	77.0	75.4	89.7	68.4	84.8
31	63.2	------	89.3	75.8	------	74.0	------	61.5	------	93.8	60.6	------
Total	1644.7	4316.7	3596.7	3793.9	2521.5	2646.3	2103.7	2580.2	2375.3	2580.0	2377.9	2494.8
Mean	53.1	144	116	122	90.1	85.4	70.1	83.2	79.2	83.2	76.7	83.2
Max	166	1490	490	840	296	241	85.3	263	95.4	99.8	94.5	95.8
Min	38.7	38.9	26.6	71.0	67.8	58.8	51.9	61.5	56.7	68.9	51.3	60.1
Acre-Ft	3260	8560	7130	7530	5000	5250	4170	5120	4710	5120	4710	4950

Wtr Year 2002	Total	33031.7	Mean	90.5	Max	1490	Min	26.6	Acre-Ft	65510
Cal Year 2001	Total	64181.5	Mean	176	Max	5340	Min	25.9	Acre-Ft	127300

Enclosure D4

Los Angeles County Dept of Public Works

USDAY V30 Output 10/10,2002

Summary Report

Station: [redacted] Tujunga Creek Below Big Tujunga Dam
USGS #:
Beginning Date: 10/01/2001
Ending Date: 09/30/2002

Daily Mean Discharge in Cubic feet/second Water Year Oct 2001 to Sep 2002

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.04	0	.04	.03	.03	.03	.05	4.47	1.65	0	0
2	0	.04	0	.04	.03	.03	.03	.05	4.42	.04	0	0
3	0	.04	13.2	.05	.03	.03	.02	.05	19.6	.01	0	0
4	0	.04	26.9	.04	.03	.03	.02	.04	29.1	.01	0	0
5	0	.03	11.1	.04	.03	.03	.03	.02	28.8	.01	0	0
6	0	.03	.06	.04	.03	.04	.04	.02	14.3	.02	0	0
7	0	.02	.02	.04	.03	.06	.04	2.51	5.08	.01	0	0
8	0	0	0	16.3	.03	.05	.04	1.11	5.02	0	0	0
9	0	0	0	29.9	.02	.05	.03	5.20	5.02	0	0	0
10	0	0	.02	21.8	.02	.05	.03	5.36	5.02	0	0	0
11	0	0	.01	.18	.03	.05	.03	5.30	5.02	0	0	0
12	.01	.04	.01	.01	.03	.04	.03	5.25	5.02	0	0	0
13	.01	.02	.01	0	.03	.04	.03	5.27	5.02	0	0	0
14	.01	0	.02	0	.03	.04	.02	5.30	5.02	0	0	0
15	.01	0	.02	0	.03	.05	.03	5.28	5.02	0	0	0
16	.02	0	.03	0	.03	.06	.03	5.25	5.01	0	0	0
17	.02	0	.03	0	.06	.08	.03	5.18	4.98	0	0	0
18	.02	0	.03	0	.05	.08	.04	5.18	4.97	0	0	0
19	.03	0	.03	0	.04	.07	.04	5.29	4.96	0	0	0
20	.03	0	.03	0	.04	.06	.04	5.36	4.94	0	0	0
21	.03	0	.13	0	.04	.05	.03	5.21	4.92	0	0	0
22	.04	0	.04	0	.04	.05	.03	5.14	4.88	0	0	0
23	4.47	0	.02	0	.04	.06	.02	5.08	4.80	0	0	0
24	.01	.12	.02	0	.04	.06	.03	5.02	4.79	0	0	0
25	.02	.03	.02	0	.04	.06	.03	4.98	4.79	0	0	0
26	.02	0	.02	0	.03	.03	.04	4.93	4.79	0	0	0
27	.02	0	.02	.35	.03	.03	.06	4.86	4.79	0	0	0
28	.03	0	.02	.31	.03	.03	.05	4.80	4.80	0	0	0
29	.03	0	.04	.07	------	.03	.05	4.68	4.81	0	0	0
30	.04	0	.04	.04	------	.03	.04	4.59	4.66	0	0	0
31	.05	------	.04	.03	------	.03	------	4.53	------	0	0	------
Total	4.92	0.45	51.93	69.28	0.94	1.43	1.01	120.89	218.82	1.75	0	0
Mean	.16	.015	1.68	2.23	.034	.046	.034	3.90	7.29	.056	0	0
Max	4.47	.12	26.9	29.9	.06	.08	.06	5.36	29.1	1.65	0	0
Min	0	0	0	0	.02	.03	.02	.02	4.42	0	0	0
Acre-Ft	9.8	.88	102	137	1.9	2.9	2.0	238	434	3.5	0	0

