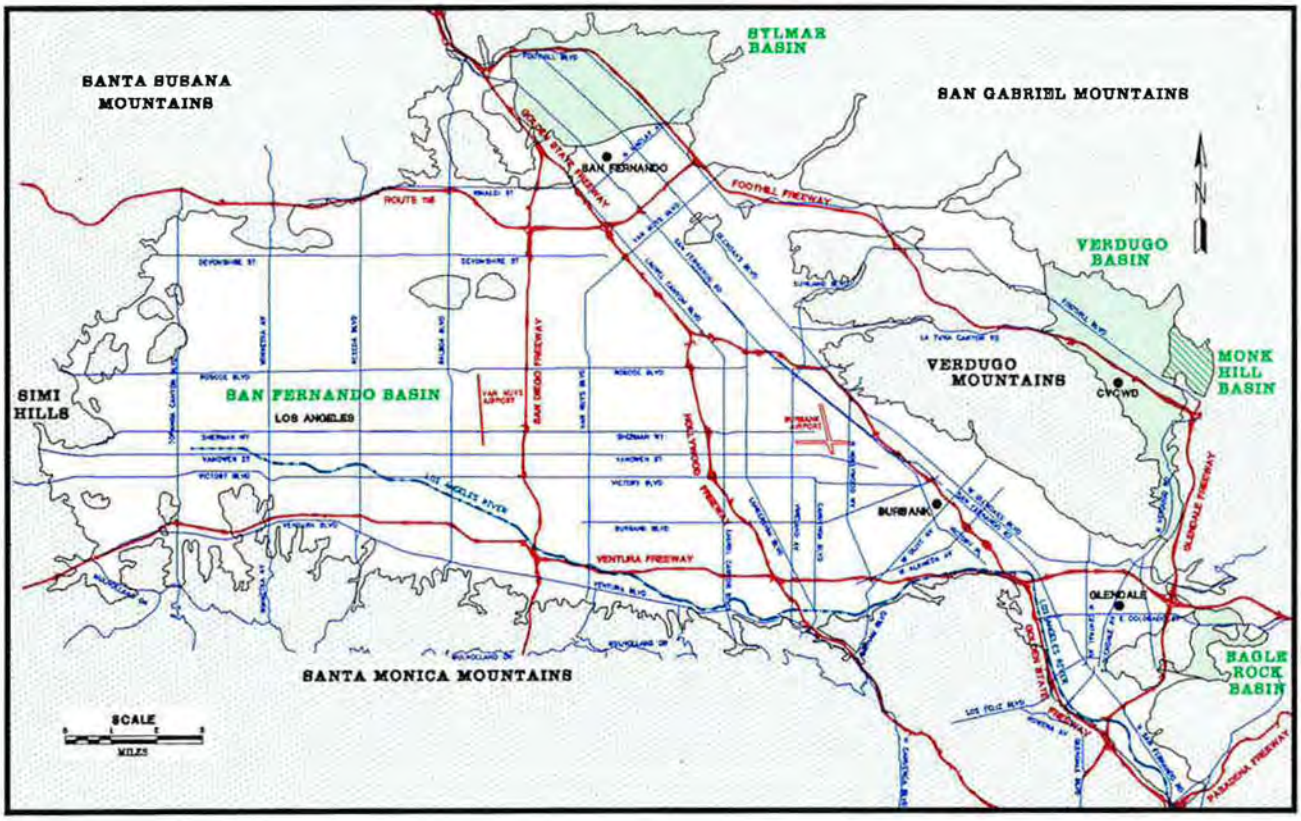
UPPER LOS ANGELES RIVER AREA WATERMASTER

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

2000-2001 WATER YEAR
OCTOBER 1, 2000 - SEPTEMBER 30, 2001



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MAY 2002

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, 2001. 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 2000-2001 Water Year pursuant to the provisions of the Judgment.

Updates on the development of "Significant Events" through April 2002 are discussed in Section 1.5. These include chromium contamination in the San Fernando Basin, the challenges presented by urban runoff, and the successful resolution of issues surrounding the discharge of treated water from the Glendale Operable Unit.

Other matters under investigation include the presence of unauthorized pumpers within ULARA, and dewaterers in the westerly end of the San Fernando Valley.

To provide groundwater quality management for the ULARA basins, the Watermaster and Administrative Committee met on a quarterly basis during 2000-2001. As provided in Section 5.4 of the ULARA Policies and Procedures, the sixth ULARA Groundwater Pumping and Spreading Plan was completed and filed with the court in July 2001.

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's (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 to 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 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 and Import Return 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 acre-feet to 6,510 acre-feet per year 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 did not pump during the 1999-00 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 and Import Return Water

Glendale and the Crescenta Valley Water District (CVWD) own appropriative and prescriptive rights to extract 3,856 and 3,294 acre-feet per year, respectively. Glendale is not currently pumping its full water right. CVWD has requested and been given approval by the Watermaster and Administrative Committee to once again pump an adjusted amount above its water right amount for the 2001-2002 Water Year (Appendix F). The water pumped by CVWD under these conditions is considered surplus water in the Verdugo Basin. Permission to pump this surplus water a year at a time does not form the basis for an appropriative right nor a prescriptive right against Glendale (Appendix F). CVWD pumped 133 acre-feet above its water right during the 2000-01 Water Year.

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 acre-feet per year). 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, 2002, 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
Ernest Wong (Alternate)

CRESCENTA VALLEY WATER DISTRICT
Michael Sovich
David Gould (Alternate)

The Watermaster may convene the Administrative Committee during the water year 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, February, April, June, and September of 2000-01. The Committee approved the 2000-01 Watermaster Report on April 17, 2002.

1.5 Significant Events through April 2002

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 Lockheed 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. Design and operational changes are bringing the facility back up to maximum capacity. During the 2000-01 Water Year 9,133 AF of groundwater were treated at the facility and served to Burbank's customers. Burbank is reducing the concentration levels of hexavalent chromium in its groundwater supply by blending with imported supplies from MWD.

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 acre-feet, was discharged to the Los Angeles River between September 26, 2000 and December 31, 2001. In February 2002 Glendale signed a stipulation agreeing to no longer discharge treated water to the river. Glendale also reduces hexavalent chromium levels by blending with imported MWD supplies.

Verdugo Park Water Treatment Plant

The City of Glendale Verdugo Park Water Treatment Plant for the treatment of turbidity and bacteria now is running at 500 gpm instead of the expected 700 gpm. Methods to increase the efficiency of Glendale's wells or their replacement are being investigated.

Glenwood Nitrate Removal Plant

CVWD Glenwood Nitrate Removal Plant processed 989 acre-feet during 2000-01 Water Year.

East Valley Water Recycling Project

The East Valley Water Recycling Project (EVWRP) was originally designed to deliver tertiary treated recycled 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 EVWRP was designed to ultimately deliver up to 32,000 acre-feet per year including groundwater recharge and other uses. The

Los Angeles Department of Water and Power (LADWP) has stopped work on the groundwater recharge portion to focus on the non-potable (irrigation, industrial, commercial) aspects of the EVWRP. The Hansen Area Water Recycling Project Phase I, scheduled to be on line 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 that is still in a pre-design stage 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 Spreading Grounds

LADWP is investigating the possibility of developing a multiobjective 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 focusing on diverting stormwater flows that would otherwise be lost to the ocean for recharge. 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. A Feasibility Study of the project is expected to commence in late 2002.

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 has indicated that the recently established State Action Level for 1,2,3 trichloropropane of 5 parts-per-trillion and the presence of this compound within the ten-year capture zone of the Headworks project would require additional treatment than that already planned. As a result, LADWP has 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.

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 acre-feet 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. In August 2002 MTA will begin construction of a pedestrian underpass at the Universal Subway Station that will require long-term dewatering (Appendix G).

Chromium

Chromium, and in particular hexavalent chromium, has taken up a great deal of time for all the water purveyors and corresponding agencies during the 2000-2001 Water Year. The focus has been on the Glendale Operable Unit. This facility began operating in September 2000, but because of the concern of the Glendale City Council, who refused to accept treated water with higher hexavalent chromium levels than currently distributed MWD water, the treated water was discharged to the Los Angeles River. Subsequently, Glendale agreed to stop the discharges.

In February 1999, the Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency (OEHHA) formally adopted the 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. The MCL is the drinking water standard established by the DHS after a lengthy process which considers numerous factors including health risk, cost to treat, and the feasibility to meet the new standard. Hexavalent chromium is a known carcinogen when inhaled, but it is not clear among the scientists 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 ongoing National Toxicology Program study will provide definitive data regarding ingested chromium in several years.

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 was to restore the 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's 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.

Sun Valley Watershed Committee

The Watermaster's Office has been participating on the Sun Valley Watershed Committee. The objective of the group is to identify the feasibility of alternative ways to solve the local flooding problems in the Sun Valley area. 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 Watermaster is concerned about potential impacts on groundwater quality as well as conflicts with established water rights, but is working closely with the committee to resolve these issues.

Standard Urban Stormwater Mitigation Plan (SUSMP)

The Los Angeles Regional Water Quality Control Board (RWQCB) adopted SUSMP on March 8, 2000. It requires certain new developments and re-developments to control the first ¾-inch of rainfall runoff from every storm by treating or infiltrating it into the subsurface. The Watermaster is concerned that infiltrating contaminated urban runoff could have a negative effect on groundwater quality. In addition, diverting this native runoff for consumptive use may be a violation of the San Fernando Judgment. The Watermaster Office is working closely with various groups and agencies to implement SUSMP in a manner that will be protective of both water quality and water rights within ULARA.

Taylor Yard

The Union Pacific Railroad owns this large open area along the Los Angeles River Narrows. It has attracted the interest of many stakeholders including the LACDPW, the State Parks Department, and the Friends of the Los Angeles River 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. An initial draft feasibility study was completed in February 2002 and has been sent out to the stakeholders for comment.

Dewaterers

The groundwater table in parts of the SFB is near the ground surface. This circumstance in some instances requires dewatering to maintain subsurface structures. As building permits are

requested in the SFB, the Department of Building and Safety notifies the Watermaster's Office when plans are submitted that have the potential for dewatering. The Watermaster's Office reviews the plans, determines the need for short or long-term dewatering, and provides instruction for compliance. If dewatering is required, 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. Two major projects involving dewatering during the coming Water Year will include the City of Los Angeles' Northeast Interceptor Sewer Project (Appendix H) and the previously mentioned Metropolitan Transportation Authority pedestrian tunnel at the Universal Subway Station (Appendix G).

Unauthorized Pumping in County 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 set a precedent 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 also use water owned by the City of Los Angeles. The Watermaster is investigating this water usage. Information requested under the Freedom of Information Act arrived in March 2002 and is being analyzed.

1.6 Summary of Water Supply, Operations, and Hydrologic Conditions

Highlights of operations for the 1999-00 and 2000-01 Water Years are summarized in Table 1-3. Details of the 2000-01 Water Year operations and hydrologic conditions are given in

Section 2. Locations of the groundwater basins, water service areas of the parties and individual producers, and other pertinent hydrologic facilities are shown on Plates 2 through 9.

Average Rainfall

Precipitation on the valley floor area during 2000-01 was 19.52 inches, 118 percent of the calculated 100-year mean (16.48 inches); precipitation in the mountain areas was 25.05 inches, 115 percent of the calculated 100-year mean (21.76 inches).

Spreading Operations

A total of 17,939 acre-feet of water were spread, a large decrease from the 61,119 acre-feet spread during the rainy 1997-98 Water Year. Average annual spreading for the 1968-2001 period was 33,497 acre-feet.

Extractions

Total extractions amounted to 99,128 acre-feet. This is a decrease of 30,336 acre-feet from 1999-00 and approximately 101 percent of the 1968-2001 average of 98,594 acre-feet. Of the total for the 2000-01 Water Year, 2,925 acre-feet were for non-consumptive use. Appendix A contains a summary of groundwater extractions for the 2000-01 Water Year.

Imports

Gross imports (including pass-through water) totaled 560,686 acre-feet, a slight decrease of less than one percent from 1999-00. Net imports used within ULARA amounted to 310,097 acre-feet, a 24,000 acre-feet decrease from 2000-01.

Exports

A total of 306,329 acre-feet of water were exported from ULARA. Of the 306,329 acre-feet exported, 55,740 acre-feet were from groundwater extractions, and 250,589 acre-feet were from imported supplies (pass-through).

Treated Wastewater

A total of 97,015 acre-feet 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 nine percent was used as recycled water.

Recycled Water

Total recycled water used in ULARA was 8,644 acre-feet, a 200 acre-feet 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 110,412 acre-feet; 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 2000-01 decreased by 6,930 acre-feet; the total cumulative increase in groundwater storage since October 1, 1968 is 149,715 acre-feet. The 2000-01 change in storage decreased at a slower rate than past years due to reduced groundwater pumping. The change in groundwater storage for the Sylmar, Verdugo, and Eagle Rock Basins was – 6, – 4,995, and + 27 acre-feet, respectively.

Wells

In the City of Glendale, Grandview Wells No. 6, 7, 12, 13, 11, and 16 were decommissioned in November 2001. Later in the 2001-2002 Water Year, Grandview Wells No. 1, 2, 14, and 15 will be decommissioned.

TABLE 1-3: SUMMARY OF OPERATIONS IN ULARA

Item	Water Year 1999-00	Water Year 2000-01
Active Pumpers (parties and nonparties)	27	27
Inactive Pumpers (parties within valley fill)[1]	5	6
Valley Rainfall, in inches		
Valley Floor	14.84	19.52
Mountain Area	18.70	25.05
Spreading Operations, in acre-feet	14,106	17,939
Extractions, in acre-feet		
Used in ULARA	33,897	33,509
Exported from ULARA	91,044	55,740
Nonconsumptive Use	3,093	2,925
Basin Account/Testing[2]	1,087	96
Clean-up/Dewaterers	343	6,638
Total	**129,464**	**98,908**
Gross Imports, in acre-feet		
Los Angeles Aqueduct Water	273,015	258,115
MWD Water	287,979	302,571
Total	**560,994**	**560,686**
Exports, in acre-feet		
Los Angeles Aqueduct Water	123,114	126,284
MWD Water	103,090	124,305
Groundwater	91,044	55,740
Total	**317,248**	**306,329**
Net Imports Used in ULARA, in acre-feet	334,790	310,097
Reclaimed Water Use, in acre-feet	8,990	8,644
Total Water Used in ULARA, in acre-feet[3]	377,677	352,250
Treated Wastewater, in acre-feet[4]	96,982	97,015
Sewage Export to Hyperion, in acre-feet[5]	110,137	110,412

1) The five inactive pumpers are Hinkley-Schmidt (Deep Rock), Van de Kamp, Disney, Angelica, Santiago Estates.
2) Water accounted for under a testing situation or treatment facility water used for backwash.
3) Extractions used in ULARA plus Net Imports and Recycled.
4) Most treated wastewater flows to LAR, a portion to Hyperion (see T2-7), and for recycled water.
5) 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 2001-02 Water Year

Table 1-4 shows a summary of extraction rights for the 2001-02 Water Year and stored water credit as of October 1, 2001, 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 2001-02 WATER YEAR
(acre-feet)

	Native Safe Yield Credit[1]	Import Return Credit[2]	Total Native+Import	Stored Water Credit (as of Oct. 1, 2001)	Allowable Pumping 2001-02 Water Year
San Fernando Basin					
City of Los Angeles	43,660	43,941	87,601	234,270	321,871
City of Burbank	—	5,124	5,124	37,265	42,389
City of Glendale	—	5,760	5,760	73,254	79,014
Total	**43,660**	**54,825**	**98,485**	**344,789**	**443,274**
Sylmar Basin					
City of Los Angeles	3,255	—	3,255	4,360	7,615
City of San Fernando	3,255	—	3,255	1,040	4,295
Total	**6,510**	—	**6,510**	**5,400**	**11,910**
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 2000-01 Water Year experienced above average rainfall. The valley floor received 19.52 inches of rain (118 percent of the 100-year mean), while the mountain area received 25.05 inches (115 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 22.29 inches (113 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

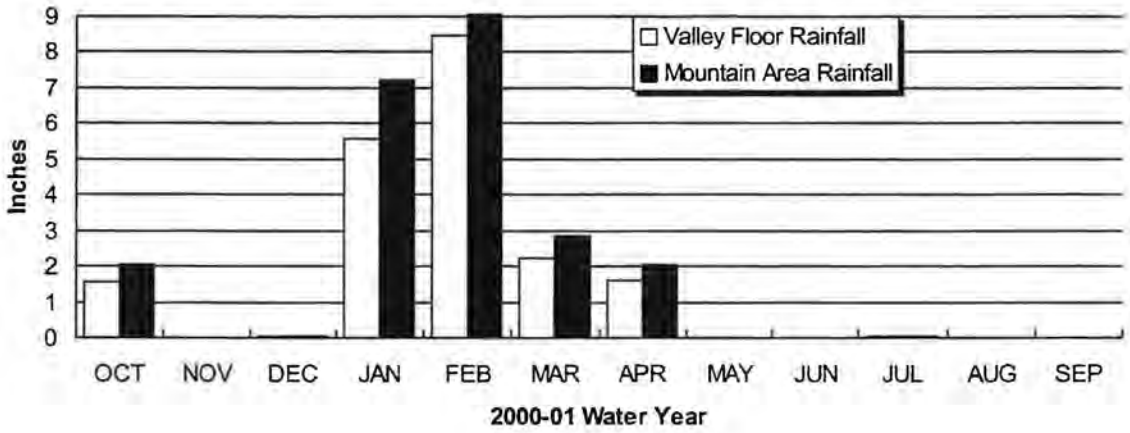


TABLE 2-1: 2000-2001 PRECIPITATION

(inches)

LACDPW Rain Gage Stations No.	Name	2000-01 Precipitation	100-Year Mean (1881-1981)	Percent of 100-Year Mean
	Valley Stations			
13C	North Hollywood-Lakeside	22.86	16.63	137%
1107D	La Tuna Debris Basin [2]	13.50	14.98	90%
465C	Sepulveda Dam	20.69	15.30	135%
21B	Woodland Hills	18.60	14.60	127%
23B	Chatsworth Reservoir	18.36	15.19	121%
25C	Northridge-LADWP	19.80	15.16	131%
251C	La Crescenta	20.26	23.31	87%
293B	Los Angeles Reservoir	21.08	17.32	122%
	Weighted Average[1]	**19.52**	**16.48**	**118%**
	Mountain Stations			
11D	Upper Franklin Canyon Reservoir	25.17	18.50	136%
17	Sepulveda Canyon at Mulholland	27.75	16.84	165%
33A	Pacoima Dam	18.62	19.64	95%
47D	Clear Creek - City School	23.61	33.01	72%
53D	Monte Cristo Ranger Station	3.89	29.04	13%
54C	Loomis Ranch-Alder Creek	13.84	18.62	74%
210C	Brand Parks	16.11	19.97	81%
797	DeSoto Reservoir[3]	19.40	17.52	111%
1074	Little Gleason	12.20	21.79	56%
	Weighted Average[1]	**25.05**	**21.76**	**115%**
	Weighted Average Valley/Mountain Areas[1]	**22.29**	**19.64**	**113%**

1. Weighted Average calculations performed according to Report of Referee-7/62. Mountain Station Weighted Average estimated due to incomplete data.
2. Station 1107 B substituted for 14C La Tuna Canyon.
3. Station 797 replaced Station 259 which has been discontinued.

2.2 Runoff and Outflow from ULARA

The drainage area 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 flow originates as storm runoff from the hills and mountains, storm 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 1999-00 and 2000-01 monthly runoff for these stations. The higher runoff in 2000-01 is related to higher rainfall than in 1999-00. The mean daily discharge rates for these six stations during 2000-01 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	1999-00	6,880	6,430	6,370	9,170	40,590	18,900	20,760	6,900	6,330	6,760	7,110	6,590	**142,790**
L.A. River	2000-01	17,910	7,520	9,110	35,060	48,500	19,670	12,140	7,730	7,840	7,790	7,810	7,680	**188,860**
Arroyo Seco														
F-252-R	1999-00	339	427	438	542	2,840	1,260	1,170	425	257	251	255	266	**8,470**
Verdugo Wash	2000-01	498	306	327	1,110	1,910	646	628	292	492	722	576	363	**7,870**
E-285-R	1999-00	685	705	629	756	2,620	1,340	1,340	716	742	760	783	756	**11,834**
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	1999-00	4,740	4,860	4,190	6,220	26,040	11,360	12,400	5,530	5,230	5,600	5,810	5,460	**97,440**
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	1999-00	3	170	127	212	1,240	1,890	989	370	382	3	1	1	**5,387**
Big Tujunga	2000-01	3	2	287	321	1,610	3,810	778	178	27	0	0	0	**7,016**
Dam														
F-118B-R	1999-00	0	68	14	0	302	414	324	706	3	0	1	0	**1,832**
Pacoima Dam	2000-01	0	266	0	154	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, 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 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 acre-feet 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 acre-feet. From 1999-00 to 2000-01, flows of rising water at Gage F-252-R was estimated at 800 acre-feet. For 2000-01 the rising groundwater flow at Gage F-57C-R was estimated at 3,100 acre-feet.

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's Office is working with the 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				F-252-R		
	Rising Groundwater	Waste Discharge	Storm Runoff	Total Outflow	Rising Groundwater	Storm Runoff	Total Outflow
2000-01	3,000	91,795	94,065	188,860	1,500	6,370	7,870
1999-00	1,980	78,009	62,202	142,190	824	4,243	8,470
1998-99	2,000	72,790	39,110	113,900	1,000	2,534	7,250
1997-98	4,000	97,681	245,079	346,730	4,000	12,140	16,140
1996-97	3,000	75,827	76,485	155,312	3,000	13,860	16,860
1995-96	3,841	86,127	61,188	151,156	2,577	10,946	13,523
1994-95	4,900	66,209	367,458	438,567	4,809	28,881	33,696
1993-94	2,952	60,594	73,149	136,695	1,387	6,156	7,543
1992-93	4,900	77,000	478,123	560,023	3,335	20,185	23,520
1991-92	3,000	120,789	197,040	320,829	1,412	13,209	14,621
1990-91	3,203	75,647	117,779	196,629	1,157	6,865	8,022
1989-90	3,000	76,789	55,811	167,639	1,182	2,938	4,120
1988-89	3,000	80,020	56,535	136,843	1,995	4,453	6,448
1987-88	3,000	81,920	74,074	156,204	3,548	10,493	14,041
1986-87	3,000	64,125	19,060	83,295	2,100	1,690	3,790
1985-86	3,880	48,370	102,840	155,090	2,470	6,270	8,740
1984-85	3,260	21,600	46,300	71,160	2,710	3,970	6,680
1983-84	3,000	17,780	49,090	69,870	4,000	n/a	n/a
1982-83	3,460	17,610	384,620	405,690	5,330	21,384	26,714
1981-82	1,280	18,180	80,000	99,460	3,710	5,367	9,077
1980-81	4,710	19,580	51,940	76,230	5,780	2,917	8,697
1979-80	5,500	16,500	n/a	n/a	5,150	7,752	12,902
1978-79	2,840	16,450	119,810	139,100	2,470	n/a	n/a
1977-78	1,331	7,449	357,883	366,663	1,168	23,571	24,739
1976-77	839	7,128	58,046	66,013	1,683	2,635	4,318
1975-76	261	6,741	32,723	39,725	2,170	2,380	4,550
1974-75	427	7,318	56,396	64,141	1,333	4,255	5,588
1973-74	2,694	6,366	79,587	88,878	1,772	5,613	7,385
1972-73	4,596	8,776	100,587	113,959	1,706	7,702	9,408
1971-72	—	—	—	—	2,050	2,513	4,563

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 operated by the LACDPW are utilized for spreading native water and imported water. Table 2-4 summarizes the spreading operations for the 2000-01 Water Year, and Plate 7 shows the locations of the spreading basins.

