STATE OF CALIFORNIA
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Southern District

WATERMASTER SERVICE IN THE UPPER LOS ANGELES RIVER AREA LOS ANGELES COUNTY

OCTOBER 1, 1976 – SEPTEMBER 30, 1977

District Report

July 1978

FOREWORD

The Department of Water Resources as interim Watermaster for the Upper Los Angeles River Area (ULARA) is pleased to submit this report of water supply conditions in ULARA during the 1976-77 water year. It was prepared in accordance with the agreement between the Cities of Los Angeles, Glendale, Burbank, and San Fernando and the State, effective July 1, 1976. This agreement, together with Part 4, Division 2, of the California Water Code, authorized this publication and the Department's administration of the Watermaster service area.

The full effect that the August 1, 1975, State Supreme Court decision will have on Watermaster service in ULARA has not been determined. It is expected that the final Judgment outlining the Watermaster's responsibilities will be entered in the Superior Court of Los Angeles County in the fall of 1978. In order to maintain continuity in operation, the State will maintain records as in the past until new procedures are developed.

This report includes information on ground water extractions and levels, use of imported water, recharge operations, water quality conditions, and other pertinent information pursuant to the agreement between the parties and the State.

The Watermaster wishes to acknowledge and express appreciation for the assistance and support received from the many public and private organizations and individuals whose contributions were essential to this report.

C B Arnold

Jack J. Coe, Chief
Southern District
and Watermaster
Reg. C. E. No. 8075

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I. INTRODUCTION

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 Flood Control District (LACFCD) Gaging Station F-57C-R, near the junction of the Los Angeles River and the Arroyo Seco (Plate 1). ULARA encompasses 133 100 hectares (329,000 acres), composed of 49 700 hectares (123,000 acres) of valley fill, referred to as the ground water basins, and 83 400 hectares (206,000 acres) of hills and mountains. ULARA is bounded on the north by the Santa Susana Mountains and on the east by the San Rafael Hills, which separate it from the San Gabriel Basin. To the south, the Santa Monica Mountains separate it from the Los Angeles Basin; to the west lie the Simi Hills.

ULARA has four distinct ground water basins. The water supplies of these basins are separate and are replenished by deep percolation from rainfall and from a portion of the water that is delivered for use within these basins. The four ground water basins in ULARA are the San Fernando, Sylmar, Verdugo, and Eagle Rock Basins (Plate 1).

The San Fernando Basin, the largest of the four basins, consists of 45 325 hectares (112,000 acres) and comprises 90.8 percent of the total valley fill. It is bounded on the east and northeast by the San Rafael Hills and Verdugo Mountains, on the south by the Santa Monica Mountains, and on the northwest and west by the Santa Susana Mountains and Simi Hills.

The Sylmar Basin, in the northerly part of ULARA, consists of 2 266 hectares (5,600 acres) and comprises 4.5 percent of the total valley fill. It is bounded on the north and east by the San Gabriel Mountains. On the south, it is separated from the San Fernando Basin by the eroded limb of the Little Tujunga syncline and the Mission Hills. On the west are the Santa Susana Mountains.

The Verdugo Basin, north and east of the Verdugo Mountains in ULARA, consists of 1 781 hectares (4,400 acres) and comprises 3.8 percent of the total valley fill. It is bounded on the north by the San Gabriel Mountains, on the east by a ground water 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 comprises 324 hectares (800 acres) and consists of 0.6 percent of the total valley fill.

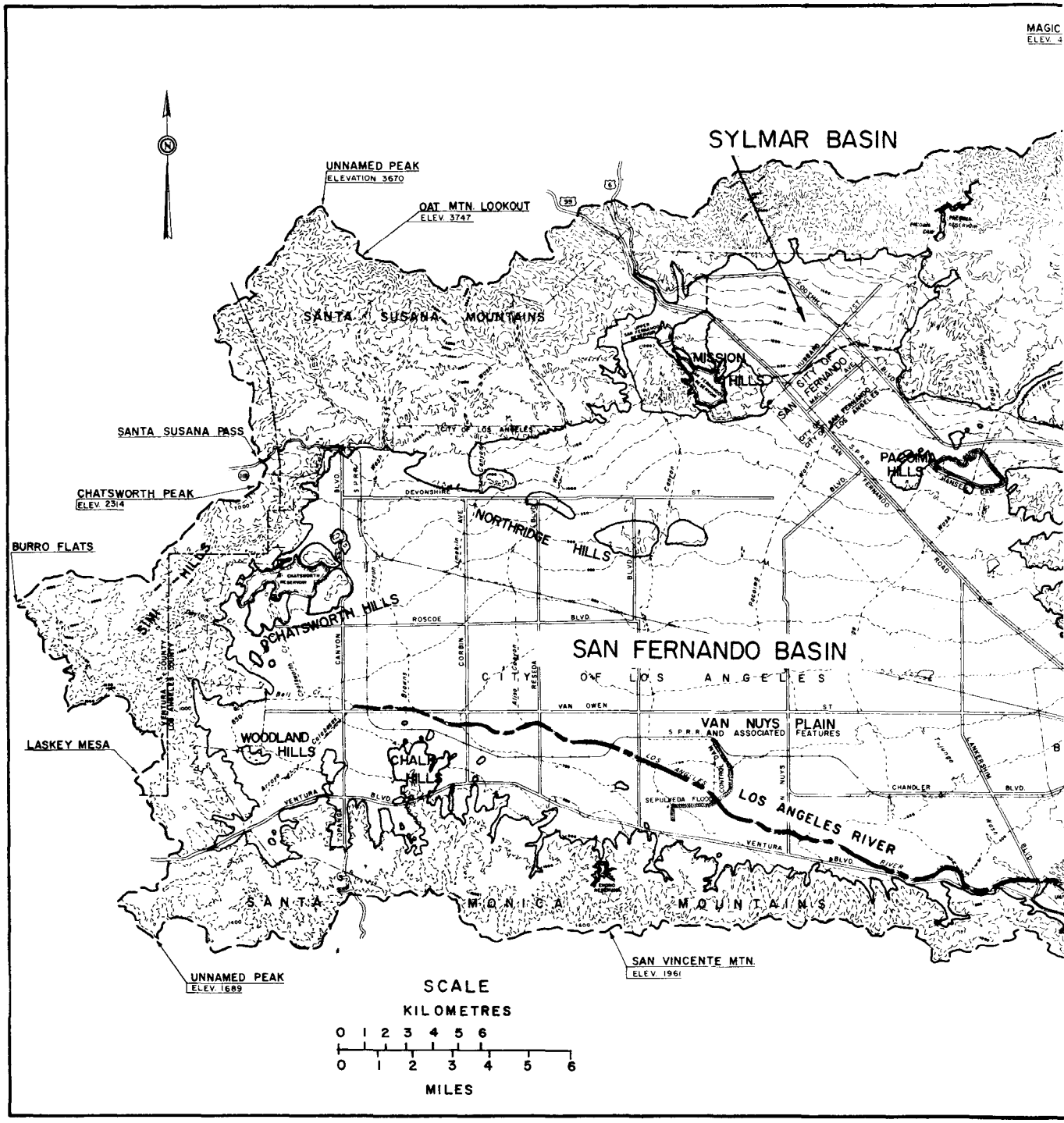
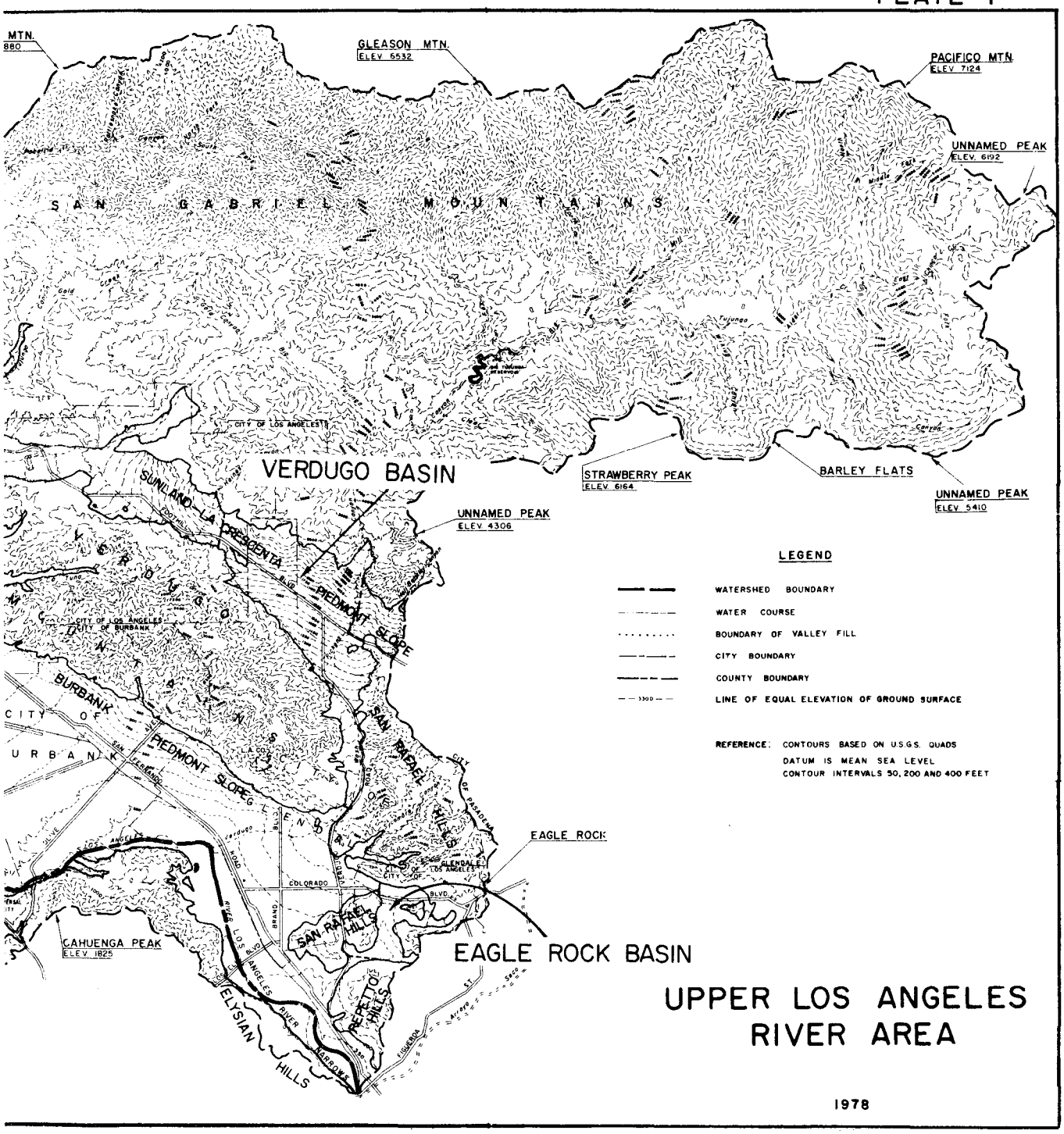

MAGIC
ELEV. 4
SYLMAR BASIN
UNNAMED PEAK
ELEVATION 3670
OAT MTN. LOOKOUT
ELEV. 3747
SANTA SUSANA MOUNTAINS
MISSION HILLS
SANTA SUSANA PASS
CHATSWORTH PEAK
ELEV. 2314
PACOIMA HILLS
NORTHRIDGE HILLS
BURRO FLATS
SIMI HILLS
CHATSWORTH HILLS
SAN FERNANDO BASIN
OF LOS ANGELES
VAN NUYS PLAIN
AND ASSOCIATED FEATURES
LASKEY MESA
WOODLAND HILLS
CHALK HILL
LOS ANGELES RIVER
SANTA MONICA MOUNTAINS
SAN VINCENTE MTN.
ELEV. 1961
UNNAMED PEAK
ELEV. 1689
SCALE
KILOMETRES
0 1 2 3 4 5 6
0 1 2 3 4 5 6
MILES

PLATE 1



UPPER LOS ANGELES RIVER AREA

1978

History of Adjudication

ULARA was 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. Prior to the Judgment, numerous pre-trials 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 on June 11, 1958, an "Order of Reference to State Water Rights Board to Investigate and Report upon the Physical Facts (Section 2001, Water Code)".

A final Report of Referee was approved on July 27, 1962, and filed with the Court. The Report of Referee made a complete study of the geology, insofar as it affects the occurrence and movement of ground water and the surface and ground water hydrology of the area. In addition, investigations were made of: the history of the horizontal and vertical location of the beds, banks, and channels of the Los Angeles River and its tributaries; the areas, limits, and directions of flow of all ground water within the area; the quality of the ground water in the basins; all sources of water, whether they be diverted, extracted, or imported, etc. This was the basis for the Judgment.

The City of Los Angeles filed an appeal with the Court of Appeals, 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 within ULARA including the use of the underground basins. 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 Appeals. On January 2, 1973, the defendants appealed to the State Supreme Court. The Court on March 2, 1973, advised the parties it would hear the case. The hearing was held on January 14, 1975.

On May 12, 1975, the California Supreme Court issued its decision on the 20-year San Fernando Valley Water Litigation. This decision, which became final on August 1, 1975, upheld the Pueblo Water Rights of the City of Los Angeles to all ground water in the San Fernando Basin derived from precipitation within ULARA. The City of

Los Angeles' Pueblo Water Rights were not allowed to extend to the ground waters of the Sylmar and Verdugo Basins.

The City of Los Angeles was also given rights to all San Fernando Basin ground water derived from water imported by it from outside ULARA and either spread or delivered within ULARA. The Cities of Glendale and Burbank each were given rights to all San Fernando Basin ground water derived from water that each imports from outside ULARA and delivered within ULARA.

The Cities of Los Angeles, Glendale, Burbank, and San Fernando and the Crescenta Valley County Water District (CVCWD) are reviewing Los Angeles' draft of the "Findings of Fact, Conclusions of Law, and Judgment" in the San Fernando case as outlined in the "Remand Procedure Order No. 1," signed by Superior Court Judge Harry Hupp, dated March 18, 1977 (Appendix A).

Also, the Cities of Los Angeles, Glendale, and Burbank are proceeding to extract ground water from the San Fernando Basin pursuant to a Memorandum of Understanding, entered into by these cities on March 10, 1977 (Appendix B).

In response to the drought conditions of 1976-77, the Court entered an "Order Authorizing Temporary Mining of San Fernando Basin" on June 17, 1977 (Appendix C). This allowed Los Angeles, Glendale and Burbank to extract additional water as needed with the obligation to replenish the basin for water extracted.

The Cities of Los Angeles and San Fernando in the Sylmar Basin and the CVCWD and City of Glendale in the Verdugo Basin are extracting ground water as they have in the past, but without any additional legal agreements between parties. The final judgment in this case will indicate the water rights of all parties. Said judgment is expected to be entered in the Los Angeles Superior Court in the fall of 1978.

Watermaster Service

Watermaster Service is administered by the Department of Water Resources (DWR) under Article 2, Chapter 2.5, Division 1 and Part 4, Division 2, of the California Water Code. Section 4025 authorizes DWR to form Watermaster Service Areas. Pursuant to Section 4026, such areas are created from time to time as rights to water are ascertained and determined. Particularly where ground water is concerned, such rights are usually ascertained or determined by court decree.

The ULARA Watermaster Service Area was formed on April 19, 1968.

In the Judgment of March 14, 1968, the Court appointed DWR as Watermaster to keep the Court fully advised in the premises and to assist the Court in the administration and enforcement of the provisions of the Judgment. The California Supreme Court decision of August 1, 1975, reversed the trial court judgment. Pending a final judgment,

the parties to the original trial court judgment agreed that DWR should continue to act as Watermaster on an interim basis. The costs of the Interim Watermaster service are shared one-half by the parties and the other half by the State (Appendix D).

The DWR as Interim Watermaster for ULARA performed the responsibilities as required in the agreement between parties, dated March 10, 1977, with an effective date of July 1, 1976. This work included keeping records on all ground water extraction data (Appendix E) and other information, on a monthly basis, and the preparation of an annual report for the water years 1975-76 and 1976-77.

In preparing the 1976-77 annual report, DWR collected and reported all information affecting and relating to the water supply and disposal within ULARA. Such information includes the following items:

1. Water supply

    a. Precipitation and runoff
    b. Imports and exports

2. Water use and disposal

    a. Extractions
        (1) Used in valley fill area
        (2) Exported from each basin
    b. Water outflow
        (1) Surface
        (2) Subsurface
        (3) Sewers

3. Water levels

4. Water quality

5. Watermaster administrative budgets and costs

6. Ownership and location of new wells

Summary of 1976-77 Operating Conditions

Table 1 compares statistics for this period of record and the prior water year.

Rainfall in the valley fill area was 89 percent of normal and was 42 percent more than the year before. However, rainfall in the mountains was less than it had been in 1975-76. Runoff increased by 47 percent, reducing by 8 percent the amount of water conserved by LACFCD in its spreading basins.

Ground water extractions increased in the San Fernando Basin this year but decreased in the Sylmar and Verdugo Basins.

TABLE 1

SUMMARY OF OPERATING CONDITIONS
1975-76 AND 1976-77

Item	Water year 1975-76	1976-77
Parties	25	24
Active pumpers	18	18
Active nonparties (within valley fill)	1	0
Watermaster expenses (fiscal year)	$29,626.00	$24,358.00
Watermaster expenses per acre-foot pumped	$ 0.25	$ 0.17
Valley rainfall, in inches[d]	9.90	14.19
Spreading operations, in acre-feet[b,c]		
LACFCD	5,468	5,039
Los Angeles, City of	9,337	3,158
Extractions, in acre-feet (excluding Eagle Rock Basin)	119,975	140,019
Gross imports, in acre-feet		
Colorado River water	5,298	29,005
Northern California water	53,953	26,118
Owens River water[e]	443,814[a]	302,881
Total	503,065[a]	358,004
Delivered to hill and mountain areas, in acre-feet	58,806[a]	48,686
Exports, in acre-feet		
Owens River water	208,721[a]	115,640
Sewage	114,507	111,510

[a] The previous value, which was published in the 1975-76 Annual Report, was revised to reflect the actual measured data rather than the estimated values provided for the last three months of the 1975-76 water year.
[b] Breakdown of spreading operations as to sources of water is shown in Table 5.
[c] One acre-foot = 1 233 cubic metres.
[d] One inch = 25.4 millimetres.
[e] This value represents the summation of the gross amount of water delivered to and exported from ULARA. It does not include operational releases, reservoir evaporation, and water spread during the year.

For ULARA, imports decreased from 620.53 cubic hectometres (503,065 acre-feet, 1975-76) to 441.60 cubic hectometres (358,004 acre-feet, 1976-77), a decrease of 178.93 cubic hectometres (145,061 acre-feet), or 29 percent. While the import total shows a decrease, imported Colorado River water increased almost five fold. This is a direct result of the drought. Exports decreased from 257.46 cubic hectometres (208,721 acre-feet, 1975-76) to 142.64 cubic hectometres (115,640 acre-feet, 1976-77), a decrease of 114.82 cubic hectometres (93,081 acre-feet), or 45 percent.

Water levels at key wells have dropped since the early 1940's from 0-3.05 metres (0-10 feet) in Canoga Park to 42.67-48.77 metres (140-160 feet) in the area between the Cities of Glendale and Burbank. Levels have not changed as drastically in Verdugo Basin. Sylmar Basin levels have dropped by 15.24-18.29 metres (50-60 feet) since the early 1940's.

Expenditures for Watermaster Service amounted to $0.17 per acre-foot of ground water extracted. This was a decrease of eight cents per acre-foot over the previous year, largely because no report was published in 1976-77. However, the 1977-78 expenses will reflect the cost of both the 1975-76 and 1976-77 reports.

II. WATER SUPPLY CONDITIONS

ULARA depends on many water sources to meet the demand created by rapid growth of industry and population. At present, the water supply of ULARA consists of: precipitation on the watershed which includes portions of the San Gabriel, Verdugo, Santa Monica, and Santa Susana Mountains; ground water that is in storage in the four basins; imports from the Mono Basin-Owens River system; imports from the Colorado River; and imports from Northern California made available by the State Water Project.

Precipitation

ULARA has the climate of an interior valley and is hotter in the summer and wetter in the winter than the coastal areas.

Precipitation varies considerably throughout ULARA, depending on topography and elevation. Mean seasonal precipitation ranges from about 355.6 millimetres (14 inches) at the western end of the San Fernando Valley to 889.0 millimetres (35 inches) in the San Gabriel Mountains. Approximately 80 percent of the annual rainfall occurs from December through March.

Precipitation in the valley is evaluated separately from that in the hills and mountains. The valley is made up of the four ground water basins, whereas the hills and mountains comprise the remaining areas in ULARA.

Precipitation in the hills and mountains is evaluated to relate the runoff from the watersheds of Big Tujunga, Pacoima Creek, and Sycamore Canyon to the runoff records which are included in this report and also to evaluate the ground water recharge. (See Plate 2 for location of precipitation stations.)

The 1976-77 water year experienced below average rainfall. The valley floor received 360.4 millimetres (14.19 inches) of rain, whereas the mountains received approximately 451.4 millimetres (17.77 inches). The weighted average of both valley and mountain areas was 406.9 millimetres (16.02 inches) a rise of 46.2 millimetres (1.82 inches) from last year. The 90-year (1881-1971) average precipitation for the valley and mountains is 417.8 millimetres (16.45 inches) and 542.3 millimetres (21.35 inches), respectively. Table 2 presents a record of rainfall at 22 key precipitation stations which were used to develop the 90-year average rainfall and are described in the Report of Referee.