Wtr Year 2002	Total	471.42	Mean	1.29	Max	29.9	Min	0	Acre-Ft	932
Cal Year 2001	Total	2363.17	Mean	7.53	Max	126	Min	0	Acre-Ft	4690

Enclosure D5

Los Angeles County Dept of Public Works

USDAY V30 Output 10/24/2002

Summary Report

Station: E285 Burbank-Western Storm Drain
USGS #:
Beginning Date: 10/01/2001
Ending Date: 09/30/2002

Daily Mean Discharge in Cubic feet/second Water Year Oct 2001 to Sep 2002

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	11.5	13.0	11.5	9.68	11.6	9.64	9.45	9.31	10.4	9.55	9.87
2	11.2	11.0	11.0	11.7	9.68	13.0	9.97	9.62	9.21	10.5	9.97	9.61
3	11.8	11.4	10.2	18.4	9.53	8.47	9.48	8.95	8.95	10.3	9.88	10.3
4	12.2	11.2	8.74	16.1	9.70	8.09	9.73	8.84	9.83	9.99	9.94	10.5
5	11.3	9.86	7.90	14.3	9.73	9.18	9.77	9.14	10.2	9.85	10.9	11.4
6	12.5	10.1	7.57	12.0	9.70	12.4	9.93	9.09	10.6	9.19	10.6	10.3
7	11.8	10.3	7.44	10.4	10.0	15.7	8.40	9.05	10.4	9.42	10.4	10.6
8	10.9	10.9	7.53	8.74	10.3	8.77	9.30	9.19	10.2	10.7	10.6	9.63
9	11.0	10.8	55.7	7.46	9.99	9.69	9.86	9.14	10.5	10.6	9.91	10.6
10	11.6	10.2	74.8	6.87	9.61	8.94	9.64	9.96	10.6	10.4	10.2	14.2
11	10.2	10.3	30.1	6.03	9.74	8.84	9.83	8.65	10.7	10.2	10.2	15.6
12	10.8	98.7	17.9	4.99	9.77	9.11	10.2	8.25	10.2	11.8	10.5	16.4
13	11.0	8.76	13.8	3.99	9.62	8.79	9.78	8.65	10.6	10.8	10.3	14.9
14	11.7	8.79	11.9	6.30	10.0	10.2	10.0	10.1	10.4	10.6	10.4	15.1
15	12.1	8.90	11.5	10.3	9.89	9.02	10.4	10.5	9.29	11.6	10.7	15.2
16	11.4	9.92	10.9	12.0	9.82	9.48	10.0	10.4	10.0	10.5	10.2	13.4
17	11.5	11.1	10.9	10.6	18.0	12.5	10.0	9.52	9.74	10.4	9.66	15.4
18	11.8	11.7	10.9	10.5	9.74	10.4	10.8	8.77	10.0	10.7	9.78	12.2
19	11.3	11.0	10.9	10.6	9.46	10.3	9.86	9.00	9.78	11.1	10.6	12.0
20	12.2	12.0	92.2	10.2	9.23	9.60	9.11	28.4	10.3	10.3	10.5	12.5
21	10.3	11.3	60.1	10.7	9.76	10.5	9.15	9.71	10.6	10.2	10.0	13.0
22	9.03	10.6	11.8	10.5	9.59	10.1	9.00	9.49	9.19	10.1	10.8	12.9
23	5.35	9.79	10.9	10.0	9.78	10.3	9.03	9.99	9.23	10.2	10.5	12.3
24	11.2	175	10.9	9.40	9.21	9.39	9.22	9.80	10.8	10.1	10.4	12.5
25	11.3	83.0	10.9	8.76	9.47	9.67	8.82	9.96	11.1	10.2	10.1	12.7
26	11.8	41.2	11.2	8.73	8.82	9.79	9.09	8.94	10.3	10.6	10.7	13.0
27	12.1	25.9	17.8	115	8.80	10.5	8.97	9.23	10.2	10.8	10.3	13.1
28	11.8	19.4	10.9	10.0	10.2	10.1	8.49	10.2	10.1	11.2	10.4	20.7
29	11.3	16.4	74.7	8.64	------	9.94	8.42	9.56	9.66	11.4	10.2	19.0
30	18.3	14.9	12.8	9.28	------	9.80	8.62	9.52	9.69	10.3	11.9	12.7
31	11.1	------	10.9	9.93	------	9.46	------	9.68	------	9.32	10.3	------
Total	353.38	705.92	667.78	413.92	278.82	313.63	284.51	310.75	301.68	323.77	320.39	391.61
Mean	11.4	23.5	21.5	13.4	9.96	10.1	9.48	10.0	10.1	10.4	10.3	13.1
Max	18.3	175	92.2	115	18.0	15.7	10.8	28.4	11.1	11.8	11.9	20.7
Min	5.35	8.76	7.44	3.99	8.80	8.09	8.40	8.25	8.95	9.19	9.55	9.61
Acre-Ft	698	1400	1330	822	549	623	565	616	595	642	637	777