TABLE 2-4: 2000-2001 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	83	13	15	115	80	35	119	19	21	22	21	19	562
	Hansen	0	0	200	1,041	2,432	5,048	2,628	345	0	0	0	0	11,694
	Lopez	0	0	0	0	0	136	36	0	0	0	0	0	172
	Pacoima	88	125	0	708	1,231	1,446	228	0	0	0	0	0	3,826
	Tujunga	0	0	0	82	415	330	32	123	417	134	90	62	1,685
	Total	171	138	215	1,946	4,158	6,995	3,043	487	438	156	111	81	17,939
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	171	138	215	1,946	4,158	6,995	3,043	487	438	156	111	81	17,939

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 acre-feet per water year. This amounted to a reduction of approximately 50,000 acre-feet 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.

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 acre-feet per year, in contrast to the past 32 years (1968-69 to 2000-01) where imports have exceeded extractions by 110,000 to 250,000 acre-feet per year (Refer to Figure 2.3 - Monthly Extractions and Imports).

A total of 99,128 acre-feet were pumped from ULARA during the 2000-01 Water Year - 86,946 acre-feet from the SFB, 6,301 acre-feet from the Sylmar Basin, 5,649 acre-feet from the Verdugo Basin, and 231 acre-feet from the Eagle Rock Basin. The respective safe yield values for the 2000-01 Water Year were 101,667 acre-feet (Native Safe Yield of 43,660 plus an import return of 58,007 acre-feet) for the SFB; 6,510 acre-feet for the Sylmar Basin; and 7,150 acre-feet for the Verdugo Basin. Appendix A contains a summary of groundwater extractions for the 2000-01 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 (86,946 acre-feet), 82,327 acre-feet constitutes extractions by Parties to the Judgment; 2,925 acre-feet constitutes nonconsumptive use; and 7,848 acre-feet were used for physical solutions, groundwater cleanup, testing/well development, and dewatering parties (Appendix E). Table 2-5 summarizes 2000-01 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.

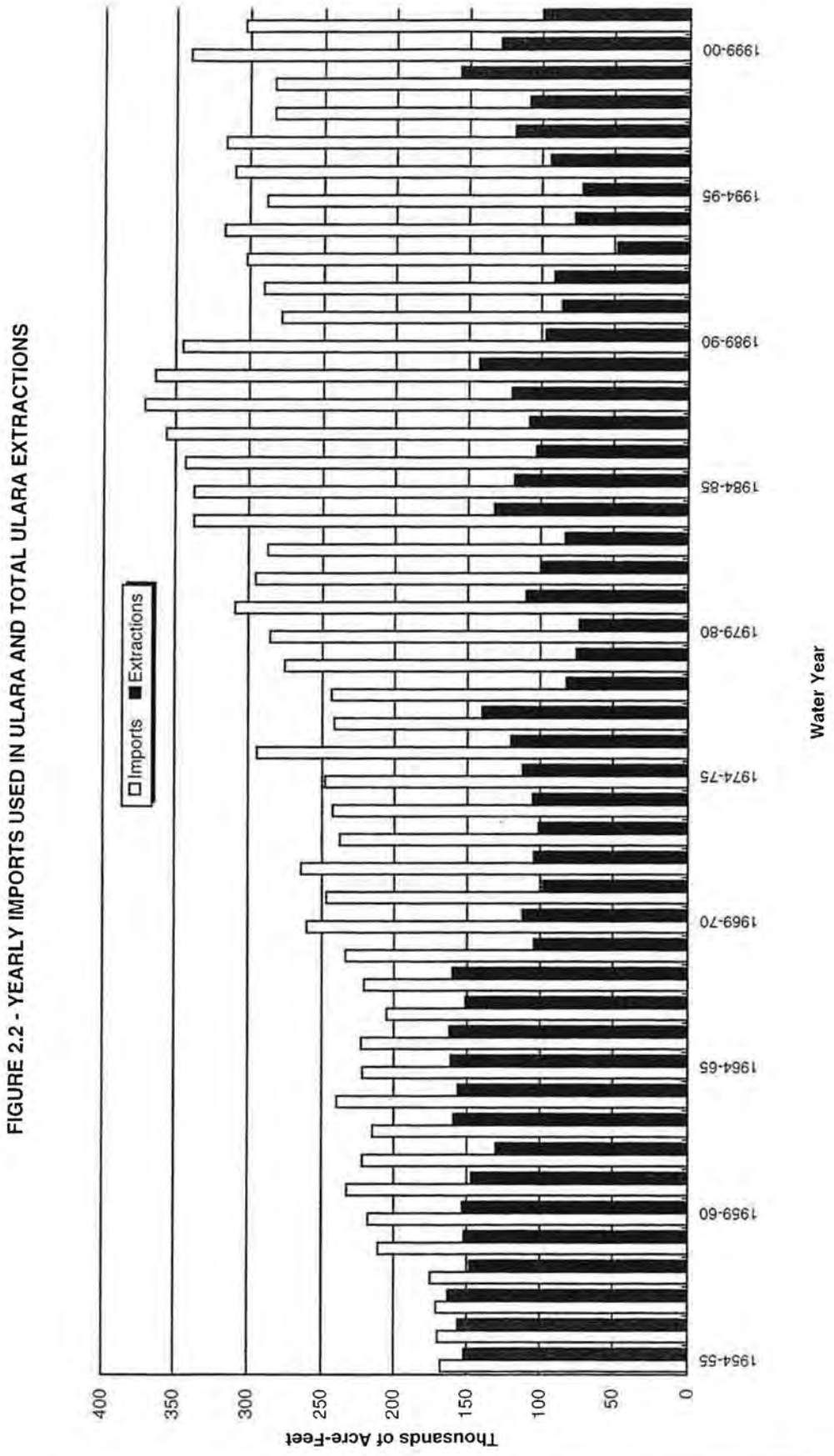


FIGURE 2.2 - YEARLY IMPORTS USED IN ULARA AND TOTAL ULARA EXTRACTIONS

TABLE 2-5: 2000-01 PRIVATE PARTY PUMPING - SAN FERNANDO BASIN

(acre-feet)

Nonconsumptive Use or Minimal Consumption		Groundwater Dewatering	
CalMat (Gravel washing)	2,866	Auto Stiegler (Charged to Los Angeles' water rights)	5
Sears, Roebuck and Company (Air Conditioning)	50	First Financial Plaza Site (Charged to Los Angeles' water rights)	36
Sportsmen's Lodge	0	Trillium Corporation (Charged to Los Angeles' water rights)	40
Toluca Lake Property Owners (Lake overflows to LA River)	10	Metropolitan Transportation Autho (Charged to Los Angeles' water rights)	45
Walt Disney Productions (3 wells inactive/ Not abandoned.)	0	Metropolitan Water District (MWD) (Charged to Los Angeles' water rights)	202
Total	**2,925**	**Total**	**329**
Groundwater Cleanup		**Physical Solution**	
Burbank GAC (GAC restart to Basin Account)	8	Angelica Healthcare Services (Well Abandoned 12/97)	0
Lockheed-Burbank Operable Unit (GAC restart to Basin Account)	88	Vulcan-Calmat (Charged to Los Angeles' water rights; Amount of return in excess = 106.76)	318
Glendale OU (Discharge to LAR charged to Glendale's water rights.	6,227	Forest Lawn Cemetery Assn. (Charged to Glendale's water rights)	350
Raytheon (Hughes) (Charged to Los Angeles' water rights)	5	Hathaway (deMille) (Charged to Los Angeles' water rights)	37
Micro Matics USA, Inc. (Charged to Los Angeles' water rights)	4	Middle Ranch (deMille) (Charged to Los Angeles' water rights)	17
Mobil Oil Corporation (Charged to Los Angeles' water rights)	3	Sportsmen's Lodge (Charged to Los Angeles' water rights)	0
3M-Pharmaceutical (Charged to Los Angeles' water rights)	70	Toluca Lake Property Owners (Charged to Los Angeles' water rights)	30
		Valhalla Memorial Park (Charged to Burbank's water rights)	407
		Waterworks District No. 21 (Charged to Los Angeles' water rights)	26
		Wildlife Waystation (Charged to Los Angeles' water rights)	2
Total	**6,404**	**Total**	**1,188**
Total Extractions	**10,845**		

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 1999-00 and 2000-01 Water Years, and Figure 2.3 shows the monthly extractions and imports.

FIGURE 2.3 - TOTAL MONTHLY EXTRACTIONS AND GROSS IMPORTS

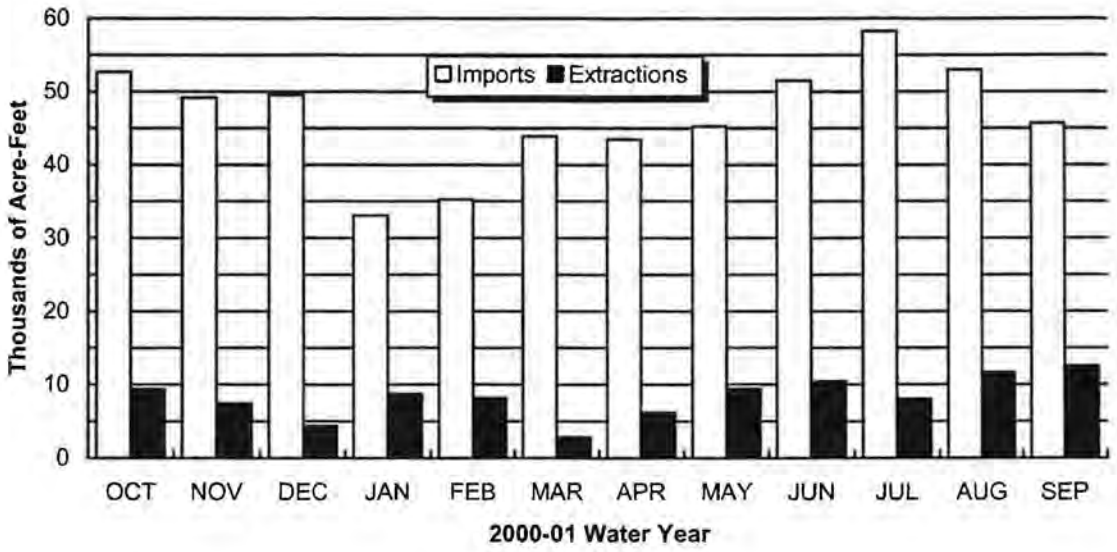


TABLE 2-6: ULARA NONTRIBUTARY WATER IMPORTS AND EXPORTS

(acre-feet)

Source and Agency	Water Year 1999-00	Water Year 2000-01
Gross Imported Water		
Los Angeles Aqueduct		
City of Los Angeles	273,015	258,115
MWD Water		
City of Burbank	10,471	12,447
Crescenta Valley Water District	2,186	2,002
City of Glendale	29,835	28,688
City of Los Angeles[1]	234,339	251,028
La Canada Irrigation District[1]	1,317	1,202
Las Virgenes Municipal Water District[1]	7,820	7,204
City of San Fernando	0	0
Total	**285,968**	**302,571**
Grand Total	**558,983**	**560,686**
Exported Water (Pass-Through)		
Los Angeles Aqueduct		
City of Los Angeles	129,585	126,284
MWD water		
City of Los Angeles	108,562	124,305
Total	**238,147**	**250,589**
Net Imported Water	**320,836**	**310,097**

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. Six 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 2000-01 reclamation plant operations, and Plate 6 shows their location.

TABLE 2-7: 2000-01 WASTEWATER RECYCLING OPERATIONS
(acre-feet)

Plant/Agency	Treated Water	Water Discharged to L.A. River	Water Discharged to Hyperion	Recycled Water
City of Burbank	9,120	6,966	4,011	2,732 [1]
Los Angeles-Glendale	18,622	12,157	1,673	3,996 [2]
Donald C. Tillman	69,208	57,458	11,134	616 [3]
Indian Hills Mobile Homes	—	—	—	20 [4]
The Independent Order of Foresters	65	0	0	65 [4]
Las Virgenes MWD	—	0	0	1,215 [5]
Total	**97,015**	**76,581**	**16,818**	**8,644**

1. Of the total recycled water (2,732 AF), 2,280 AF was delivered to the Burbank power plant. Of that, 456 AF is for cooling and 1824 AF is for discharge to the Los Angeles River. 451 AF was used by CalTrans, DeBell Golf Course and other landscape irrigation.
2. Of the total recycled water (3,996 AF), 1,601 AF was delivered to Glendale for use in Glendale's Power Plant and for irrigation water for CalTrans, Forest Lawn and Brand Park; 1,010 AF was for in plant use; 632 AF was delivered to Griffith Park by Los Angeles for irrigation; and 751 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.

2.8 Water Level Elevations

The 2001 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 2001 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 2000-01 Water Year. The model was then run for twelve consecutive stress periods beginning October 2000 through September 2001. 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 2001 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 2001. Up-to-date groundwater elevations for specific locations can be obtained by contacting the Watermaster's Office at (213) 367-0921 or (213) 367-1020.

Plate 11 exhibits the change in groundwater elevation from the Fall of 2000 to the Fall of 2001. The drop in groundwater levels in the north portion of the SFB, specifically near the Hansen Spreading Grounds, is attributed to the small volume of Native Runoff water spread at the Hansen, Pacoima, and Tujunga Spreading Grounds (17,939 AF), as compared to the long-term average of 33,805 AF/yr.

The 5 to 10 foot rise in groundwater levels as shown near the Rinaldi-Toluca and North Hollywood Well Field areas is primarily due to decreased groundwater extractions. Extractions for these two well fields decreased by 59 percent from 1999-00 to 2000-01 (56,365 acre-feet to 23,216 acre-feet). The area near the Tujunga Well Field shows a decline in groundwater levels, as much as 5 feet, due to increased pumping and reduced spreading by about 10 percent and 57 percent, respectively. The vicinity of the Burbank Well Field shows a rise in groundwater levels of approximately 5 feet as a result of decreased pumping from 11, 451 acre-

feet to 9,133 acre-feet. In general, away from the center of pumping activity, the SFB shows a continuous decline in groundwater elevations as a result of low artificial recharge.

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

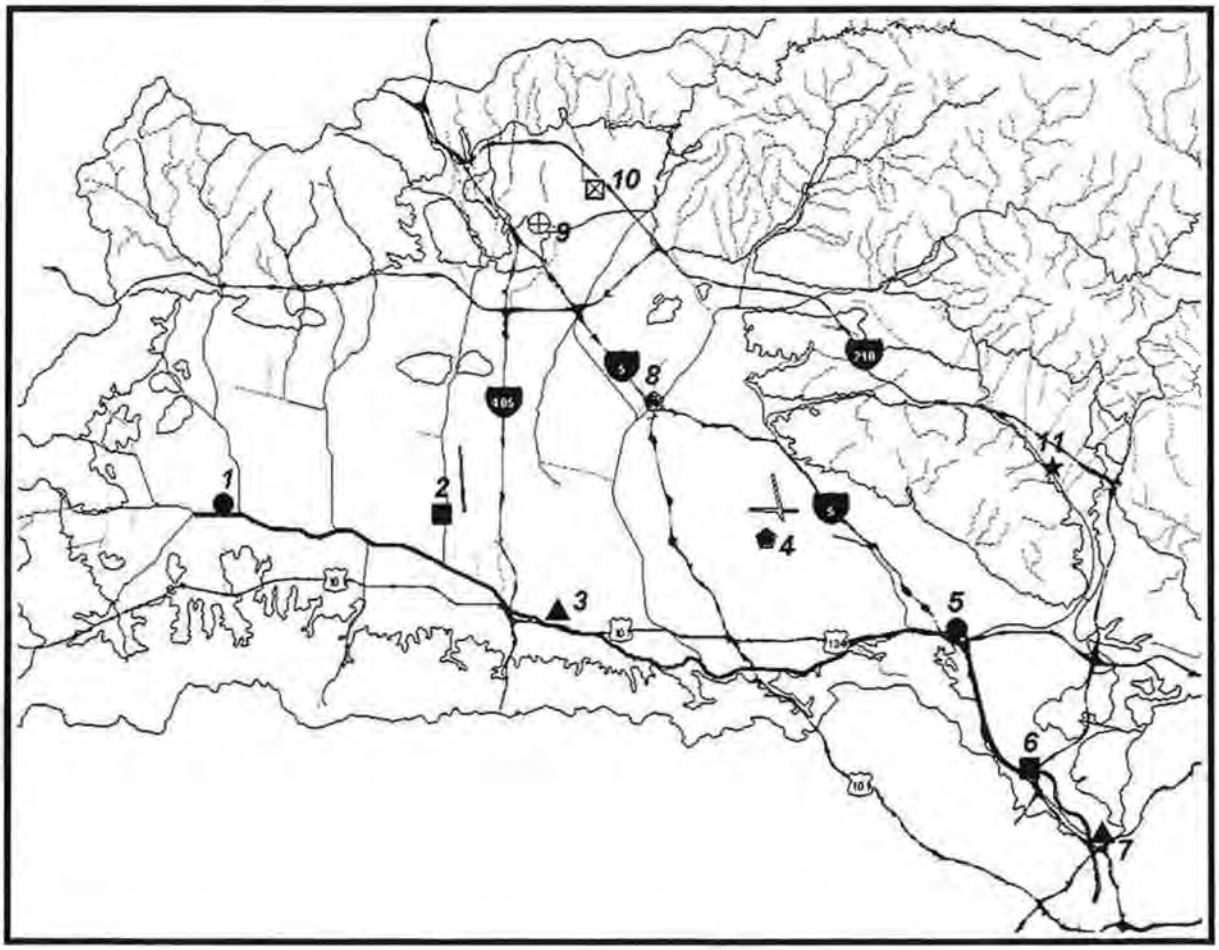
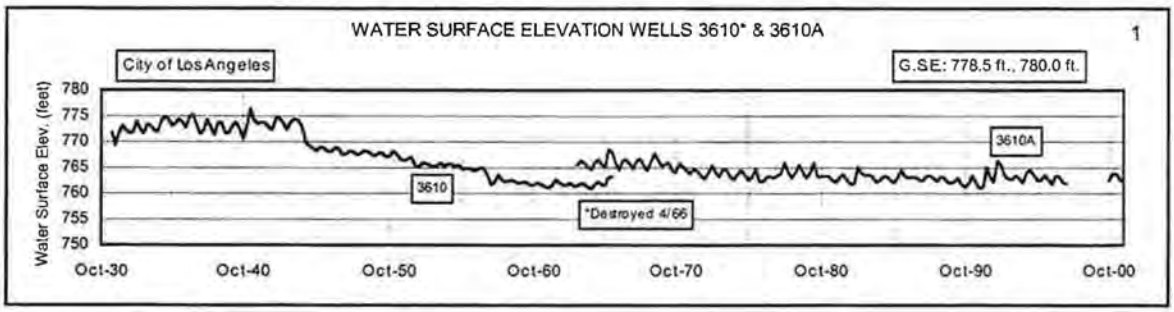
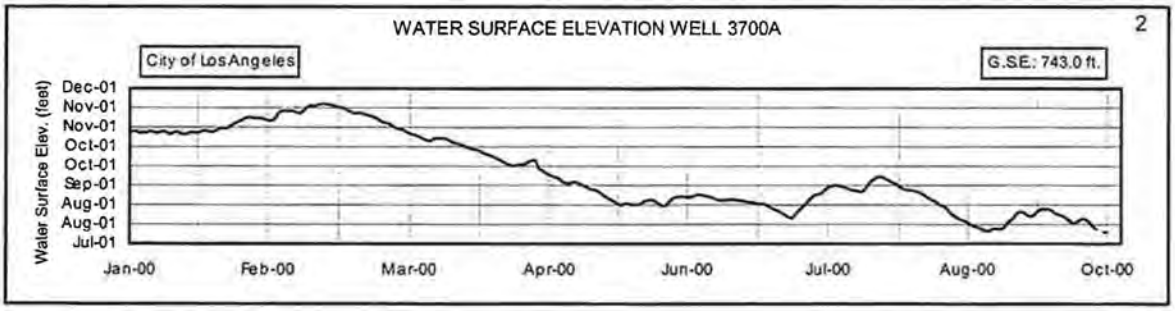
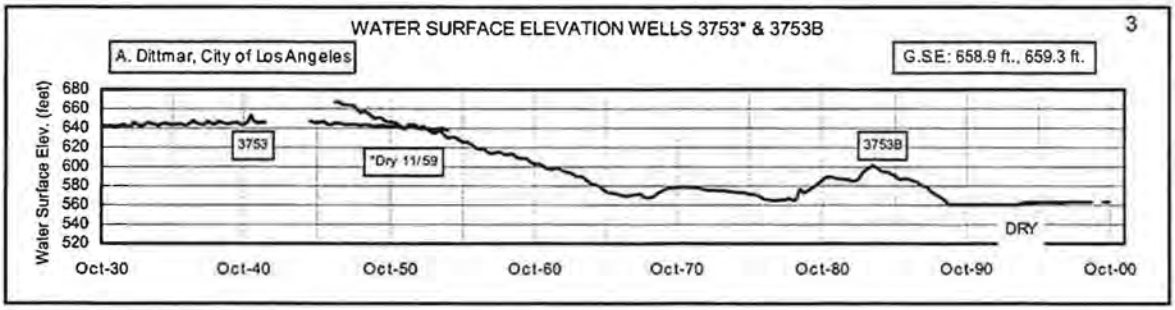