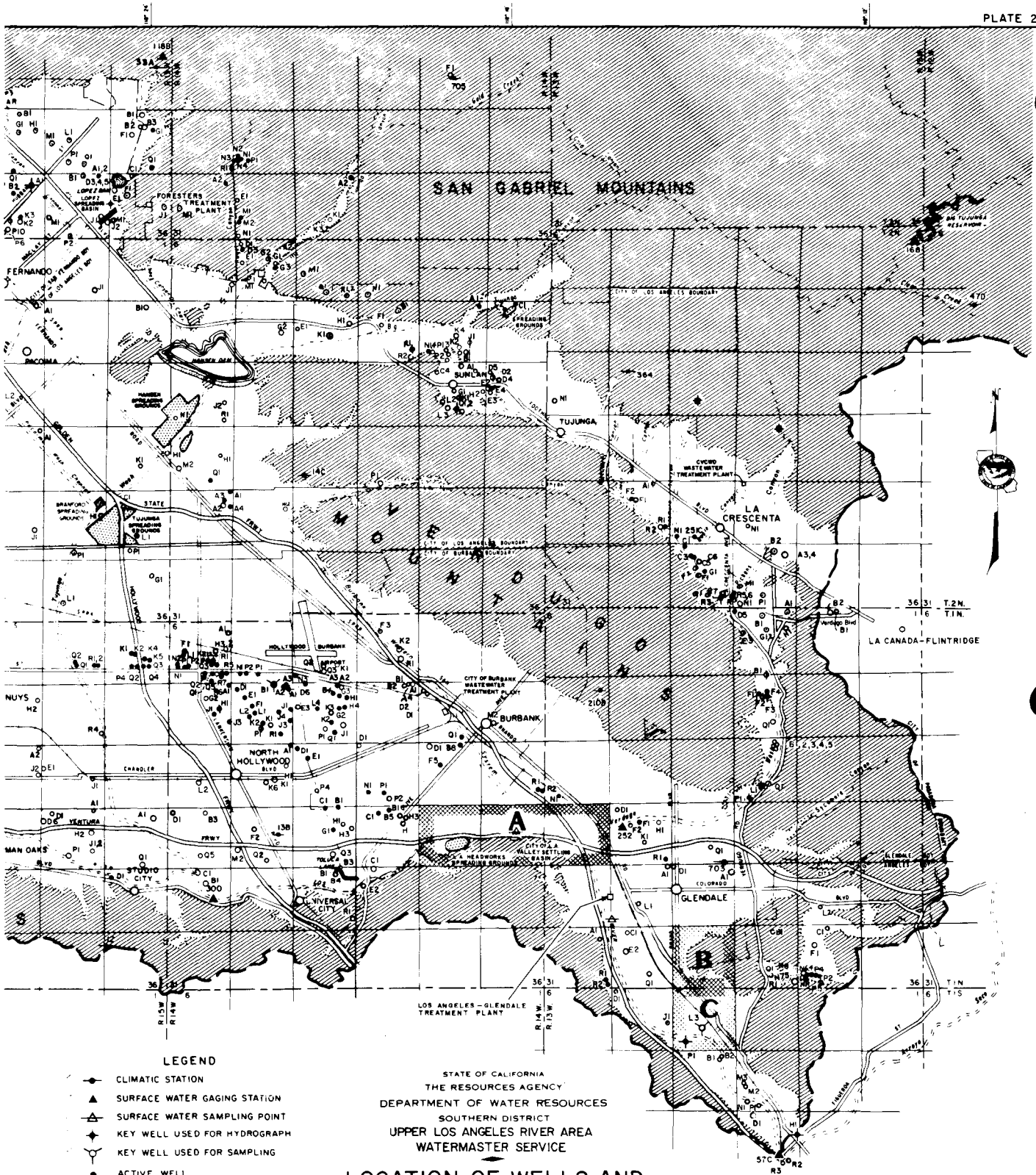

SANTA SUSANA MOUNTAINS
SANTA MONICA MOUNTAINS
SIMI HILLS
GRANADA HILLS
CHATSWORTH
CHATSWORTH RESERVOIR
ROCKETDYNE
SANTA SUSANA FIELD LABORATORY
WASTEWATER TREATMENT PLANT
CANOGA PARK
RESEDA
WOODLAND HILLS
TARZANA
ENCINO
ENCINO RESERVOIR
SEPULVEDA
CITY OF L.A.
PROPOSED SITE
FOR
TREATMENT PLANT
VAN NUYS AIRPORT
SHERMAN OAKS
SPRR
VENTURA FWY
DIEGO
T3N
T2N
T1N
T1S
R17W
R16W
R15W
R14W
R13W
A
B
C
L.A. HEADWORKS SPREADING GROUNDS
23 WELLS
CITY OF L.A. VALLEY SETTLING BASIN
COMPLETED L.A.-GLENDALE WASTE WATER RECLAMATION PLANT FOR REMOVAL OF PHOSPHATE
GOLDEN STATE FREEWAY
SAN FERNANDO ROAD
VERDUGO WASH
BRAND BLVD.
LOS ANGELES RIVER
GLENDALE FWY

TABLE 2. PRECIPITATION[a]
(inches)[b]

Station		90-year mean[c]	1975-76 Precipitation	1976-77	
LACFCD Number	Name			Precipitation	Percent of 90-year mean
11C	Upper Franklin Canyon Reservoir[d]	18.31	7.94	17.56	96
13B	Hollywood-Blix[e]	16.69	10.53	15.29	92
14C	Roscoe-Merrill[e]	15.40	10.83	15.70	101
15A	Van Nuys[e]	15.07	8.99	13.17	87
17	Sepulveda Canyon-Mulholland Highway	19.07	10.37	16.71	88
21B	Woodland Hills[e]	14.39	8.86	13.40	93
23B-E	Chatsworth Reservoir[e]	14.57	8.48	11.86	81
25C	Northridge-LADWP[e]	14.52	7.63	12.02	83
29D	Granada Hills	17.33	9.88	13.26	77
30B	Sylmar[e]	16.66	11.82	15.98	96
33A-E	Pacoima Dam	18.72	13.91	19.56	104
47D	Clear Creek-City School	30.59	27.13	20.98	69
53D	Colby's Ranch	29.75	22.54	18.82	63
54C	Loomis Ranch-Alder Creek	20.47	15.20	14.40	70
210B	Brand Park	18.71	13.90	16.80	90
251C	La Crescenta[e]	23.50	16.25	17.00	72
259D	Chatsworth-Twin Lakes	17.88	9.10	13.36	75
364	Haines Canyon-Lower[e d]	24.06	20.83	20.29	84
703	Glendale-McIntyre[d]	17.65	12.23	15.48	88
728	Pacoima Cyn-City Road Gauge[d]	23.44	25.61	20.50	87
1029	Tujunga-Mill Creek Summit[d]	20.83	16.05	17.15	82
1074	Little Gleason[d]	24.65	29.80	17.56	71

Average for valley stations - 14.19 inches
Average for mountain stations - 17.77 inches

[a] Data furnished by Los Angeles County Flood Control District (LACFCD).
[b] One inch = 25.4 millimetres.
[c] According to LACFCD the 95-year mean will not be computed because there is very little difference between it and the 90-year mean. The 100-year mean is being calculated by LACFCD.
[d] 11C substituted for Franklin Canyon Station No. 12.
703 for Glendale Station 295G.
728 for Paradise Ranch-Alder Creek Station No. 705.
1029 for Tujunga-Mill Creek Station No. 470.
1074 for Santa Clara Ridge Station No. 419.
[e] Valley Station.



LEGEND

- CLIMATIC STATION
- SURFACE WATER GAGING STATION
- SURFACE WATER SAMPLING POINT
- KEY WELL USED FOR HYDROGRAPH
- KEY WELL USED FOR SAMPLING
- ACTIVE WELL
- INACTIVE WELL
- CAPPED OR ABANDONED WELL
- OBSERVATION OR TEST WELL
- SURFACE AND GRAVITY DIVERSION
- LINED CHANNEL
- UNLINED CHANNEL

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT
UPPER LOS ANGELES RIVER AREA
WATERMASTER SERVICE

LOCATION OF WELLS AND HYDROLOGIC STATIONS

SCALE
KILOMETRES 0 1 2
MILES 0 1 2

1978

Runoff and Outflow from ULARA

The drainage area of ULARA contains 133 198 hectares (329,137 acres), of which 83 248 hectares (205,709 acres) are hills and mountains. The drainage system, in turn, is made up of the Los Angeles River and its tributaries. Surface flow in spring originates as: storm runoff from the hills and mountains; storm runoff from the impervious areas of the valley; operational spills of imported water; industrial and sanitary waste discharges; and rising water.

A number of stream-gaging stations are maintained throughout ULARA, either by LACFCD or U. S. Geological Survey (USGS). The Watermaster has selected six key gaging stations which, in effect, record major runoff from hydrologic areas in ULARA.

Table 3 summarizes the monthly runoff for these gaging stations and compares the 1975-76 water year with the 1976-77 year. The changes in runoff reflect the increase in rainfall in the valley and the decrease in rainfall in the mountains.

Table 3
MONTHLY RUNOFF AT SELECTED GAGING STATIONS
(In acre-feet) [a]

Station	Water Year	Month												Total
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
F-57C-R														
Los Angeles	1975-76	1124	567	1143	538	17636	3626	2195	868	742	453	634	10199	39,725
River	1976-77	3338	3467	2838	18950	1010	7570	435	16350	738	1040	9960	317	66,013
F-252-R														
Verdugo	1975-76	69	84	130	103	1177	575	340	329	564	271	210	701	4,550
Channel	1976-77	353	216	373	1271	253	468	93	827	73	50	311	30	4,318
E285-R														
Burbank Storm	1975-76	605	548	650	438	1480	826	738	639	583	810	682	1412	9,410
Drain	1976-77	1062	859	758	1883	636	1080	657	1710	684	706	1480	649	12,164
F-300-R														
L. A. River	1975-76	732	378	680	479	10650	2245	1279	574	855	572	660	6067	25,191
Tujunga Ave.	1976-77	1153	1902	1590	11580	524	4230	244	9350	218	177	5770	111	36,849
F-168-R														
Big Tujunga	1975-76	17	3	38	83	768	616	1016	322	8	130	116	744	3,860
Dam	1976-77	332	146	16	464	237	278	219	1360	154	21	142	181	3,550
118B-R														
Pacoima Dam	1975-76	66	8	16	14	28	390	276	62	454	48	128	82	1,570
	1976-77	105	54	19	11	0	0	169	110	38	0	0	2	508

a 1 acre-foot = 1 233 cubic metres

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

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

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

Station F-300-R registers all flow west of Lankershim Boulevard plus outflow from Hansen Dam that is not spread. These records also include releases from Sepulveda Dam, which may include extractions from Reseda wells.

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

Station 118B-R registers all releases from Pacoima Dam that originate in Pacoima Canyon. Runoff below this point flows to the Lopez and Pacoima spreading grounds and on down to the Los Angeles River.

The locations of these key gaging stations are shown on Plate 2. The mean daily discharge rates for these six gaging stations during 1976-77 are summarized in Appendix F.

The Watermaster has attempted to compute the surface flow of the Los Angeles River at gaging Station F-57C-R as to the sources, i.e., storm runoff from precipitation, Owens River water, rising water or industrial and reclaimed waste water discharges. The Watermaster utilized the procedures outlined in the Report of Referee for estimating the approximate flow rates and sources of water passing gaging Station F-57C-R. A similar request was made for Station F-252-R. A summary of the procedures used follows and a tabulation of the computed flows is shown in Table 4.

The base low flows were separated from the surface runoff by the use of the hydrographs of Station F-57C-R. Base flows consist of rising water and industrial waste plus reclaimed water. Separation of base flow from surface runoff is based on the following assumptions:

Rising water equals base low flow minus the sum of industrial waste and reclaimed water. Industrial wastes are estimated from City of Los Angeles waste permits and the low flows in the Burbank-Western storm drain which includes waste water.

When the City of Los Angeles diverts water at the Headworks spreading grounds, all the rising water is diverted.

When there is no diversion, a portion of the rising water may percolate upstream from Station F-57C-R.

Table 4

SEPARATION OF SURFACE FLOW AT STATIONS F-57C-R AND F-252-R

(In acre-feet)[b]

Period	Base low flow		Surface runoff		Total measured outflow
	Rising water	Waste discharge	Owens River	Net storm	
Station F57C-R					
1971-72	3,602[a]	8,219	0	35,049	46,870
1972-73	4,596[a]	8,776	0	100,587	113,959
1973-74	2,694[a]	6,366	0	79,818	88,878
1974-75	427[a]	7,318	0	56,396	64,141
1975-76	261[a]	6,741	0	32,723	39,725
1976-77	839[a]	7,128	0	58,046	66,013
29-year average 1929-57	6,810	770	1,580	30,790	39,950
Station F252-R					
1971-72	2,050	0	0	2,513	4,563
1972-73	1,706	0	0	7,702	9,408
1973-74	1,772	0	0	5,613	7,385
1974-75	1,333	0	0	4,255	5,588
1975-76	2,170	0	0	2,380	4,550
1976-77	1,683	0	0	2,635	4,318

[a] May include rising water past rubber dam at Headworks Spreading Grounds, Verdugo Channel, and L. A. River Narrows.

[b] 1 acre-foot = 1 233 cubic metres

The surface runoff obtained from the hydrographs of Station F-57C-R consists of net storm runoff and Owens River water. The separation of surface runoff into these two components is based on the following assumptions:

Net storm runoff equals surface runoff minus Owens River water.

If the Headworks divert, all releases of Owens River waters are diverted to the Headworks spreading grounds. If the Headworks do not divert, all releases of Owens River waters are considered as passing Station F-57C-R.

Ground Water Recharge

Local precipitation can have a marked influence on the ground water supply and water in storage. However, there is a wide variation in the annual amount of runoff as a result of changes in both precipitation and retentive characteristics of the watershed.

The accelerated urban development in ULARA has resulted in much of the rainfall being collected and routed into paved channels, which discharge into the Los Angeles River, and subsequently carried out of the Basin. Plate 2 depicts the lined channels in ULARA.

To somewhat overcome the rapid outflow due to urbanization, Pacoima and Hansen Dams, originally built for flood protection, are currently being utilized to regulate storm flows to recapture the flow in spreading basins operated by LACFCD, as well as by the City of Los Angeles.

LACFCD operates the Branford, Hansen, Lopez, and Pacoima spreading grounds. The City of Los Angeles, in turn, operates the Tujunga and Headworks spreading grounds. Plate 2 shows the location of these spreading basins. The spreading grounds operated by LACFCD are utilized for spreading native water, whereas the spreading grounds operated by the City of Los Angeles are utilized to spread Owens River and native water, ground water and the discharge from the Reseda wells. Table 5 summarizes the spreading operations for the 1976-77 water year.

Ground Water Table Elevations

During the 1976-77 water year, the Watermaster collected and processed data to determine prevailing ground water conditions in ULARA during the spring and fall of 1977. Plates 3 and 4, which were provided by the Los Angeles Department of Water and Power, show these conditions. Change in ground water surface elevation from fall of 1976 to fall of 1977 as presented in Plate 5 reflects the effects of variations in spreading, ground water extractions, and rainfall.

Table 5
SPREADING OPERATIONS
(in acre-feet)[b]

Month	Native Water Spread by Los Angeles County Flood Control District				Water Spread by City of Los Angeles				
	Spreading Basins				Tujunga Spreading Grounds		Headworks Spreading Grounds		
	Branford	Hansen	Lopez	Pacoima	Native water	Owens River water	Owens River releases	Reseda wells	Ground water effluent in L. A. River[a]
Oct. 1976	31	0	0	27	0	0	0	0	295
Nov.	30	0	0	95	0	16	0	0	274
Dec.	32	0	0	77	0	0	0	0	375
Jan. 1977	14	1082	0	556	0	0	0	0	283
Feb.	2	0	0	4	0	0	0	0	383
Mar.	82	0	0	182	0	0	0	0	283
Apr.	0	0	38	31	0	0	0	0	274
May	71	1574	22	579	0	0	0	0	184
June	0	0	3	0	0	0	0	0	238
July	0	0	0	4	0	0	0	0	178
Aug.	115	0	0	388	0	0	0	0	191
Sept.	0	0	0	0	0	0	0	5	179
Totals	377	2656	63	1943	0	16	0	5	3,137

a Includes industrial discharge, ground water effluent, and surface runoff diverted from Los Angeles River to Headworks Spreading Grounds.
b One acre-foot = 1 233 cubic metres.

The decline in water level in the Tujunga area is due to decreased spreading within the Tujunga spreading grounds, as well as increased ground water extractions by the City of Los Angeles. The area southeast of Burbank, in the vicinity of the Headworks spreading grounds, shows a rise. The remaining areas of the basin had no significant change in water levels.

Figures 1 and 2 depict the water levels at key wells; their approximate locations are indicated by number shown on map on Figure 2.

Water Reclamation

Water reclamation could provide a source of water for irrigation, industrial, recreational, and possibly domestic use. Seven waste water reclamation plants are in operation in ULARA. A tabulation of operating water reclamation plants is shown on Table 6.

The design of the Sepulveda Basin Water Reclamation Plant has been completed. It provides for a plant capacity of 1.75 cubic

TABLE 6
WATER RECLAMATION PLANTS, 1976-77

Plant	Quantity Treated in acre-feet[a]
San Fernando Basin	
City of Burbank	7,220[b]
City of Los Angeles Hyperion	23,968[c]
Los Angeles-Glendale	8,962[d]
Indian Hills Mobile Homes	21[e]
Rocketdyne (Santa Susana Field Laboratory)	40[f]
The Independent Order of Foresters	20[e]
Verdugo Basin	
Crescenta Valley County Water District	99[e]

[a] One acre-foot = 1 233 cubic metres.
[b] Total water delivered to cooling towers, 2,036 acre-feet, includes 50 percent evaporation and the rest to Los Angeles River.
[c] Valley settling basin no longer in use after 1975-76 period.
[d] Began testing May 1976, accepted for operation February 21, 1977. (Testing 14-15 mgd; operational 8-9 mgd.)
[e] Used for land irrigation.
[f] Area I--6 acre-feet; Area II--6 acre-feet; Area III--28 acre-feet.

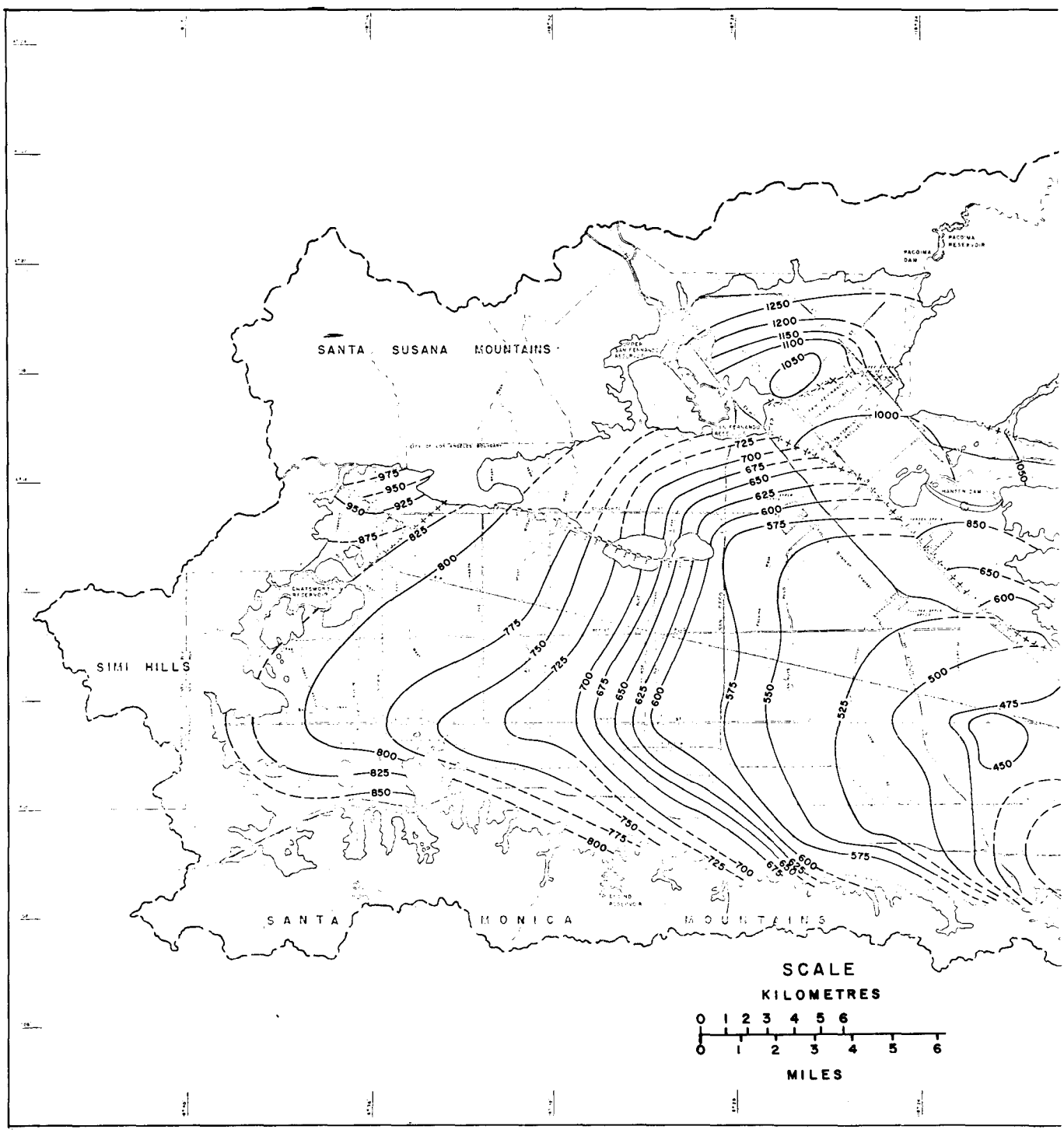
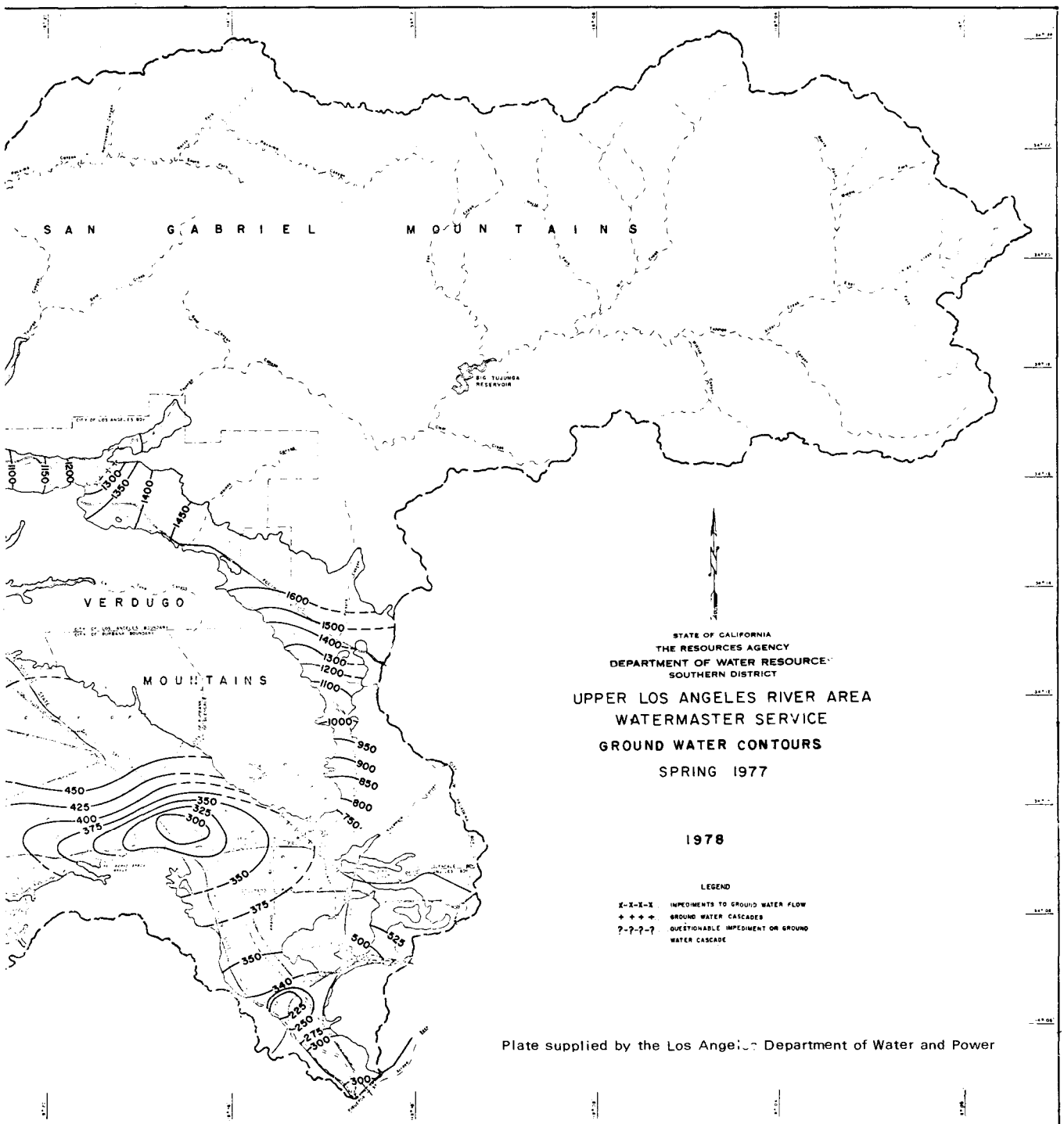