Wtr Year 2002	Total	4666.16	Mean	12.8	Max	175	Min	3.99	Acre-Ft	9250
Cal Year 2001	Total	8243.20	Mean	22.6	Max	415	Min	5.35	Acre-Ft	16360

Los Angeles County Dept of Public Works

USDAY V30 Output 10/24/2002

Summary Report

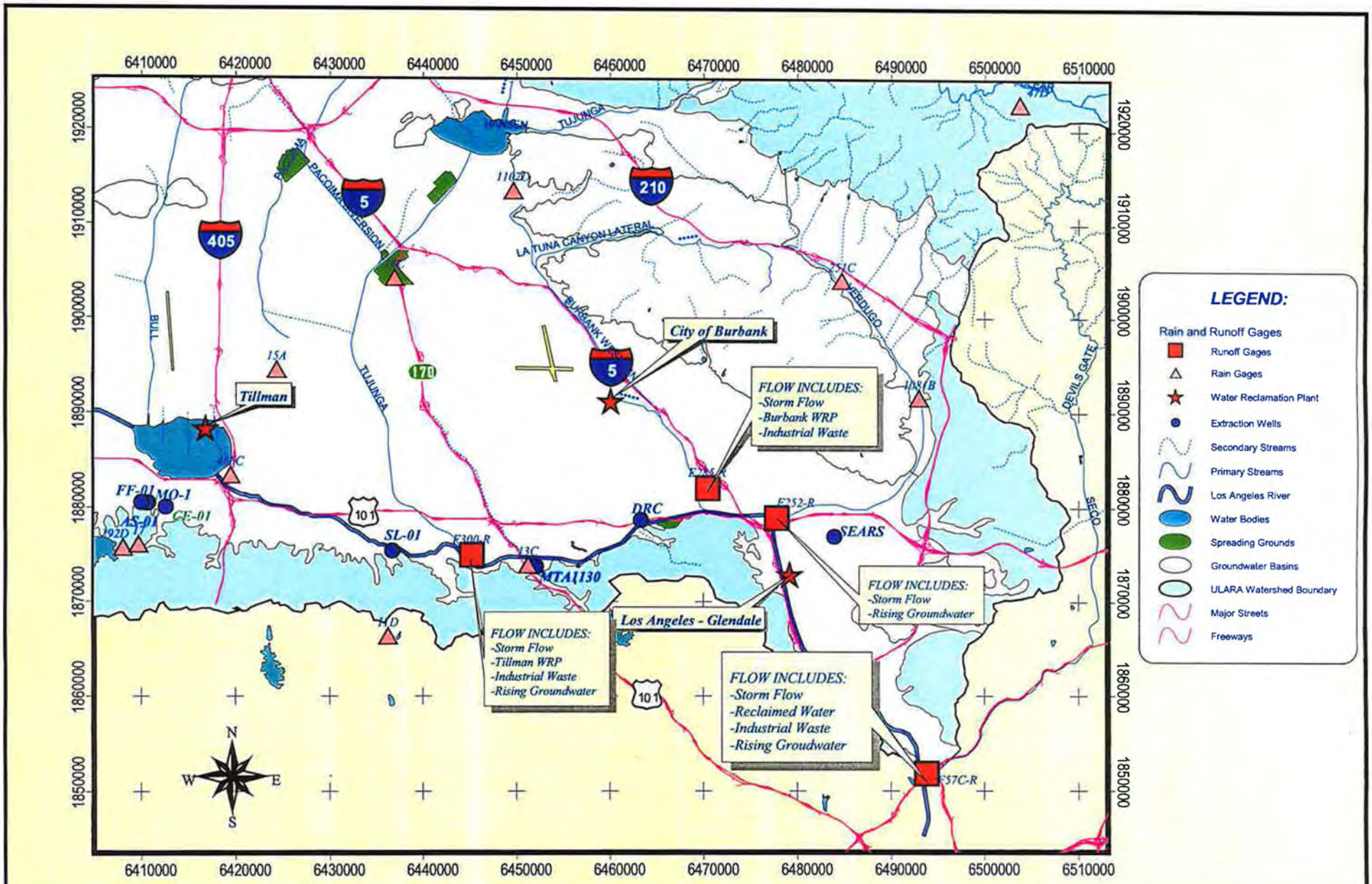
Station: F252 Verdugo Wash At Estelle Avenue
USGS #:
Beginning Date: 10/01/2001
Ending Date: 09/30/2002