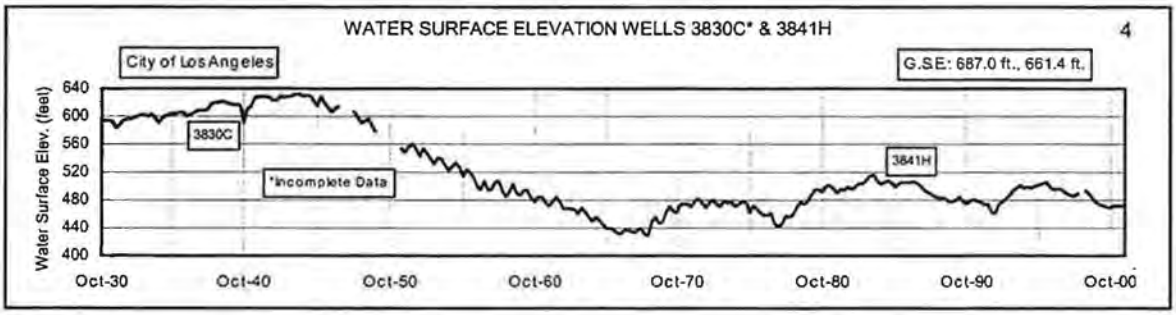
FIGURE 2.4 HYDROGRAPHS AND LOCATIONS OF WELLS THROUGHOUT ULARA

SAN FERNANDO BASIN

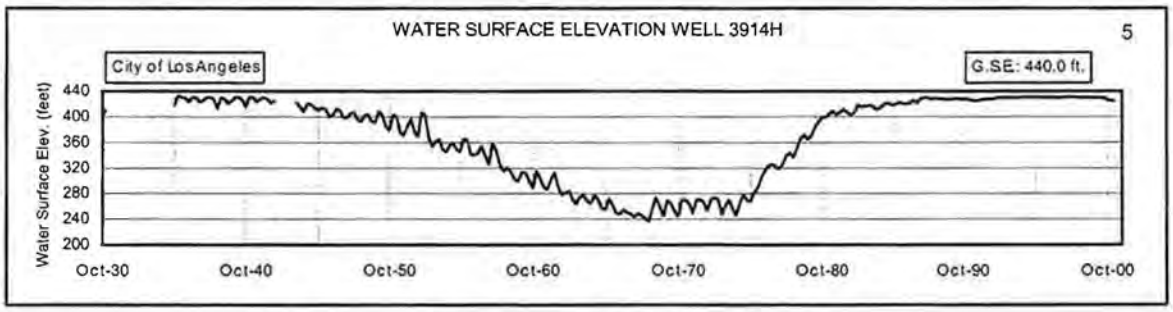


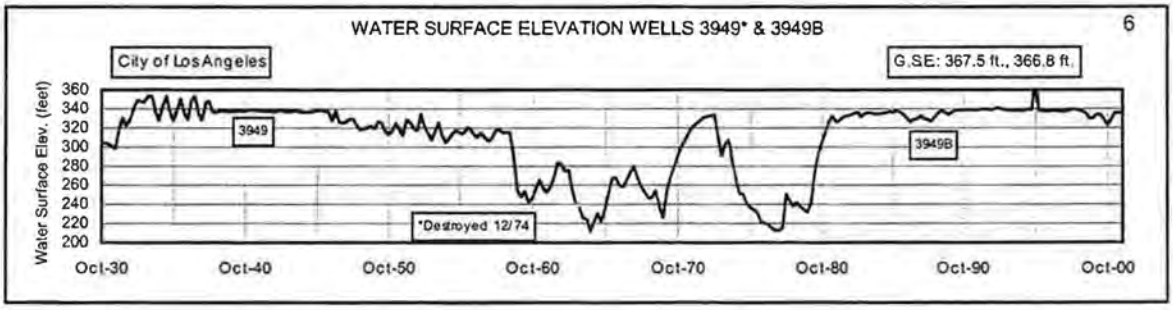


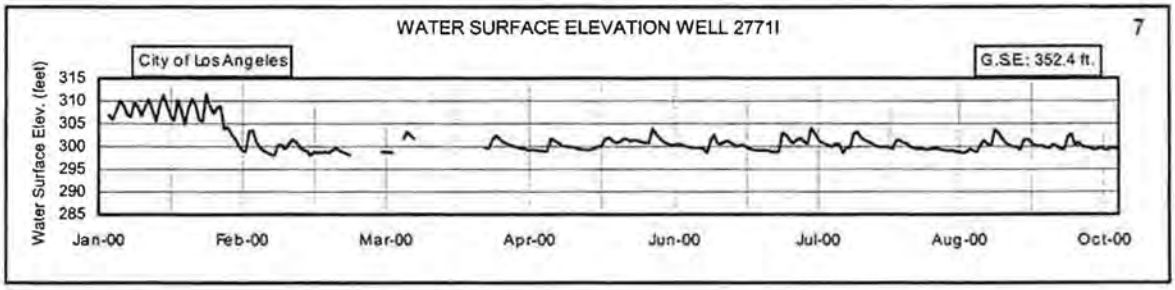


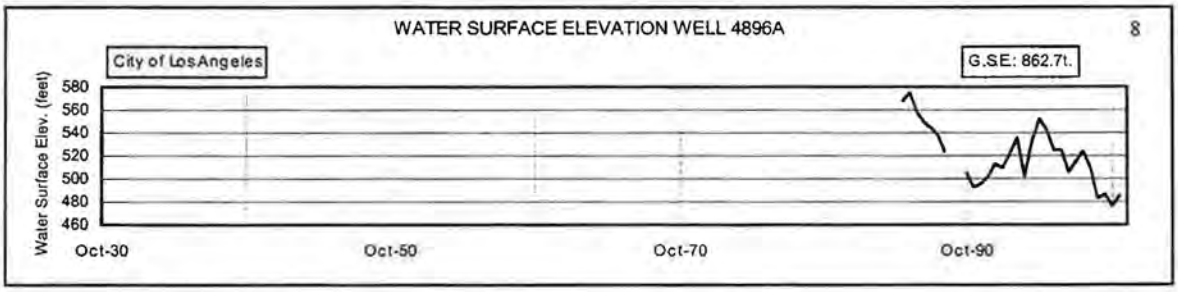


SAN FERNANDO BASIN

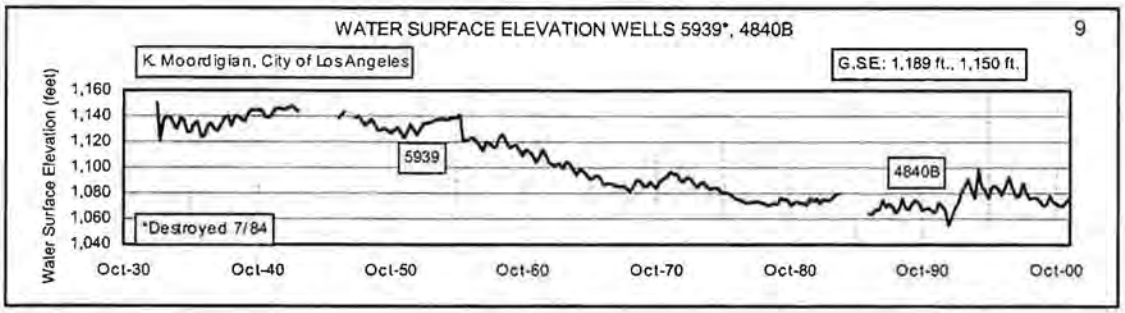


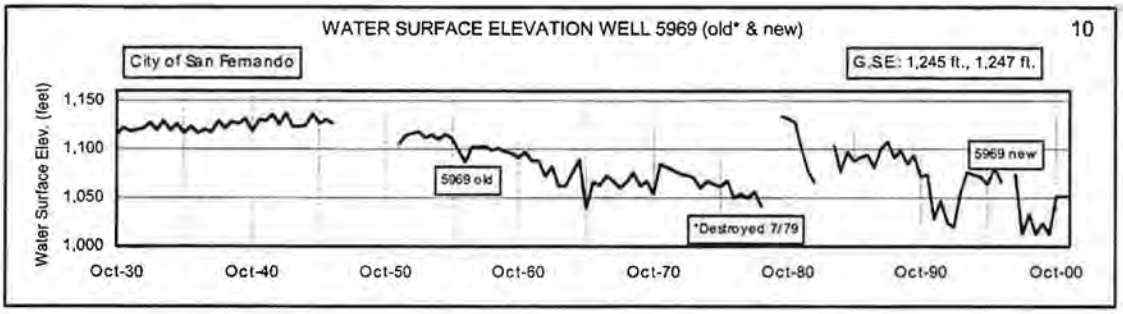






SYLMAR BASIN





VERDUGO BASIN

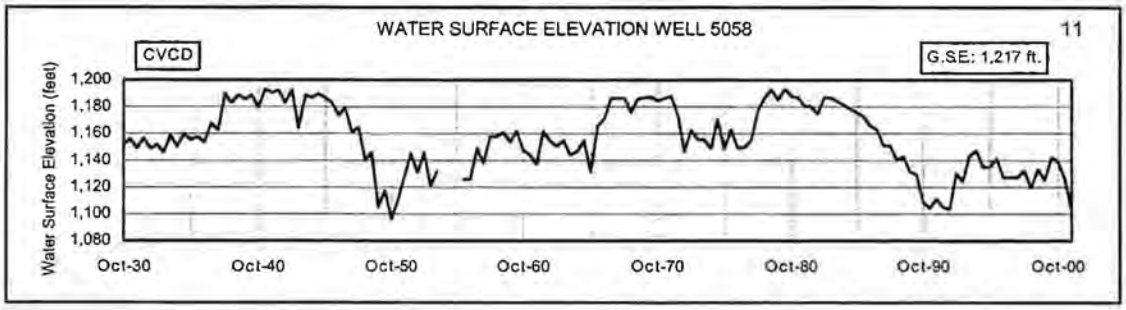


TABLE 2-8: CHANGE IN GROUNDWATER STORAGE SAN FERNANDO BASIN

Water Year	Valley Floor Precipitation (in)	Change in Storage (acre-feet)	Cumulative Change in Storage (acre-feet)	Pumping (acre-feet)
2000-01	19.52	(6,930)	149,715	86,946
1999-00	14.84	(31,044)	156,645	116,357
1998-99	9.81	(82,673)	187,689	141,757
1997-98	37.04	44,113	270,362	94,682
1996-97	15.17	(35,737)	226,249	105,899
1995-96	12.03	(49,223)	261,986	82,862
1994-95	33.36	79,132	311,209	58,121
1993-94	10.19	(22,238)	232,077	62,990
1992-93	36.62	106,317	254,315	36,419
1991-92	30.05	411	147,998	76,213
1990-91	14.38	(14,122)	147,587	71,065
1989-90	8.20	(29,941)	161,709	81,466
1988-89	9.12	(30,550)	191,650	127,973
1987-88	18.62	(5,000)	222,200	105,470
1986-87	5.99	(31,940)	227,200	91,632
1985-86	20.27	(7,980)	259,140	86,904
1984-85	11.00	(31,690)	267,120	101,591
1983-84	9.97	(63,180)	298,810	115,611
1982-83	39.64	121,090	361,990	68,394
1981-82	17.18	(530)	240,900	84,682
1980-81	11.04	(32,560)	241,430	92,791
1979-80	30.25	99,970	273,990	58,915
1978-79	21.76	78,080	174,020	59,843
1977-78	35.43	136,150	95,940	66,314
1976-77	14.19	(50,490)	(40,210)	125,445
1975-76	9.90	(30,090)	10,280	103,740
1974-75	14.74	(22,580)	40,370	95,830
1973-74	15.75	(21,820)	62,950	88,017
1972-73	20.65	17,020	84,770	82,004
1971-72	8.10	(17,090)	67,750	84,140
1970-71	15.57	15,340	84,840	79,010
1969-70	10.50	(9,740)	69,500	88,856
1968-69	29.00	79,240	79,240 [1]	84,186
32 Year Average	**18.48**	**4537**		**88,064**

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 estimated in the Report of Referee to be approximately 3,200,000 acre-feet, of which a regulatory storage capacity of 360,000 acre-feet is required by the Judgment. 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 Operations in 1968. There was no stored water credits established until 1979-80.

The estimated change in groundwater storage in the SFB from 1999-00 to 2000-01 is –6,930 acre-feet (Table 2-8). Fall 1968 is the start of the Safe Yield Operations at -655,370 acre feet (Plate 13). From the start of Safe Yield Operation in the Fall of 1968 through Fall of 2001, the amount of groundwater in storage has increased by +149,715 acre-feet to –505,655. However, during the 1979-2001 period there has been an accumulation of 344,789 acre-feet of Stored Water Credit through spreading and in-lieu activities of the parties, such as 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 water were to be removed, the cumulative change in storage since historic record keeping began in 1928-29 would be –850,444 acre-feet. As a result, the basin would be 195,074 AF below the beginning of Safe Yield Operation in the Fall of 1968. In addition, the gap between recorded groundwater in storage and Stored Water Credit continues to grow (Plate 13-A). Since rainfall in the past 33 years has been approximately normal, the Watermaster has been evaluating the cause of the imbalance in the basin.

Sylmar Basin

The groundwater storage capacity of the Sylmar Basin is approximately 310,000 acre-feet. The estimated change in storage for 2000-01 is -6 acre-feet, and the cumulative change in storage from 1968-69 through 2000-01 is -3,754 acre-feet.

Verdugo Basin

The groundwater storage capacity of the Verdugo Basin is approximately 160,000 acre-feet. The estimated change in storage for 2000-2001 compared to 1999-2000 is – 4,995 acre-feet, and the cumulative change in storage from 1968-69 through 2000-2001 is – 16,547 acre-feet.

Eagle Rock Basin

The estimated change compared to 1999-2000 is + 27 acre-feet.

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, 2001) 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.

During the 2000-2001 Water Year an adjustment was made to the stored water credits of the City of Los Angeles. A credit of 1,513 AF was made to Los Angeles' stored water to correct an excess amount debited from the 1999-2000 Water Year (Appendix I).

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, 2001) 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/yr to 6,510 AF/yr.

Verdugo Basin

CVWD was allowed to extract 133 AF above its prescriptive right of 3,294 AF/Y in 2000-01. Glendale has a prescriptive right to extract 3,856 AF/Y, but is not currently pumping its full right. There is no stored water credit assigned in the Verdugo Basin (Appendix F).

TABLE 2-9A: SUMMARY OF 2000-01 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 [2]	Total
Extractions						
Municipal Use	10,033	659	65,409	—	0	76,101
Basin Account		0	0	—	96	96
Physical Solution	407 [1]	350 [1]	—	—	431	1,188
Cleanup/Dewaterers	—	—	—	—	6,638	6,638
Non-consumptive Use	—	—	—	—	2,925	2,925
Total	**10,440**	**1,009**	**65,409**	**0**	**10,090**	**86,948**
Imports						
LA Aqueduct Water	—	—	258,115	—	—	258,115
MWD Water	12,447	28,688	251,028	0	7,204 [3]	299,367
Groundwater from Sylmar Basin	—	—	2,606	3,326	—	5,932
Total	**12,447**	**28,688**	**511,749**	**3,326**	**7,204**	**563,414**
Recycled Water Use	2,732	1,663	2,395	0	1,916	8,706
Exports						
LA Aqueduct Water						
out of ULARA	—	—	126,284	—	—	126,284
to Verdugo Basin	—	—	403	—	—	403
to Sylmar Basin			4,944			4,944
MWD Water						
out of ULARA	—	—	124,305	—	—	124,305
to Verdugo Basin	—	2,559	387	—	—	2,946
to Sylmar Basin	—	—	4,750	—	—	4,750
Groundwater	—	0	55,740	—	—	55,740
Total	**0**	**2,559**	**316,813**	**0**	**0**	**319,372**
Delivered Water						
Hill & Mountain Areas	—	—	48,878	—	—	48,878
Total - All Areas	25,619	28,801	262,740	3,326	19,210	339,696
Water Outflow						
Surface (Sta. F-57C-R)	—	—	—	—	—	188,860
Subsurface	—	—	—	—	—	379
Sewage	4,011	16,957	80,015	2,327	—	103,310
Reclaimed Water to the LA River	6,966	—	61,532	—	—	68,498
Total	**10,977**	**16,957**	**141,547**	**2,327**	**0**	**361,047**

1. Includes Valhalla (Burbank) and Forest Lawn (Glendale).
2. Basin Account water for Burbank. Cleanup water includes discharges of 6,227 to Los Angeles River by Glendale.
3. Las Virgenes Municipal Water District.

TABLE 2-9B: SUMMARY OF 2000-01 WATER SUPPLY AND DISPOSAL SYLMAR BASIN

(acre-feet)

Water Source and Use	City of Los Angeles	City of San Fernando	All Others	Total
Total Extractions	2,606	3,695	0 [1]	6,301
Imports				
LA Aqueduct Water	4,944	–	–	4,944
MWD Water	4,750	0	–	4,750
Total	**9,695**	**0**	**0**	**9,695**
Exports - Groundwater				
to San Fernando Basin	2,606	3,326	0	5,932
Total Delivered Water	9,695	369	0	10,064
Water Outflow				
Surface	5,000 [2]			5,000
Subsurface	460 [3]	--	–	460
Sewage	830 [4]	209	–	1,039
Total	**1,290**	**209**	**0**	**6,499**

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 2000-01 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	3,420 [1]	2,227	—	—	12.0 [4]	5,659
Imports						
LA Aqueduct Water	—	—	—	400		400
MWD Water	2,202	2,559	1,202	389		6,352
Total	2,202	2,559	1,202	789		6,752
Exports	0	0	0	0		0
Total Delivered Water	5,622	4,786 [2]	1,202	789	12.0	12,411
Water Outflow						
Subsurface to:						
Monk Hill Basin	—	—	—	—		300
San Fernando Basin	—	—	—	—		70
Sewage	1,893	1,162	0	473 [3]		3,528
Total	**1,893**	**1,162**	**0**	**473**		**3,898**

1. Administrative Committee and Watermaster approval (10/98), on a temporary basis, that CVWD may pump in excess of its prescriptive rights until the City of Glendale pumps its complete appropriative right (Appendix G).
2. Verdugo Basin metered sales x 105% per Judgment. Temporarily based on 15% of total water consumption of city.
3. Estimated.
4. Private party extractions and Basin Account.

TABLE 2-9D: SUMMARY OF 2000-01 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]	231 [1]	231
Imports				
LA Aqueduct Water	0	–	–	0
MWD Water (25+35)	0			0
MWD Water (17)	4,291			4,291
Groundwater from SFB	0	–	–	0
Total	4,291	0	0	4,291
Exports				
Groundwater	0	0	231	231
Total Delivered Water	4,291	0	0	4,291
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 2001-02 EXTRACTION RIGHTS SAN FERNANDO BASIN

(acre-feet)

	City of Burbank	City of Glendale	City of Los Angeles
Total Delivered Water, 2000-01	25,619	28,801	260,134
Water Delivered to Hill and Mountain Areas, 2000-01	---	---	48,878
Water Delivered to Valley Fill, 2000-01	25,619	28,801	211,256
Percent Recharge Credit	20.0%	20.0%	20.8%
Return Water Extraction Right	5,124	5,760	43,941
Native Safe Yield Credit	---	---	43,660
Total Extraction Right for the 2001-02 Water Year[1]	**5,124**	**5,760**	**87,601**

1. Does not include stored water credit.

TABLE 2-10B: CALCULATION OF 2001-02 EXTRACTION RIGHTS SYLMAR BASIN

(acre-feet)

	City of Los Angeles	City of San Fernando	All Others
Extraction Right for the 2001-2002 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, 2000)	42,443	74,484	208,609
2. Extraction Right for the 2000-01 Water Year	5,262	6,006	90,399
Correction for Pollock Treatment Fac.			1,513
3. 2000-01 Extractions			
Party Extractions	10,033	659	65,409
Physical Solution Extractions	407	350	431
Clean-up/Dewaterers			411
Glendale OU Discharge to LAR		6,227	
Total	10,440	7,236	66,251
4. Total 2000-01 Spread Water	0	0	0
5. Stored Water Credit [2] (as of October 1, 2001)	**37,265**	**73,254**	**234,270**

1. Pollock OU started up Feb. 1999, therefore a credit of 1,513 AF is made for the partial year's pumping. Appendix I Letter of Credit.
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, 2000)	3,711	1,480
2. Extraction Right for the 2000-01 Water Year	3,255	3,255
3. Total 2000-01 Extractions	2,606	3,695
Santiago Estates[2]	0.0	0.0
4. Stored Water Credit[3] (as of October 1, 2001)	**4,360**	**1,040**

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, 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 September 17, 2001, was 192 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 569 ppm for October 2001.

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 297 ppm during October 2001.

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 527 ppm during October 2001.

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 Regional Board 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), 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 2000-01 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: 2000-01 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	8	8	12	5	7	98	10	15	11	134
TCE Levels ppb	Number of Wells Exceeding Contaminant Level[1]													
5-20	7	5	1	0	1	4	9	2	1	30	0	3	0	33
20-100	9	0	2	0	0	3	0	1	4	19	6	4	0	29
>100	2	0	0	3	0	0	0	0	2	7	3	2	0	12
Total	18	5	3	3	1	7	9	3	7	56	9	9	0	74
PCE Levels ppb	Number of Wells Exceeding Contaminant Level[1]													
5-20	7	1	1	0	0	1	0	1	4	15	1	2	0	18
20-100	2	0	2	1	0	0	0	0	3	8	2	0	0	10
>100	0	0	0	2	0	0	0	0	0	2	6	0	0	8
Total	9	1	3	3	0	1	0	1	7	25	9	2	0	36

1. Wells are categorized based upon maximum TCE and PCE values attained during the 2000-01 Water Year. Where data was not available for 2000-01, 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 2000-01 Water Year, a total of 142 sites were remediated under the direction of the LAFD. Currently, the Environmental Unit of the LAFD is monitoring the remediation of 695 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, 4,250 sites have been assigned to the Underground Tank Plan Check Unit, and of these, 2,112 sites have been remediated. In addition, 1,091 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 wastewater 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 1998-1999 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, three were voted down: Groundwater Improvement District (GID) No. 3 (Raymer St. Nr. Fulton Ave.), GID No. 17 (Glenoaks Blvd. Nr. Roxford St.), and GID No. 19 (Sherman Way Nr. Balboa Blvd.). One project, GID No. 4 (San Fernando Rd. Nr. Keswick St.) received a yes-vote, and two are in the process of being voted upon – GID No. 5 (Chandler Blvd. Nr. Lankershim Blvd) and GID No. 12 (San Fernando Rd. Nr. Brazil St.). For the present, the Bureau of Engineering has no intention to pursue those projects that received a "no" vote. Further work on or scheduling of these projects will be deferred pending funding authorization through other means in a manner to be determined.

In order to more clearly understand 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 properties are located within 50 feet of an existing sewer, and 7,700 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. Only seven property owners have applied for the low-income loans.

The Industrial Waste Management Division of the Bureau of Sanitation (IWMD) 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.

A meeting of the Select Committee on Urban Landfills with State Senator Gloria Romero, Chairperson, was held during the 2000-01 Water Year. The topic of the meeting was Environmental Impacts of Landfills on Urban Communities. Landfills in the Los Angeles area only have several years of capacity left. A study discussing the regional capacity of landfills, out-of-state landfill capacity, and long-term landfill capacity proposed sending trash to Utah by

railway since there is support in Utah for this option. Locally, there is a petition to increase capacity at the Bradley West Landfill and the Sunshine Canyon Landfill. The North Valley Coalition continues to try to reduce use of the Sunshine Canyon Landfill.

TABLE 3-2: LANDFILLS WITH SWAT INVESTIGATIONS

(reported to Interagency Coordinating Committee)

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

1. G – Gas, L – Liquid. MSW – Numicipal 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.

Notes: Sunshine Canyon Landfill – Completed Joint Tech. Document (City only/Not County)

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 EPA to characterize the San Fernando Basin and the Verdugo Basin and their contamination with TCE and PCE. The LADWP was selected by the EPA 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 the East Valley Water Recycling Project and other groundwater remediation projects to analyze the storage and physical characteristics of groundwater in the SFB.

EPA'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

EPA Operable Units

The EPA 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 EPA'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 EPA and the DHS. In 2000-01, 356 million gallons (1,092 acre-feet) 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, remained out of service.

   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 November 2000 for the granular activated carbon (GAC) replacement in the Emission Control Unit. The operation was restarted in March 2001.

2. *BURBANK OU* - The Burbank OU, funded by the USEPA and initially operated by Lockheed, removes 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 2000-2001 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". In February 2002 the USEPA determined the cause of reduced pumping was flawed design and inadequate maintenance of equipment rather than a falling water table. Lockheed will continue to be held financially responsible for the maintenance problems incurred during their tenure of operation. A total of 9,133 AF were treated in the 2000-01 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 includes treatment of groundwater contaminated with VOCs and then blending with MWD water at the refurbished Grandview Pump Station.

In response to rising concern in the community about the presence of hexavalent chromium in the treated water, the Glendale City Council, contrary to its Consent Decree with the USEPA, refused to accept the treated water with a concentration above 1 ppb of hexavalent chromium. As an interim alternative, Glendale requested additional time for the city to gain an understanding of the health risks, to investigate additional treatment alternatives and costs, and to determine the length of time needed to implement a new treatment facility. The USEPA and the ULARA Watermaster temporarily approved this interim request. While discussions and alternatives were being reviewed approximately 8,000 acre-feet of treated water were discharged into the Los Angeles River between

September 26, 2000 and December 2001. The discharged water was debited from Glendale's stored water account.

On November 9, 2001 the Watermaster, on behalf of the Court, filed an Order To Show Cause why the City of Glendale should not be enjoined from committing waste. The brief states that the discharging of treated water that meets drinking water standards is a waste of water according to state laws and asserts that "whatever use is ultimately made of its (Glendale's) water, such use must comply with the constitutional mandate prohibiting waste."

In a hearing before the Glendale City Council on December 18, 2001, the USEPA and others reaffirmed the existing MCL of 50 ppb as protective of the public health.

As of February 1, 2002 the City of Glendale has stopped discharging water to the Los Angeles River and is accepting the treated water from most of the wells. On February 20, 2002 the Watermaster withdrew the Order To Show Cause Motion and the Watermaster and City of Glendale signed a stipulation wherein Glendale agreed not to release treated water into the Los Angeles River except for "reasonable operational reasons." A plan has been developed, pending approval by the USEPA, to pump at a rate of 5,000 gpm from the wells and to take some water from both of the high chromium wells into the recycled water system and for the cooling towers of the power plant. In addition, with funds from the state and from the American Water Works Research Foundation, Glendale may investigate methods for permanent removal/treatment of hexavalent chromium in the water.