SANTA SUSANA MOUNTAINS
SIMI HILLS
SANTA MONICA MOUNTAINS
PACOIMA RESERVOIR
PACOIMA DAM
1250
1200
1150
1100
1050
1000
725
700
675
650
625
600
575
850
650
600
500
475
450
975
950
950
925
875
825
800
775
750
725
700
675
650
625
600
575
550
525
800
825
850
750
775
800
725
700
675
650
625
600
575
SCALE
KILOMETRES
0 1 2 3 4 5 6
0 1 2 3 4 5 6
MILES

PLATE 3


SAN GABRIEL MOUNTAINS
BIG TUJUNGA RESERVOIR
VERDUGO
MOUNTAINS
1100
1150
1200
1300
1350
1400
1450
1600
1500
1400
1300
1200
1100
1000
950
900
850
800
750
450
425
400
375
350
325
300
350
375
350
340
225
250
275
300
300
500
525
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT
UPPER LOS ANGELES RIVER AREA
WATERMASTER SERVICE
GROUND WATER CONTOURS
SPRING 1977
1978
LEGEND
X-X-X-X IMPEDIMENTS TO GROUND WATER FLOW
+ + + + GROUND WATER CASCADES
?-?-?-? QUESTIONABLE IMPEDIMENT OR GROUND WATER CASCADE
Plate supplied by the Los Angeles Department of Water and Power

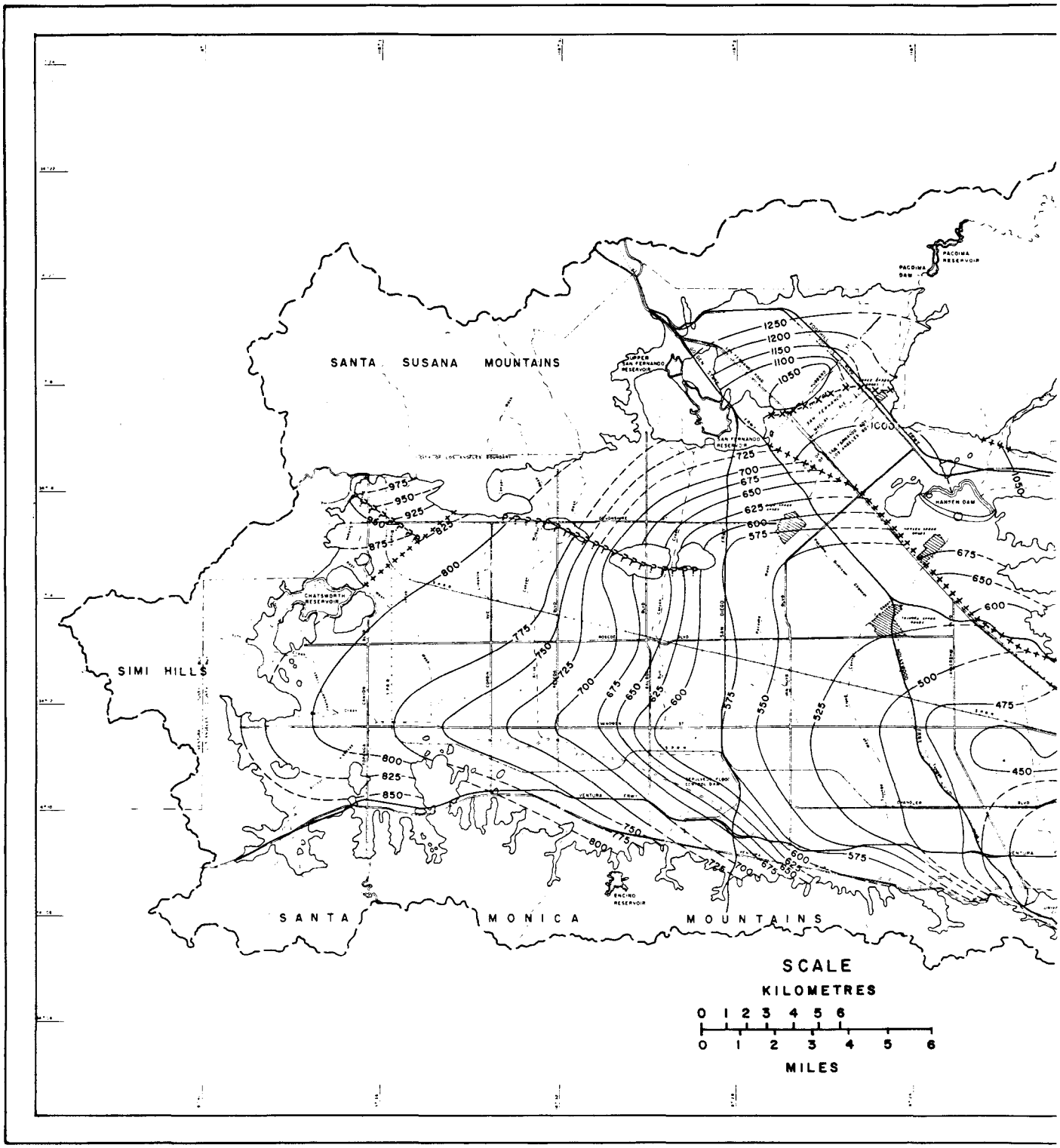

SANTA SUSANA MOUNTAINS
SIMI HILLS
SANTA MONICA MOUNTAINS
PACOIMA RESERVOIR
PACOIMA DAM
UPPER SAN FERNANDO RESERVOIR
SAN FERNANDO RESERVOIR
HANSEN DAM
CHATSWORTH RESERVOIR
ENCINO RESERVOIR
1250
1200
1150
1100
1050
1000
975
950
925
900
875
850
825
800
775
750
725
700
675
650
625
600
575
550
525
500
475
450
SCALE
KILOMETRES
0 1 2 3 4 5 6
0 1 2 3 4 5 6
MILES

PLATE 4

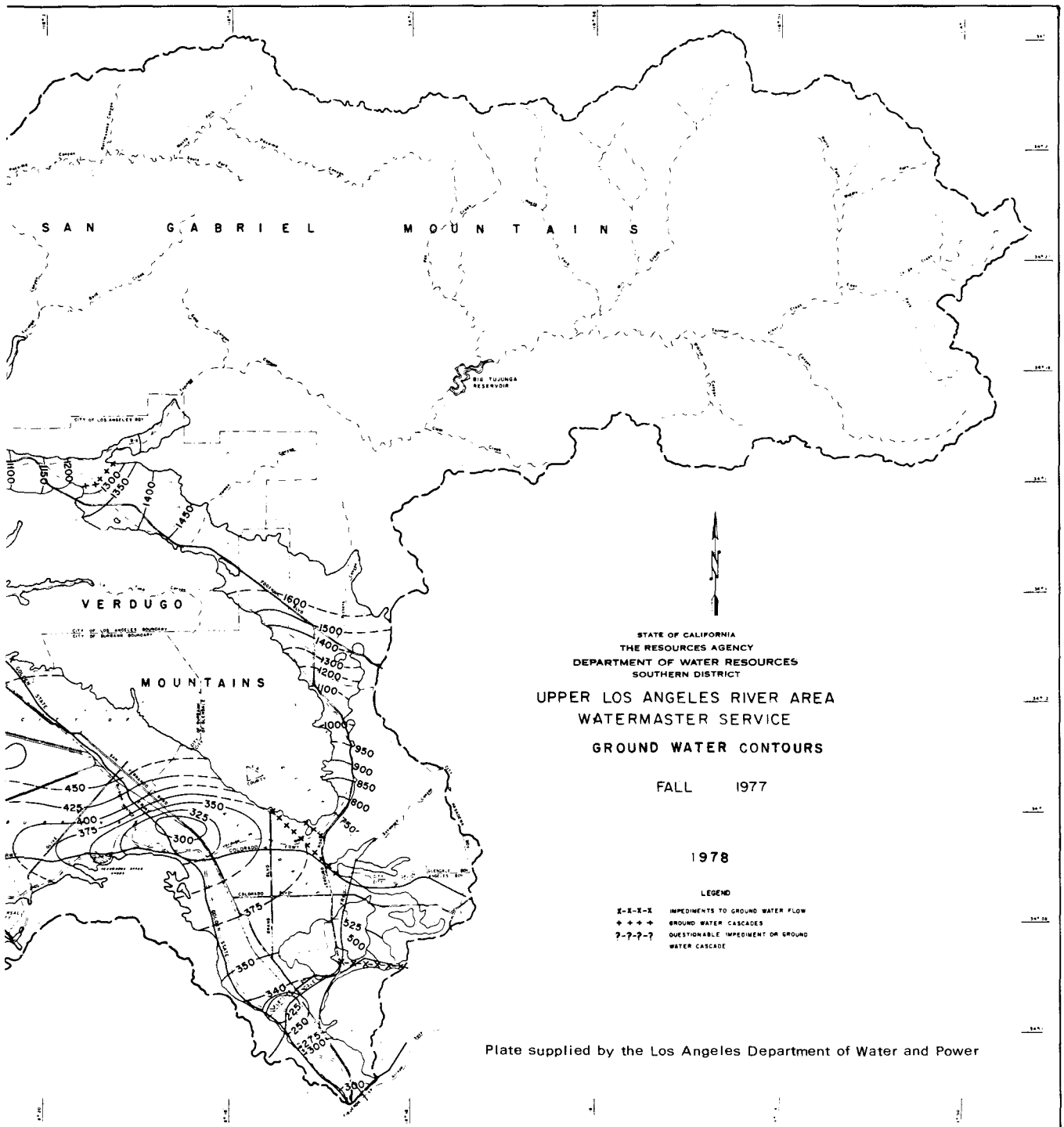


Plate supplied by the Los Angeles Department of Water and Power

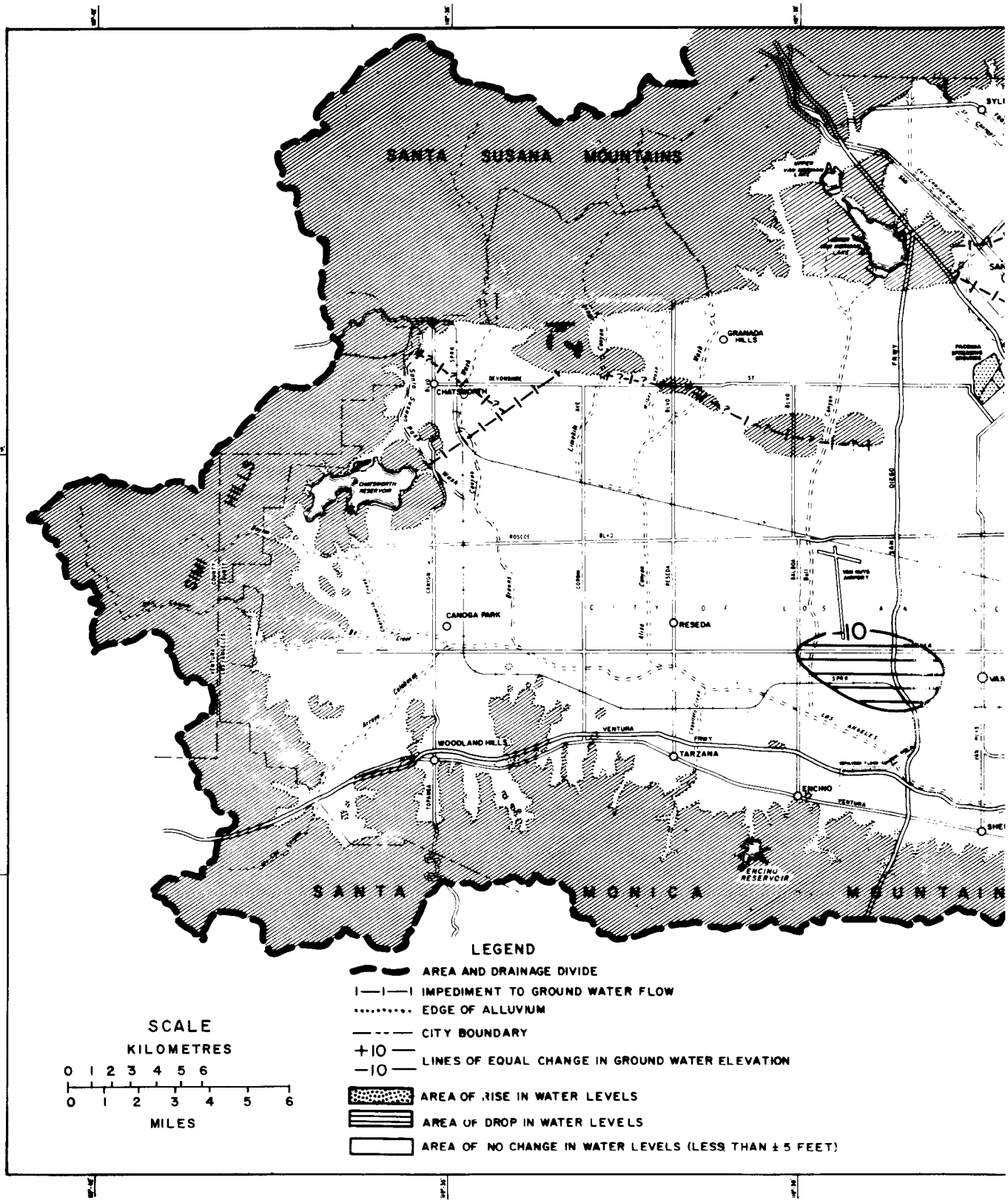
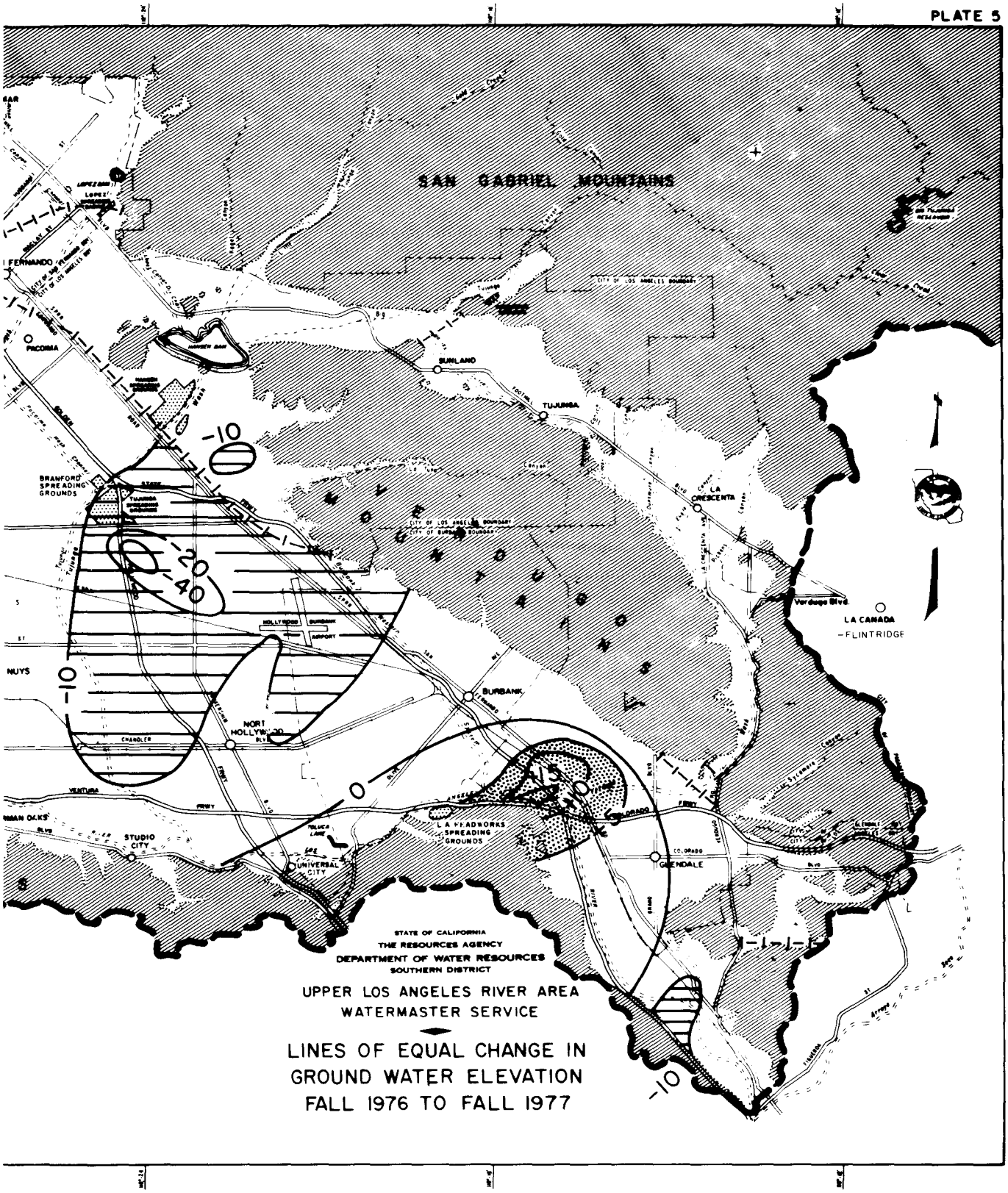

SANTA SUSANA MOUNTAINS
SIMI HILLS
GRANADA HILLS
CHATSWORTH
CANOGA PARK
RESEDA
WOODLAND HILLS
TARZANA
ENCINO
ENCINO RESERVOIR
SANTA MONICA MOUNTAIN
+10
-10
SCALE
KILOMETRES
0 1 2 3 4 5 6
0 1 2 3 4 5 6
MILES
LEGEND
AREA AND DRAINAGE DIVIDE
IMPEDIMENT TO GROUND WATER FLOW
EDGE OF ALLUVIUM
CITY BOUNDARY
LINES OF EQUAL CHANGE IN GROUND WATER ELEVATION
AREA OF RISE IN WATER LEVELS
AREA OF DROP IN WATER LEVELS
AREA OF NO CHANGE IN WATER LEVELS (LESS THAN ± 5 FEET)