Daily Mean Discharge in Cubic feet/second Water Year Oct 2001 to Sep 2002

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.24	16.9	10.1	4.82	5.16	6.47	5.64	4.88	7.99	11.4	6.24	10.3
2	6.24	3.90	5.64	4.24	2.22	8.63	6.77	5.53	6.11	12.0	6.24	8.57
3	6.24	3.90	10.3	5.68	1.17	9.12	9.07	5.98	5.42	12.0	6.24	7.07
4	6.24	3.90	7.82	3.99	.64	9.61	6.42	5.77	5.47	11.7	6.24	9.00
5	6.29	3.90	5.94	3.20	1.18	9.98	5.89	4.77	6.22	11.7	6.76	8.24
6	7.10	3.90	5.06	3.21	1.07	19.3	5.60	4.93	6.68	12.0	7.04	9.96
7	7.10	3.90	4.65	2.73	1.17	13.9	12.5	5.22	7.10	12.0	5.42	12.2
8	7.10	3.90	4.65	1.46	.88	9.07	13.5	6.11	6.61	12.0	5.72	12.0
9	7.10	3.90	25.9	1.81	1.81	8.29	13.3	5.51	5.42	10.9	4.65	12.0
10	7.10	3.90	53.9	1.98	3.02	9.58	13.1	5.09	5.42	11.0	4.23	12.0
11	7.10	4.14	22.9	3.43	2.77	8.01	12.6	5.42	5.41	12.0	3.47	12.0
12	7.10	137	9.78	8.21	3.30	7.68	10.2	5.11	6.46	11.2	3.21	10.5
13	7.10	82.7	4.99	8.26	3.47	6.37	9.52	4.65	6.82	11.5	4.01	11.5
14	7.10	32.5	3.35	7.01	2.66	6.18	8.84	5.35	4.18	12.0	12.7	12.0
15	7.10	17.9	2.54	7.56	2.36	6.98	12.7	6.14	3.90	12.0	14.2	16.1
16	7.10	14.0	1.94	12.2	2.21	6.57	7.46	7.99	3.90	12.0	10.3	14.1
17	7.10	13.3	2.34	4.56	23.0	25.5	7.24	7.99	3.90	11.5	7.97	12.1
18	7.10	12.8	.32	5.27	2.19	12.9	7.09	7.99	3.90	10.9	9.91	12.0
19	7.10	12.0	.70	5.98	2.61	7.64	8.20	8.72	3.90	12.6	9.73	11.8
20	7.10	11.1	69.8	7.10	5.10	8.17	9.90	10.0	3.90	13.3	4.72	11.6
21	7.10	10.9	150	7.93	6.77	8.59	10.2	8.10	4.39	12.0	6.24	10.1
22	11.2	10.9	23.4	7.61	8.35	11.5	10.2	5.95	4.65	12.2	6.24	8.10
23	18.4	10.2	9.33	6.96	8.32	12.4	9.37	5.42	3.97	13.1	4.60	8.01
24	18.9	265	4.43	9.62	9.30	11.0	9.79	5.42	3.04	12.5	3.53	8.21
25	18.9	48.5	3.20	8.74	9.06	10.5	5.89	5.31	9.91	9.91	2.57	8.77
26	18.9	16.5	3.21	7.64	5.98	9.26	4.13	4.60	9.91	7.42	2.57	8.75
27	18.9	10.1	2.70	126	8.19	8.70	4.29	4.65	9.91	5.42	2.70	6.39
28	18.9	6.59	2.57	20.2	7.84	8.84	4.25	4.65	9.91	5.42	2.85	22.7
29	18.9	7.12	5.05	7.73	------	7.96	3.85	3.56	9.91	5.42	3.49	23.9
30	19.4	7.82	7.10	8.11	------	5.56	4.28	5.60	9.91	5.42	3.83	5.56
31	21.1	------	6.46	7.15	------	4.94	------	7.99	------	5.88	7.56	------
Total	328.35	783.07	470.07	320.39	131.80	299.20	251.79	184.40	184.22	330.39	185.18	335.53
Mean	10.6	26.1	15.2	10.3	4.71	9.65	8.39	5.95	6.14	10.7	5.97	11.2
Max	21.1	265	150	126	23.0	25.5	13.5	10.0	9.91	13.3	14.2	23.9
Min	6.24	3.90	.32	1.46	.64	4.94	3.85	3.56	3.04	5.42	2.57	5.56
Acre-Ft	644	1550	932	633	262	594	499	367	368	660	364	665

Wtr Year 2002	Total	3804.39	Mean	10.4	Max	265	Min	.32	Acre-Ft 7540
Cal Year 2001	Total	5001.83	Mean	13.7	Max	265	Min	.32	Acre-Ft 9930