Other Treatment Facilities

1. *VERDUGO PARK WATER TREATMENT PLANT (VPWTP)* - The VPWTP produces about 500 gpm and serves as a chlorination and turbidity treatment facility. The water supply is limited at the lower end of the Verdugo Basin. Glendale continues to investigate opportunities to increase groundwater production. A total of 639 acre-feet were treated in 2000-01.

2. *GLENWOOD NITRATE WATER TREATMENT PLANT* - The CVWD's Glenwood Nitrate Water Treatment Plant, which uses an ion-exchange process for nitrate removal, continued to operate satisfactorily during the 1999-00 Water Year. A total of 322.3 million gallons (989 acre-feet) of water was treated.

3. *POLLOCK WELLS TREATMENT PLANT PROJECT* – The 3,000 gpm City of Los Angeles Pollock Project was dedicated on March 17, 1999. The treatment plant restores 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 GAC vessels to treat for VOCs. The treated water is chlorinated before distribution in the water system. The plant was shut down on November 6, 2000, for spent GAC replacement and resumed operation in July 2001. A total of 409 million gallons (1,256 acre-feet) of groundwater was treated during the year.

4. *BURBANK GAC TREATMENT PLANT* - The City of Burbank GAC system treated 995 acre-feet of water from the combined pumping of Burbank Wells No. 7 and No. 15. The treatment plant has been incorporated into Phase II of the Consent Decree (Burbank OU) between EPA, Lockheed, and Burbank. Production at the GAC will be considered as part of the designated average annual pumping goal of 9,000 gpm for the Burbank OU. The facility was shut down in March 2001 after the discovery of hexavalent chromium in the groundwater. 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.

3.8 Groundwater Quality Investigations

During the 2000-01 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 a new groundwater monitoring and well abandonment plan to the Regional Board in February 2001. In March 2001 Boeing performed its annual monitoring event.

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's Office. A potential 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 upward of 12,000 ppbl 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 plumes. Under DTSC guidance, Holchem has installed a soil vapor extraction system. Off-site data from three new wells installed by Holchem will be added to the monitoring conducted in March 2002. The sampling data will provide plume definition and help determine if there is one plume or two separate plumes.

The Price Pfister site, also located in the Pacoima area and up gradient from Holchem, has been moved from DTSC jurisdiction to the RWQCB as of November 2000. As of June 2001 approximately 4,800 gallons of hydrocarbons have been recovered. Due to the close proximity of the Price Pfister, Holchem and D&M Steel sites, the RWQCB and DTSC have agreed to coordinate oversight efforts.

Raytheon (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. Due to significant decreases in contaminant concentrations, the RWQCB has approved groundwater sampling and analyses on a semiannual basis. Residual concentrations of VOCs remain in the groundwater. Raytheon has begun work on a series of remediation enhancement projects at the site including installation of 17 additional new air sparge wells, and the installation of a wellhead ion exchange unit to remove chromium. The wells were installed in early December 2001 and will be put on line in January 2002. 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)

The main pollutant at this site is chloroform. 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 2000-01 Water Year, 70.25 acre-feet were treated of which 50% of the treated groundwater was beneficially reused in the plant for rotoclones (dust collectors). From start-up through the beginning of December 2001, approximately 14,400 pounds of VOCs have been removed from the soil and 3,500 pounds of VOCs from the groundwater. The soil remediation systems have completed cleanup of the soil. The RWQCB is reviewing 3M's request for closure of the soil treatment system.

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 consists of activated carbon filtration, and soil vapor extraction is proposed for the soil remediation. 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 discharged to Micro Matic's remediation system. As of February 2002 Micro Matic received authorization to connect up to the 3M well.

Marquardt (16555 Saticoy Street, Van Nuys)

Halogenated solvents have contaminated the soil and groundwater beneath the site. The property has been sold, and a soil vapor extraction program has been implemented by the facility. The remaining unoccupied parcel is being characterized by the facility. Off-site migration of the groundwater plume onto the adjacent Van Nuys Airport property is suspected, but access to investigate the airport property has not yet been obtained.

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. To expedite the remediation, the Taylor Yard has been divided into two parts - active yard and sale parcel. Part of the sale parcel was sold to private companies, and the State Parks Department has acquired 30 acres of the sale parcel (Parcel D), and is also negotiating for additional property.

The active Taylor Yard is contaminated with VOCs, SVOCs, fuel hydrocarbons, and metals. Soil vapor extraction began full time operation in June 2000 for the Service Track Area and in May 2000 for the Diesel Shop. Vapor extraction has removed 700 pounds of VOCs to date. There are currently 33 on-site groundwater monitoring wells and five off-site wells in the Taylor Yard monitoring program. The Phase 5 investigation is nearly completed. DTSC has submitted comments on the Remedial Investigation to the consultant ERM.

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 January 2002 the Coastal Conservancy released the Draft Taylor Yard Multiple Objective Feasibility Study for review. The study considered four alternatives to redevelop this site: for habitat restoration, flood storage, and park development and evaluates the impacts of water rights, water quality, cost, and regulatory oversight.

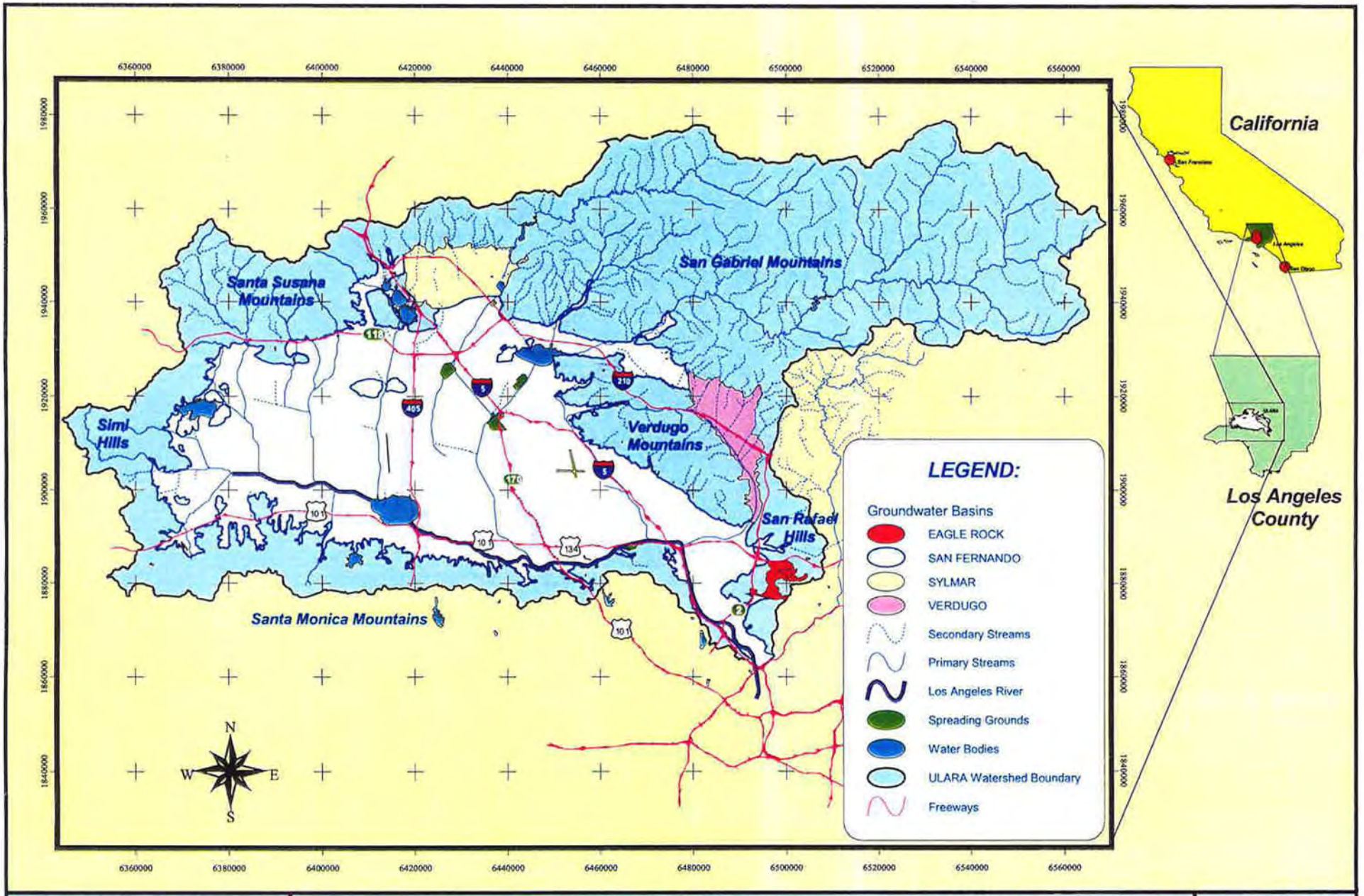
Chromium

The RWQCB has created databases and maps to locate potential sources of chromium. The databases were formed from information provided by earlier RWQCB investigations of industrial sites. In addition, approximately 200 sites were provided by the State of California Department of Toxic Substance Control, and a separate list of sites was provided by the Air Quality Management District. The Regional Board began site inspections in January 2001.

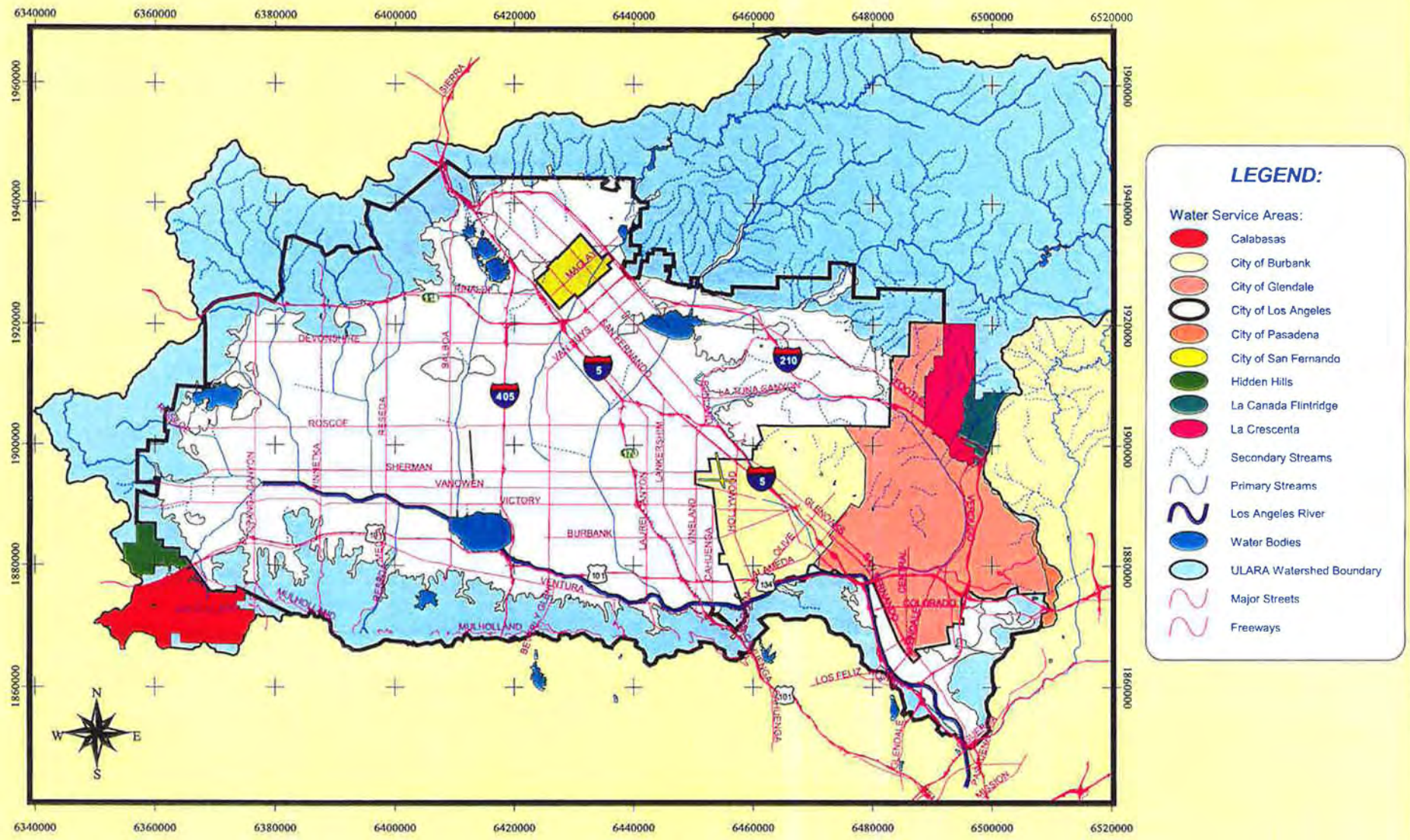
The Governor approved State Senate Bill 2127 in November 2000. This bill requires the DHS to determine the levels of hexavalent chromium in the drinking water supplied by public water systems in the SFB aquifer and, in consultation with the OEHHA, to assess the exposures and risks to the public. In response to SB2127 the Watermaster and the cities of Burbank, Glendale, San Fernando and Los Angeles have provided data to the DHS and OEHHA to use in their risk assessment.

The report was due to the Governor and the Legislature on January 1, 2002. However, the withdrawal of the chromium PHG by OEHHA has complicated the issue. Until additional toxicological studies are performed and a new MCL is set, the risks will be difficult to evaluate.

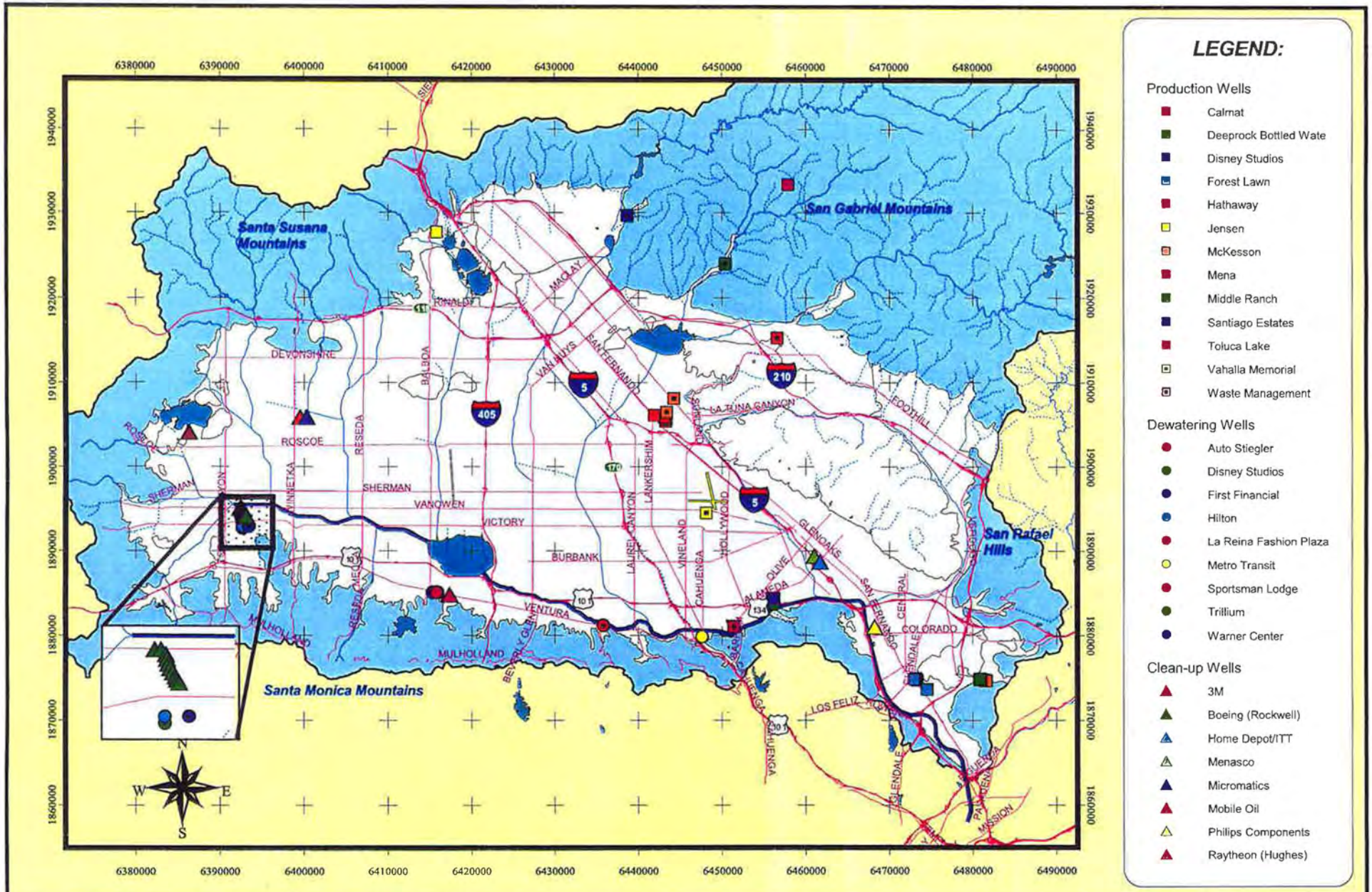
PLATES



2000-01 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Vicinity and Location Map	PLATE 1



2000-01 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Water Service Areas of Public Agencies**	PLATE **2**



LEGEND:

Production Wells
- Calmat
- Deeprock Bottled Wate
- Disney Studios
- Forest Lawn
- Hathaway
- Jensen
- McKesson
- Mena
- Middle Ranch
- Santiago Estates
- Toluca Lake
- Vahalla Memorial
- Waste Management

Dewatering Wells
- Auto Stiegler
- Disney Studios
- First Financial
- Hilton
- La Reina Fashion Plaza
- Metro Transit
- Sportsman Lodge
- Trillium
- Warner Center

Clean-up Wells
- 3M
- Boeing (Rockwell)
- Home Depot/ITT
- Menasco
- Micromatics
- Mobile Oil
- Philips Components
- Raytheon (Hughes)

2000-01 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area: Location of Individual Producers

PLATE
3

UPPER LOS ANGELES RIVER AREA

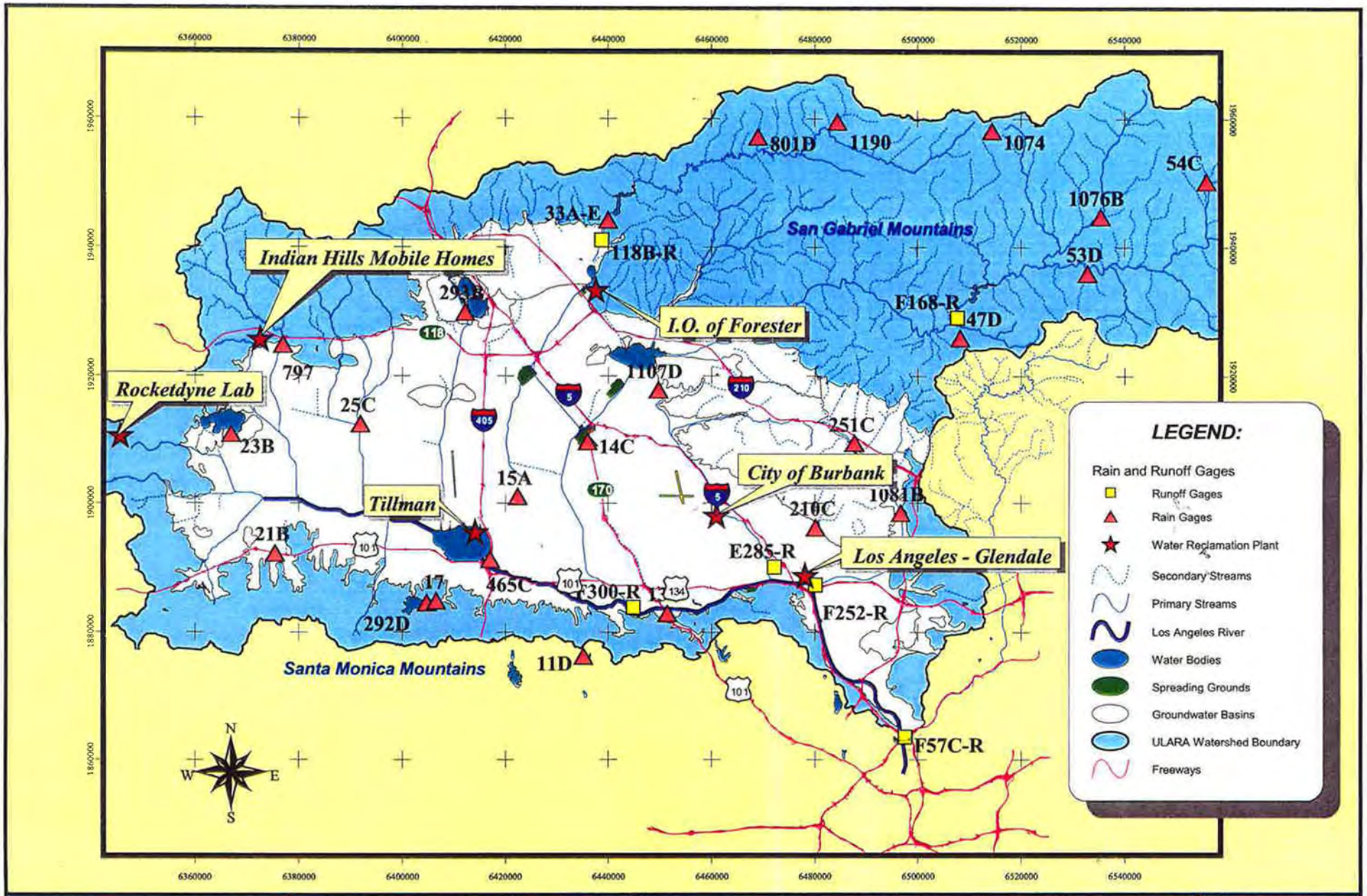
LOCATION OF WELLS AND HYDROLOGIC FACILITIES