PLATE 5



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT

UPPER LOS ANGELES RIVER AREA
WATERMASTER SERVICE

LINES OF EQUAL CHANGE IN
GROUND WATER ELEVATION
FALL 1976 TO FALL 1977

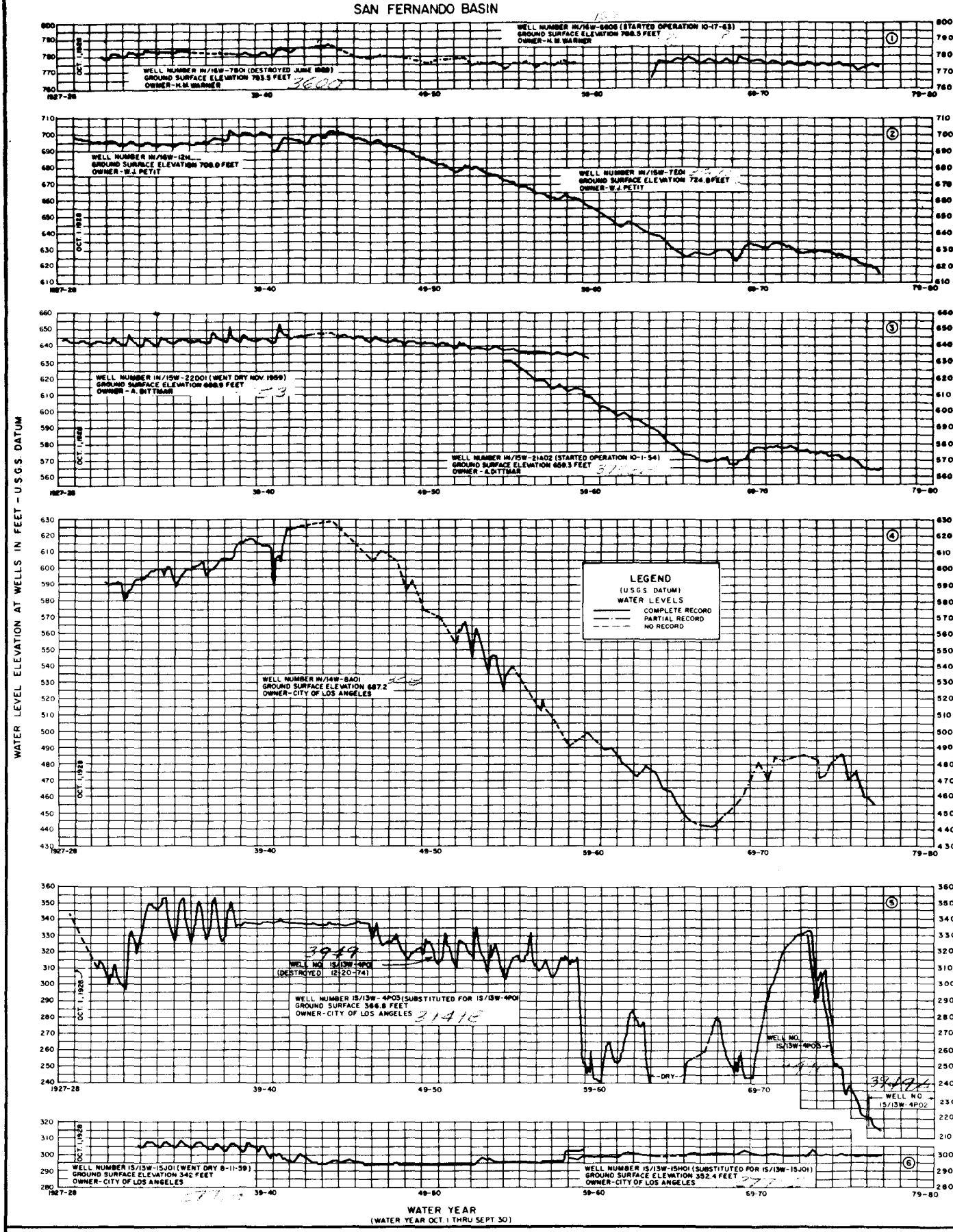


Figure 1 — FLUCTUATION OF WATER LEVEL ELEVATION AT WELLS IN THE SAN FERNANDO BASIN

DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1978

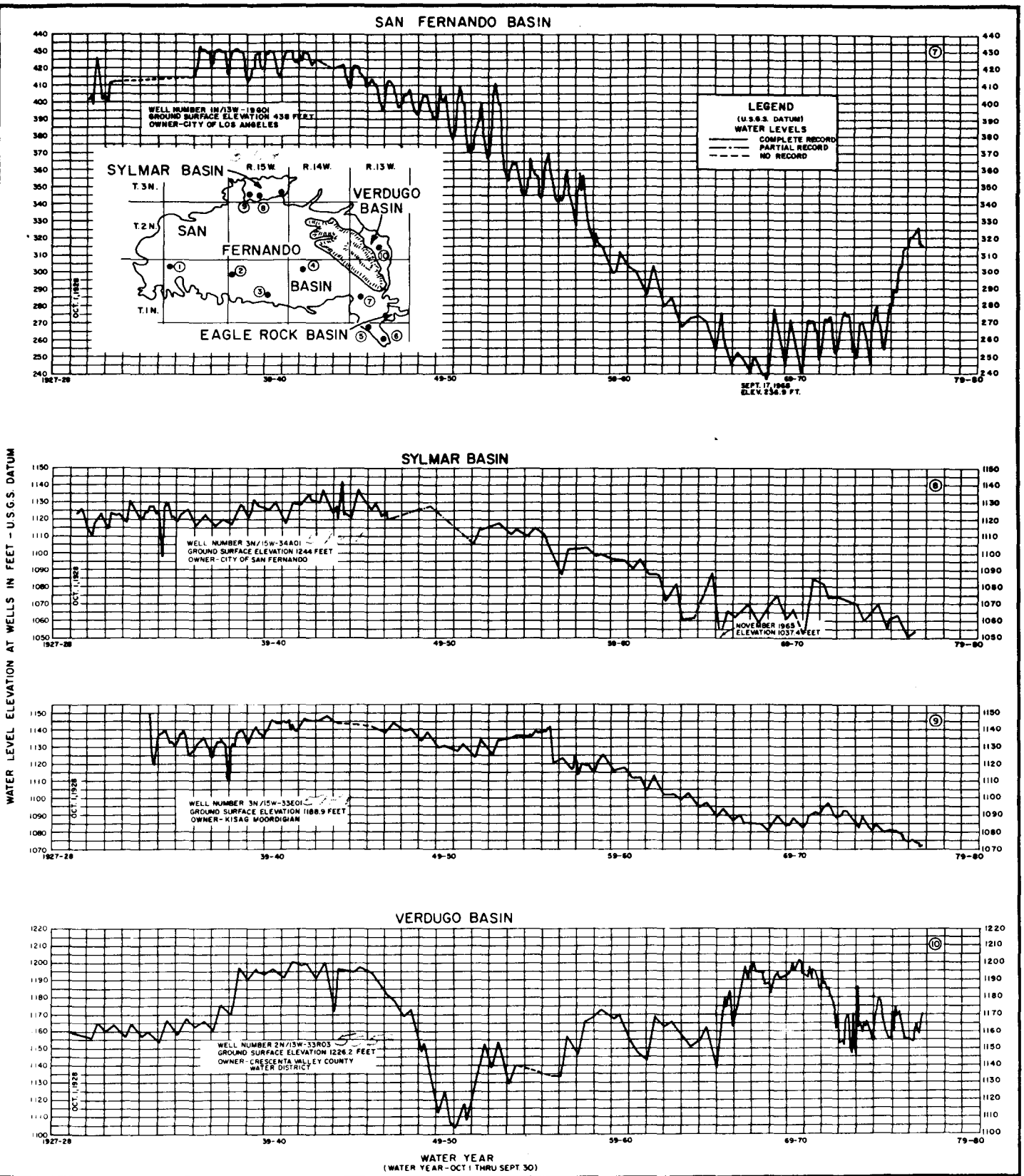


Figure 2 – FLUCTUATION OF WATER LEVEL ELEVATION AT WELLS IN THE SAN FERNANDO, SYLMAR AND VERDUGO BASINS

DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1978

metres per second (40 million gallons per day--mgd), with treated effluent to be used for irrigation of the Sepulveda Basin recreation area and perhaps for ground water recharge. The project will not proceed until the Environmental Protection Agency completes an assessment of the facility's needs and the approval of State and Federal construction grants has been received. The Los Angeles-Glendale plant began testing effluent in May 1976. Results were accepted in February 21, 1977, and the plant began treating an average of .35 cubic metre per second (8 mgd). Treated water is discharged to the sewage outfall. The design capacity is .876 cubic metre per second (20 mgd). Water from this plant will eventually be used in Griffith Park and surrounding areas for irrigation.

The City of Los Angeles, along with other State and local agencies, is participating in the development of a regional water reclamation study in Southern California. The objective of this study is to prepare a coordinated water reclamation plan for the Los Angeles and Orange County areas. This study is estimated to be completed in 1980.

Water Quality

Water resources management must take into account water quality as well as water supply. The total dissolved solids (TDS) concentration in a water is the quality indicator that is generally used. A comparison of the TDS content in the various water sources is shown in Figure 3. Representative mineral analyses of imported, surface, and ground waters for 1976-77 are contained in Table 7.

Imported Water

A. Owens River-Mono Basin water is sodium bicarbonate in character. Its TDS concentration averaged about 210 milligrams per litre (mg/l) for 30 years before 1969, the highest record being 320 mg/l on April 1, 1946, and the lowest, 150 mg/l on September 17, 1941. Average TDS concentration for 1976-77 was 200 mg/l, slightly higher than the 184 mg/l for 1975-76.

B. 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 TDS concentration high of 875 mg/l in August 1955 and a low of 625 mg/l in April 1959. The average TDS over the 33-year period was approximately 740 mg/l. Tests are conducted at the Whitsett Pumping Plant which showed a TDS of 689 mg/l.

C. Northern California water (State Water Project water) is sodium-calcium-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 had a high TDS concentration of 360 mg/l and a low of

260 mg/1. Tests of the Northern California water are taken at the Joseph Jensen Filtration Plant. Average TDS concentration during 1976-77 was 290 mg/1.

D. Colorado and Northern California water were blended at the Weymouth Plant in May 1975. In the 1976-77 period, TDS had an average value of 530 mg/1. Blending ratios vary at the Weymouth Plant and reliable tests are taken from the effluent. During the second year of the drought, more water was imported from the Colorado River which has a higher TDS concentration. Imports of Northern California water in ULARA were reduced from 66.55 cubic hectometres (53,953 acre-feet, 1975-76) to 32.22 cubic hectometres (26,118 acre-feet, 1976-77).

Surface Water

Surface runoff contains salts dissolved from rocks in the tributary areas. Surface water is calcium bicarbonate in character. In 1976-77, low flows above the Los Angeles Narrows had an average TDS content of 610 mg/1 and a total hardness of 260 mg/1.

Ground Water

Ground water in ULARA is moderately hard to very hard. The character of ground water 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 in character, while in the eastern part, including Sylmar and Verdugo Basins, it is calcium bicarbonate.

Ground water is generally within the recommended limits of the United States Public Health Service Drinking Water Standards, except perhaps for wells in the western end of the San Fernando Basin having excess concentrations of sulfate and those in the lower part of the Verdugo Basin having abnormally high concentrations of nitrate.

Ground Water Contamination by Gasoline

In the 1976-77 period, there was no trace of odor or taste of gasoline from the pumped water near the Forest Lawn Cemetery.

The problem was considered a closed case by the Regional Water Quality Control Board (RWQCB). They have the final report on file dated December 1976 and have no further interest in the area.

Testing on a limited scale by the City of Los Angeles is still being done. They test from three remaining wells (W-60: W-61; W-62-dry) given to them by the Western Oil and Gas Association, who have no further interest. The tests are for water levels and water quality, including taste and odor. These observation wells are in line with a downward gradient from the source of contamination to the Pollock Field wells where the City of Los Angeles does heavy pumping for domestic use.

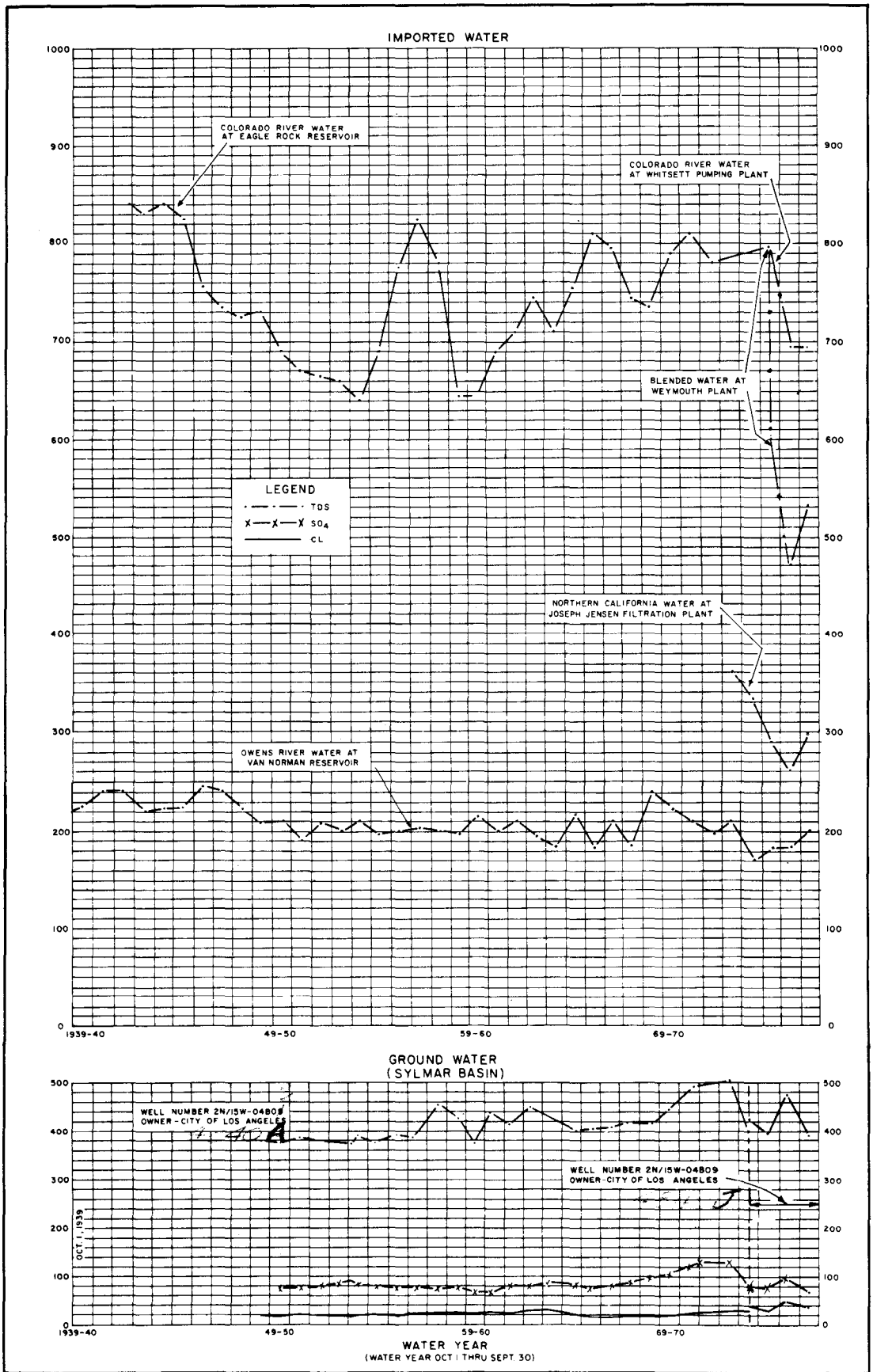


Figure 3- MINERAL CONSTITUENTS OF WATER SOURCES IN THE ULARA

DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1978

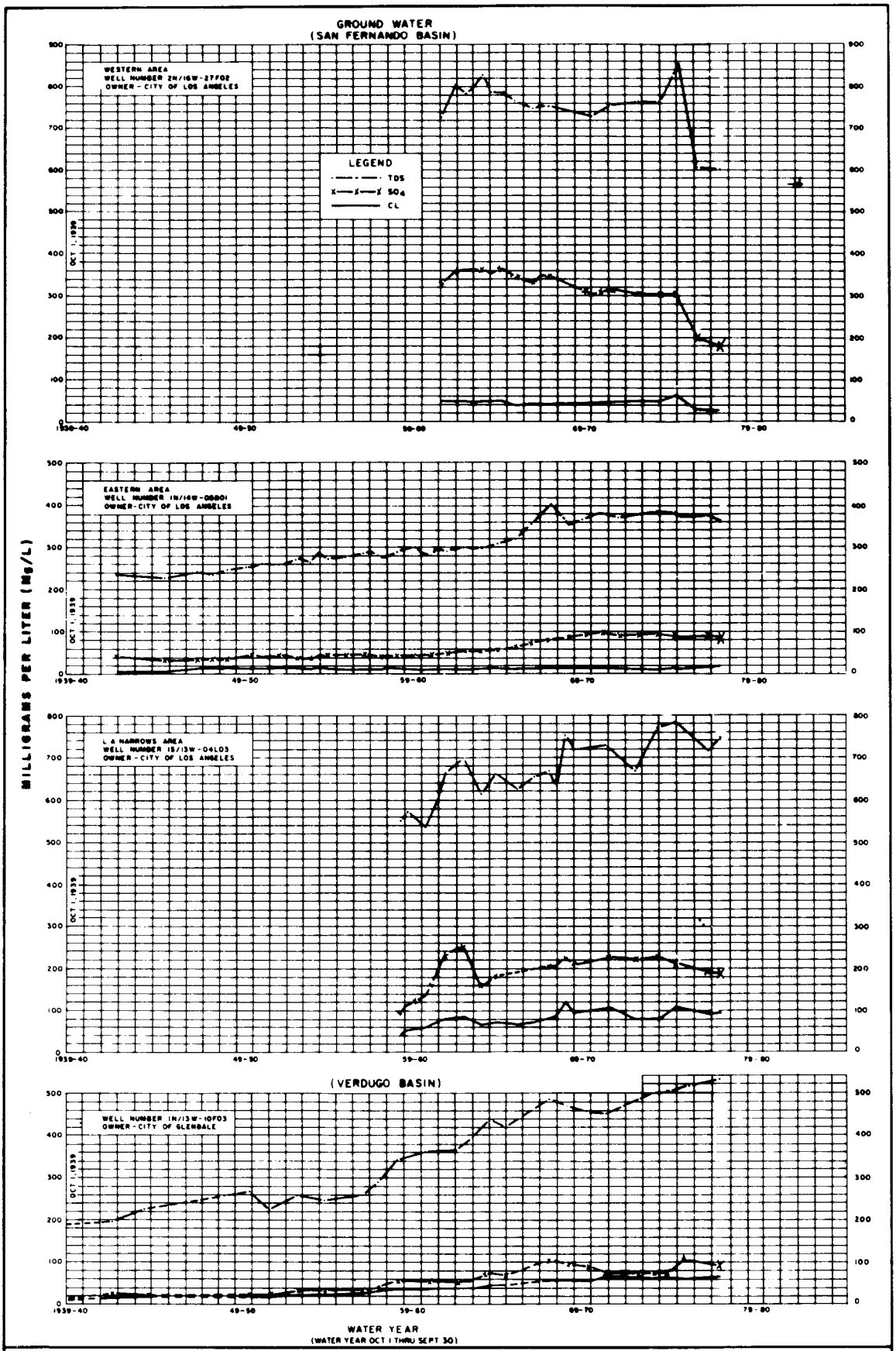


Figure 3(Cont.) — MINERAL CONSTITUENTS OF WATER SOURCES IN THE ULARA

DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1978

REPRESENTATIVE MINERAL ANALYSES OF WATER

Well number or source	Date sampled	EC x 10^6 at 25°C	pH	Mineral constituents in Milligrams per liter (mg/l) / Milliequivalents per liter (me/l)											Total dissolved solids mg/l	Total hardness as $CaCO_3$ mg/l
				Ca	Mg	Na	K	CO_3	HCO_3	SO_4	Cl	NO_3	F	B		
Imported Waters																
Blended State Project and Colorado River water at Eagle Rock Reservoir	1977-78 (average)	1025	8.08	73 3.65	27 4.50	102 4.43	4.1 0.11	0.9 0.03	147 2.41	265 2.76	87 2.45	1.6 0.03	0.30 0.02	0.15 0.01	642	294
Owens River water at Upper Van Norman Reservoir Inlet	1977-78 (average)	366	8.16	17 1.35	6.2 1.03	40 1.74	3.9 0.10	1.1 0.04	150 2.46	30 0.31	18 0.51	0.7 0.01	0.60 0.03	0.49 0.04	230	98
State Project Water at Joseph Jensen Filtration Plant (effluent)	1977-78 (average)	600	8.03	46 2.30	17.00 1.40	499 2.17	2.98 0.08	1.0 0.03	125.9 2.06	103.6 2.15	58.56 1.65	0.44 0.007	0.27 0.014	0.16 –	356	185
Surface Water																
Los Angeles River at Sepulveda Blvd.	11-2-77	1140	9.21	85 4.25	41 6.83	109 4.74	5.2 0.13	12.4 0.41	155 2.55	308 3.21	92 2.59	1.2 0.02	–	–	380	148
	4-6-78	1840	8.07	148 7.40	83 13.83	106 4.61	4.6 0.12	2.1 0.07	362 5.93	672 7.01	88 2.48	20 0.32	–	–	710	300
Los Angeles River at Burbank-Western Wash	11-2-77	1740	7.72	93 4.65	35 5.83	234 10.17	18 0.46	0.3 0.01	123 2.01	420 4.38	185 5.21	44 0.71	–	–	376	101
	4-5-78	1090	7.65	62 3.10	26 4.33	122 5.30	11 0.28	0.4 0.01	164 2.69	278 2.90	87 2.45	43 0.69	–	–	264	135
Los Angeles River at Colorado Blvd.	11-2-77	1460	8.29	96 4.80	36 6.00	170 7.39	12 0.31	1.8 0.06	191 3.14	336 3.50	139 3.92	34 0.55	–	–	386	160
	4-5-78	852	8.33	85 4.25	28 4.67	54 2.35	4.4 0.11	2.3 0.08	217 3.54	200 2.08	43 1.21	20 0.32	–	–	326	181
Ground Waters																
1757C [illegible] (Reseda No. 6) [illegible]	(San Fernando Basin - Western Portion) 11-3-77	952	7.22	120 6.00	30 5.00	44 1.91	1.7 0.04	0.1 0.004	158 2.6	180 1.88	30 0.85	32 0.52	0.33 0.02	0.20 0.02	600	425
3230D [illegible] (No. Hollywood No. 19) [illegible]	(San Fernando Basin - Eastern Portion) 7-6-78	577	7.40	69 3.45	16 2.67	26 1.13	2.5 0.06	0.3 0.01	207 3.39	83 0.86	20 0.56	20 0.32	0.50 0.03	0.13 0.01	364	236
3125H [illegible] (Pollock No. 6) [illegible]	(San Fernando Basin - L. A. Narrows) 10-13-77	1180	7.78	112 5.60	39 6.50	88 3.83	2.8 0.07	1.0 0.03	327 5.37	190 1.98	97 2.73	13 0.21	0.28 0.01	0.33 0.03	743	440
	6-5-78	1190	7.05	108 5.40	37 6.17	93 4.04	2.4 0.06	0.2 0.01	299 4.89	228 2.38	108 3.04	10 0.19	0.25 0.01	0.51 0.05	750	422
1540J [illegible] (Mission No. 5) [illegible]	(Sylmar Basin) 10-20-77	638	7.70	72 3.60	18 3.00	31 1.35	3.6 0.92	0.6 0.02	243 3.98	69 0.72	36 1.01	13 0.21	0.31 0.02	0.14 0.01	402	254
	5-15-78	606	7.38	70 3.50	17 2.83	32 1.39	3.2 0.08	0.3 0.01	229 3.75	69 0.72	28 0.79	11 0.18	0.38 0.02	0.24 0.02	382	242
3961 [illegible] (Glorietta No. 3)	(Verdugo Basin) 7-14-78	820	7.4	88 4.42	31.5 2.59	32 1.39	2.6 0.07	– –	194 3.18	96 2.00	70 1.97	___	0.2 0.01	–	534	351

[illegible] Tested for Mission Acid

III. WATER USE AND DISPOSAL

Water delivered for use in ULARA is either imported water, local ground water, local surface diversions, or a mixture, depending on the area and water system operation. During the 1976-77 water year, the net amount delivered to water purveyors in ULARA was approximately 471.67 cubic hectometres (382,383 acre-feet). Of this total, approximately 172.71 cubic hectometres (140,019 acre-feet) were extracted and the remaining 298.96 cubic hectometres (242,364 acre-feet) were net imports. The Basin contains 532 wells, of which 128 are active and 404 are inactive, observation, test, capped, etc.