APPENDIX C
COMPONENTS OF LOS ANGELES RIVER FLOW



2001-02 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			
2001-02 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:	120,800		E285-R :Storm, Burbank WRP, Industrial Waste
			F252-R: Storm, Rising Water
I. RECLAIMED WATER DISCHARGED TO L.A. RIVER IN ULARA			
Tillman:	44732	: Record	
L.A.-Glendale:	13305	: Record	
Burbank WRP:	7036	: Record	
Total:	**65073**		
II. INDUSTRIAL WATER and STORM FLOWS DISCHARGED TO L.A. RIVER IN ULARA			
Upstream of F300-R			
Industrial Water	103	: From F300-R separation of flow	
F168	932		
F118	408		
Storm Flows @300	19336	Storm flows less F168 and F118)	
	20779		
Between F300-R and E-285			
Disney	0	Disney Riverside Construction	
MTA	44		
Storm Drains and Unaccounted water	11764	:16.3 cfs assumes 11,764	
Headworks:	0	:pilot project record	
Western Drain:	118	: From E285-R separation of flow	
Storm Flows @285	2085		
	14011		
Between E-285 and F57C-R			
Storm Flows@ 252	2454		
Irrigation and Industrial Flows	4086	:From F252-R separation of flow	
Glendale Operable Unit	1760		
Sycamore Canyon	1100	Estimated from historic flows	
Storm Drains and Unaccounted water	9410	:13 cfs assumes 9,410	
	18810		
Total Part II	**53600**		
III. RISING WATER IN L.A. RIVER IN ULARA			
Total:	2127	: 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. umhos/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	2002FY	848	8.3	57	23.5	80	3.9	0	146	182	79	13	0.23	0.13	511	241
LA Aqueduct Influent	5/14/02	373	8.1	29.8	6.6	36.5	4.5	0	156	34.1	22.6	-	0.65	0.59	264	94.8
LA Aqueduct/MWD Filtration Plant Influent	8/21/02	437	8.2	26.4	9.6	49	4.2	0	138	34.6	46.9	0.39	0.49	-	254	90.3
State Water Project at Joseph Jensen Filtration Plant (Influent)	2002FY	574	8.3	27	14.5	62	3	0	108	60	79	2.5	0.14	0.23	316	127
Surface Water																
Tillman Rec. Plant Discharge to LA River	2002FY	-	7.1	36.2	13.5	78	17	-	-	108	131	1.1	0.91	0.8	605	156
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 Treatment Plant Station R-7	02 - 05/200(	1123	8.0	-	-	-	-	-	-	207	104	4.9	-	-	712	336
LA/Glendale Rec. Plant Discharge to LA River	2002FY	-	7.2	53	20	110	19	-	-	142	153	2.3	0.36	0.8	694	223
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. 35)	9/26/01	630	7.6	89.3	19.5	28.5	3.9	0	301	60	20.3	10.4	0.5	300	462	274