LEGEND

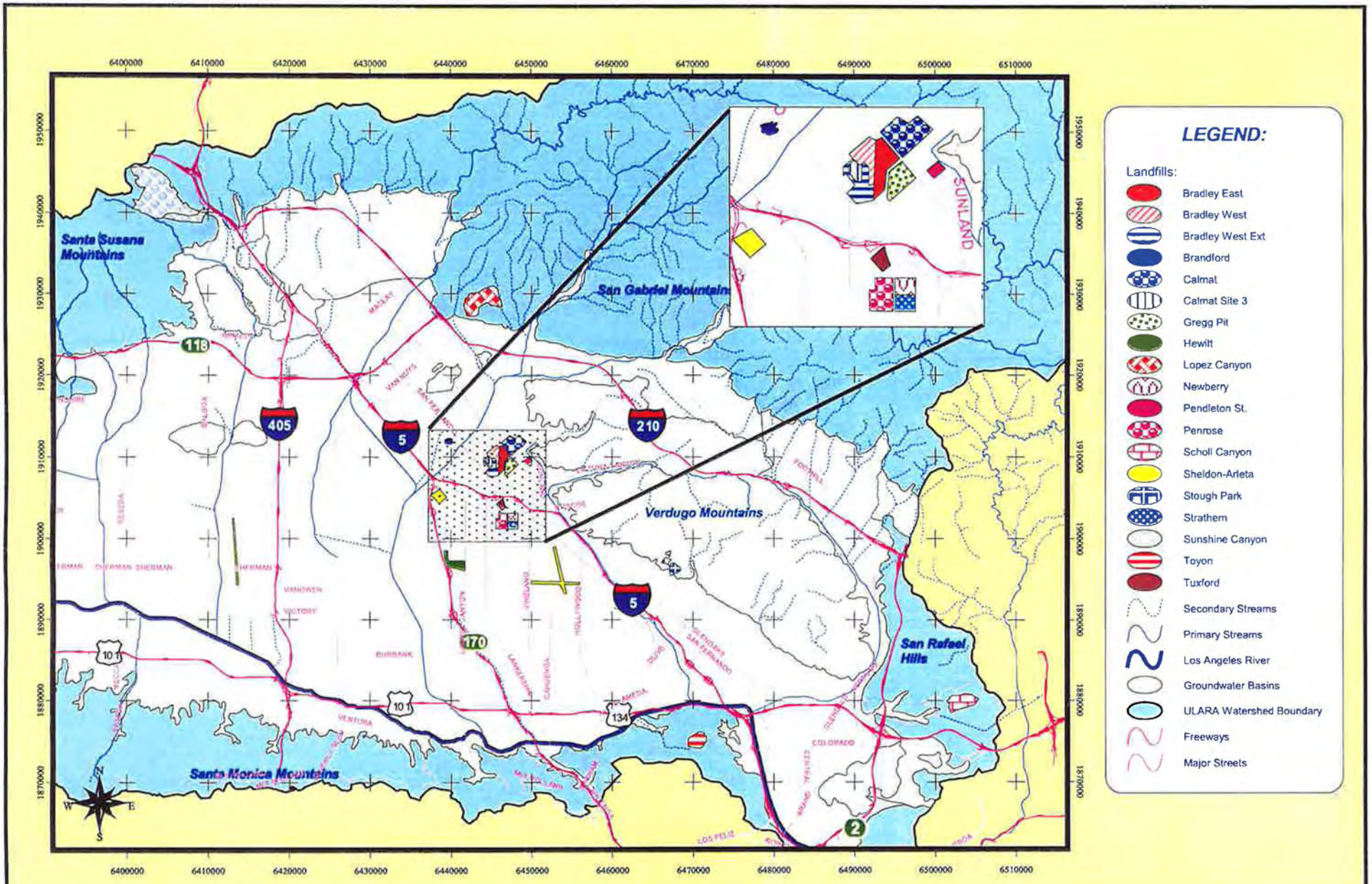
- IMPEDIMENTS TO GROUNDWATER FLOW
- GROUNDWATER CASCADES
- QUESTIONABLE IMPEDIMENT OR GROUNDWATER CASCADE
- CLIMATIC STATION
- SURFACE WATER GAGING STATION
- SURFACE WATER SAMPLING POINT
- KEY WELL USED FOR HYDROGRAPHS
- KEY WELL USED FOR SAMPLING
- ACTIVE, OBSERVATION, OR TEST WELL
- SURFACE AND GRAVITY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

SCALE

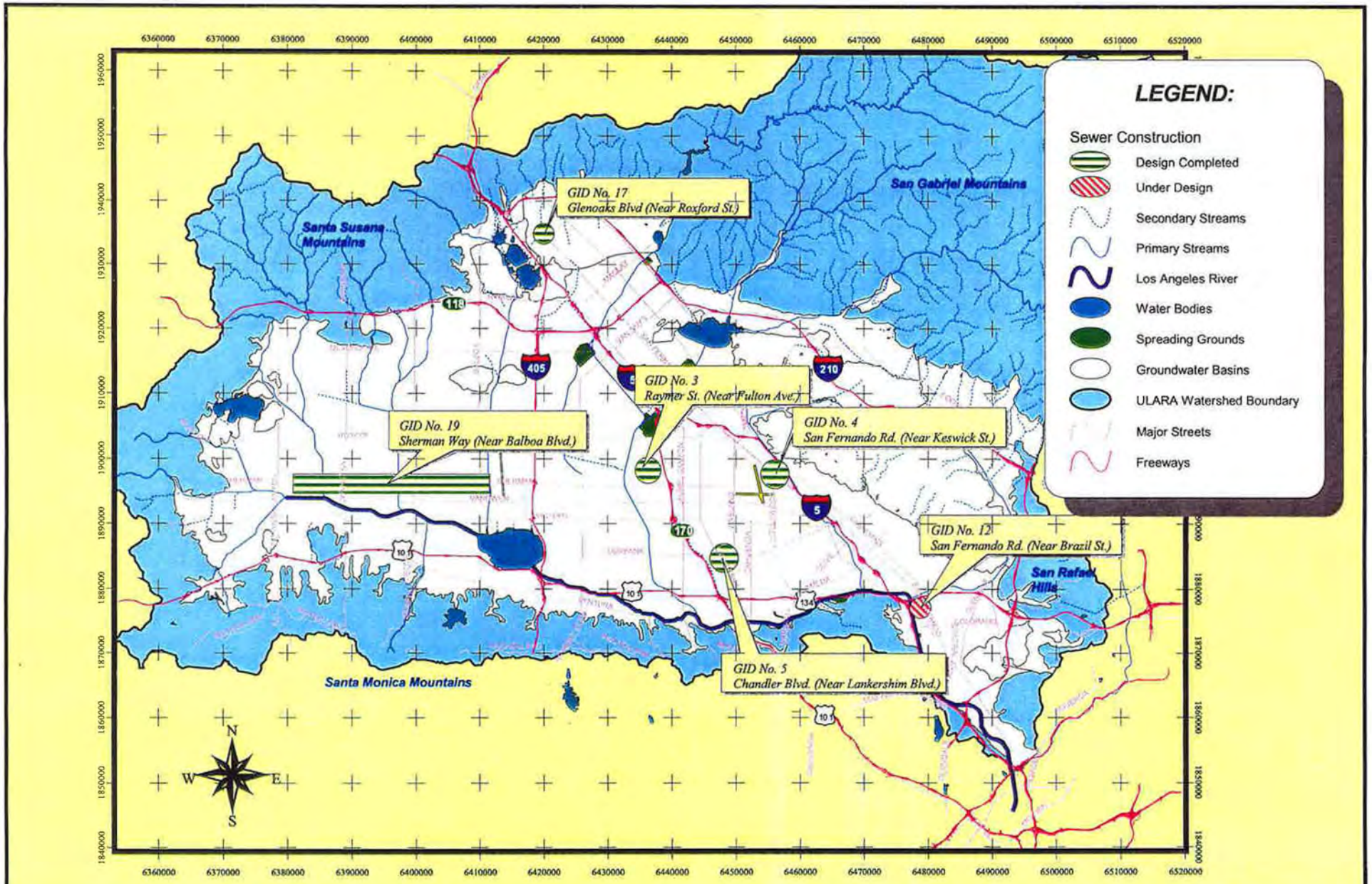
NOTE: 4.25 miles to Tapia Water Reclamation Plant which delivers water to a portion of the west end of ULARA area.



2000-01 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: Water Reclamation Plant and Rain-Runoff Gages	PLATE 5



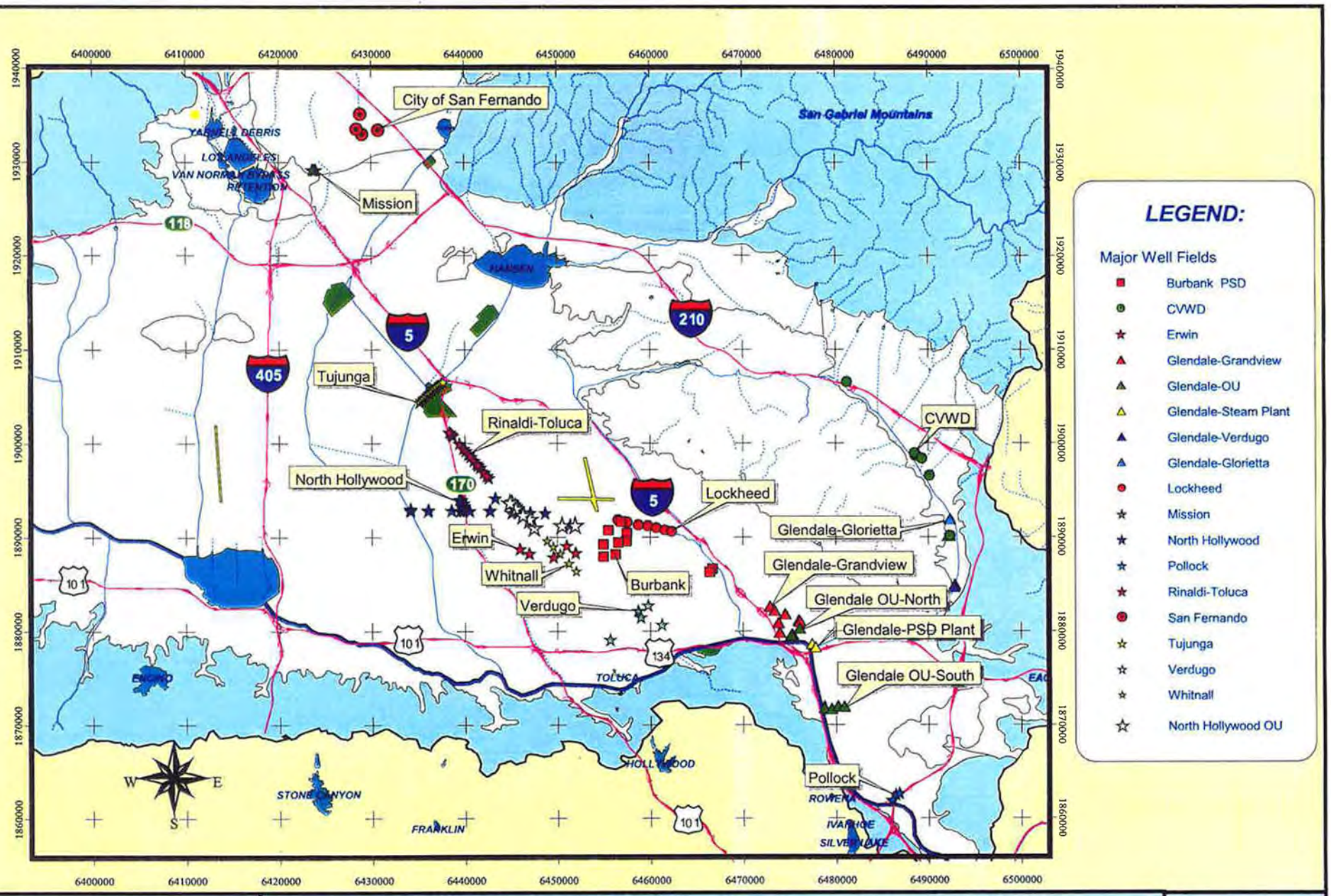
2000-01 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Landfill Locations**	PLATE 6



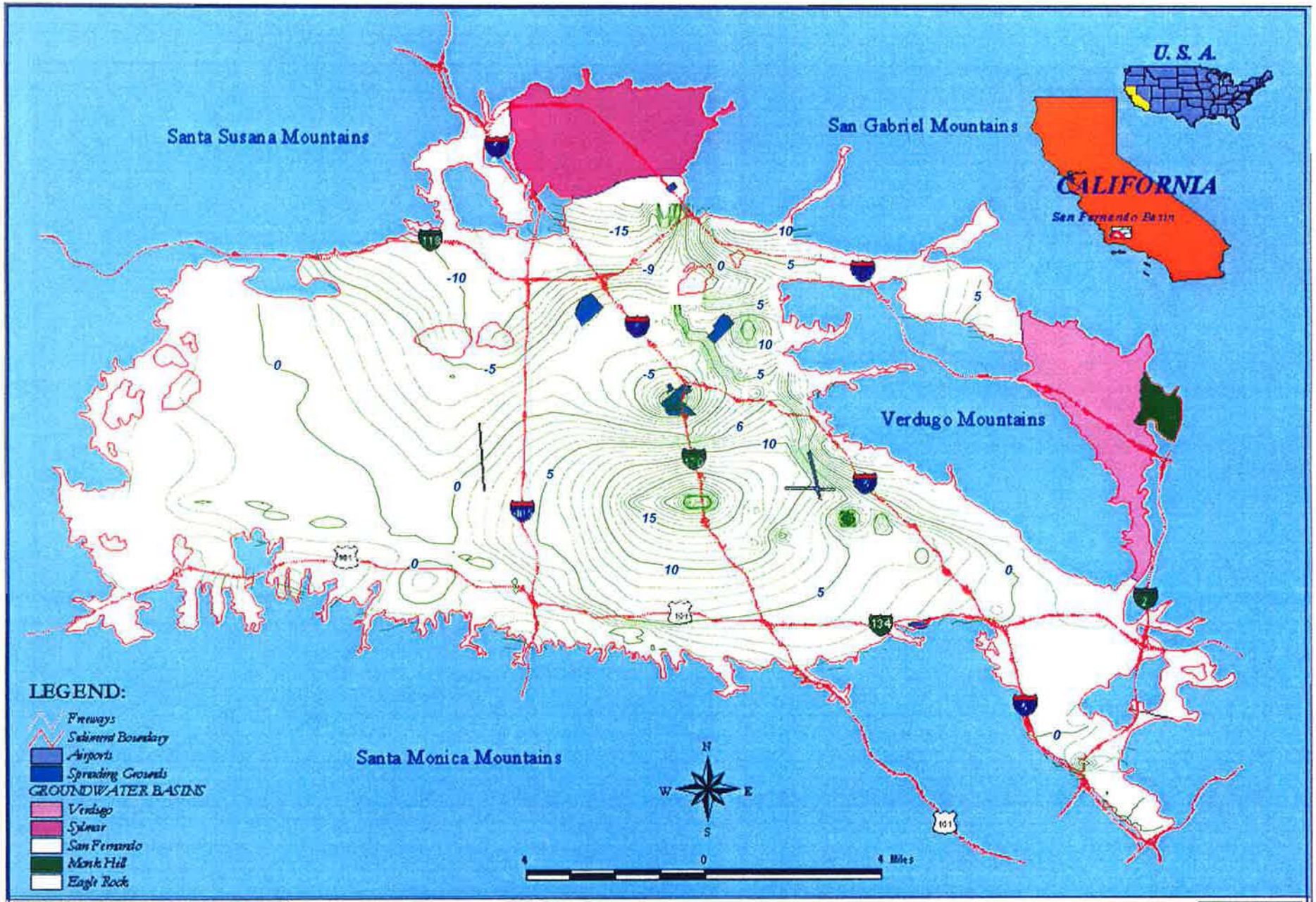
2000-01 Water Year
ULARA Watermaster Report

Upper Los Angeles River Area:
Los Angeles Bureau of Sanitation Sewer Construction Program for Commercial Parcels

PLATE
7



2000-01 Water Year ULARA Watermaster Report	**Upper Los Angeles River Area: Major Well Fields**	**PLATE 8**



2000-01 Water Year
ULARA Watermaster
Report

Change in Groundwater Elevations

Fall 2000 - Fall 2001

PLATE
11

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

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

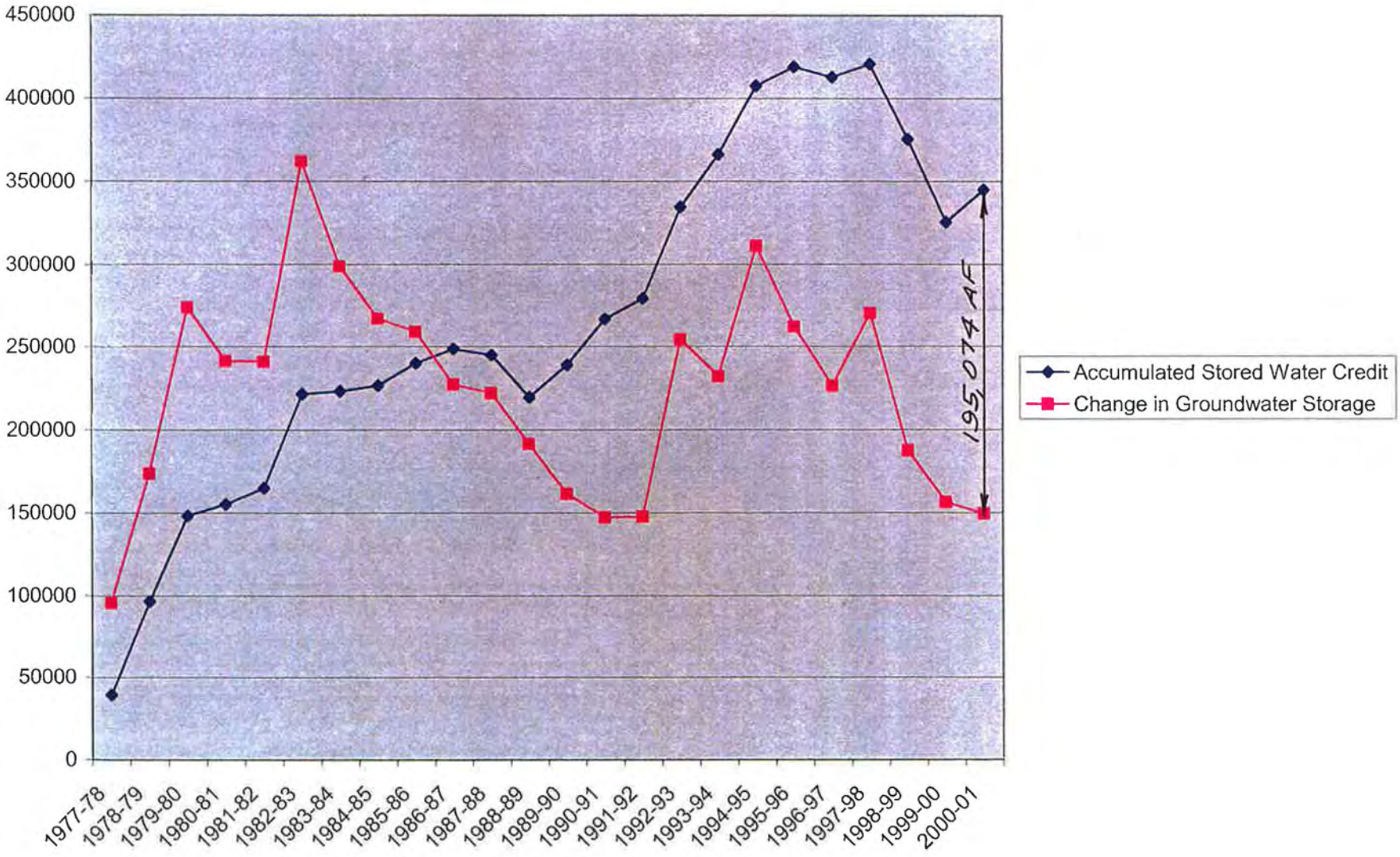
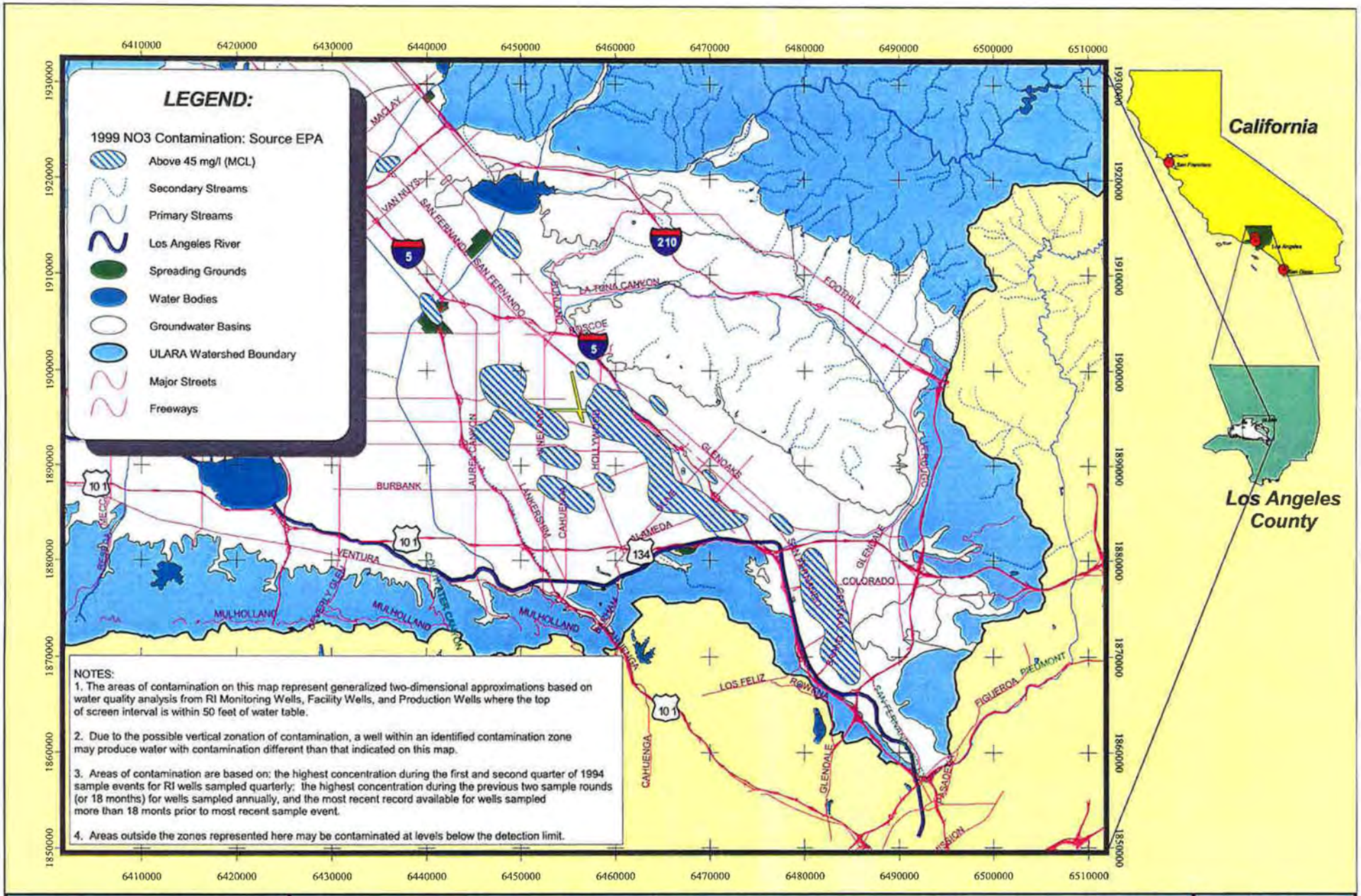


PLATE 13-A



2000-01 Water Year ULARA Watermaster Report	Upper Los Angeles River Area: NO3 Contamination (ug/l) in the Upper Zone (1999)	PLATE 16