The adjudication of ground water rights in ULARA restricted all ground water extractions, effective October 1, 1968. On that date, extractions were restricted to approximately 128.88 cubic hectometres (104,000 acre-feet) per water year. This amounted to a reduction of approximately 61.68 cubic hectometres (50,000 acre-feet) below the previous 6-year average.

Sparkletts Drinking Water Corporation and Deep Rock Water Company are the only parties that extract water from the Eagle Rock Basin.

Figure 4 illustrates the annual ground water extractions and total water imported in ULARA, beginning with the 1944-45 water year. Note the change from 1968-69 through the present.

It can also be noted that for 10 years before pumping was restricted, imports exceeded extractions by from 74.01 to 111.02 cubic hectometres (60,000 to 90,000 acre-feet) per year and that for the water years 1968-69 to 1976-77, the difference increased to between 160.36 and 246.70 cubic hectometres (130,000 and 200,000 acre-feet).

Figure 5 provides an analysis of the monthly relationship between rainfall, ground water extractions, and imported supply. Data relate to all ULARA and not to any one specific ground water basin. The precipitation values were obtained from stations on the valley floor (Table 2).

Ground Water Extractions

Because of the August 1, 1975, Supreme Court Decision, the State DWR as Interim Watermaster exercises no control over the ground water extractions. Appendix D is a record of extractions by each of the parties in each of the basins during this report year.

Imports and Exports of Water

Residential, commercial, and industrial expansion in ULARA requires the importation of additional water supplies to supplement that provided by the ground water basins.

The imported supplies to ULARA are from the City of Los Angeles' Owens-Mono Basin Aqueduct and through the MWD distribution system, which consist of California and Colorado River Aqueduct waters.

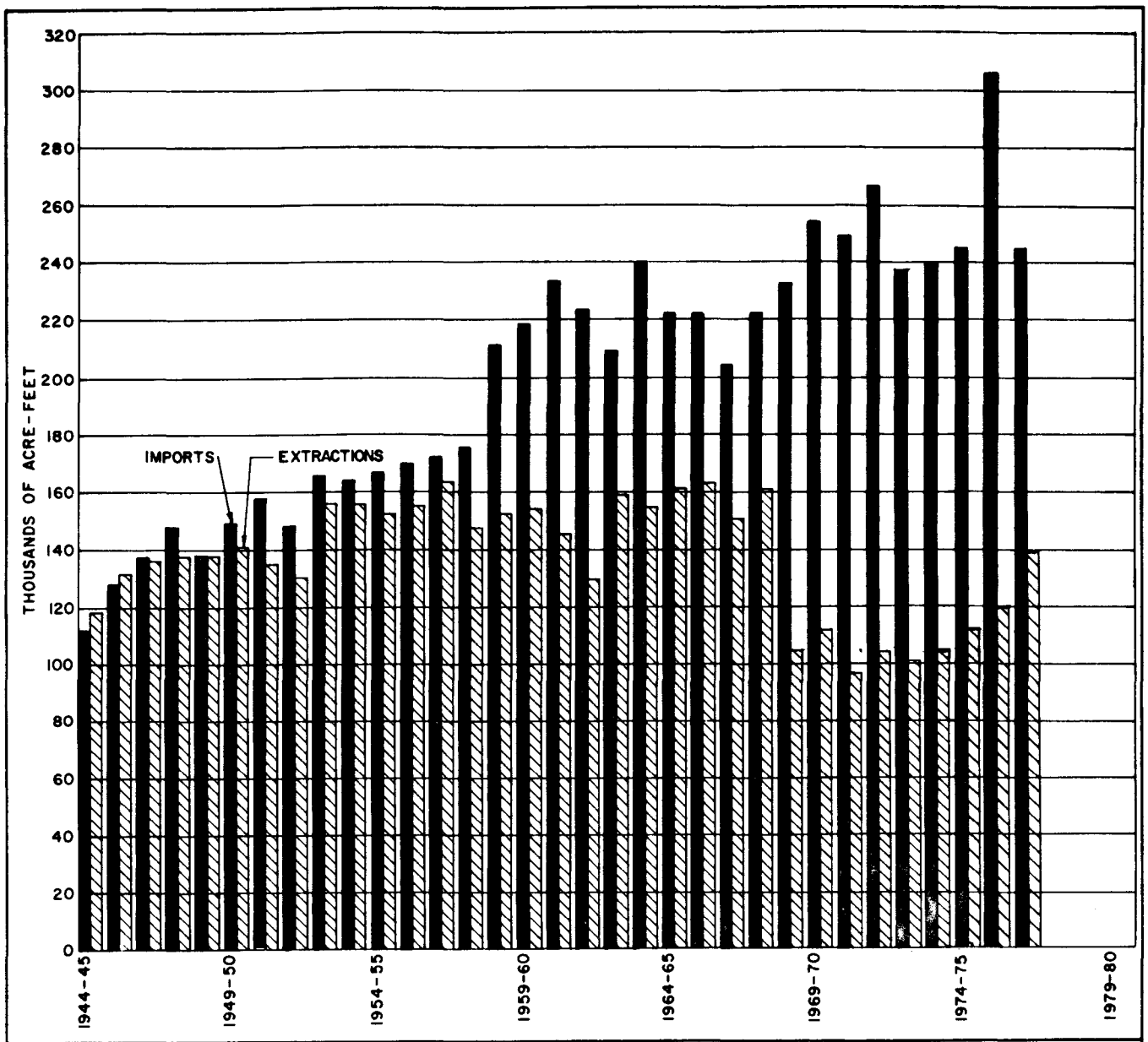


Figure 4- GROUND WATER EXTRACTIONS AND USE OF IMPORTED WATER IN UPPER LOS ANGELES RIVER AREA

DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1978

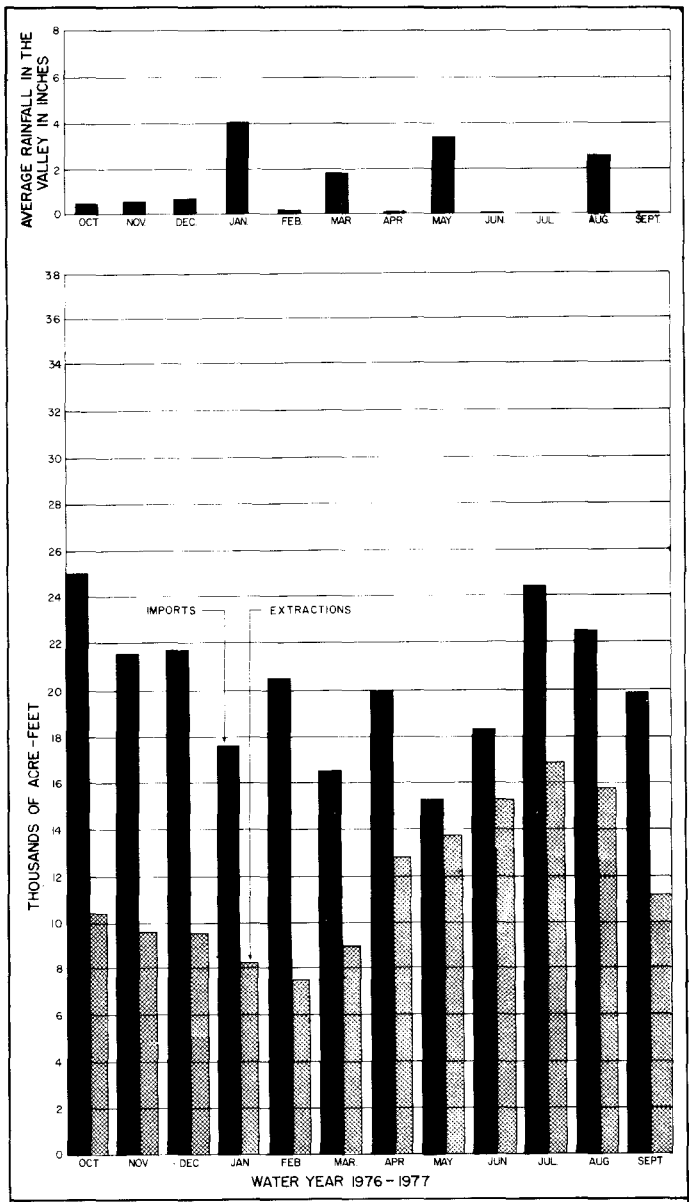


Figure 5 – MONTHLY WATER DEMAND AND AVERAGE RAINFALL IN UPPER LOS ANGELES RIVER AREA

DEPARTMENT OF WATER RESOURCES, SOUTHERN DISTRICT, 1978

Exports from ULARA, exclusive of sewage, are limited to the City of Los Angeles, which exports imported and ground water. Table 8 summarizes the nontributary imports and exports from ULARA. Ground water imports and exports in and out of ULARA are listed in Table 9.

Physical Data by Basins

The Watermaster has collected and summarized data in Table 9 which show the water supply and disposal in each of the basins.

TABLE 8
ULARA IMPORTS AND EXPORTS

Source and Agency	Quantity, in acre-feet[a] 1975-76		1976-77	
Imports				
Colorado River water				
Burbank, City of	0		4,485	
Crescenta Valley County Water District	725		1,305	
Glendale, City of	265		10,047	
Los Angeles, City of	3,933		12,517	
La Canada Irrigation District	375		586	
Las Virgenes Municipal Water District (nonparty)	0		0	
San Fernando, City of	0		65	
	5,298		29,005	
Northern California water				
Burbank, City of	18,491		8,584	
Crescenta Valley County Water District	894		350	
Glendale, City of	22,249		8,311	
La Canada Irrigation District	518		156	
Las Virgenes Municipal Water District (nonparty)	9,511		6,813	
San Fernando, City of	0		0	
Los Angeles, City of	2,290		1,904	
	53,953		26,118	
Owens River water				
Los Angeles, City of	443,814[b,c]		302,881[c]	
Total	503,065[b]	503,065	358,004	358,004
Exports				
Owens River water				
Los Angeles, City of	208,721[b]	- 208,721	115,640	- 115,640
Net Import		294,344[b]		242,364

[a] One acre-foot = 1 233 cubic metres.

[b] The previous value published was revised to reflect the actual measured data rather than the estimated values provided for the last three months of the 1975-76 water year.

[c] This value represents the summation of the gross amount of water delivered to and exported from ULARA. It does not include operational releases, reservoir evaporation, and water spread during the year.

The information for Table 9 was submitted by the parties. In instances where estimates were made by the parties, such as water delivered to hill and mountain areas, sewage exported, etc., these were based upon methods consistent with previous estimates computed by SWRCB for the San Fernando Valley Reference. The Watermaster also made computations of subsurface outflows based on similar computations made by SWRCB.

The City of Glendale reevaluated the quantities of extracted and imported water delivered to the valley fill within the San Fernando Basin and the Verdugo Basin. This report reflects this reevaluation, and the values in this report, as well as revision of data contained in past Watermaster reports, are subject to approval in the final judgment in this case expected in the fall of 1978.

Some of the figures in Table 9 are estimates due to lack of information at the time of submittal. However, the actual figures based on measured values were subsequently submitted to the Watermaster for the permanent records and are available upon request.

Table 9
1976-77
SUMMARY OF WATER SUPPLY AND DISPOSAL
SAN FERNANDO BASIN
(in acre-feet)*

Water source and use	City of Burbank	City of [e] Glendale	City of Los Angeles	City of San Fernando	All others	Total
Extractions						
Total quantity	7,638	4,096	113,731	0	3,884	129,349[a]
Used in valley fill	7,178	3,845	13,287	0	3,884[b]	28,194[b]
Imports						
Colorado River water	4,485	10,047	9,689	65	--	24,286
Owens River water	--	--	296,101	--	--	296,101
Northern Calif. water	8,584	8,311	1,474	0	6,813	25,182
Ground water from Sylmar Basin	--	--	3,446	2,773	0	6,219
Ground water from Verdugo Basin	--	610	--	--	--	610
Exports						
Ground water:						
to Verdugo Basin	--	0	0	--	0	0
out of ULARA	--	--	103,890	--	0	103,890
Owens River water:						
to Eagle Rock Basin	--	--	0	--	--	0
out of ULARA	--	--	115,640	--	0	115,640
Colorado River:						
to Verdugo Basin	--	1,523	0	--	0	1,523
Northern Calif. water:						
to Verdugo Basin	--	1,260	0	--	--	1,260
Water delivered to hill and mountain areas						
Ground water	460	251	0	0	0	711
Owens River water	--	--	30,487	--	--	30,487
Colorado River water	275	909	3,958	0	--	5,142
Northern Calif. water	526	753	602	0	6,813	8,694
Verdugo Basin water	--	108	--	--	--	108
Water outflow						
Surface	--	--	--	--	--	66,013 [c]
Subsurface	--	--	--	--	--	180
Sewers	14,291[d]	17,270	74,210	1,706	--	107,477

a Excludes production from Reseda wells which amounted to 5 acre-feet.
b Small amount pumped by RWQCB and City of Los Angeles from several observation wells.
c At Station F-57C-R where 29-year mean (1929-57) base low flow is 7,580 acre-feet.
d Includes reclaimed water discharged into Burbank-Western storm channel by City of Burbank.
e Reevaluation of imported water delivered to valley fill in San Fernando and Verdugo Basins by City of Glendale subject to approval by court in final judgment in the San Fernando case.

Table 9
1976-77
SUMMARY OF WATER SUPPLY AND DISPOSAL
SYLMAR BASIN
(in acre-feet)*

Water source and use	City of Los Angeles	City of San Fernando	All others	Total
Extractions				
Total quantity	3,446	2,773	4	6,223
Used in valley fill	0	274	4	278
Imports				
Owens River water	6,039	--	--	6,039
Exports				
Ground water: to San Fernando Basin	3,446	2,773	0	6,219
Water delivered to hill and mountain areas				
Owens River water	304	--	--	304
Water outflow				
Surface	--	--	--	5,000[g]
Subsurface: to San Fernando Basin[f]	--	--	--	--
Sewers	750	169	0	919

f Computation not possible, well destroyed.
g Surface outflow is not measured. Calculated average surface outflow by Mr. Laverty - SF Exhibit 57.

Table 9
1976-77
SUMMARY OF WATER SUPPLY AND DISPOSAL
VERDUGO BASIN
(in acre-feet)*

Water source and use	Crescenta Valley County Water District	City of Glendale	La Canada Irrigation District	City of Los Angeles	Total
Extractions					
Total quantity	2,201	1,972	0	0	4,173
Used in valley fill	2,125	984	0	0	3,109
Imports					
Colorado River water	1,305	1,523	586	0	3,414
Owens River water	--	--	--	741	741
Northern Calif. water	350	1,260	156	0	1,766
Ground water from:					
San Fernando Basin	--	0	--	0	0
Exports					
Ground water to:					
San Fernando Basin	--	610	--	--	610
Water delivered to hill and mountain areas					
Colorado River water	45[k]	421	0	0	466
Owens River water	--	--	--	243	243
Northern Calif. water	12[k]	349	0	0	361
Ground water from:					
Verdugo Basin	76	378	--	0	454
San Fernando Basin	--	0	0	0	0
Water outflow					
Surface	--	--	--	--	4,555[h]
Subsurface:					
to Monk Hill Basin	--	--	--	--	300[j]
to San Fernando Basin	--	--	--	--	63
Sewage	0	1,224	0	0	1,224

[h] Information obtained from Station F-252C-R.
[j] Based on 29-year average (1929-57).
[k] From Foothill Feeder System assume: 21% State water and 79% Colorado River Water.

Table 9
1976-77
SUMMARY OF WATER SUPPLY AND DISPOSAL
EAGLE ROCK BASIN
(in acre-feet)*

Water source and use	City of Los Angeles	Deep Rock Water Company	Sparkletts Drinking Water Corporation	Total
Extractions				
Total quantity	0	6	149	155
Used in valley fill	0	0	0	0
Imports				
Owens River	0	--	--	0
Colorado River	2,828	--	--	2,828
Ground water	0	0	0	0
Northern Calif. water	430	0	0	430
Exports				
Ground water	0	6	149	155
Water delivered to hill and mountain areas				
Colorado River water	1,489	--	--	1,489
Owens River water	0	--	--	0
Northern Calif. water	227	--	--	227
Water outflow				
Surface[m]	--	--	--	--
Subsurface[n]	--	--	--	--
Sewers	1,890	0	0	1,890

[m] Information not available.
[n] Estimated in Supplement No. 2 to Report of Reference for dry years 1960-61. Currently, data not available for direct evaluation.
*1 acre-foot = 1 233 cubic metres.

Appendix A

ORDER OF REMAND - SUPERIOR COURT
CITY OF LOS ANGELES VS. CITY OF SAN FERNANDO, ET AL

BURT PINES, City Attorney
EDWARD C. FARRELL, Chief Assistant
City Attorney for Water and Power
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Attorneys for Plaintiff

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

THE CITY OF LOS ANGELES, Plaintiff, vs. CITY OF SAN FERNANDO, et al., Defendants.	No. 650079 REMAND PROCEDURE ORDER NO. 1

RECITALS

(a) Original Trial Court Proceedings. The complaint in this matter was filed on September 30, 1955. After reference to the State Water Rights Board (now State Water Resources Control Board) for a report on the relevant facts, and following 104 days of pretrial and 188 court days in trial, the final arguments ended July 20, 1967. Two additional days were taken on October 27, 1967 (when all counsel assembled in court and the Judge's Memorandum of Decision was delivered to counsel and further procedure discussed)

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and on October 30, 1968 (when the matter of further proceedings to be had and procedure to be taken was further discussed). The Judge's Memorandum of Decision was filed October ~~30~~ 31, ~~1968~~ 1967.

Thereafter, in accordance with the pretrial conference order, further proceedings were had on issues left open pending the ruling of the court on the major contentions of the parties, presentation of evidence and arguments on that phase of the case took an additional 13 days.

This was followed by hearings on the proposed findings of fact and conclusions of law and evidence in support thereof and on the proposed judgment and the objections thereto which required another ten days.

On March 14, 1968, comprehensive findings of fact and conclusions of law were signed and filed, and on the same day judgment after Trial by Court was filed. The judgment was entered the following day, March 15, 1968.

Altogether, 317 days were taken in pretrial, trial and subsequent proceedings before judgment was entered.

(b) Appellate Review and Decision. Los Angeles appealed from the trial court judgment. On May 12, 1975, the Supreme Court issued its opinion reversing the trial court decision and remanded the cause to the trial court for further proceedings consistent with its opinion. (14 Cal.3d 199.) On July 30, 1975, that opinion was modified in the order denying rehearing. (14 Cal.3d 952a [The full decision, as modified, is also set forth at 132 Cal. Rept. 1].)