3841C (Burbank No. 7)	5/8/01	573	7.7	60.6	13.4	35.5	3.5	ND	192	58.4	33.4	17.7	0.4	-	375	207
Glendale OU Average of North Wells	2/3/00	540	7.6	96	26	37	4.2	0.63	260	129	50	7	ND	0.15	492	348
(San Fernando Basin - L.A. Narrows)																
3959E (Pollock No. 6)	7/26/01	922	7.2	92.2	33.4	52.2	2.33	0	266	122	75.4	43.3	0.28	0.34	514	364
(Sylmar Basin)																
4840J (Mission No. 5)	6/27/02	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)	3/20/00	475	8.0	52	10	34	4.3	1.2	184	50	21	18	0.25	-	290	173
(Verdugo Basin)																
3971 (Glorietta No. 3)	3/8/02	947	6.6	91.5	32.6	40.2	3	ND	176	139	84.8	42.5	10.3	-	615	363
5069F (CVWD No. 14)	2/5/02	790	6.7	93	32	34	2.5	ND	220	100	64	53	0.32	ND	490	340

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.	Brian Thorne	Northridge CA	R	April, 1999
10	Menasco	Dan Landeck	Burbank, CA	R	October 31, 2001
11	Home Depot	Karen Arteaga	Burbank, CA	R	March 19, 2001
12	Drilube	Michael Moone	Glendale, CA	R	March 29, 2002
13	PRC-Desoto (Courtald)	Christer Sorenson	Glendale, CA	R	August 22, 2002
14	Honeywell (Allied Signal)	Benny Dehghi	North Hollywood, CA	R	February 21, 2003

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
NOTICE TO COURT re
ULARA WATERMASTER RESIGNATION

NOSSAMAN, GUTHNER, KNOX & ELLIOTT, LLP
Frederic A. Fudacz (SBN 050546)
Alfred E. Smith (SBN 186257)
445 South Figueroa Street
Thirty-First Floor
Los Angeles, California 90071
Telephone: (213) 612-7800
Facsimile: (213) 612-7801

Attorneys for Upper Los Angeles River Area Watermaster

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

THE CITY OF LOS ANGELES, Plaintiff, v. CITY OF SAN FERNANDO, et al., Defendants.	Case No. C650 079 ASSIGNED TO THE HONORABLE SUSAN BRYANT-DEASON, DEPT. 52 **NOTICE OF COURT-APPOINTED WATERMASTER PLANNED RESIGNATION AND CONTINUING CONSULTING SERVICES**

I, Melvin L. Blevins, hereby provide notice to the Court of my intention to resign my position as Watermaster for the Upper Los Angeles River Area ("ULARA") effective August 31, 2003. In accordance with the Judgment, this Notice serves to inform the Court of this upcoming transition. As set forth in the letter attached hereto as Exhibit "1," this Notice is further intended to inform the Court of my continuing services to the Watermaster office as a consultant.