APPENDIX A
GROUNDWATER EXTRACTIONS

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	Nov.	Dec.	2001 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin									
Angelica Healthcare Services		(abandoned 12/97)												
3934A	M050A													0.00
Auto Stiegler														
---	---	0.55	1.10	0.12	0.00	0.26	1.08	0.76	0.43	0.33	0.00	0.00	0.00	4.63
Boeing (Rockwell International No further pumping until 2000)														
---	E-1 to E-9													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	128.40	62.28	79.09	137.85	122.29	8.45	0.00	0.00	0.00	0.00	0.00	0.00	538.36
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	111.98	44.51	71.42	117.94	103.30	7.39	0.00	0.00	0.00	0.00	0.00	0.00	456.54
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:	240.38	106.79	150.51	255.79	225.59	15.84	0.00	0.00	0.00	0.00	0.00	0.00	994.90
Burbank Operable Unit														
3871L	VO-1	20.72	0.25	0.12	0.15	0.24	28.82	144.98	52.97	30.17	145.55	114.24	15.54	553.75
3861G	VO-2	119.81	150.88	27.32	128.94	59.56	134.90	132.20	135.75	140.86	137.32	59.25	106.13	1,332.92
3861K	VO-3	64.86	44.81	104.06	0.79	57.32	63.83	1.22	9.41	0.35	0.07	33.91	20.22	400.85
3861L	VO-4	131.98	111.69	126.46	124.58	93.16	58.34	139.27	143.10	106.73	131.57	138.32	126.42	1,431.62
3850X	VO-5	161.99	160.01	155.94	150.61	100.45	119.05	79.46	2.78	107.04	166.45	148.27	114.19	1,466.24
3850Z	VO-6	0.98	45.47	0.25	0.14	28.64	28.76	62.56	101.35	0.27	206.25	186.73	127.53	788.93
3850AB	VO-7	3.50	182.23	85.88	177.41	159.25	183.63	162.76	180.92	132.62	199.68	200.42	174.10	1,842.40
3851C	V0-8	159.09	81.87	0.00	0.28	16.99	2.21	124.14	204.58	196.95	208.63	125.66	195.82	1,316.22
	Total:	662.93	777.21	500.03	582.90	515.61	619.54	846.59	830.86	714.99	1,195.52	1,006.80	879.95	9,132.93
CalMat														
4916A	2	1.45	0.00	0.00	36.54	61.67	81.06	96.88	124.64	125.63	109.29	121.56	95.12	853.84
4916	3	70.62	62.52	58.22	30.77	0.00	0.00	0.00	0.00	0.00	0.00	0.10	37.62	259.85
4916(x)	1	131.70	122.33	123.85	110.73	100.15	115.07	109.28	120.59	7.36	103.87	87.51	14.28	1,146.72
Sheldon Pond		135.70	128.94	133.72	1.96	5.42	50.45	126.30	139.01	96.96	105.36	0.00	0.00	923.82
	Total:	339.47	313.79	315.79	180.00	167.24	246.58	332.46	384.24	229.95	318.52	209.17	147.02	3,184.23
First Financial Plaza Site														
N/A	F.F.P.S.	1.74	1.80	1.80	2.38	3.45	7.56	4.82	3.40	2.92	2.42	2.03	1.79	36.11

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	Nov.	Dec.	2001 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin (cont'd)									
Forest Lawn Memorial Park														
3947A	2	5.21	9.00	7.81	3.48	0.42	1.92	1.08	0.00	0.00	0.00	0.00	13.38	42.30
3947B	3	8.74	9.94	8.77	3.89	0.48	2.21	6.87	20.93	27.19	26.46	30.85	18.79	165.12
3947C	4	7.81	8.95	3.08	0.24	0.44	2.05	6.06	19.28	24.86	24.36	28.11	17.07	142.31
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:	21.76	27.89	19.66	7.61	1.34	6.18	14.01	40.21	52.05	50.82	58.96	49.24	349.73
Glendale, City of														
3924N	STPT 1	1.37	33.02	11.49	24.12	26.42	82.43	25.47	101.15	41.68	75.65	63.77	45.39	531.96
3924R	STPT 2	0.00	0.00	0.00	0.00	0.00	9.51	0.00	0.00	0.00	0.00	0.00	0.00	9.51
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:	1.37	33.02	11.49	24.12	26.42	91.94	25.47	101.15	41.68	75.65	63.77	45.39	541.47
Glendale North/South														
	GN-1	64.65	69.58	76.50	76.29	67.83	54.57	73.98	74.01	73.89	76.79	39.00	49.24	796.33
	GN-2	76.42	78.04	86.80	86.59	77.24	25.63	84.19	83.37	83.54	87.63	44.53	56.17	870.15
	GN-3	67.19	42.38	35.57	35.57	31.73	20.40	34.52	22.72	34.06	32.88	14.24	17.68	388.94
	GN-4	214.93	216.82	223.44	222.27	198.21	223.46	214.93	178.47	212.16	220.58	223.15	214.93	2,563.35
	GS-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
	GS-2	56.82	56.56	58.62	58.36	52.27	37.10	56.74	55.76	56.46	58.38	59.04	56.74	662.85
	GS-3	56.28	35.96	35.77	35.64	31.87	20.46	34.58	33.91	34.48	32.84	14.63	17.71	384.13
	GS-4	57.58	55.75	58.43	58.01	52.31	53.06	56.74	56.95	56.80	58.34	58.89	56.27	679.13
	Total:	593.87	555.09	575.13	572.73	511.46	434.68	555.68	505.19	551.39	567.44	453.48	468.74	6,344.88
Greeff Fabrics														
----	-----													0.00
Hathaway (successor to deMille)														
----	1	2.29	0.57	0.00	0.45	0.57	1.14	1.40	2.43	2.51	2.49	2.97	2.97	19.79
	2	0.96	0.75	0.50	0.75	0.72	1.06	0.51	1.10	1.17	0.83	1.01	1.01	10.37
	3	1.16	0.62	0.41	0.69	0.51	0.69	0.49	0.54	0.55	0.10	0.48	0.48	6.72
	Total:	4.41	1.94	0.91	1.89	1.80	2.89	2.40	4.07	4.23	3.42	4.46	4.46	36.88
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	0.73	0.80	0.88	1.13	1.02	0.93	0.88	0.69	0.80	0.46	0.38	0.33	9.03
---	1140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---	1070	3.47	3.45	2.07	2.73	3.12	3.33	3.59	2.97	3.35	2.96	2.31	2.98	36.33
---	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:	4.20	4.25	2.95	3.86	4.14	4.26	4.47	3.66	4.15	3.42	2.69	3.31	45.36

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	Nov.	Dec.	2001 Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	TOTAL
					San Fernando Basin (cont'd)									
Metropolitan Water District														
	Jensen	18.90	12.10	15.50	16.00	14.50	15.90	15.90	16.60	15.70	15.80	14.90	30.20	202.00
Mobil Oil Corporation														
---	---	0.19	0.33	0.38	0.08	0.09	0.09	0.15	0.27	0.13	0.30	0.40	0.20	2.61
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	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.13
4940-3	6	0.58	0.62	0.37	0.19	0.11	-0.03	-0.02	0.00	0.03	0.00	1.03	0.24	3.12
4940-2	7	0.12	0.29	0.36	0.08	0.24	0.80	0.71	1.07	1.29	1.05	0.64	0.51	7.16
new	8	0.73	0.82	0.66	0.48	0.18	0.32	0.36	0.30	0.25	0.89	0.79	0.42	6.20
	Spring 1&2	0.04	0.06	0.04	0.03	0.02	0.04	0.05	0.05	0.07	0.06	0.08	0.04	0.58
	Total	1.49	1.82	1.45	0.78	0.55	1.13	1.10	1.48	1.64	2.00	2.54	1.21	17.19
Micro Matics														
JEW	1	0.19	0.26	0.16	0.18	0.22	0.25	0.25	0.27	0.25	0.22	0.26	0.11	2.62
JEW	2	0.05	0.11	0.07	0.07	0.09	0.13	0.11	0.13	0.13	0.12	0.13	0.05	1.19
	Total	0.24	0.37	0.23	0.25	0.31	0.38	0.36	0.40	0.38	0.34	0.39	0.16	3.81
Raytheon (Formerly Hughes Missile Systems)														
----	-----	0.28	0.32	0.14	0.41	0.50	0.36	0.56	0.51	0.27	0.38	0.35	0.29	4.37
Sears Roebuck & Co. (Well disconnected 10/2000)														
3945	3945	17.60	0.00	16.01	16.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.62
Sportsmen's Lodge														
3785A	1	0.01	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.18
3M-Pharmaceuticals														
---	---	6.16	5.44	5.52	6.95	5.87	5.89	5.99	6.42	5.20	5.14	6.00	5.67	70.25
Toluca Lake Property Owners Association														
3845F	3845F	2.52	2.52	2.52	2.52	0.48	1.52	4.58	6.07	6.14	5.15	0.88	4.74	39.64
Trillium Corporation														
Well #1	---	1.59	2.65	2.43	2.77	1.59	2.20	2.19	1.43	2.37	2.86	3.24	3.07	28.39
Well #2	---	0.63	1.01	0.95	0.63	1.01	0.82	0.57	0.71	1.21	1.37	1.57	1.56	12.04
	Total:	2.22	3.66	3.38	3.40	2.60	3.02	2.76	2.14	3.58	4.23	4.81	4.63	40.43
Valhalla Memorial Park and Mortuary														
3840K	4	6.75	25.69	25.49	7.50	4.46	9.63	25.27	53.84	74.74	45.72	47.83	80.14	407.06
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

2000-2001 WATER YEAR
(acre-feet)

LACDPW Well No	Owner Well No.	2000 Oct.	Nov.	Dec.	2001 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														
—	—	2.04	3.54	2.75	1.79	2.39	3.45	2.03	2.40	1.26	1.32	1.15	2.20	26.32
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	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	11.82	10.19	0.02	22.07
3810V	A-3	15.15	17.40	8.67	0.00	0.00	0.00	10.53	0.00	0.00	20.33	35.99	24.83	132.90
3810W	A-4	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.04	0.00	9.48	20.86	33.74	64.18
3820H	A-5	1.67	1.60	2.43	0.00	0.00	0.00	2.34	6.42	8.21	6.19	10.67	8.90	48.43
3821J	A-6	33.74	38.45	22.79	0.00	0.00	0.00	11.59	17.58	32.48	31.91	39.25	30.37	258.16
3830P	A-7	31.88	40.93	24.47	0.00	0.00	0.00	12.71	18.98	35.35	28.16	42.12	32.23	266.83
3831K	A-8	38.10	45.13	26.97	0.00	0.00	0.00	13.77	20.47	38.26	36.13	45.66	34.68	299.17
	A Total:	120.54	143.51	85.33	0.00	0.00	0.00	51.02	63.51	114.30	144.02	204.74	164.77	1,091.74
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	108.33	159.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	267.74
3811F	E-10	50.48	76.03	61.75	60.65	76.53	34.02	0.00	20.08	61.73	16.55	15.90	62.00	535.72
	E Total:	158.81	235.44	61.75	60.65	76.53	34.02	0.00	20.08	61.73	16.55	15.90	62.00	803.46
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
3839S	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

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	2000 Nov.	2000 Dec.	2001 Jan.	2001 Feb.	2001 Mar.	2001 Apr.	2001 May	2001 June	2001 July	2001 Aug.	2001 Sept.	TOTAL
San Fernando Basin (cont'd)														
North Hollywood (NH)														
3800	NH-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3780A	NH-4	161.04	166.06	0.00	150.61	186.75	0.00	0.00	102.18	149.93	72.06	53.25	128.83	1,170.71
3810S	NH-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.83	0.00	64.41	50.82	77.98	288.04
3770	NH-7	136.17	139.89	0.00	0.13	163.84	0.00	0.00	0.00	136.66	0.00	0.00	0.00	576.69
3810	NH-11	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59
3810A	NH-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810B	NH-14A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3790B	NH-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820D	NH-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820C	NH-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3820B	NH-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830D	NH-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830C	NH-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3830B	NH-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.04	0.00	0.00	0.06	0.62
3790C	NH-22	211.66	221.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.30	82.39	227.02	788.90
3790D	NH-23	10.30	0.16	12.39	22.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.95
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	165.63	167.60	0.00	0.06	244.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	577.57
3790E	NH-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.80	0.00	0.00	0.00	0.00	9.80
3820F	NH-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3810K	NH-28	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55
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	0.02	0.00	0.00	0.11	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.40
3810T	NH-31	189.37	0.09	0.00	0.00	0.00	0.00	0.00	130.99	0.00	0.00	0.00	184.80	505.25
3770C	NH-32	8.08	196.39	0.00	0.09	220.08	0.00	0.00	166.41	190.17	89.69	68.89	238.70	1,178.50
3780C	NH-33	0.18	0.00	0.00	246.76	298.53	0.00	0.00	0.20	243.13	115.77	88.01	0.16	992.74
3790G	NH-34	0.00	0.11	0.13	0.09	0.34	0.00	0.18	0.59	0.00	0.18	0.18	0.16	1.96
3830N	NH-35	6.26	0.43	0.20	0.00	0.00	0.00	0.00	0.18	0.13	0.00	0.00	234.32	241.52
3790H	NH-36	11.47	0.09	0.00	9.80	373.55	0.00	0.06	0.00	0.00	56.33	48.34	0.11	499.75
3790J	NH-37	0.00	0.22	0.00	9.43	276.92	0.00	0.06	0.00	0.00	0.09	0.00	0.00	286.72
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	1.40	0.00	0.00	0.00	0.00	1.03	0.18	0.00	0.00	0.00	0.00	2.61
3810Q	NH-41	0.00	0.57	0.00	0.00	0.00	0.00	0.34	0.18	0.00	0.00	0.00	0.00	1.09
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	268.64	0.00	166.85	0.00	0.00	435.49
3790L	NH-44	363.72	376.30	31.61	375.91	442.67	0.00	0.00	0.00	370.98	196.30	129.17	325.66	2,612.32
3790M	NH-45	431.47	442.97	36.20	378.58	0.00	0.00	0.00	0.00	360.16	0.00	159.25	440.20	2,248.83
	NH Total:	1,695.37	1,714.40	81.08	1,193.67	2,206.96	0.00	1.67	774.97	1,451.20	807.98	680.30	1,858.00	12,465.60

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	2000 Nov.	2000 Dec.	2001 Jan.	2001 Feb.	2001 Mar.	2001 Apr.	2001 May	2001 June	2001 July	2001 Aug.	2001 Sept.	TOTAL
San Fernando Basin (cont'd)														
Pollock (P)														
3959E	P-4	167.42	210.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	109.14	103.85	591.31
3958H	P-6	191.16	183.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	131.38	0.34	505.98
3958J	P-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	158.05	158.69
	P Total:	358.58	394.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	241.16	262.24	1,255.98
Rinaldi-Toluca (RT)														
4909E	RT-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	401.33	444.83	846.16
4898A	RT-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.44	0.00	3.44
4898B	RT-3	0.00	0.00	0.00	220.04	263.49	0.00	0.02	193.27	375.04	0.00	0.00	0.98	1,052.84
4898C	RT-4	0.00	0.00	0.00	0.59	0.18	0.06	0.02	0.00	0.00	0.00	390.65	437.32	828.82
4898D	RT-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	125.29	60.14	185.43
4898E	RT-6	0.00	0.00	0.00	227.45	266.39	0.00	0.04	198.98	373.98	0.00	376.46	415.70	1,859.00
4898F	RT-7	0.00	0.00	0.00	231.93	275.16	0.00	0.11	194.62	383.31	0.00	383.12	436.93	1,905.18
4898G	RT-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.66	0.00	413.56	479.47	922.69
4898H	RT-9	0.00	0.00	0.00	237.39	247.06	0.00	0.04	203.05	348.88	0.00	0.00	0.00	1,036.42
4909G	RT-10	0.00	0.00	0.00	250.55	264.62	0.00	0.09	0.39	105.21	0.00	405.41	472.47	1,498.74
4909K	RT-11	0.00	0.00	0.00	0.43	0.18	0.00	0.00	0.00	0.00	0.00	0.52	0.52	1.65
4909H	RT-12	0.00	0.00	0.00	194.03	259.82	0.04	0.06	0.34	103.42	0.00	0.66	0.50	558.87
4909J	RT-13	0.00	0.00	0.00	45.33	0.34	0.00	0.06	0.29	0.00	0.00	0.52	0.48	47.02
4909L	RT-14	0.00	0.00	0.00	0.45	0.18	0.02	0.04	0.32	0.29	0.00	0.00	0.00	1.30
4909M	RT-15	0.00	0.00	0.00	1.35	0.16	0.02	0.04	0.94	0.22	0.00	0.00	0.00	2.73
	RT Total:	0.00	0.00	0.00	1,409.54	1,577.58	0.14	0.52	792.20	1,720.01	0.00	2,500.96	2,749.34	10,750.29
Tujunga (T)														
4887C	T-1	525.45	207.52	146.09	467.90	210.58	0.00	476.83	582.32	505.99	490.79	568.25	499.81	4,681.53
4887D	T-2	500.52	199.21	135.35	444.97	198.53	0.00	447.75	551.19	479.68	465.81	596.32	475.30	4,494.63
4887E	T-3	582.78	231.15	161.70	525.32	233.72	0.39	530.80	648.57	562.97	548.18	697.31	552.64	5,275.53
4887F	T-4	449.10	61.59	147.01	475.29	210.00	0.41	453.94	583.81	123.04	0.68	0.25	0.00	2,505.12
4887G	T-5	0.00	0.52	0.50	0.25	0.48	0.32	321.28	591.78	127.68	0.00	0.00	0.00	1,042.81
4887H	T-6	0.00	0.78	0.16	0.78	0.00	0.25	0.27	0.78	227.47	94.21	651.65	516.59	1,492.94
4887J	T-7	0.00	0.59	0.32	0.22	0.39	1.21	0.34	0.71	267.76	0.36	0.57	0.00	272.47
4887K	T-8	0.00	0.55	0.27	0.20	0.66	0.45	0.61	0.48	169.92	506.17	642.92	509.48	1,831.71
4886B	T-9	487.02	73.18	151.53	478.78	35.58	1.46	0.78	0.45	132.66	497.38	628.87	487.60	2,975.29
4886C	T-10	464.21	78.19	0.96	0.36	1.28	0.84	503.21	620.93	530.16	505.14	629.59	488.24	3,823.11
4886D	T-11	0.00	0.00	0.41	0.68	0.27	0.27	0.48	0.00	0.00	0.00	0.00	0.00	2.11
4886E	T-12	539.00	214.25	158.93	486.38	237.16	1.76	487.58	531.72	497.77	515.35	583.31	444.74	4,697.95
	T Total:	3,548.08	1,067.53	903.23	2,881.13	1,128.65	7.36	3,223.87	4,112.74	3,625.10	3,624.07	4,999.04	3,974.40	33,095.20

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	Nov.	Dec.	2001 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	1.37	0.00	0.00	0.00	0.00	1.37
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	147.38	221.30	185.44	184.34	236.31	98.50	0.00	149.35	178.74	46.55	21.37	190.70	1,659.98
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	202.15	297.79	249.95	249.17	318.77	139.27	0.00	230.11	280.11	27.47	32.92	293.06	2,320.77
	V Total:	349.53	519.09	435.39	433.51	555.08	237.77	0.00	380.83	458.85	74.02	54.29	483.76	3,982.12
Whitnall (W)														
3820E	W-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821B	W-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821C	W-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821D	W-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3821E	W-5	0.00	0.36	0.00	68.91	88.33	0.00	0.00	0.00	0.00	0.00	0.00	259.96	417.56
3831J	W-6A	56.56	86.61	69.39	93.73	111.08	39.23	0.00	82.73	196.34	65.56	68.61	128.92	998.76
3832K	W-7	84.06	117.51	95.40	0.00	0.00	48.04	0.00	37.35	107.59	27.59	30.94	0.00	548.48
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:	140.62	204.48	164.79	162.64	199.41	87.27	0.00	120.08	303.93	93.15	99.55	388.88	1,964.80
Los Angeles, City of Total:		6,371.53	4,278.45	1,731.57	6,141.14	5,744.21	366.56	3,277.08	6,264.41	7,735.12	4,759.79	8,795.94	9,943.39	65,409.19
San Fernando Basin Total:		8,300.81	6,157.36	3,383.57	7,828.32	7,233.48	1,838.69	5,122.65	8,227.96	9,446.06	7,057.60	10,676.76	11,672.95	86,946.19

							Sylmar Basin							
Los Angeles, City of														
Plant	Mission													0.00
Well	5	1.58	5.96	0.00	0.27	0.00	0.32	0.32	2.61	0.00	0.00	0.00	0.00	11.06
Well	6	123.76	206.97	153.58	116.48	145.36	126.17	129.63	118.48	0.00	0.00	0.00	0.00	1,120.43
Well	7	155.21	266.02	201.65	154.47	195.79	171.30	169.92	159.73	0.00	0.00	0.00	0.00	1,474.09
		280.55	478.95	355.23	271.22	341.15	297.79	299.87	280.82	0.00	0.00	0.00	0.00	2,605.58
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

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	2000 Nov.	2000 Dec.	2001 Jan.	2001 Feb.	2001 Mar.	2001 Apr.	2001 May	2001 June	2001 July	2001 Aug.	2001 Sept.	TOTAL
						Sylmar Basin (cont'd)								
San Fernando, City of														
5969D	2A	106.76	126.34	111.78	121.05	91.60	87.35	105.98	160.42	214.12	256.98	255.54	216.68	1,854.60
5959	3	122.11	95.29	84.78	58.82	65.91	83.36	91.05	76.88	31.32	0.00	3.59	28.58	741.69
5969	4	25.31	24.45	21.50	21.40	17.73	23.64	25.42	26.67	24.15	33.11	34.42	29.07	306.87
5968	7A	52.92	51.76	60.47	48.24	38.76	56.38	41.72	69.24	88.56	94.75	105.20	84.44	792.44
	Total:	307.10	297.84	278.53	249.51	214.00	250.73	264.17	333.21	358.15	384.84	398.75	358.77	3,695.60
	Sylmar Basin Total:	587.65	776.79	633.76	520.73	555.15	548.52	564.04	614.03	358.15	384.84	398.75	358.77	6,301.18

						Verdugo Basin								
Crescenta Valley County Water District														
5058B	1	28.94	29.54	18.13	10.62	3.56	14.04	17.26	40.14	40.72	39.21	37.48	35.18	314.82
5036A	2	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
5058H	5	77.78	80.93	2.62	9.11	33.68	24.50	87.12	93.01	88.14	89.59	84.63	83.47	754.58
5058	6	3.06	2.66	1.34	0.71	0.46	6.25	4.89	4.95	8.48	6.67	8.53	7.21	55.21
5047B	7	27.77	9.89	0.00	0.63	1.67	12.70	16.62	34.68	34.48	32.30	31.09	24.15	225.98
5069J	8	0.01	0.00	56.78	43.47	57.81	36.81	48.64	48.52	44.63	45.20	26.68	45.15	453.70
5047D	9	9.77	13.11	5.77	0.76	0.86	5.31	3.82	22.81	22.00	15.66	16.13	18.86	134.86
5058D	10	37.33	38.96	33.87	29.02	20.20	0.00	0.00	0.00	0.00	0.00	34.76	43.11	237.25
5058E	11	27.61	26.39	2.64	5.35	19.45	22.47	36.61	38.60	32.60	29.53	27.71	23.16	292.12
5058J	12	16.71	19.17	27.16	10.25	15.59	34.91	40.67	46.17	41.52	40.27	32.62	18.72	343.76
5069F	14	59.78	43.81	50.82	44.35	35.42	43.11	41.47	46.10	43.40	43.79	60.73	42.44	555.22
	PICKENS (CVWD)	4.40	4.17	4.44	3.96	4.95	4.66	4.80	5.44	4.52	4.40	4.52	4.32	54.58
	Total:	293.16	268.63	203.57	158.23	193.66	204.76	301.90	380.42	360.49	346.62	364.88	345.77	3,422.10
Knowltons														
	PICKENS	0.00	0.00	0.00	1.23	0.99	1.23	1.37	1.10	1.10	0.93	0.96	0.93	9.84
Glendale, City of														
3961-3971	GL3-5	78.89	76.78	64.08	60.40	58.19	64.74	40.29	49.12	109.39	104.98	98.40	87.40	892.66
3970	GL-6	65.58	61.89	62.20	55.03	66.57	71.38	66.68	58.44	60.95	57.72	52.42	16.10	694.96
---	VPCKP	67.95	67.60	59.61	68.32	30.48	56.79	66.39	69.43	68.08	57.13	27.47	0.00	639.25
---	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:	212.42	206.27	185.89	183.75	155.24	192.91	173.36	176.99	238.42	219.83	178.29	103.50	2,226.87
	Verdugo Basin Total:	505.58	474.90	389.46	341.98	348.90	397.67	475.26	557.41	598.91	566.45	543.17	449.27	5,648.97

2000-2001 WATER YEAR

(acre-feet)