(c) Remittitur and Proceedings on Remand. The remittitur of the Supreme Court was issued on August 1, 1975, and is on file

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herein. The parties thereafter entered into informal negotiations to resolve the issues remaining by reason of the Supreme Court decision. On February 25, 1977, the Presiding Judge assigned this case to this Court for all purposes. It is the function of this Remand Procedure Order No. 1 to set forth the initial procedural rules and criteria to be followed in bringing this matter to final judgment.

ORDER

Based upon preliminary conference discussion with counsel for the respective parties, and good cause appearing, IT IS HEREBY ORDERED that the following procedures shall govern and control proceedings on remand in the above-entitled matter:

1. Proposed Form of Findings, Conclusions and Judgment as to Matters Not in Dispute. Los Angeles shall submit on or before April 18, 1977, a proposed form of Findings of Fact, Conclusions of Law and Judgment covering factual and legal issues not in dispute and consistent with the decision of the Supreme Court. Each of the defendants shall have to May 30, 1977, in which to file objections to the form or substance of said proposed documents. Thereafter, the court will make and enter an interlocutory order ~~confirming~~ said Findings, Conclusions and Judgment provisions on all undisputed issues of fact and law. ~~(Said settled documents will then constitute a framework for specific findings, conclusions and judgment provisions to be thereafter entered upon resolution of remaining disputed issues.)~~ Objections by defendants to proposed findings, conclusions or judgment provisions, therefore, may be either (a) by way of correction or addition to proposed findings and conclusions, or (b) by a statement that the subject

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matter remains in issue and should be the subject of further proceedings. If the court shall determine that the latter objection raises a bona fide issue under the decision and order of the Supreme Court, no preliminary finding, conclusions or judgment provisions will be settled on that issue.

2. Interlocutory Judgments. It has been represented to the Court that the remaining issues as to many parties and hydrologic areas may well be subject to negotiation and stipulation, whereas significant dispute may remain as to other parties or hydrologic areas. Accordingly, the Court contemplates separating consideration of these several areas of agreement or disagreement and entering, where practical, an interlocutory order or orders disposing of those matters which can be agreed upon. ~~Similar~~ Additional interlocutory orders will be entered following appropriate rulings on motions, or determination of disputed issues of fact following trial and the taking of evidence. It is then contemplated that final findings, conclusions and judgment will be entered incorporating ~~the substance of~~ each of the interlocutory orders.

Based upon preliminary discussions with counsel, it appears that separate interlocutory orders will be utilized at least for the following specific subject matters:

(a) Verdugo Basin

(b) Sylmar Basin

(c) San Fernando Basin

(The San Fernando Basin interlocutory order may well result from separate consideration of the issues relative to three defendant groupings:

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[1] Glendale and Burbank

[2] Nonconsumptive or Minimal Users

[3] Other Defendants.)

3. Further Trial on Contested Issues. To the extent that contested issues of fact or law remain, counsel for the respective parties involved are requested to prepare preliminary pretrial statements designating the factual and legal issues remaining and to seek appropriate stipulation as to factual and evidentiary material.

4. Subsequent Remand Procedure Orders. Because of the complexity and long history of this litigation, the Court deems it appropriate to fashion the procedures on remand as the occasion and circumstances develop. ~~It is contemplated that~~ a full procedure conference will be held in this matter ~~on early~~ June 17, 1977 at 9:30 A.M. ~~at a date to be set by subsequent order of the Court~~. Thereafter, from time to time, subsequent numbered remand procedure orders will be issued to govern and guide the conduct of proceedings herein. The parties are urged, in the meantime, to continue the informal, cooperative negotiations which have been evidenced in the preliminary conference with the Court on this matter.

DATED: March 18, 1977.

Judge of the Superior Court

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Appendix B

AGREEMENT BETWEEN CITY OF LOS ANGELES AND CITIES OF GLENDALE AND BURBANK

(Physical Solution)

AGREEMENT NO. 10055

between

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES

and

CITIES OF
GLENDALE AND BURBANK

MEMORANDUM OF UNDERSTANDING FOR
INTERIM PHYSICAL SOLUTION BETWEEN
LOS ANGELES, GLENDALE AND BURBANK

This Memorandum of Understanding is made between City of Los Angeles, acting by and through its Board of Water and Power Commissioners, City of Glendale and City of Burbank.

RECITALS

The main judgment in the case of City of Los Angeles v. City of San Fernando, et al. (Los Angeles Superior Court Action No. 650079) was entered March 15, 1968. An appeal was taken by Los Angeles, and said judgment was reversed by the California Supreme Court on May 12, 1975. (14 Cal.3d 199.) The remittitur of the Supreme Court was issued August 1, 1975. No final judgment has been entered.

Subsequent to said appellate decision, the parties have conducted studies and engaged in negotiations seeking possible settlement of a part or all of the issues remaining between them in said case, and in related damage actions. As part of said negotiations, a letter agreement dated November 18, 1975, previously stipulated:

> ". . . the extractions from and importations to the San Fernando subarea by each party in the period from October 1, 1975 to the effective date of the stipulated injunction now being discussed shall be charged or credited, as the case may be, to that party's entitlement for the current water year as finally determined in such injunction. It is also agreed that if it appears to any party that no such stipulation can be reached, an application may be made at any time for a preliminary injunction and that, in such event, each party's extractions and importations beginning October 1, 1975 shall likewise

be charged or credited to its entitlement as determined by the court. The entitlement to extract water by Glendale and Burbank shall also include whatever rights they may have by reason of a court determined physical solution in connection with such preliminary injunction."

The parties desire to extend the operation of an earlier Memorandum of Understanding for Interim Physical Solution, which covered the period October 1, 1975 to September 30, 1976. This extension shall cover and be applicable to the period October 1, 1976 through September 30, 1977. This agreement form is utilized, in lieu of a preliminary injunction and court-imposed physical solution, to encourage continued negotiations in the hope and expectation that amicable agreement on some or all issues will be reached. No attempt is made hereby to define or prejudice the ultimate rights or remedies of any party.

COVENANTS

1. Agreed Credit of Glendale and Burbank.

For the period October 1, 1976 to September 30, 1977, Glendale may pump from the San Fernando subarea 2,620 acre feet and Burbank may pump from the San Fernando subarea 5,170 acre feet, which quantities shall be deemed, for these interim purposes, to be return flow credit for imported MWD water.

2. Additional Pumping.

In addition to the amounts set forth in Paragraph 1, Glendale and Burbank may pump from the San Fernando subarea during the same period 4,700 acre feet and 3,800 acre

feet, respectively, conditioned only upon reporting and payment as provided in Paragraphs 3 and 4.

3. Certified Reports.

Glendale and Burbank shall each cause a certified report to be furnished in writing to Los Angeles, under penalty of perjury, on or before March 15, 1977, which shall state the total production of such city from the San Fernando Basin during the period October 1, 1976 through February 28, 1977. Thereafter, a monthly certified statement shall be furnished on or before the 15th of each month showing total production during the preceding calendar month, and the cumulative production by such city during the 1976-77 water year.

4. Payment for Additional Pumping.

Glendale and Burbank shall pay Los Angeles $65.00 per acre foot for all water extracted pursuant to Paragraph 2 hereof. Said payment shall accompany each monthly report which reflects production pursuant to Paragraph 2. Any delinquent payment shall bear interest at the rate of 7% per annum.

5. Scope of Understanding.

This agreement is made solely to provide an acceptable interim operating procedure so that the parties may complete full negotiations for final judgment in the pending cases, or, failing that, that they may prepare for trial of remaining issues. The understandings herein reached are by way of compromise and shall not be construed as

admissions of any party as to any matter -- whether format, concept, quantities or costs -- and shall not be admissible as evidence in any court proceeding between the parties except to enforce its terms between the parties.

EXECUTED this 10th day of March, 1977.

APPROVED AS TO FORM AND LEGALITY
BURT PINES, CITY ATTORNEY.

MAR 10 1977

By _____
RALPH GUY WESSON
Assistant City Attorney

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

By _____
General Manager and Chief Engineer

and _____
Secretary

AUTHORIZED BY RES. MAR 10 1977

Approved

_____
City Attorney

CITY OF GLENDALE

By _____

By _____

CITY OF BURBANK

Approved

By _____
City Manager

_____
City Attorney

Attest _____
City Clerk

Appendix C

ORDER AUTHORIZING TEMPORARY MINING OF SAN FERNANDO BASIN

SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF LOS ANGELES

THE CITY OF LOS ANGELES, Plaintiff, vs. CITY OF SAN FERNANDO, et al., Defendants.	No. 650079 ORDER AUTHORIZING TEMPORARY MINING OF SAN FERNANDO BASIN

Plaintiff Los Angeles and Defendants Glendale and Burbank having filed a joint petition, and all other active parties with rights or claims to waters of San Fernando Basin having been given notice, and the Court having received oral and documentary evidence at a hearing on June 17, 1977, and good cause appearing,

THE COURT HEREBY FINDS and determines:

(a) By reason of extreme drought conditions in Central and Northern California during 1975-76 and 1976-77, deliveries of State Project water to MWD were discontinued in March, 1977. In addition, said drought conditions have materially impaired surface runoff in the Mono-Owens Valley watersheds, thus impairing available supplies through the Los Angeles Aqueduct. An order of the

Court of Appeal, Third Appellate District, has further restricted Los Angeles' ability to produce Owens Basin ground water to supply the Los Angeles Aqueduct.

(b) MWD's Colorado River Aqueduct is being operated to full capacity, but is insufficient to sustain reserve storage to meet the needs of its member agencies. Accordingly, MWD has requested that all of its member agencies seek to make maximum use of ground water in storage, and thereby to relieve the demand on its surface import system during said drought emergency.

(c) There is in San Fernando Basin a significant quantity, in excess of 1.0 million acre feet, of ground water in storage. Los Angeles has facilities and capacity, during the balance of the 1976-77 water year, to extract and use up to 41,445 acre feet in excess of its share of safe yield of San Fernando Basin; Glendale, 1,310; and Burbank, 2,585. Mining of such quantity of ground water would directly and proportionally relieve the demand on MWD's limited Colorado River import facilities.

(d) Los Angeles claims that all water in such storage in San Fernando Basin is subject to its prior and paramount pueblo right, except for a substantial block of ground water, which it claims as a credit from return flow from applied imported water or direct spreading of imported water. Glendale and Burbank contest these assertions.

(e) In order to meet the current drought crisis, said petitioning parties have agreed upon a form of interim order, which reserves without diminution or prejudice their ultimate assertions on said water rights issues.

(f) There is an immediate and urgent need for an interim order to authorize the temporary mining of San Fernando Basin for said purposes, subject to the obligation of the parties to replace said mined water as rapidly as practical.

(g) Said quantities of water can safely be temporarily mined from San Fernando Basin without threat of irreparable damage or significant inequity, considering the gravity of current water-supply conditions in California.

(h) This order is necessary and appropriate to assure maximum beneficial use of the water resources of the State of California in said emergency drought conditions.

IT IS HEREBY ORDERED:

1. Right to Mine. The following parties are authorized to produce from San Fernando Basin during water year 1976-77 ground water in excess of their respective shares of the safe yield of said basin, but not to exceed the following quantities:

Los Angeles	41,445 acre feet
Glendale	1,310 acre feet
Burbank	2,585 acre feet

2. Obligation to Replenish Basin. Los Angeles shall cause said mined water to be replenished in San Fernando Basin by direct spreading or in lieu reduction in its production of safe yield water as soon as adequate supplies of imported water are again available to it for that purpose. When Los Angeles replenishes said Basin, Glendale and Burbank shall participate in said replenishment proportionally to their respective mining by reimbursing Los Angeles at the then prevailing MWD rate appropriate for such replacement water.

3. Interests of Third Parties. Any other party claiming rights in San Fernando's Basin, who claims to have been injured by said temporary mining will be compensated in accordance with this Court's subsequent order if

(a) said party is decreed to have valid rights to waters of San Fernando Basin; and

(b) the nature and amount of such claimed damages is proved to the satisfaction of the Court considering the full circumstances.

4. Watermaster Accounting. The Interim Watermaster, operating pursuant to agreement of the parties, shall maintain records and accounts of all such mining and replenishment, and shall include said matters in Watermaster's annual report.

5. Reservation of Rights. The claims, rights, assertions and contesting arguments of the parties as to waters of the San Fernando Basin in storage over and above annual safe yield waters are hereby reserved, and said rights and claims shall not be impaired or restricted, directly or by implication, by reason of any party's participation or acquiescence in this emergency procedure.

6. Glendale-Burbank Production. The production by Glendale and Burbank hereunder shall be in addition to the rights which each may have, if any, to produce ground water from San Fernando Basin under their Interim Physical Solution Agreement with Los Angeles.

DATED: June 17, 1977.

HARRY L. HUPP

Judge of the Superior Court

Appendix D

AGREEMENT BETWEEN CITY OF LOS ANGELES AND CITIES OF GLENDALE, BURBANK, AND SAN FERNANDO

(Interim Watermaster Service)

AGREEMENT NO. 10056

between

DEPARTMENT OF WATER AND POWER OF
THE CITY OF LOS ANGELES

and

CITIES OF
GLENDALE, BURBANK AND SAN FERNANDO

MEMORANDUM AGREEMENT FOR INTERIM MAINTENANCE OF WATERMASTER SERVICE ULARA

THIS MEMORANDUM AGREEMENT is made and entered into as of July 1, 1976, by and between the Cities of LOS ANGELES (acting by and through its Department of Water and Power), GLENDALE, BURBANK and SAN FERNANDO.

RECITALS

(a) San Fernando Case. Los Angeles v. San Fernando, L. A. Superior Court No. 650,079, was filed in 1955, brought to trial in 1966 and judgment adjudicating the rights of the parties in and to the waters of Upper Los Angeles River Area (ULARA) was entered in 1968.

(b) Watermaster Service. By the original 1968 Judgment, the Department of Water Resources of the State of California (DWR) was appointed to act as Watermaster to administer the provisions of the Judgment under the Court's continuing jurisdiction.

(c) Annual Reports. The Watermaster has published seven annual Watermaster Service Reports (Bulletin 181 Series). The report for the water year 1975-76 is in the course of preparation.

(d) Supreme Court Reversal. In 1975, the California Supreme Court reversed the trial court judgment and remanded the case for further proceedings. No final judgment has

been entered and presently there is no effective trial court order implementing or authorizing continuance of Watermaster service.

(e) Intent. It is the intent and desire of the parties to this Agreement, being the major parties interested in the continued operation and management of the water resources of ULARA, to complete the 1975-76 water year report and maintain Watermaster service under a voluntary agreement for contribution of costs for compilation of data and preparation of a 1976-77 water year report.

COVENANTS

IN CONSIDERATION OF The premises and of the covenants herinafter contained, the parties agree:

1. DWR as Watermaster. DWR shall continue to perform the duties of accumulation and publication of hydrologic data and such other functions that relate directly thereto, such as testing of meters; etc.

2. Contributions Toward Cost. The parties hereto, in consideration of the contribution by the State of California of 50 percent of the cost of Watermaster service, agree to contribute and pay, as billed by DWR, the following percentages of Watermaster costs incurred in preparation of the 1975-76 and 1976-77 water year reports, with the total costs not to exceed $35,000:

Los Angeles	-	25%
Glendale	-	11.5%
Burbank	-	11.5%
San Fernando	-	2%

IN WITNESS WHEREOF, the parties hereto have caused this Memorandum Agreement to be executed as of the day and date first above written.

DEPARTMENT OF WATER AND POWER OF THE CITY OF LOS ANGELES

by

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

General Manager and Chief Engineer

and

Secretary

APPROVED AS TO FORM AND LEGALITY
BURT PINES, CITY ATTORNEY

APR 27 1977

By
RALPH GUY WESSON
Assistant City Attorney

AUTHORIZED BY RES. 551
MAR 10 1977

CITY OF GLENDALE

By

CITY OF BURBANK

By

CITY OF SAN FERNANDO

By

Appendix E

GROUND WATER EXTRACTIONS

ULARA BASIN
1976-77 WATER YEAR
GROUND WATER EXTRACTIONS

(ACRE-FEET)

STATE WELL NUMBER	OWNERS DESIG-NATION	PRODUCTION 1976 OCT	NOV	DEC	1977 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	PARTY IDENT.
SAN FERNANDO BASIN															
CITY OF BURBANK															6550
1N/14W-09A03S	14A	0.00	0.00	0.00	0.00	20.26	0.00	107.10	70.54	294.59	245.75	304.28	290.92	1333.44	
1N/14W-09R04S	17	7.93	0.00	6.64	6.23	0.00	0.00	61.50	76.55	186.97	52.62	185.36	179.66	763.46	
1N/14W-09G02S	12	8.58	9.45	0.00	10.42	7.71	0.00	5.12	18.32	206.91	67.55	137.79	187.08	658.93	
1N/14W-09G03S	9	2.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	
1N/14W-09H01S	10#R	7.98	6.74	0.00	6.79	0.00	0.00	55.25	194.10	128.05	188.89	103.28	176.41	867.49	
1N/14W-09H04S	11A	8.95	11.32	0.00	7.73	0.00	7.78	7.77	41.11	222.07	226.06	219.88	197.75	950.42	
1N/14W-09K02S	13A	9.78	7.41	16.85	8.51	8.40	8.51	40.73	130.35	92.01	217.18	185.71	107.07	832.51	
1N/14W-09L04S	18	8.43	2.23	7.32	8.00	0.00	7.30	7.11	0.00	199.76	172.50	146.44	197.44	748.53	
1N/14W-09Q01S	6A	12.08	10.33	0.00	9.71	10.40	10.58	63.98	215.52	103.37	239.72	241.85	268.14	1185.68	
1N/14W-11Q01S	7	3.38v	0.00	2.81v	0.00v	0.00v	0.00	2.23v	1.67v	13.02v	26.52E	33.76E	36.42E	119.81	
1N/14W-14R08S	15	5.00	0.00	4.35	0.00	0.00	0.00	2.55	2.55	19.21	38.70	49.48	53.05	174.89	
PARTY TOTALS:		74.74	47.48	37.97	49.39	46.77	34.17	353.34	750.71	1465.96	1475.69	1607.83	1693.94	7637.79	
CONROCK CO.															6600
2N/14W-30A01S	4926-	15.99	14.14	19.20	12.55	13.98	16.88	15.22	12.85	15.78	13.60	12.48	13.36	175.23	
2N/14W-30A03S	2	57.55	61.76	57.62	70.47	64.05	65.75	64.70	42.53	107.91	61.29	70.58	68.70	792.91	
2N/14W-30A04S	3	75.11	23.17	57.16	39.72	45.14	29.34	43.89	39.04	63.21	42.29	48.79	47.93	554.79	
PARTY TOTALS:		148.65	99.07	133.98	122.74	123.17	111.97	123.81	93.62	186.90	117.18	131.85	129.99	1522.93	
FOREST LAWN CEMETERY ASSN ET AL															6660
1N/13W-33N01S	2	18.12	15.36	18.36	8.86	18.43	13.50	12.66	11.21	14.10	14.55	19.21	19.26	183.62	
1N/13W-33N03S	4	14.08	10.80	12.33	5.77	11.44	8.99	8.56	7.04	15.71	16.21	16.42	10.66	138.01	
1N/13W-33P01S	6	0.00	0.00	0.00	0.00	0.00	4.04	7.31	6.56	10.42	8.92	0.00	0.00	37.25	
PARTY TOTALS:		32.20	26.16	30.69	14.63	29.87	26.53	28.53	24.81	40.23	39.68	35.63	29.92	358.88	
CITY OF GLENDALE															6690
	GVENT	16.88	17.49	24.86	0.00	26.09	20.56	129.51	520.18	174.31	708.30	700.32	412.46	2750.96	
1N/13W-19J01S	STPT1	1.12	10.02	9.30	0.07	0.08	0.13	0.02	0.57	0.18	65.31	53.00	0.17	139.97	
1N/13W-19J04S	STPT2	86.44	84.55	68.32	116.88	134.01	147.89	139.36	135.76	116.45	40.33	41.34	94.15	1205.48	
PARTY TOTALS:		104.44	112.06	102.48	116.95	160.18	168.58	268.89	656.51	290.94	813.94	794.66	506.78	4096.41	
HARPER, CECELIA DE MILLE															6715
2N/14W-05A02S	CEREG	0.09v	0.24v	0.40v	0.17v	0.15v	0.15v	0.14v	0.09v	0.32v	0.30E	0.12	0.09E	2.26	
LIVINGSTON-GRAHAM, INC.															6750
2N/14W-19Q01S	SNVAL	44.79	37.68	46.44	44.82	44.25	46.40	52.60	44.89	47.56	47.15	32.07	66.52	555.17	
CITY OF LOS ANGELES															6779
2N/16W-27F02S	R-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.75	4.75	
CITY OF LOS ANGELES, SAN FERNANDO															6780
1N/14W-05N01S	NH-16	39.81	0.00	0.00	133.61	11.66	0.00	263.61	304.52	290.68	297.25	297.57	79.59	1718.30	
1N/14W-05P01S	NH-18	275.23	0.00	0.00	0.00	322.18	253.35	343.23	350.39	335.58	344.08	345.20	342.65	2911.89	
1N/14W-05P02S	NH-17	93.43	75.48	0.00	0.00	86.29	147.43	309.16	315.47	301.03	308.13	308.49	82.35	2027.26	
1N/14W-06K01S	NH-39	0.14	103.54	365.82	0.00	179.32	468.87	438.41	447.77	132.39	0.00	97.87	0.00	2234.13	
1N/14W-06K02S	NH-40	0.21	57.58	65.89	125.94	0.00	0.00	355.12	410.79	394.72	405.14	181.59	0.00	1996.98	
1N/14W-06K03S	NH-41	130.58	277.64	0.00	0.00	398.42	453.86	87.26	0.00	288.96	426.84	411.87	423.78	2899.21	
1N/14W-06K04S	NH-42	215.47	59.62	140.27	385.31	15.89	0.00	335.81	431.38	414.28	423.65	370.29	1.70	2793.67	
1N/14W-06L01S	NH-24	244.49	282.99	55.90	157.94	313.06	282.51	52.59	342.47	326.22	329.34	323.30	321.88	3032.69	
1N/14W-06N01S	NH-2	296.83	230.28	182.76	0.00	123.23	0.00	245.62	278.24	264.85	266.30	259.11	260.08	2407.30	
1N/14W-06N02S	NH-30	0.14	0.00	0.00	0.00	59.50	0.00	0.00	61.82	0.00	0.00	0.00	0.00	121.46	
1N/14W-06P01S	NH-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	119.47	185.12	304.59	
1N/14W-06P02S	NH-31	0.37	0.00	136.07	27.30	217.84	357.87	58.47	0.00	0.00	151.93	273.07	0.00	1222.92	
1N/14W-06Q01S	NH-13	205.23	53.63	0.00	0.00	125.57	83.54	0.00	0.00	94.33	175.90	83.70	0.00	821.90	
1N/14W-06Q02S	NH-14A	0.00	0.00	0.00	0.00	0.00	202.94	215.75	0.00	0.00	0.00	0.00	0.00	418.69	
1N/14W-06Q05S	NH-29	21.12	0.00	88.15	0.00	155.74	343.20	283.10	20.82	0.00	0.00	0.00	0.00	912.13	
1N/14W-06Q07S	NH-38	494.26	411.41	332.74	283.06	17.91	0.00	404.43	466.78	447.36	456.45	339.10	270.59	3924.09	
1N/14W-06R01S	NH-11	0.11	0.00	6.01	0.00	14.74	0.00	137.72	0.00	0.00	0.00	0.00	0.00	158.58	
1N/14W-06R05S	NH-27	173.05	0.00	14.21	0.00	61.94	0.00	151.28	55.10	0.00	81.75	0.00	0.00	539.33	
1N/14W-06R07S	NH-28	367.08	274.54	240.08	0.00	319.65	362.81	272.06	306.82	308.40	300.71	296.79	310.28	3359.22	
1N/14W-07A01S	W-1	0.16	20.20	10.70	291.78	10.58	0.00	243.30	300.37	284.18	123.03	249.75	0.00	1534.05	
1N/14W-07J01S	E-10	84.21	0.00	0.00	159.18	0.00	0.00	57.71	89.07	185.74	175.96	82.71	0.00	834.58	
1N/14W-07J03S	E-6	0.14	46.60	163.98	0.00	27.27	0.00	0.00	0.00	156.98	189.19	35.35	0.00	619.51	