A petition, which includes the Watermaster Administrative Committee's recommendation for the next duly appointed Watermaster, will be timely filed for this Court's approval.

Dated: February 21, 2003

Melvin L. Blevins
Watermaster
Upper Los Angeles River Area

UPPER LOS ANGELES RIVER AREA WATERMASTER

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

MELVIN L. BLEVINS – WATERMASTER

OFFICE LOCATION:
111 North Hope Street, Room 1472
Los Angeles, CA 90012
TELEPHONE: (213) 367-1020
FAX: (213) 367-1131

MAILING ADDRESS:
ULARA WATERMASTER
P.O. Box 51111, Room 1472
Los Angeles, CA 90051-0100

February 21, 2003

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

Re: City of Los Angeles v. City of San Fernando, Los Angeles Superior Court Case No. 650079

Dear Judge Bryant-Deason:

Please be advised that I intend to resign my position as Watermaster for the Upper Los Angeles River Area ("ULARA") effective August 31, 2003. Having served as the court-appointed Watermaster for 24 years, and based upon the experience, job knowledge, and working relationships accumulated during these many years of service, I have agreed to assist in the transition to the next duly appointed Watermaster.

I have already executed Agreement No. 47135-2, wherein I agreed to serve as consultant on Watermaster activities through August 31, 2004. Based upon discussions with representatives of the Watermaster Administrative Committee, I further intend to provide future Watermaster consulting services beyond August 31, 2004, on a continuing basis, as needed.

My most pressing concern at this time is to provide continuity of knowledge, experience, and vision within the ULARA Watermaster Office during the next critical years. To that effect I have recommended and the Administrative Committee has approved, subject to the Court's approval, the succeeding ULARA Watermaster, an individual who has served as Assistant ULARA Watermaster these past three years. Other key members of the team have indicated their willingness to continue in their roles for the next several years. I count the services of the current Special Counsel as key to maintaining the credibility of the ULARA Watermaster Office in this transition.

The Office of ULARA Watermaster is more than one individual. Any success in enforcing the San Fernando Judgment has been the result of a team of individuals committed to a single goal over many years. It is my hope that the energy and vision of this group going back to 1979 will continue into the distant future.

Thank you for your continuing service in overseeing and supervising the management of water rights and water quality within the ULARA.

Sincerely,

Melvin L. Blevins
ULARA Watermaster

EXHIBIT 1

APPENDIX G
CRESCENTA VALLEY WATER DISTRICT

CRESCENTA VALLEY WATER DISTRICT and THE CITY OF GLENDALE

- Joint Transmittal -

June 5, 2002

Mr. Mel Blevins, Watermaster
ULARA
P.O. Box 51111, Room 1463
Los Angeles, CA 90051-0100

SUBJECT: **VERDUGO BASIN EVALUATION**

As a follow-up to our May 29th meeting we are requesting that the Watermaster's office evaluate the Verdugo Basin to determine if a system of stored water credits might be feasible.

The aforementioned meeting was very informative and useful as a result of the open discussion regarding the Verdugo Basin and water supply issues in general. We value your input as well as Mark Mackowski's and appreciate the offer to further analyze the Basin's potential for better water supply management. Several of the ideas discussed at the meeting certainly seem worthy of further study, such as increased natural or artificial recharge.

We look forward to working cooperatively with the Watermaster's office on this evaluation. Please let us know if we can provide any additional information at this time.