LACDPW Well No.	Owner Well No.	2000 Oct.	2000 Nov.	2000 Dec.	2001 Jan.	2001 Feb.	2001 Mar.	2001 Apr.	2001 May	2001 June	2001 July	2001 Aug.	2001 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	4.88	5.13	4.88	5.20	4.51	5.31	5.22	5.58	5.77	5.48	6.20	4.78	62.94
3987F	3	5.11	4.78	5.26	5.20	4.63	5.39	5.35	5.97	5.89	6.01	5.77	5.01	64.37
3987G	4	10.02	7.68	7.17	8.42	7.17	8.55	7.83	9.39	9.19	9.72	10.61	8.25	104.00
	Total:	20.01	17.59	17.31	18.82	16.31	19.25	18.40	20.94	20.85	21.21	22.58	18.04	231.31
Eagle Rock Basin Total:		20.01	17.59	17.31	18.82	16.31	19.25	18.40	20.94	20.85	21.21	22.58	18.04	231.31

ULARA Total:	9,414.05	7,426.64	4,424.10	8,709.85	8,153.84	2,804.13	6,180.35	9,420.34	10,423.97	8,030.10	11,641.27	12,499.03	99,127.65

APPENDIX B
KEY GAGING STATIONS SURFACE RUNOFF

ESTERN HYDROLOGIC SYSTEMS - (916) 885-2480
F118B-R PACIOMA DAM OUTFLOW

psc
10-16-00

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1999 TO SEP 2000

ay	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	7.1	0	0	18	0	0	0	0	0	0
2	0	0	0	0	0	18	0	0	0	0	0	0
3	0	0	0	0	0	18	0	0	0	0	0	0
4	0	0	0	0	0	18	0	0	0	0	0	0
5	0	0	0	0	0	18	0	0	0	0	0	0
6	0	0	0	0	0	17	0	0	0	0	0	0
7	0	0	0	0	0	16	0	0	0	0	0	0
8	0	0	0	0	0	16	0	9.1	0	0	0	0
9	0	0	0	0	0	16	0	25	0	0	.24	0
0	0	0	0	0	0	16	14	25	0	0	0	0
1	0	0	0	0	0	16	24	24	0	0	0	0
2	0	0	0	0	0	16	25	24	0	0	0	0
3	0	0	0	0	0	5.6	25	24	0	0	0	0
4	0	0	0	0	0	0	26	24	0	0	0	0
5	0	0	0	0	0	0	22	24	0	0	0	0
6	0	0	0	0	0	0	21	24	0	0	0	0
7	0	0	0	0	0	0	6.1	24	0	0	0	0
8	0	1.2	0	0	0	0	0	24	0	0	0	0
9	0	0	0	0	0	0	0	24	0	0	0	0
?	0	0	0	0	.01	0	0	24	0	0	0	0
1	0	0	0	0	0	0	0	24	0	0	0	0
2	0	0	0	0	0	0	0	23	1.7	0	0	0
3	0	0	0	0	0	0	0	9.8	0	0	0	0
4	0	0	0	0	20	0	0	0	0	0	0	0
5	0	0	0	0	30	0	0	0	0	0	0	0
6	0	0	0	0	29	0	0	0	0	0	0	0
7	0	0	0	0	29	0	0	0	0	0	0	0
8	0	0	0	0	26	0	0	0	0	0	0	0
9	0	12	0	0	18	0	0	0	0	0	0	0
0	0	21	0	0	------	0	0	0	0	0	0	0
1	0	------	0	0	------	0	------	0	------	0	0	------
TOTAL	0	34.2	7.1	0	152.01	208.6	163.1	355.9	1.7	0	0.24	0
EAN	0	1.14	.23	0	5.24	6.73	5.44	11.5	.057	0	.008	0
AX	0	21	7.1	0	30	18	26	25	1.7	0	.24	0
IN	0	0	0	0	0	0	0	0	0	0	0	0
C-FT	0	68	14	0	302	414	324	706	3.4	0	.5	0

AL YEAR 1999	TOTAL*	41.30	MEAN	.45	MAX	21	MIN	0	AC-FT	82
TR YEAR 2000	TOTAL	922.85	MEAN	2.52	MAX	30	MIN	0	AC-FT	1,830

* Incomplete Record

OS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
F168-R BIG TUJUNGA CREEK BELOW DAM

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1999 TO SEP 2000

ay	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.05	.05	.04	.02	77	19	.04	.04	.22	.01	0
2	.05	.05	.05	.03	.02	44	21	.03	.04	.10	.03	0
3	.04	.05	.05	.02	.01	14	22	.03	.03	.04	.05	.01
4	.04	.05	.05	.02	.02	13	20	.03	.04	.05	.07	.01
5	.04	.05	.05	.02	.02	26	17	.03	.04	.05	.05	.02
6	.05	.05	.06	.02	.02	75	11	.03	.04	.06	.03	.03
7	.05	.06	.06	.02	13	70	.25	.03	.04	.06	.02	.03
8	.05	26	.05	.02	23	66	.06	.03	.05	.07	.01	.02
9	.05	38	.05	.02	21	62	.04	16	.06	.08	.01	.01
0	.04	16	.06	.02	13	59	.04	26	.06	.09	.02	0
1	.04	.40	.05	18	1.2	56	.04	26	.05	.10	.01	0
2	.04	.07	.05	56	1.7	53	.04	26	.05	.10	0	0
3	.04	.05	.05	31	.30	43	.04	26	.04	.12	0	0
4	.04	.04	.05	.95	.10	26	.05	26	.03	.07	0	0
5	.04	.03	.05	.05	.06	25	.05	26	.03	.04	0	0
6	.05	.04	.05	.02	.68	29	.05	12	.03	.02	0	0
7	.05	.04	.05	.02	.53	35	10	1.3	.03	.01	0	0
8	.06	3.3	.04	.02	.52	30	42	.28	.04	.03	0	0
9	.06	.97	.04	.02	.73	27	78	.07	.04	.05	0	0
0	.06	.10	.04	.02	3.3	26	65	.05	.04	.04	0	0
1	.05	.05	13	.02	123	23	49	.05	.04	.04	0	0
2	.05	.05	21	.02	74	22	31	.05	25	.03	0	0
3	.04	.05	20	.02	66	20	2.7	.05	44	.03	0	.01
4	.05	.05	8.7	.02	76	9.4	.60	.06	43	.04	0	.04
5	.04	.04	.24	.08	55	.49	.11	.07	41	.02	0	.03
6	.05	.05	.05	.03	59	.22	35	.07	30	0	0	.03
7	.05	.04	.04	.02	39	.13	46	.06	4.5	0	0	.03
8	.05	.04	.03	.02	10	.11	27	.05	2.5	0	0	.03
9	.05	.04	.03	.02	43	.20	1.3	.04	1.3	0	0	.03
0	.05	.05	.03	.02	------	4.6	.10	.03	.55	0	0	.04
1	.04	------	.05	.03	------	17	------	.04	------	0	.02	------
OTAL	1.46	85.86	64.17	106.63	624.23	953.15	498.47	186.52	192.71	1.56	0.33	0.37
EAN	.047	2.86	2.07	3.44	21.5	30.7	16.6	6.02	6.42	.050	.011	.012
AX	.06	38	21	56	123	77	78	26	44	.22	.07	.04
IN	.04	.03	.03	.02	.01	.11	.04	.03	.03	0	0	0
C-FT	2.9	170	127	212	1,240	1,890	989	370	382	3.1	.7	.7

AL YEAR 1999	TOTAL*	151.49	MEAN	1.65	MAX	38	MIN	.03	AC-FT	300
TR YEAR 2000	TOTAL	2,715.46	MEAN	7.42	MAX	123	MIN	0	AC-FT	5,390

* Incomplete Record

WESTERN HYDROLOGIC SYSTEMS - (916) 885-2480
F300-R LOS ANGELES RIVER @ TUJUNGA AVE.

dse
10-11-00

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1999 TO SEP 2000

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	70	64	73	70	61	67	90	90	87	87	88
2	72	67	64	64	65	60	67	91	90	83	89	84
3	69	71	50	60	52	172	65	88	88	82	60	82
4	75	73	62	62	50	332	69	68	86	86	90	83
5	73	67	65	60	47	2,050	69	90	87	89	90	87
6	81	69	65	63	53	465	68	96	90	96	88	90
7	77	66	65	64	61	109	70	92	93	93	92	88
8	77	465	67	64	61	983	66	91	90	94	91	85
9	80	66	64	64	60	124	64	91	90	89	89	89
10	79	77	64	68	475	92	63	98	85	90	89	88
11	82	77	61	63	144	83	65	92	84	92	92	90
12	76	74	61	64	1,120	67	65	90	90	94	93	87
13	75	68	65	64	373	63	80	89	87	95	83	76
14	74	66	74	64	460	63	85	85	93	90	89	60
15	79	62	65	58	99	60	86	87	91	94	89	70
16	79	69	62	51	671	62	88	89	90	92	92	71
17	72	70	64	95	127	57	2,260	90	93	92	91	91
18	75	52	66	64	71	56	1,650	91	84	97	89	92
19	63	62	65	54	68	56	139	88	83	92	82	97
	78	99	64	60	2,180	53	114	90	86	88	80	102
21	76	64	63	60	2,660	50	102	91	88	91	92	81
22	80	66	63	61	221	55	101	94	86	93	95	106
23	80	68	63	59	2,790	56	96	94	87	88	90	233
24	82	63	62	65	244	61	93	92	83	92	94	96
25	85	62	62	863	124	60	91	104	82	94	85	95
26	84	67	66	107	97	59	95	88	84	87	89	86
27	80	64	66	65	493	54	96	91	86	92	82	86
28	78	62	70	62	124	58	100	85	90	90	90	75
29	82	77	62	59	68	67	91	84	92	94	279	99
30	81	68	67	181	------	71	89	92	87	93	97	95
31	73	------	189	277	------	70	------	88	------	96	90	------
TOTAL	2,390	2,451	2,110	3,138	13,128	5,729	6,254	2,789	2,635	2,825	2,928	2,752
MEAN	77.1	81.7	68.1	101	453	185	208	90.0	87.8	91.1	94.5	91.7
MAX	85	465	189	863	2,790	2,050	2,260	104	93	97	279	233
MIN	63	52	50	51	47	50	63	68	82	82	60	60
AC-FT	4,740	4,860	4,190	6,220	26,040	11,360	12,400	5,530	5,230	5,600	5,810	5,460

CAL YEAR 1999	TOTAL*	6,951	MEAN	75.6	MAX	465	MIN	50	AC-FT	13,790
WTR YEAR 2000	TOTAL	49,129	MEAN	134	MAX	2,790	MIN	47	AC-FT	97,450

* Incomplete Record

Record estimated due to construction; Sept 16-21, 2000.

WESTERN HYDROLOGIC SYSTEMS - (916) 885-2480
E285-R BURBANK WESTERN STORM DRAIN

DRE 10-11-00

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1999 TO SEP 2000

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.9	12	9.8	12	11	7.9	8.9	10	13	13	11	13
2	10	13	10	10	11	8.2	10	10	13	13	12	12
3	11	12	9.9	11	9.1	40	11	11	13	13	13	12
4	11	13	11	11	8.6	25	10	11	12	13	12	13
5	10	12	10	10	10	279	8.8	13	15	14	13	12
6	9.7	13	10	11	9.7	30	7.4	13	12	12	12	14
7	10	13	9.9	10	9.2	12	8.2	12	12	11	12	12
8	10	24	10	10	10	58	6.3	13	14	11	12	12
9	9.9	13	10	10	10	10	6.3	12	13	12	14	12
10	9.8	13	11	9.1	71	8.0	6.9	11	13	13	13	12
11	10	13	10	9.2	11	10	6.9	12	13	15	13	11
12	9.8	13	10	9.0	119	9.4	6.6	11	12	15	12	11
13	9.3	13	10	9.3	30	9.8	8.5	11	12	14	13	12
14	9.2	12	10	9.8	14	9.8	6.3	11	12	14	13	12
15	11	11	10	9.6	11	9.1	6.2	12	12	14	13	12
16	11	13	11	9.7	131	9.4	6.5	12	12	14	14	11
17	11	11	9.5	13	9.8	9.2	253	12	12	13	11	12
18	12	8.6	10	10	10	9.4	159	11	12	12	12	12
19	11	10	9.4	9.9	11	9.3	10	11	13	12	11	12
2?	12	11	9.8	10	226	8.7	12	12	12	9.3	12	12
21	12	11	10	9.8	220	9.0	11	12	12	12	12	13
22	13	11	10	9.8	15	8.9	11	12	13	10	12	20
23	13	10	10	9.8	252	9.0	11	12	13	12	13	22
24	12	10	10	10	15	9.2	11	12	12	11	13	13
25	12	11	9.1	66	11	9.1	12	13	11	11	12	12
26	13	9.4	10	11	10	9.1	12	13	12	11	13	12
27	12	9.5	9.8	9.9	51	9.6	13	11	11	11	13	12
28	13	10	9.8	11	8.9	9.5	13	10	12	12	12	12
29	13	10	10	11	6.5	9.8	12	12	13	12	20	12
30	12	10	11	15	------	9.7	12	12	13	13	14	12
31	13	------	16	14	------	9.7	------	12	------	11	13	------
TOTAL	345.6	355.5	317.0	380.9	1,321.8	674.8	676.8	362	374	383.3	395	381
MEAN	11.1	11.9	10.2	12.3	45.6	21.8	22.6	11.7	12.5	12.4	12.7	12.7
MAX	13	24	16	66	252	279	253	13	15	15	20	22
MIN	9.2	8.6	9.1	9.0	6.5	7.9	6.2	10	11	9.3	11	11
AC-FT	685	705	629	756	2,620	1,340	1,340	718	742	760	783	756

CAL YEAR 1999	TOTAL*	1,018.1	MEAN	11.1	MAX	24	MIN	8.6	AC-FT	2,020
WTR YEAR 2000	TOTAL	5,967.7	MEAN	16.3	MAX	279	MIN	6.2	AC-FT	11,840

* Incomplete Record

WESTERN HYDROLOGIC SYSTEMS - (916) 885-2480
F252-R VERDUGO WASH @ ESTELLE AVE.

DRC 10-11-00

DAILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1999 TO SEP 2000

Day	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	5.9	11	7.2	6.4	8.2	8.0	9.7	4.8	3.6	3.2	3.5
2	4.7	6.1	10	5.8	5.9	8.0	8.0	8.4	4.9	3.9	3.2	3.6
3	6.0	6.0	10	5.3	5.8	19	8.0	8.3	4.4	3.8	3.1	3.7
4	5.9	6.3	11	5.5	6.2	25	8.0	8.2	4.5	3.9	3.1	3.2
5	5.3	6.4	10	5.7	6.2	273	7.9	8.3	4.5	3.6	3.1	3.5
6	4.8	6.2	5.9	4.8	5.9	23	8.2	8.1	4.7	3.6	3.1	3.0
7	5.8	6.1	6.7	5.4	5.7	12	8.7	7.7	4.4	3.5	3.4	3.1
8	7.2	24	7.1	6.3	7.4	61	8.7	7.9	5.4	3.5	3.3	3.1
9	5.7	6.9	5.9	5.9	8.6	13	8.5	8.1	3.9	3.4	5.7	2.9
10	5.3	6.4	5.8	6.5	111	11	8.4	7.9	4.6	3.8	9.3	3.0
11	4.7	6.1	6.0	6.4	9.1	11	8.4	7.7	4.0	3.6	6.8	3.9
12	4.7	6.1	5.8	5.9	111	12	8.2	8.1	4.7	3.9	3.1	6.2
13	4.7	6.3	6.4	5.8	33	9.8	8.0	8.2	4.5	4.8	3.0	7.7
14	4.7	6.2	6.1	8.0	23	8.6	9.0	7.9	4.7	7.8	7.1	6.6
15	5.0	6.8	5.9	12	8.4	8.0	8.6	8.0	4.7	8.9	8.7	3.4
16	5.9	6.8	6.1	12	177	8.1	8.5	13	4.7	7.2	4.5	3.4
17	5.7	6.8	6.5	13	13	8.0	215	6.2	4.4	5.2	3.5	3.5
18	5.3	6.9	5.8	6.6	8.1	8.0	112	6.1	4.3	4.9	3.3	3.3
19	5.4	6.4	5.7	5.9	8.0	8.0	10	5.5	4.4	4.1	3.2	3.5
20	6.0	8.4	6.0	6.7	172	8.5	9.0	4.6	4.3	3.9	3.0	3.7
21	5.9	6.2	5.7	6.4	289	8.7	8.9	4.7	4.2	3.5	3.3	6.0
22	5.4	6.1	7.5	5.6	22	8.9	8.9	4.7	4.1	3.2	3.3	11
23	5.4	6.2	6.2	5.6	251	8.5	8.8	4.8	4.2	3.2	3.1	15
24	5.4	6.3	6.4	6.0	20	9.1	9.5	5.6	3.6	3.2	3.4	3.6
25	5.8	6.2	5.9	50	11	8.5	9.5	8.4	3.7	3.2	3.4	3.6
26	5.4	6.4	5.4	9.2	8.9	8.0	11	4.8	4.1	3.2	3.5	3.2
27	5.6	6.4	5.9	6.6	76	8.0	15	5.0	3.9	3.2	3.1	3.3
28	6.9	6.5	6.6	7.0	11	8.0	16	4.6	3.7	3.2	3.3	3.6
29	6.4	7.9	7.3	6.2	8.9	8.1	14	4.5	3.7	3.2	7.6	3.7
30	5.8	10	6.0	12	------	9.0	9.8	4.7	3.7	3.2	3.9	3.4
31	5.6	------	14	18	------	8.3	------	4.7	------	3.2	3.9	------
TOTAL	171.1	215.3	220.6	273.3	1,429.5	636.3	590.5	214.4	129.7	126.4	128.5	134.2
MEAN	5.52	7.18	7.12	8.82	49.3	20.5	19.7	6.92	4.32	4.08	4.15	4.47
MAX	7.2	24	14	50	289	273	215	13	5.4	8.9	9.3	15
MIN	4.7	5.9	5.4	4.8	5.7	8.0	7.9	4.5	3.6	3.2	3.0	2.9
AC-FT	339	427	438	542	2,840	1,260	1,170	425	257	251	255	266

CAL YEAR 1999	TOTAL*	607.0	MEAN	6.60	MAX	24	MIN	4.7	AC-FT	1,200
WTR YEAR 2000	TOTAL	4,269.8	MEAN	11.7	MAX	289	MIN	2.9	AC-FT	8,470

* Incomplete Record

ESTERN HYDROLOGIC SYSTEMS - (916) 885-2480
F57C-R LOS ANGELES RIVER ABOVE ARROYO SECO

DRC 10-23-00

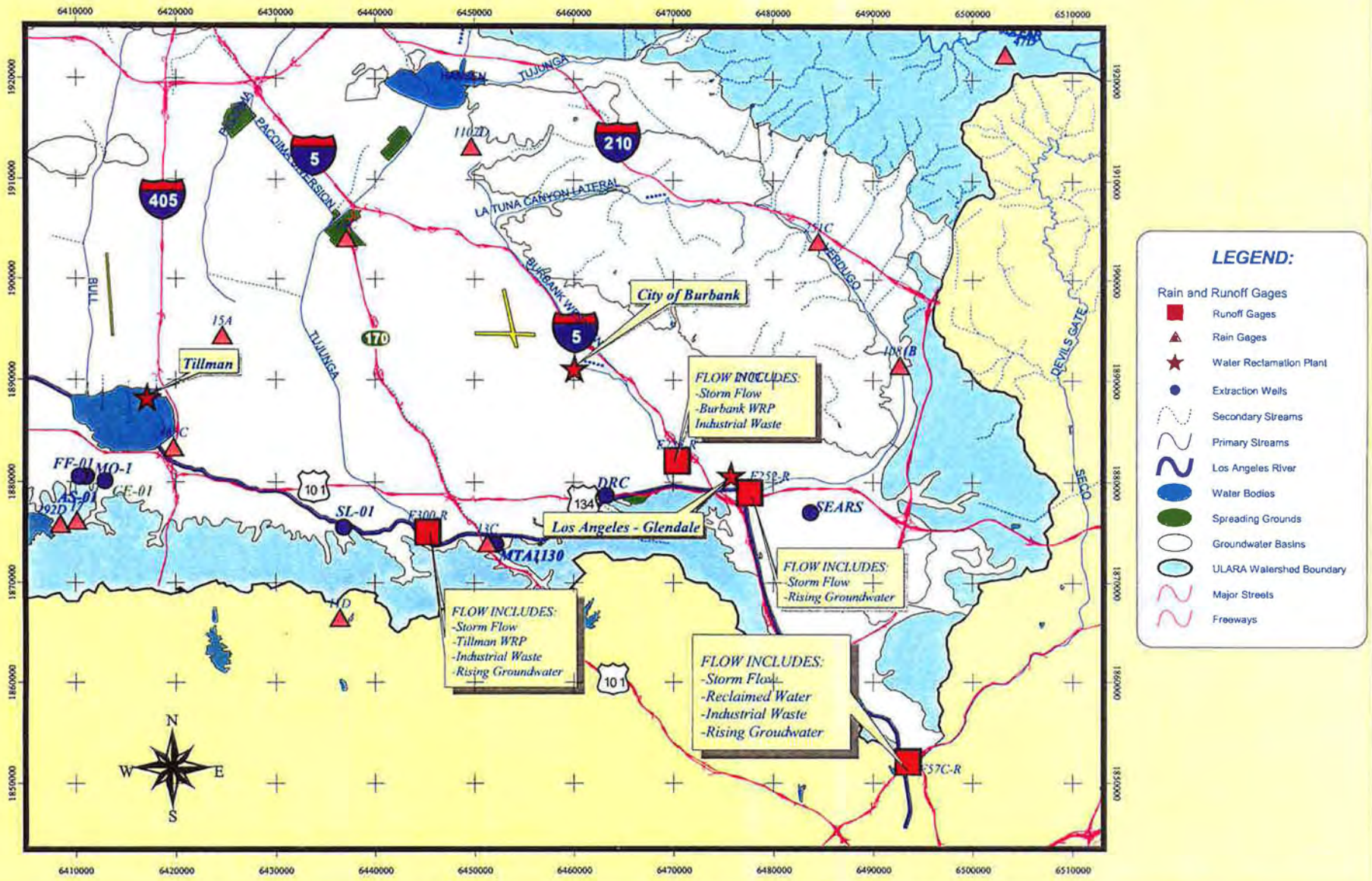
AILY DISCHARGE IN CUBIC FEET PER SECOND WATER YEAR OCT 1999 TO SEP 2000

y	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
	106	98	93	106	126	89	238	84	100	95	105	96
	108	95	93	89	119	91	230	86	99	94	109	95
	106	100	89	85	112	190	229	87	96	92	92	96
	103	101	95	88	104	665	216	82	96	93	107	98
	99	99	98	84	98	3,390	208	93	95	95	109	101
	98	100	99	89	102	504	199	99	97	97	109	105
	100	96	98	89	111	139	193	100	99	113	109	102
	97	511	99	91	118	1,320	183	101	100	129	110	104
	99	87	98	91	117	150	163	104	101	129	114	107
	96	89	99	93	1,040	108	167	107	100	129	115	107
	100	91	99	90	229	105	162	108	104	129	117	107
	99	89	96	91	1,880	95	164	109	108	129	113	108
	100	88	98	94	435	97	185	112	108	129	111	110
	102	86	104	94	557	100	190	110	117	129	111	105
	105	87	100	95	148	97	181	114	121	129	112	115
	105	92	99	90	1,450	100	181	119	124	129	110	110
	101	98	99	109	203	98	3,560	115	123	129	108	94
	100	90	102	104	102	101	2,340	119	119	109	109	108
	96	96	102	86	99	102	143	116	117	103	109	122
	102	119	103	87	2,950	108	126	130	121	98	108	128
1	100	96	101	90	4,370	106	115	142	123	99	114	119
2	103	92	102	90	302	116	115	155	123	101	120	143
3	103	94	101	90	4,120	130	116	161	116	100	117	208
4	104	92	101	90	316	147	115	159	107	101	121	105
5	105	91	97	1,330	134	155	115	151	100	103	122	104
6	106	96	101	196	114	164	120	113	95	101	121	99
7	105	94	101	109	756	184	127	104	94	102	124	102
8	104	86	102	106	155	188	132	100	96	102	127	97
9	107	95	98	104	98	219	130	98	95	105	236	114
0	106	95	101	136	------	227	125	102	95	107	101	114
1	100	------	243	436	------	242	------	101	------	108	96	------
OTAL	3,165	3,243	3,211	4,622	20,465	9,527	10,468	3,481	3,189	3,408	3,586	3,323
EAN	102	108	104	149	706	307	349	112	106	110	116	111
AX	108	511	243	1,330	4,370	3,390	3,560	161	124	129	236	208
IN	96	86	89	84	98	89	115	82	94	92	92	94
C-FT	6,280	6,430	6,370	9,170	40,590	18,900	20,760	6,900	6,330	6,760	7,110	6,590

AL YEAR 1999	TOTAL*	9,619	MEAN	105	MAX	511	MIN	86	AC-FT 19,080
TR YEAR 2000	TOTAL	71,688	MEAN	196	MAX	4,370	MIN	82	AC-FT 142,200

Incomplete Record Record partly estimated, recoorder inoperative; Dates: Sept 15, 16, 22, and 23, 2000.