Note: 1 acre-foot = 1 233.5 cubic metres

ULARA BASIN
1976-77 WATER YEAR
GROUND WATER EXTRACTIONS
(CONTINUED)
(ACRE-FEET)

STATE WELL NUMBER	OWNERS DESIG-NATION	PRODUCTION 1976 OCT	NOV	DEC	1977 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	PARTY IDENT.
SAN FERNANDO BASIN															
CITY OF LOS ANGELES, SAN FERNANDO (CONTINUED)															6780
1N/14W-08A01S	NH-21	0.11	59.46	109.96	21.35	0.00	9.14	37.44	233.08	210.06	189.37	0.00	0.00	869.97	
1N/14W-08A02S	NH-20	123.26	121.49	41.35	0.00	49.40	0.00	0.00	0.00	204.22	225.83	74.27	0.00	839.82	
1N/14W-08A03S	NH-35	11.62	126.86	0.00	0.00	13.91	0.00	151.72	185.51	76.58	0.00	0.25	0.00	566.45	
1N/14W-08B01S	NH-19	220.02	269.42	0.00	0.00	229.04	365.96	307.46	299.59	277.34	281.89	290.20	300.07	2840.99	
1N/14W-08D01S	W-2	255.05	337.01	292.93	346.88	11.32	0.00	295.09	335.88	314.12	281.96	228.65	61.78	2760.67	
1N/14W-08E01S	W-3	244.49	233.93	204.78	180.65	0.00	0.00	60.86	104.13	221.33	223.00	211.20	50.18	1734.55	
1N/14W-08F01S	W-4	370.52	311.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.92	945.10	
1N/14W-08J01S	E-5	255.74	241.80	201.97	67.72	8.68	0.00	225.14	251.61	228.15	190.01	71.95	0.00	1742.77	
1N/14W-08J03S	E-3	133.84	223.14	178.35	213.73	7.35	0.00	177.82	216.78	194.63	180.88	85.06	0.00	1611.58	
1N/14W-08J04S	E-1	0.71	0.00	0.00	0.00	29.38	0.00	172.04	173.85	187.37	180.35	83.84	0.00	827.54	
1N/14W-08L01S	W-5	300.28	287.19	191.85	286.89	254.50	200.02	242.88	206.68	0.00	120.91	222.70	229.43	2543.33	
1N/14W-08L02S	E-4	113.77	0.00	181.15	224.29	7.92	0.00	202.30	225.37	212.53	201.22	199.91	45.20	1613.66	
1N/14W-08P01S	W-7	0.00	0.00	166.00	0.00	29.91	0.00	185.49	180.05	137.65	0.00	151.81	202.00	1052.91	
1N/14W-15N01S	V-2	151.54	45.87	177.23	168.66	0.00	20.78	0.00	25.60	201.24	204.89	182.87	0.00	1178.68	
1N/14W-15P01S	V-4	193.07	185.26	185.49	124.22	0.00	20.84	0.00	82.05	198.88	200.69	179.91	0.00	1370.41	
1N/14W-16D01S	W-9	63.36	8.49	4.34	0.00	56.57	60.70	46.95	57.51	119.21	121.69	28.31	0.00	567.13	
1N/14W-16E01S	W-6	392.79	377.87	332.64	381.70	359.50	167.22	227.32	375.60	358.95	370.52	359.76	358.33	4062.20	
1N/14W-16F01S	W-10	0.05	0.00	0.00	0.00	14.39	0.00	0.00	1.47	0.00	53.35	18.43	0.00	87.69	
1N/14W-17A01S	W-8	0.21	0.00	0.00	216.14	239.10	292.29	283.54	252.75	206.06	171.40	162.81	156.80	1981.10	
1N/14W-19F03S	CS-46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.08	265.96	264.49	256.96	813.49	
1N/14W-21B01S	V-13	0.00	0.00	0.00	38.18	0.00	8.31	0.00	26.91	65.31	66.87	22.75	0.00	228.33	
1N/14W-21C01S	V-16	115.17	154.04	155.19	131.89	0.00	0.00	62.26	0.00	0.00	113.93	142.72	0.00	875.20	
1N/14W-21G01S	V-24	182.97	225.90	229.11	212.58	7.12	0.00	37.08	238.54	227.02	229.04	110.01	165.04	1864.41	
1N/14W-21H01S	V-22	0.00	50.51	129.25	128.10	4.09	0.00	0.00	0.00	0.00	84.87	98.37	0.00	495.19	
1N/14W-22B01S	V-11	259.41	247.02	255.97	140.50	0.00	27.66	124.56	115.66	243.09	260.77	258.36	203.17	2136.17	
1N/14W-24D03S	H-26	0.00	70.29	275.14	270.20	249.89	274.68	264.97	279.32	260.01	262.63	258.98	265.13	2731.24	
1N/14W-24D04S	H-27	240.47	231.40	228.99	234.39	215.91	240.59	235.26	241.66	232.19	234.50	234.73	266.76	2856.85	
1N/14W-24D05S	H-28	415.40	404.38	414.03	414.49	373.16	413.45	399.27	398.95	397.27	405.44	367.24	0.00	4313.08	
1N/14W-24D06S	H-29	262.74	256.20	243.57	227.62	196.17	226.93	208.38	73.19	215.56	237.21	215.45	51.35	2414.37	
1N/14W-24E06S	H-25	0.00	75.83	257.35	253.21	235.54	260.22	249.13	254.57	233.45	226.24	208.22	207.76	2461.52	
1N/14W-24H03S	CS-52	5.30E	4.86E	4.08E	6.12E	9.52E	4.47E	7.25E	5.04E	7.03E	5.11E	5.33E	3.82E	68.33	
1N/15W-01K01S	NH-15	0.07	0.00	2.96	0.00	8.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.09	
1N/15W-01K02S	NH-34	288.11	220.89	80.44	84.94	0.00	0.00	0.00	25.76	237.76	233.03	219.15	253.49	1643.57	
1N/15W-01K04S	NH-36	0.18	26.40	417.17	292.45	0.00	0.00	11.11	0.00	373.67	411.98	370.06	0.00	1903.02	
1N/15W-01K05S	NH-37	367.54	423.55	241.62	92.75	18.18	0.00	398.39	137.65	366.74	452.59	447.13	120.91	3067.05	
1N/15W-01P04S	NH-25	0.00	0.00	0.00	0.00	0.00	309.50	382.21	390.47	26.35	34.18	367.19	362.33	1872.23	
1N/15W-01Q02S	NH-22	302.80	244.26	174.17	175.39	273.51	297.91	275.11	283.47	261.57	262.86	253.15	263.38	3067.58	
1N/15W-01Q03S	NH-23	191.12	296.79	240.86	0.00	305.56	350.34	331.80	341.44	324.13	330.53	325.34	322.61	3360.52	
1N/15W-01Q04S	NH-26	191.37	211.04	54.75	0.00	210.90	343.71	323.90	333.13	314.53	319.26	311.59	83.15	2697.33	
1N/15W-02Q01S	NH-7	188.50	200.87	138.73	118.23	29.80	109.66	211.71	216.87	203.76	206.40	200.80	202.41	2027.74	
1N/15W-02Q02S	NH-32	0.14	0.00	99.29	22.31	0.00	0.00	0.00	18.78	0.00	0.00	0.34	0.00	140.86	
1N/15W-02R01S	NH-4	0.02	0.00	22.34	0.00	11.75	0.00	0.00	0.00	136.18	147.20	140.43	88.68	546.60	
1N/15W-02R02S	NH-33	0.00	0.00	53.51	0.00	19.42	127.57	263.25	269.38	238.68	238.29	229.64	246.28	1686.02	
2N/14W-12C01S	TGPLT	46.24	0.00	0.00	0.00	0.00	0.00	3.21	43.82	91.80	26.74	35.31	75.76	322.88	
2N/14W-13D04S	WDWD2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	
2N/14W-13D05S	LNGMR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11	
2N/14W-13E03S	FTHL3	0.37	0.00	0.00	0.00	0.00	0.14	0.00	0.07	0.00	0.00	0.00	2.64	3.22	
2N/14W-13E04S	FTHL2	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.46	68.76	69.68	
2N/14W-14A01S	FNWK1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	
1S/13W-04L02S	P-4	128.10	102.39	99.06	99.40	89.99	98.94	93.66	97.91	92.17	92.98	94.70	89.19	1178.49	
1S/13W-04L03S	P-6	100.55	134.30	141.30	133.26	115.24	125.92	116.16	119.15	107.55	109.04	109.50	108.13	1420.10	
1S/13W-04L04S	P-5	141.76	136.02	141.41	138.20	122.13	133.15	121.79	117.65	102.39	95.96	108.70	106.52	1465.68	
PARTY TOTALS:		8901.21	8439.90	8170.91	7010.56	6267.70	7446.88	10993.14	11348.96	12358.31	13007.22	12027.30	7758.96	113731.05	
MENA, JOHN AND BARBARA															6805
2N/14W-11N01S	4973J	0.08V	0.08V	0.08V	0.08V	0.08V	0.08V	0.08V	0.08V	0.08V	0.08E	0.08E	0.08E	0.96	
SEARS ROEBUCK AND COMPANY															6890
1N/13W-20R01S	3945-	32.48V	23.30V	14.90V	8.32V	16.28V	8.18V	25.60V	12.75V	3.12V	2.46E	3.78E	3.33E	154.50	
SOUTHERN SERVICE COMPANY															6900
1N/13W-20F01S	METR1	1.05	1.11	1.24	1.24	1.10	1.21	1.00	0.89	0.97	0.92	1.10	1.00	12.83	
1N/13W-20F01S	METR2	1.10	1.16	1.18	1.05	1.05	1.18	0.96	0.87	0.88	0.89	0.99	1.27	12.58	
1N/13W-20F01S	METR3	1.33	1.53	1.55	1.46	1.47	1.65	1.26	1.14	1.26	1.09	1.35	1.23	16.32	
PARTY TOTALS:		3.48	3.80	3.97	3.75	3.62	4.04	3.22	2.90	3.11	2.90	3.44	3.50	41.73	
SPORTSMENS LODGE, INCORPORATED															6920
1N/15W-25D01S	1	0.05	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.37	

Note: 1 acre-foot = 1 233.5 cubic metres

STATE WELL NUMBER	OWNERS DESIG-NATION	PRODUCTION 1976 OCT	NOV	DEC	1977 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	PARTY IDENT.
SAN FERNANDO BASIN															
TOLUCA LAKE PROPERTY OWNERS ASSN															6940
1N/14W-28R01S	3845F	2.48	0.01	1.84	0.63	3.00	3.00	2.08	0.81	2.98	4.57	6.15	3.64	31.19	
VALHALLA MEMORIAL PARK															6950
1N/14W-04N03S	4	2.27	2.12	1.71	0.43	0.30	1.81	8.90	0.93	14.97	29.94	29.81	22.36	115.55	
1N/14W-09D06S	2	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	
PARTY TOTALS:		2.27	2.12	1.71	0.43	0.49	1.81	8.90	0.93	14.97	29.94	29.81	22.36	115.74	
WALT DISNEY PRODUCTIONS															6970
1N/14W-23E01S	EAST	107.92	72.19	7.42	0.00	0.00	0.11	0.00	0.77	0.52	6.31	130.81	127.11	453.16	
1N/14W-23E02S	WEST	25.73	18.03	26.86	55.65	88.15	68.93	69.01	65.41	73.89	100.11	46.29	4.48	642.54	
PARTY TOTALS:		133.65	90.22	34.28	55.65	88.15	69.04	69.01	66.18	74.41	106.42	177.10	131.59	1095.70	
AREA TOTALS:		9480.61	8882.16	8579.68	7428.15	6783.74	7920.86	11929.37	13003.27	14488.92	15647.36	14849.84	10385.47	129349.43	
SYLMAR BASIN															
BROWN, CHARLES T.															6540
3N/15W-34K03S	1	0.00E	0.00E	0.12E	0.00E	0.00E	0.04E	0.09E	0.00E	0.18E	0.96E	0.99E	0.54E	2.92	
CITY OF LOS ANGELES															6770
2N/15W-04	S MISSN	283.24	307.48	307.64	299.68	266.60	290.75	280.72	286.71	272.96	281.27	290.38	278.99	3446.42	
PLUMB AND HERSH															6850
3N/15W-25G01S	3	0.00V	0.00V	0.00V	0.00V	0.01V	0.01V	0.01V	0.01V	0.01V	0.01E	0.01E	0.01E	0.08	
CITY OF SAN FERNANDO															6880
	7-A	53.37	57.73	60.71	23.17	44.14	34.67	45.20	15.42	50.69	62.01	51.45	52.71	551.27	
3N/15W-34A01S	4	33.96	34.29	26.76	21.68	18.62	16.62	26.19	19.19	34.18	37.09	23.00	25.80	317.38	
3N/15W-34B02S	2A	24.64	45.76	183.76	183.69	165.83	158.89	131.47	142.69	96.18	81.12	121.47	140.65	1476.15	
3N/15W-34C01S	3	108.30	125.93	0.78	0.01	4.67	26.40	48.33	41.03	79.93	135.86	89.11	41.99	702.34	
PARTY TOTALS:		220.27	263.71	272.01	228.55	233.26	236.58	251.19	218.33	260.98	316.08	285.03	261.15	3047.14	
AREA TOTALS:		503.51	571.19	579.77	528.23	499.87	527.38	532.01	505.05	534.13	598.32	576.41	540.69	6496.56	
VERDUGO BASIN															
CRESCENTA VALLEY COUNTY															6610
DIVERSION	PICK	10.01	2.96	0.00	0.00	0.00	0.00	7.77	12.21	2.37	0.00	0.00	1.11	36.43	
1N/13W-03D05S	8	28.49	31.17	36.78	20.02	26.85	43.14	40.49	43.73	43.04	41.80	40.75	26.77	423.03	
2N/13W-28N01S	9	1.85	0.00	0.00	0.00	1.60	3.49	1.50	0.70	16.46	18.19	26.80	16.76	87.35	
2N/13W-29F02S	2	10.65	5.38	0.00	0.00	0.00	1.11	0.42	0.00	0.52	0.43	0.00	0.00	18.51	
2N/13W-33C01S	7	26.31	15.84	9.69	1.19	3.43	1.97	7.90	0.00	0.36	18.65	0.74	0.01	86.09	
2N/13W-33C03S	1	7.71	4.28	2.80	0.42	0.76	0.60	2.38	0.00	0.54	11.09	1.57	5.71	37.86	
2N/13W-33C06S	5	14.84	5.79	3.46	0.00	2.50	1.15	11.84	0.00	5.79	10.53	1.62	2.14	59.66	
2N/13W-33R01S	14	25.52	22.00	43.73	32.74	39.42	45.57	41.84	44.83	45.32	42.55	41.93	49.33	474.78	
2N/13W-33R03S	6	15.81	20.81	21.59	5.58	1.99	5.26	11.26	4.08	8.12	10.74	8.55	17.04	130.83	
2N/13W-33R05S	10	39.80	21.50	51.91	44.51	23.98	49.41	66.22	35.65	60.14	71.14	52.26	25.92	542.44	
2N/13W-33R06S	12	27.35	75.44	37.78	51.78	53.73	9.54	3.29	0.89	2.21	5.45	7.27	29.18	303.91	
PARTY TOTALS:		208.34	205.17	207.74	156.24	154.26	161.24	194.91	142.09	184.87	230.57	181.49	173.97	2200.89	
CITY OF GLENDALE															6680
1N/13W-10F01S	GL3-4	131.68	123.70	124.90	121.87	108.13	117.08	110.11	110.62	105.66	105.58	104.29	98.20	1361.82	
1N/13W-15L01S	VPCKP	0.00	15.22	16.69	0.00	0.00	29.03	82.03	98.30	87.37	94.56	96.75	90.32	610.27	
PARTY TOTALS:		131.68	138.92	141.59	121.87	108.13	146.11	192.14	208.92	193.03	200.14	201.04	188.52	1972.09	
AREA TOTALS:		340.02	344.09	349.33	278.11	262.39	307.35	387.05	351.01	377.90	430.71	382.53	362.49	4172.98	
BASIN TOTALS:		10324.14	9797.44	9508.78	8234.49	7546.00	8755.59	12848.43	13859.33	15400.95	16676.39	15808.78	11258.65	140018.97	

Note: 1 acre-foot = 1 233.5 cubic metres

Appendix F

MEAN DAILY DISCHARGE AT KEY SURFACE RUNOFF GAGING STATIONS

1976-1977
MEAN DAILY DISCHARGE OF LOS ANGELES RIVER ABOVE ARROYO SECO
In second-feet

Station F 57C-R

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	8.7	12.5	16.5	39.3	12.8	17.5	9.8	8.2	5.8	14.2	17.5	2.5
2	6.7	14.2	11.0	527.0	11.0	15.6	7.7	9.8	6.2	15.6	19.6	2.5
3	7.2	21.2	11.0	3520.0	12.2	17.5	7.2	6.2	5.8	19.3	11.8	2.2
4	9.2	11.0	10.4	65.1	11.0	17.5	7.2	5.4	5.8	19.7	14.2	1.9
5	9.2	9.8	12.2	618.0	13.5	17.5	8.2	5.8	6.2	21.2	18.4	1.9
6	8.7	10.4	10.6	2180.0	15.6	16.5	7.7	6.2	8.7	19.4	18.4	1.9
7	8.2	11.6	12.0	3010.0	11.6	19.1	8.2	128.0	8.7	16.5	22.2	1.6
8	7.2	11.8	19.4	83.5	11.0	19.4	8.7	4710.0	8.2	22.2	24.1	1.6
9	8.2	11.6	12.2	48.5	10.4	22.2	8.2	2930.0	8.2	25.0	23.1	1.9
10	9.8	12.7	12.2	26.7	10.4	20.3	8.2	135.0	11.6	21.0	14.4	3.1
11	10.4	43.3	11.6	19.4	10.4	22.2	8.2	26.4	13.5	22.2	12.8	3.4
12	8.7	1340.0	12.2	21.2	10.4	22.2	10.4	69.1	11.6	21.2	11.7	3.8
13	9.2	36.3	14.9	13.5	11.0	21.2	10.4	18.5	15.6	21.9	8.2	5.4
14	8.7	15.6	11.0	12.2	12.8	21.2	10.4	11.6	13.5	18.4	6.7	5.4
15	10.4	19.2	10.4	13.8	12.2	20.8	9.2	7.2	14.2	13.5	5.4	6.2
16	8.7	8.7	11.0	11.6	10.4	1120.0	10.4	6.7	20.3	12.2	7.0	5.4
17	8.2	11.0	11.0	11.0	12.2	194.0	8.2	7.2	16.5	11.0	6490.0	5.8
18	10.4	9.2	11.3	11.0	11.6	89.2	7.7	6.2	15.6	11.0	211.0	5.8
19	12.2	10.4	11.5	13.5	9.8	14.8	5.8	5.8	13.4	13.5	21.7	6.2
20	11.0	7.7	15.1	19.1	8.2	10.4	5.8	5.4	15.6	14.9	8.7	6.7
21	17.5	10.1	12.8	111.0	7.2	10.4	7.2	5.4	17.5	12.2	7.2	7.2
22	494.0	23.1	11.4	20.3	7.2	9.2	5.8	5.0	18.4	12.2	6.2	6.7
23	987.0	12.1	12.2	12.2	105.0	8.2	5.4	13.2	17.5	9.8	5.4	8.2
24	23.1	10.4	9.8	12.8	71.7	30.8	5.0	103.0	15.6	9.8	5.0	7.7
25	15.6	10.4	9.8	18.2	34.0	1990.0	3.4	16.3	13.5	11.6	5.0	8.2
26	11.6	11.0	8.7	12.2	21.2	54.4	4.6	10.4	12.8	14.2	5.4	7.2
27	8.2	10.4	10.2	12.2	17.5	14.2	5.4	8.7	12.2	16.5	5.4	11.6
28	20.3	8.2	12.3	11.6	17.5	14.2	5.8	6.2	13.5	22.2	5.0	8.2
29	20.3	18.8	13.6	24.7	--	9.2	5.0	5.4	12.8	24.1	5.0	12.2
30	15.6	11.6	942.0	16.5	--	7.7	4.2	5.4	13.5	21.2	5.4	7.2
31	9.2	--	141.0	17.5	--	7.7	--	5.0	--	17.5	4.6	--
Total	1883.4	1748.3	1831.3	9951.6	509.0	3815.1	219.4	8842.7	372.3	525.2	5081.5	159.6
Mean Daily Discharge	54.3	58.3	46.2	308.0	18.2	123.0	7.3	866.0	12.4	16.9	162.0	5.3
Max. Mean Daily Discharge	987.0	1340.0	942.0	3550.0	105.0	1990.0	10.4	4710.0	20.3	25.0	6490.0	12.2
Min. Mean Daily Discharge	6.7	7.7	8.7	11.0	7.2	7.7	3.4	5.0	5.8	9.8	4.6	1.6
Runoff in Acre-feet	3338.0	3467.0	2838.0	18950.0	1010.0	7570.0	435.0	16350.0	738.0	1040.0	9960.0	317.0