Very Truly Yours,

CRESCENTA VALLEY WATER DISTRICT

Michael G. Sovich
General Manager

GLENDALE WATER AND POWER

Don Froelich
Water Services Administrator

MGS/DF:mnz

APPENDIX H
CITY OF LOS ANGELES

Department of Water and Power the City of Los Angeles

JAMES K. HAHN
Mayor

Commission
KENNETH T. LOMBARD, *President*
DOMINICK W. RUBALCAVA, *Vice President*
ANNIE E. CHO
MARY E. LESLIE
SID C. STOLPER
JOHN C. BURMAHLN, *Secretary*

DAVID H. WIGGS, *General Manager*
FRANK SALAS, *Chief Operating Officer*

September 20, 2002

Mr. Melvin Blevins
ULARA Watermaster
111 North Hope Street, Room 1472
Los Angeles, CA 90012

Dear Mr. Blevins:

The Los Angeles Department of Water and Power's (LADWP's) goal is to pump 2,000 acre feet (AF) annually from the Pollock Well Field in order to reduce the loss of excess rising groundwater. LADWP will only be able to pump approximately 1,500 AF during this water year. LADWP is unable to meet its goal for the 2001-2002 Water Year for two reasons: 1) manufacturing delays in replacing a booster pump impeller that caused an extended shut down of one well of the Pollock Well Field in the winter of 2001-2002; and 2) the possibility that heavy pumping in the last months of the Water Year followed by a continuous pumping during the winter season of the Water Year 2002-2003 may cause the migration of the volatile organic compounds (VOC) plume toward the well field.

The following plan is proposed:

- Pumping will not occur until November 1, 2002 to allow the groundwater to recover.
- Pumping will resume in November for six months with anticipated production of 2,500 AF in the 2002-2003 Water Year.

111 North Hope Street, Los Angeles, California ☐*Mailing address:* Box 51111, Los Angeles 90051-0100
Telephone: (213) 367-4211 *Cable address:* DEWAPOLA *FAX:* (213) 367-3287

If you have any questions, please contact Mr. Hadi S. Jonny at (213) 367-0905. Thank you for your assistance and consideration of these unforeseen circumstances.

Sincerely,

Thomas M. Erb
Director of Water Resources

c: Mr. Hadi S. Jonny

APPENDIX I
WELLS DRILLED OR ABANDONED

WELLS DRILLED OR ABANDONED

2001-02 WATER YEAR

1. City of Glendale

The decommissioning of the Glendale Grandview Wells was completed in December 2002 with the decommissioning of Grandview Well No. 1 (3913), Grandview Well No. 2 (3913A), Grandview Well No. 14 (3903N), and Grandview Well No. 15 (3913G).

Six former Glendale production wells were decommissioned by Disney in November 2001 and reported in the May 2002 Watermaster Report: Grandview Well No. 6 (3913F), Grandview Well No. 7 (3914N), Grandview Well No. 11 (3903A), Grandview Well No. 12 (3914C), Grandview Well No. 13 (3903M), and Grandview Well No. 16 (3913H).

2. Crescenta Valley Water District

CVWD Well No. 15 was placed in service.

APPENDIX J
ACTION ITEMS 2002-2003

ACTION ITEMS

WATERMASTER ACTIVITIES FOR 2002-2003 WATER YEAR

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

- Continue to keep the parties informed regarding current and future water quality issues such as chromium 6; 1,2,3 TCP; and other contaminants.

- Continue to represent the Watermaster Office on various committees such as the Sun Valley Watershed Committee, the Los Angeles and San Gabriel Rivers Watershed Council, and the Los Angeles City Ad Hoc Committee on the Los Angeles River to support and promote the goals of the parties and the overall health of the basins within ULARA.

- Attend seminars and meetings of technical groups such as the Association of Groundwater Agencies (AGWA) 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.

- Investigate ways to maximize conjunctive use in the Verdugo Basin.

- Continue to investigate the unauthorized use of groundwater in unincorporated areas of ULARA.

- Facilitate the ongoing cleanup of groundwater contamination in the SFB.

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