APPENDIX C
COMPONENTS OF LOS ANGELES RIVER FLOW



2000-01 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 FLOV			
2000-01 WATER YEAR			
TOTAL FLOW AT GAGE F-57C-R			F-57C-R: Storm, Reclaimed, Industrial, Rising Groun
			F300-R: Storm, Tillman, Industrial Waste, and Rising
Total:	188860		E285-R :Storm, Burbank WRP, Industrial Waste
			F252-R: Storm, Rising Water
I. RECLAIMED WATER DISCHARGED TO L.A. RIVER IN ULARA			
Tillman:	56942	: Record	
L.A.-Glendale:	12157	: Record	
Burbank WRP:	6966	: Record	
Total:	**76065**		
II. INDUSTRIAL WATER and STORM FLOWS DISCHARGED TO L.A. RIVER IN ULAR			
Upstream of F300-R			
Industrial Water	181	: From F300-R separation of flow	
F168	7018		
F118	2712		
Storm Flows @300	62747	Storm flows less F168 and F118)	
	72658		
Between F300-R and E-285			
Disney	0	Disney Riverside Construction	
MTA	45		
Storm Drains and Unaccounted water	7227	:10 cfs assumes 7964	
Headworks:	0	:pilot project record	
Western Drain:	1894	: From E285-R separation of flow	
Storm Flows @285	6261		
	15427		
Between E-285 and F57C-R			
Storm Flows@ 252	3108		
Irrigation and Industrial Flows	5506	:From F252-R separation of flow	
Glendale Operable Unit	6227		
Sycamore Canyon	1100	Estimated from historic flows	
Storm Drains and Unaccounted water	5781	:8 cfs assumes 5781	
	21722		
Total Part II:	**109807**		
III. RISING WATER IN L.A. RIVER IN ULARA			
Total:	2988	: See Section 2.3 of the Watermaster's Report	

APPENDIX D
WATER QUALITY DATA

REPRESENTATIVE MINERAL ANALYSES OF WATER

Well Number or Source	Date Sampled	Spec. Cond. µmho/c	Mineral Constituents in milligrams per liter (mg/l)												TDS mg/l	Hardness as $CaCO_3$ mg/l
			pH	Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	NO_3	F	B		
Imported Water																
Colorado River Water at Eagle Rock Reservoir	10/2001	880	8.1	58	25	83	4.1	0	145	191	82	0.6	0.21	-	527	248
LA Aqueduct Influent	9/17/01	362	8.3	23.7	6.6	41	4.4	0	157	20.8	25.9	<2	0.76	0.81	192	128.5
LA Aqueduct/MWD Filtration Plant Influent	9/17/01	401	8.2	25.6	8.4	42.8	4.4	0	146	31.2	35.7	0.7	0.64	0.61	330	92
State Water Project at Joseph Jensen Filtration Plant (Influent)	10/2001	539	7.7	27	14.5	55	2.9	0	106	59	68	2.5	0.17	-	297	127
Surface Water																
Tillman Rec. Plant Discharge to LA River	2001FY	-	7.2	38	13.5	104	16.7	-	-	107	118	0.26	0.9	0.77	557	160
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 - 05/2000	1123	8.0	-	-	-	-	-	-	207	104	4.9	-	-	712	336
LA/Glendale Rec. Plant Discharge to LA River	2001FY	-	7.1	54.2	20.1	122	19.7	-	-	144	165	1.7	0.42	0.53	689.8	226.7
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) (b)	4/15/99	918	7.2	93.1	34.3	55.2	2.32	ND	291	121	72.7	38.7	0.27	0.38	612	363
(Sylmar Basin)																
4840J (Mission No. 5)	6/17/99	730	7.7	79.8	18.8	34.5	4.31	ND	261	73.8	33.2	28.6	0.3	0.32	449	214
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)	10/5/00	1065	6.8	106	36.4	44.3	3.69	ND	210	146	97	39.8	0.16	-	644	393
5058 (CVWD No. 8)	2/6/01	770	6.9	82	30	33	2.5	ND	220	100	62	51	0.36	ND	470	310

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	Paschke, Bob	19901 Nordhoff St.	R	Feb 8, 1989
6	Philips Components	Smith, Wade	4561 Colorado St.	R	Jul 14, 1987
7	Raytheon (Hughes)	Garvey, Tim	Canoga Park, CA	R	February 1995
8	Holchem	Cuthbert, Andrew	Pacoima, CA	R	February 1, 2000
9	Micro Matic USA Inc.	Thorne, Brian	Northridge CA	R	April, 1999
10	Menasco	Goulding, Nigel	Burbank, CA	R	October 31, 2001
11	Home Depot	Karen Arteaga	Burbank, CA	R	March 19, 2001

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
CRESCENTA VALLEY WATER DISTRICT

Crescenta Valley Water District

2700 Foothill Boulevard, La Crescenta, California 91214
Phone (818) 248-3925 Fax (818) 248-1659

October 4, 2001

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

SUBJECT: CVWD 2000-2001 VERDUGO BASIN PRODUCTION
REQUEST FOR ADJUSTMENT 2001-2002

With the recently concluded 2000-01 water year, the District pumped approximately 3427 acre-feet (AF) of groundwater from the Verdugo Basin. This is 133 AF more than the 3294 AF adjudication and was allowed by the Watermaster and the ULARA Administrative Committee for said year. This amount does not include the 2.11 AF of development and testing production for our new Well No. 15, which I previously reported to you in my letter of April 24, 2001.

Currently, the groundwater levels in the basin are down quite a bit, which has dramatically reduced our production capability. Nevertheless, I would now like to formally request a similar adjustment for our Verdugo Basin pumping for the 2001-02 water year. I realize that any adjustment will take into account the City of Glendale's projection of Verdugo Basin pumping for the coming year as well as your evaluation of the total safe yield of the basin. A decision early in the year would certainly help in the District's water production planning process. Perhaps this issue could be agendized for the next regular Administrative Committee Meeting. Thanks in advance for your consideration and please call if you need more information.

Very truly yours,

CRESCENTA VALLEY WATER DISTRICT

Michael G. Sovich
General Manger

MGS:mnz

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

November 15, 2001

Mr. Michael Sovich
General Manager
Crescenta Valley Water District
La Crescenta, CA 91214

Mr. Donald Froelich
Water Services Administrator
City of Glendale
2700 Foothill Boulevard
Glendale, CA 91206

Gentlemen:

Pumping in the Verdugo Basin by Crescenta Valley Water District (CVWD) in Excess of Its Water Rights

This letter is intended to clarify any questions regarding water rights due to the pumping by CVWD in excess of its rights in the Verdugo Basin.

As you are aware, for several years CVWD has requested, and has been granted, permission to pump in excess of its adjudicated water right of 3,294 acre-feet per year in the Verdugo Basin, up to the safe yield of the basin. Each year, CVWD has submitted a request to the Watermaster and it has been approved with the concurrence of the entire Administrative Committee, including Glendale.

The water pumped by CVWD under these conditions is considered surplus water in the Verdugo Basin. This pumping should not be construed as a future limitation on Glendale's rights, if and when Glendale becomes capable of pumping its full right of 3,856 acre-feet per year from the Verdugo Basin. By allowing CVWD permission to pump this surplus water a year at a time, the Watermaster does not intend for this pumping to form the basis for an appropriative right or a prescriptive right against Glendale.

If you have any questions, please contact me at (213) 367-1020.

Sincerely,

M L Blevins

MELVIN L. BLEVINS
ULARA Watermaster

c: Administrative Committee Members
Mr. Fred Lantz, City of Burbank
Mr. Michael Drake, City of San Fernando
Mr. Thomas M. Erb, City of Los Angeles

Watermaster Staff
Mr. Melvin L. Blevins, Watermaster
Mr. Frederic Fudacz, Special Counsel
Mr. Mark G. Mackowski, Assistant Watermaster
Ms. Patricia T. Kiechler, Administrator

MGM:me

bc: Gerald A. Gewe
Ernest F. Wong

ULARA Watermaster File

APPENDIX G
METROPOLITAN TRANSPORTATION AUTHORITY

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

November 20, 2001

Mr. Chris Olsen
Harding ESE, Inc.
2171 Campus Drive, Suite 100
Irvine, CA 92612

Dear Mr. Olsen:

Metropolitan Transportation Authority (MTA) Universal City
Pedestrian Underpass Project

Thank you for the letter and FAX of November 8, 2001 (Enclosed) describing the Metropolitan Transportation Authority Universal City Pedestrian Underpass Project (MTA Pedestrian Project) in the San Fernando Basin. The construction dewatering for the MTA Pedestrian Project scheduled to begin in August or September 2002 and lasting approximately 20 months is approved as long as all other construction requirements are met and that the groundwater is metered and reported to the Watermaster's Office each month.

MTA already has an agreement with the City of Los Angeles and the Upper Los Angeles River Area (ULARA) Watermaster for long-term dewatering of the main subway tunnel. This new temporary dewatering for the MTA Pedestrian Project should be tracked separately. The monthly production report should be sent within 15 days after the end of each month. Our office will return a year-to-date summary for the MTA's records. When the construction project is completed a final report should be filed with this office describing, if any, the need for continuing long-term dewatering.

The groundwater lost from the basin through this dewatering and discharge belongs to the City of Los Angeles according to the terms of the City of Los Angeles vs. City of San Fernando Judgment, et al., Case No. 650079. The Watermaster's Office will be notifying the City of Los Angeles Department of Water and Power of this dewatering project. Normally, payment is made to the City of Los Angeles for the groundwater pumped for dewatering purposes (Policies and Procedures, Section 2.1.6.1). The City of Los Angeles will make this determination and will be contacting you.

If you have any questions, please contact me or Ms. Patricia Kiechler, ULARA Watermaster Administrator at (213) 367-0921. Sometime during construction our staff will contact you to conduct a field investigation.

Sincerely,

MELVIN L. BLEVINS
ULARA Watermaster

PTK:bw

Enclosure

c: Administrative Committee Members
Mr. Fred Lantz, City of Burbank
Mr. Michael Sovich, Crescenta Valley Water District
Mr. Michael Drake, City of San Fernando
Mr. Donald Froelich, City of Glendale
Mr. Thomas M. Erb, City of Los Angeles

Mr. Ernest Wong, City of Los Angeles
Ms. Julie A. Conboy, City Attorney

Mr. Tim Lindholm, MTA

Watermaster Staff
Mr. Melvin L. Blevins, Watermaster
Mr. Frederic Fudacz, Special Counsel
Mr. Mark G. Mackowski, Assistant Watermaster
Ms. Patricia T. Kiechler, Administrator

ULARA Watermaster File
A:\MTA Ped Tunnel\BW06

Harding ESE

Harding ESE, Inc.
2171 Campus Drive
Suite 100
Irvine, CA 92612
Telephone: 949/224-0050
Fax: 949/224-0073
Home Page: www.mactec.com

November 8, 2001

Mel Blevins
ULARA Water Master
111 North Hope St., Room-1472
Los Angeles, California 90012

Dear Mr. Blevins:

Per my telephone conversation with you, the Upper Los Angeles River Area (ULARA) Water Master, I am providing the information you requested that defines the proposed project requiring groundwater extraction and discharge. The Los Angeles County Metropolitan Transportation Authority (MTA) requires a permit to discharge groundwater from dewatering wells for the construction contract referred to as C322, Universal City Pedestrian Underpass Project.

The MTA proposes to construct a pedestrian underpass at the corner of Lankershim Boulevard and Universal Terrace Parkway in Universal City, California (see attached site plan). During construction, groundwater will be removed from the area using dewatering wells. The groundwater will be pumped to Baker tanks where it will be metered and discharged at a rate of 100 gallons per minute (gpm). The MTA has been granted permission by the City of Los Angeles Bureau of Sanitation to discharge 100 gpm to an 18-inch diameter sewer line in Lankershim Boulevard, and we are currently in the process of obtaining a City of Los Angeles Sanitation Department Industrial Waste Discharge Permit for the proposed discharges.

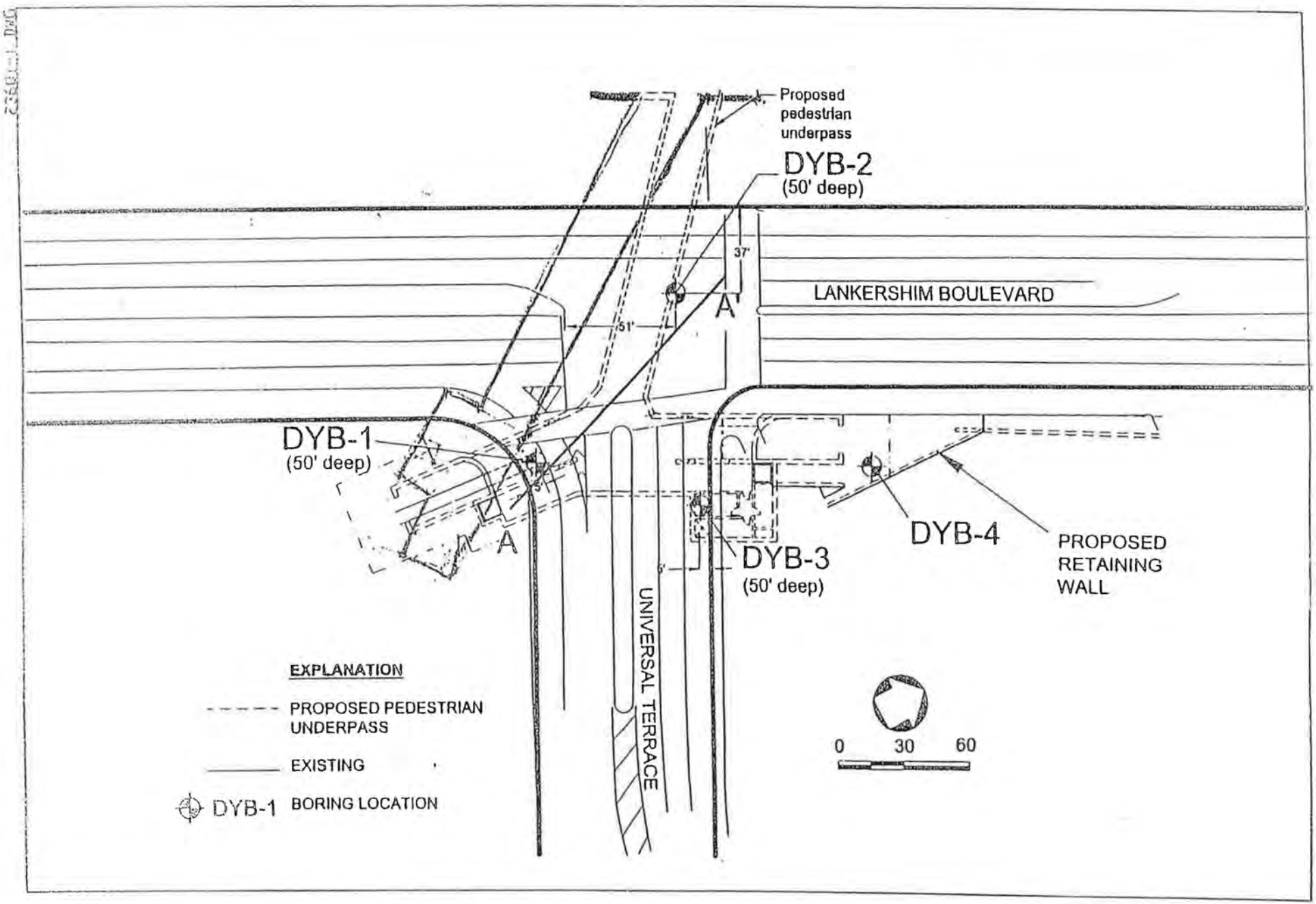
If you have any questions, please do not hesitate to call.

Yours very truly,

HARDING ESE, INC.

Chris Olsen
Senior Staff Engineer

cc: Mr. Timothy Lindholm, MTA


Proposed pedestrian underpass
DYB-2
(50' deep)
37'
51'
A
A'
LANKERSHIM BOULEVARD
DYB-1
(50' deep)
A
A'
DYB-3
(50' deep)
DYB-4
PROPOSED RETAINING WALL
UNIVERSAL TERRACE
EXPLANATION
PROPOSED PEDESTRIAN UNDERPASS
EXISTING
DYB-1 BORING LOCATION
0
30
60

APPENDIX H
BUREAU OF ENGINEERING
NORTHEAST INTERCEPTOR SEWER

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

November 27, 2001

Mr. Nick Demos, Project Engineer
Major Sewers Engineering Division
Bureau of Engineering
Department of Public Works
650 S. Spring Street, Suite 800
Los Angeles, CA 90014-1918

Dear Mr. Demos:

Northeast Interceptor Sewer (NEIS) Project - Requirement to Report Pumped Groundwater within the San Fernando Basin

As Watermaster for the Upper Los Angeles River Area (ULARA), I am required to account for all water entering or leaving the San Fernando Basin (SFB). Groundwater rights in the SFB were awarded to the City of Los Angeles in Superior Court Case No. 650079, City of Los Angeles vs. City of San Fernando, et al. (Judgment).

The portion of the NEIS Project located northerly of the intersection of the Los Angeles River and the Arroyo Seco lies within the SFB. My understanding is that the project may require dewatering during construction from approximately April 2002 through November 2004. The Judgment requires that all dewatering within ULARA be metered and reported to my office on a monthly basis. The monthly production report should be sent within 15 days after the end of each month. Our office will return a year-to-date summary for your records. When the construction is completed, a final report should be filed with this office describing the need for post-construction loss of groundwater, if any.

The quantity of water lost through dewatering will be charged to Los Angeles' water rights. Also, the quantity of lost groundwater will be reported to the Los Angeles Department of Water and Power (LADWP), and you may be required to compensate LADWP for this lost water. LADWP will make this determination and will be contacting you.

If you have any questions, please contact me at (213) 367-1020, or Ms. Patricia Kiechler, Watermaster Administrator, at (213) 367-0921.

Sincerely,

MELVIN L. BLEVINS
ULARA Watermaster

MGM:me

c: Administrative Committee Members
Mr. Fred Lantz, City of Burbank
Mr. Michael Sovich, Crescenta Valley Water District
Mr. Michael Drake, City of San Fernando
Mr. Donald Froelich, City of Glendale
Mr. Thomas M. Erb, City of Los Angeles

Mr. Gerald A. Gewe, LADWP
Mr. Ernest Wong, LADWP
Ms. Julie Spacht, LADWP

Watermaster Staff
Mr. Melvin L. Blevins, Watermaster
Mr. Frederic Fudacz, Special Counsel
Mr. Mark G. Mackowski, Assistant Watermaster
Ms. Patricia T. Kiechler, Administrator

APPENDIX I
CITY OF LOS ANGELES

ULARA Watermaster 716

31068 -3

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

August 2, 2001

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

Dear Mr. Erb:

Pollock Wells
Stored Water Credit Correction and
The Annual Pumping Requirements

Thank you for bringing to our attention the miscalculation of stored water credit for the 1998-99 Water Year at the Pollock Well Field. The error will be corrected. As you will recall, the decision to correct stored water credit was made in consultation with the City of Los Angeles in order to more accurately account for the water credited to the City of Los Angeles. At the time there was also a review of the actual water in storage. These facts were detailed in a letter to Mr. Gerald Gewe on December 21, 2000.

In the calculation there were ten years of excess rising groundwater considered as lost to the river during the years 1989 to 1999 when the Pollock Well Field was not being pumped at an annual minimum required production rate of 2,000 Acre Feet (AF). In fact, the restored Pollock Well Field went on-line in February of 1999 and 1,513 AF were pumped during that year. This 1,513 AF will be credited to the City of Los Angeles in the May 2002 ULARA Watermaster Report.

The City of Los Angeles has indicated in its letter of July 26, 2001 that 3,000 gallons per minute (gpm), or 2,400 AF annually, as the result of six months of production, is the capacity of the Pollock Plant, and is sufficient to address the concern for the excess groundwater discharges. In an effort to accommodate City of Los Angeles' operational concerns, the Watermaster will use 2,000 AF as the annual baseline. Beginning as of October 1, 2001 in any water year when less than 2,000 AF are pumped the difference will be considered as lost and will be deducted from the City of Los Angeles' stored water credit. If there are unforeseen and uncontrollable reasons, the City of Los Angeles can seek consideration by contacting the Watermaster.

Excess rising groundwater outflow is lost within the water year. This situation is particularly acute because of the location of the Pollock wells pumping close to the outflow of the Los Angeles River from Upper Los Angeles River Area (ULARA). There is no opportunity to recapture the groundwater or to make up the lost groundwater by averaging out the production over 2 –5 years.

I appreciate the effort the City of Los Angeles is making to pump efficiently and to manage a large and complex groundwater system. If you have any questions or suggestions, please contact me at (213) 367-1020.

Sincerely,

MELVIN L. BLEVINS
ULARA Watermaster

PTK:bw

c: Administrative Committee Members
Mr. Fred Lantz, City of Burbank
Mr. Michael Sovich, Crescenta Valley Water District
Mr. Michael Drake, City of San Fernando
Mr. Donald Froelich, City of Glendale
Mr. Thomas M. Erb, City of Los Angeles

Mr. Ernest Wong, City of Los Angeles
Mr. Mario Acevedo, City of Los Angeles
Mr. James McDaniel, City of Los Angeles
Mr. James Yanotta, City of Los Angeles

Watermaster Staff
Mr. Melvin L. Blevins, Watermaster
Mr. Frederic Fudacz, Special Counsel
Mr. Mark G. Mackowski, Assistant Watermaster
Ms. Patricia T. Kiechler, Administrator

ULARA Watermaster File
A:Pollock Correct1\BW06

APPENDIX J
WELLS DRILLED OR ABANDONED

WELLS DRILLED OR ABANDONED

2000-01 WATER YEAR

1. City of Glendale

   Six former Glendale production wells were decommissioned by Disney in November 2001: 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).

APPENDIX K
ACTION ITEMS 2001-2002

ACTION ITEMS

WATERMASTER ACTIVITIES FOR 2001-2002 WATER YEAR

- Support the parties in their efforts to deal with increasingly stringent stormwater discharge requirements.
- Continue to keep the parties informed regarding current and future water quality issues, such as, chromium, arsenic, and 1,2,3 TCP.
- Continue to attend meetings of public interest groups, such as the Los Angeles and San Gabriel Rivers Watershed Council, the Sun Valley Watershed Committee, and others to support and promote the goals of the parties and the overall health of the basins within ULARA.
- Continue to attend meetings of technical groups, such as the Association of Groundwater Agencies (AGWA), Groundwater Agency Technical Exchange (GATE), and others to exchange ideas and information regarding water quality and basin management.
- Facilitate Pacoima Area Investigation.
- Evaluate method to calculate Separation of Flow at Gage F-57C-R.
- Continue exploring ways to maximize spreading at the Tujunga/Hansen Spreading Grounds.
- Continue supporting the work of the City and County to account for groundwater production in the unincorporated areas of the County.

APPENDIX L
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 M
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