Maximum Stage 8.10 Feet at 0130 on January 3, 1977. Discharge 23,300 second-feet. Total Acre-feet 1976-77 66013.0

1976-1977
MEAN DAILY DISCHARGE OF BIG TUJUNGA CREEK BELOW BIG TUJUNGA DAM
In second-feet

Station F 168-R

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	5.1	5.3	0.2	0.3	9.7	2.9	3.6	3.8	6.0	+	2.6	2.1
2	5.3	5.1	0.2	0.4	6.9	2.9	3.6	4.0	4.3	+	2.5	2.3
3	5.3	5.0	0.2	0.4	5.7	2.8	3.6	4.0	3.2	0.1	2.3	2.3
4	5.3	4.8	0.2	0.2	3.6	2.8	3.6	4.0	3.2	0.1	2.1	2.3
5	5.3	4.8	0.2	0.2	4.7	2.8	3.6	4.0	3.0	0.1	2.1	2.3
6	5.3	4.8	0.2	0.4	6.1	2.8	3.6	3.8	3.2	0.1	2.3	2.3
7	5.3	4.8	0.2	10.8	6.1	2.6	3.6	3.8	7.5	0.1	2.3	2.3
8	5.3	4.8	0.2	17.6	6.7	2.8	3.6	5.5	3.2	0.1	2.3	2.3
9	5.3	4.8	0.2	21.8	5.7	2.6	3.8	41.6	3.2	+	2.3	2.3
10	5.1	4.8	0.2	14.9	5.7	2.6	3.8	184.0	3.2	+	2.3	2.3
11	5.1	4.8	0.2	5.2	5.7	2.6	3.8	163.0	3.2	0	2.3	2.3
12	5.1	4.8	0.2	6.3	5.7	2.8	3.8	73.2	3.2	0	2.3	2.5
13	5.0	4.6	0.2	6.3	5.7	2.9	5.4	21.2	3.2	0	2.3	2.5
14	5.1	4.6	0.3	6.3	5.7	2.9	3.4	21.2	3.2	0	2.3	2.5
15	5.1	2.5	0.3	6.3	3.8	2.8	3.2	21.2	3.5	0	2.3	2.5
16	5.3	0.3	0.3	6.3	2.5	3.1	3.2	21.2	4.3	0	2.3	2.6
17	5.3	0.2	0.3	6.3	2.5	3.0	3.2	16.8	4.3	0	2.6	2.6
18	5.5	0.2	0.3	6.3	2.4	3.0	3.2	14.4	4.3	0	2.3	2.3
19	5.5	0.2	0.3	6.3	2.4	2.9	3.2	9.7	4.5	+	2.3	2.3
20	5.7	0.2	0.3	6.3	2.4	2.9	3.2	5.2	3.0	0.1	2.3	2.3
21	5.7	0.2	0.3	7.8	2.4	2.9	3.0	5.2	+	0.1	2.3	3.5
22	5.7	0.2	0.3	9.7	2.4	2.9	3.6	5.2	+	+	2.3	4.2
23	5.7	0.2	0.3	9.7	2.4	2.9	3.8	5.2	+	+	2.1	4.2
24	5.7	0.2	0.3	9.7	2.4	3.0	3.8	5.2	0.1	0.1	2.1	4.3
25	5.7	0.2	0.3	9.7	2.4	8.1	3.9	5.2	0.1	0.1	3.2	4.3
26	5.7	0.2	0.3	9.7	2.4	11.2	3.9	5.2	0.1	1.1	2.3	4.7
27	5.7	0.2	0.3	9.7	2.4	11.2	3.9	5.2	0.1	0.1	2.3	4.7
28	5.5	0.2	0.3	9.7	2.8	11.2	4.1	5.2	0.1	1.1	2.3	4.3
29	5.5	0.2	0.3	9.7	--	11.2	4.3	5.5	0.1	2.5	2.1	5.8
30	5.5	0.2	0.5	9.7	--	11.2	4.3	5.8	0.1	2.6	2.1	4.3
31	5.5	--	0.4	9.7	--	7.8	--	6.0	--	2.6	2.1	--
Total	167.2	73.4	8.3	233.7	119.3	140.1	110.6	684.5	77.4	11.0	71.6	91.5
Mean Daily Discharge	5.4	2.4	0.3	7.5	4.3	4.5	3.7	22.1	2.6	0.4	2.3	3.0
Max. Mean Daily Discharge	5.7	5.3	0.5	21.8	9.7	11.2	5.4	184.0	7.5	2.6	3.2	5.8
Min. Mean Daily Discharge	5.0	0.2	0	0.2	2.4	2.6	3.0	3.8	+	0	2.1	2.1
Runoff in acre-feet	332.0	146.0	16.5	464.0	237.0	278.0	219.0	1360.0	154.0	21.8	142.0	181.0

Maximum Stage 4.48 feet at 2100 on May 9, 1977. Discharge 210 second-feet. Total acre-feet 1976-77 3550.0

Note: 1 cubic foot per second = .028317 cubic metre per second
1 acre-foot = 1 233.5 cubic metres

1976-1977
MEAN DAILY DISCHARGE OF VERDUGO WASH AT ESTELLE AVENUE
In second-feet

Station F 238-R

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	2.3	2.5	1.8	1.8	2.5	5.0	1.0	1.5	1.0	1.0	1.2	0.7
2	2.5	2.5	2.0	94.4	2.5	6.2	1.0	1.5	1.0	1.0	0.7	0.7
3	2.5	2.5	2.3	210.0	2.8	6.2	1.0	1.5	1.0	1.0	0.5	0.7
4	2.8	2.5	2.3	2.5	2.8	6.2	0.3	1.5	1.2	1.0	0.5	0.7
5	3.9	2.8	2.5	82.6	2.8	8.4	1.8	1.6	1.2	1.0	0.5	0.7
6	3.9	2.8	2.5	84.6	2.5	9.5	1.2	1.5	1.0	1.0	0.7	0.7
7	2.8	3.9	2.5	100.0	3.9	10.6	2.3	1.8	1.2	0.7	0.7	0.7
8	3.9	2.8	2.5	3.9	3.9	10.6	1.8	163.0	1.2	0.7	0.7	0.5
9	3.9	2.8	3.9	2.5	5.0	10.6	1.8	180.0	1.5	0.7	0.7	0.5
10	3.9	2.8	3.9	2.3	5.0	7.3	1.8	7.5	1.5	1.0	0.7	0.5
11	3.9	11.1	7.3	2.3	3.9	2.5	1.8	1.8	1.0	1.0	0.5	0.5
12	3.9	41.4	7.3	2.5	2.8	2.3	1.8	17.1	1.0	0.5	0.5	0.5
13	3.9	1.2	7.3	2.5	2.8	2.3	1.2	1.5	1.0	0.5	0.5	0.5
14	3.9	1.2	8.4	2.3	2.8	2.3	1.2	1.0	1.0	0.5	0.5	0.5
15	3.9	1.0	7.3	2.5	3.9	2.3	1.2	0.7	1.0	0.5	0.5	0.5
16	3.9	1.2	9.5	2.5	3.9	47.5	1.5	1.0	1.2	0.7	135.0	0.5
17	5.0	1.5	8.4	2.5	3.9	8.5	1.5	1.2	1.2	1.0	2.2	0.5
18	6.2	1.2	9.5	2.5	2.8	2.0	1.5	1.5	1.2	1.0	0.5	0.5
19	8.4	1.5	8.4	2.5	2.8	2.0	1.8	1.5	1.5	0.7	0.5	0.5
20	9.5	1.5	8.4	2.8	3.9	2.0	1.8	1.5	1.2	0.7	0.5	0.5
21	11.8	1.5	7.3	7.3	3.9	1.5	1.8	1.2	1.2	1.0	0.5	0.2
22	33.4	2.0	2.8	2.3	5.0	1.0	1.5	1.2	1.2	0.7	0.5	0.2
23	30.6	1.8	2.5	2.5	23.1	1.5	1.8	1.8	1.2	0.7	0.1	0.2
24	2.0	1.8	2.8	2.3	9.5	9.0	2.0	16.3	1.5	1.0	1.0	0.2
25	2.3	2.0	2.8	2.5	5.0	61.6	1.5	1.2	1.5	1.0	1.0	0.2
26	1.8	2.0	2.8	2.5	5.0	1.5	1.8	0.7	1.8	1.0	1.0	0.5
27	2.0	1.5	2.8	2.5	5.0	1.0	2.0	0.7	1.8	1.0	1.0	0.5
28	2.3	1.8	3.9	2.3	3.9	1.5	1.5	0.7	1.5	0.7	0.7	0.5
29	2.3	1.8	2.8	2.3	--	1.0	1.8	0.7	1.2	0.7	0.7	0.5
30	2.3	1.8	41.4	2.5	--	1.0	1.8	1.0	1.0	0.5	0.7	0.5
31	2.3	--	8.3	2.3	--	1.0	--	1.0	--	0.7	0.7	--
Total	178.0	108.7	188.2	640.8	127.6	235.9	46.8	416.7	37.0	25.2	156.6	14.9
Mean Daily Discharge	5.7	3.6	6.1	20.7	4.5	7.6	1.6	13.4	1.2	0.8	5.1	0.5
Max. Mean Daily Discharge	33.4	41.4	41.4	210.0	23.1	61.6	2.3	180.0	1.8	1.0	135.0	0.7
Min. Mean Daily Discharge	1.8	1.0	1.8	1.8	2.5	1.0	0.3	0.7	1.0	0.5	0.5	0.5
Runoff in Acre-feet	353.0	216.0	373.0	1271.0	253.0	468.0	92.8	827.0	73.4	50.0	311.0	29.6

Maximum Stage 1.86 Feet at 0030 on January 3, 1977. Discharge 2100 Second-feet. Total Acre-feet 1976-77 4318.0

1976-77
DAILY DISCHARGE OF LOS ANGELES RIVER AT TUJUNGA AVENUE
In second-feet

Station F 300-R

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	4.3	7.5	4.8	6.9	5.9	3.3	3.8	6.5	3.8	4.4	2.6	2.2
2	4.0	7.0	4.8	572.0	5.5	3.2	4.3	3.6	3.5	7.3	2.4	2.0
3	4.6	7.4	5.9	1830.0	5.3	2.9	4.0	4.3	3.2	3.2	2.7	2.2
4	5.3	7.4	6.1	26.3	5.3	2.7	4.5	4.1	3.2	2.7	2.6	2.2
5	5.3	7.0	6.1	402.0	5.2	2.6	4.8	4.5	5.7	2.3	2.4	2.3
6	5.9	7.4	6.9	1530.0	6.3	3.5	4.8	3.8	5.0	2.2	2.6	2.3
7	6.4	6.8	5.9	1200.0	6.1	3.6	4.3	87.7	4.6	1.9	2.4	2.3
8	6.1	6.7	7.6	50.9	5.9	3.3	4.5	2920.0	3.8	2.3	2.4	2.2
9	8.8	7.8	6.8	22.0	5.7	3.5	4.3	1490.0	3.6	2.0	2.4	2.0
10	9.8	6.3	5.7	13.7	5.5	3.0	4.0	35.4	3.5	1.8	2.3	2.0
11	8.7	121.0	5.7	10.2	5.5	3.5	3.6	10.7	3.0	1.8	2.4	2.0
12	7.1	663.0	5.9	8.2	5.7	3.3	3.5	17.3	3.2	1.9	2.6	1.9
13	7.4	12.7	7.2	9.1	6.4	4.8	4.5	5.6	2.9	2.2	2.6	1.9
14	7.4	10.8	5.9	7.6	6.4	5.0	4.5	4.3	3.2	3.0	2.6	1.8
15	6.7	5.5	4.8	6.8	5.9	8.0	4.3	3.8	3.5	4.0	2.6	1.8
16	7.2	4.5	4.5	7.6	6.3	721.0	4.5	3.0	3.2	2.9	2.6	1.6
17	7.8	4.5	4.5	6.4	6.4	33.1	4.6	2.7	3.5	2.7	2700.0	1.6
18	7.2	5.9	5.7	5.9	6.1	5.2	4.6	2.9	3.8	2.7	127.0	1.8
19	7.2	5.9	5.5	8.7	6.6	4.0	3.6	2.9	3.3	2.9	8.9	1.8
20	7.0	5.5	5.5	14.8	6.8	3.8	3.5	2.9	3.5	3.0	4.5	1.8
21	70.1	6.9	5.2	26.1	6.1	4.1	3.8	3.3	3.8	3.2	4.0	1.8
22	232.0	6.3	4.8	5.7	5.9	4.1	3.5	3.0	4.0	3.6	3.5	1.8
23	83.5	5.5	5.2	6.1	100.0	4.3	3.9	3.0	4.0	2.9	3.0	1.8
24	10.0	5.0	5.3	6.4	18.0	17.0	4.3	60.6	4.5	2.9	2.6	1.6
25	7.5	5.5	5.2	5.7	5.0	1240.0	3.6	4.7	4.0	2.7	2.2	1.6
26	5.7	5.0	4.6	5.5	3.5	15.8	3.8	5.2	3.5	2.7	2.0	1.6
27	6.6	4.1	5.2	5.9	3.5	5.8	4.0	5.2	3.2	2.6	2.2	1.6
28	10.2	3.6	5.9	18.4	3.5	4.7	3.6	4.1	3.2	3.0	2.2	1.5
29	9.3	2.6	5.5	9.0	--	3.6	3.5	3.6	3.2	2.7	2.0	1.5
30	5.9	4.3	603.0	5.7	--	3.8	4.3	3.2	3.5	3.2	2.0	1.5
31	6.6	--	36.0	6.1	--	4.3	--	4.0	--	2.6	2.2	--
Total	581.6	959.4	801.7	5839.7	264.3	2130.8	122.8	4715.9	109.9	89.3	2908.5	56.0
Mean Daily Discharge	18.8	32.0	25.9	188.0	9.4	68.7	4.1	152.0	3.7	2.9	93.8	1.9
Max. Mean Daily Discharge	232.0	663.0	603.0	1830.0	100.0	1240.0	4.8	2920.0	5.7	7.3	2700.0	2.3
Min. Mean Daily Discharge	4.0	2.6	4.5	5.3	3.5	2.6	3.5	2.7	2.9	1.8	2.0	1.5
Runoff in Acre-feet	1153.0	1902.0	1590.0	11580.0	524.0	4230.0	244.0	9350.0	218.0	177.0	5770.0	111.0

Maximum Stage 8.84 feet at 0045 on January 3, 1977. Discharge 15,300 second-feet. Total acre-feet 1976-77 36850.0

1976-1977
MEAN DAILY DISCHARGE OF PACOIMA CREEK FLUME BELOW PACOIMA DAM
In second-feet

Station 118 BB

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	0.7	0.9	0.7	+	+	+	+	+	0.1	+	+	+
2	0.7	0.9	0.7	+	+	+	+	+	0.1	+	+	+
3	0.7	0.9	0.7	+	+	+	+	+	0.9	+	+	+
4	0.7	0.9	0.7	+	+	+	25.9	+	2.1	+	+	+
5	0.6	0.9	0.7	5.4	+	+	+	+	2.1	+	+	+
6	0.5	0.9	0.7	+	+	+	+	+	2.1	+	+	+
7	0.5	0.9	0.7	+	+	+	+	+	2.1	+	+	+
8	0.5	0.9	0.7	+	+	+	+	+	2.1	+	+	+
9	0.5	0.9	0.7	+	+	+	+	+	2.1	+	+	+
10	0.5	0.9	0.7	+	+	+	+	+	1.5	+	+	+
11	0.5	0.9	0.7	+	+	+	8.4	+	1.1	+	+	+
12	0.5	0.9	0.7	+	+	+	14.6	+	1.1	+	+	+
13	0.5	0.9	0.7	+	+	+	14.5	+	1.1	+	+	+
14	0.5	0.9	0.7	+	+	+	13.8	+	0.6	+	+	+
15	0.5	0.9	+	+	+	+	8.3	+	+	+	+	+
16	0.5	0.9	+	+	+	+	+	+	+	+	+	+
17	0.5	0.9	+	+	+	+	+	+	+	+	+	+
18	0.5	0.9	+	+	+	+	+	+	+	+	+	+
19	0.6	0.9	+	+	+	+	+	2.7	+	+	+	+
20	0.6	0.9	+	+	+	+	+	4.6	+	+	+	+
21	0.7	0.9	+	+	+	+	+	4.4	+	+	+	0.9
22	3.0	0.9	+	+	+	+	+	4.2	+	+	+	+
23	0.6	0.9	+	+	+	+	+	4.0	+	+	+	+
24	0.6	0.9	+	+	+	+	+	3.8	+	+	+	+
25	0.6	0.9	+	+	+	+	+	3.6	+	+	+	+
26	7.6	0.9	+	+	+	+	+	5.7	+	+	+	+
27	12.7	0.9	+	+	+	+	+	5.0	+	+	+	+
28	4.0	0.9	+	+	+	+	+	5.0	+	+	+	+
29	4.0	0.9	+	+	-	+	+	5.0	+	+	+	+
30	4.0	0.9	+	+	-	+	+	5.5	+	+	+	+
31	4.0	-	+	+	-	+	-	1.9	-	+	+	+
Total	92.9	27.0	9.8	5.4	+	+	85.5	55.4	19.1	+	+	0.9
Mean Daily Discharge	1.7	0.9	0.3	0.2	+	+	2.8	1.8	0.6	+	+	+
Max. Mean Daily Discharge	12.7	0.9	0.9	5.4	+	+	25.9	5.7	2.1	+	+	0.9
Min. Mean Daily Discharge	0.5	0.9	+	+	+	+	+	+	+	+	+	+
Runoff in Acre-feet	184.9	53.6	19.4	10.7	+	+	169.6	109.8	37.8	+	+	1.8

Maximum Stage 3.70 feet at 1055 on April 4, 1977. Discharge 460 second-feet. Total Acre-feet 1976-77 507.8

1976-77
MEAN DAILY DISCHARGE OF BURBANK-WESTERN STORM DRAIN AT RIVERSIDE DRIVE
In second-feet

Station E 285-R

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	9.1	10.6	11.9	10.6	11.9	11.9	10.6	11.9	10.6	10.6	14.6	7.9
2	10.6	10.6	10.6	144.0	11.9	10.6	10.6	10.6	10.6	10.6	13.1	7.9
3	10.6	11.9	10.6	149.0	11.9	10.6	10.6	10.6	10.6	10.6	13.1	7.9
4	10.6	11.9	10.6	13.1	11.9	10.6	10.6	11.9	10.6	10.6	14.6	7.9
5	10.6	11.9	10.6	85.0	11.9	10.6	10.6	11.9	10.6	10.6	14.6	7.9
6	10.6	13.1	10.6	113.0	10.6	10.6	10.6	10.6	10.6	10.6	14.6	9.1
7	10.6	14.6	10.6	111.0	11.9	10.6	10.6	13.1	10.6	10.6	13.1	9.1
8	10.6	11.9	10.6	13.1	10.6	10.6	10.6	338.0	11.9	10.6	14.6	9.1
9	10.6	11.9	10.6	13.1	10.6	13.1	10.6	199.0	13.1	10.6	14.6	11.9
10	10.6	11.9	10.6	13.1	10.6	13.1	10.6	11.9	11.9	10.6	14.6	11.9
11	10.6	44.6	10.6	11.9	10.6	11.9	11.9	11.9	11.9	10.6	13.1	11.9
12	9.1	52.9	10.6	13.1	10.6	11.9	11.9	11.9	11.9	10.6	13.1	13.1
13	9.1	11.9	10.6	11.9	10.6	11.9	11.9	10.6	11.9	10.6	14.6	11.9
14	13.1	11.9	10.6	11.9	10.6	11.9	11.9	9.1	11.9	10.6	14.6	11.9
15	13.1	11.9	10.6	11.9	10.6	11.9	11.9	9.1	11.9	10.6	14.6	11.9
16	10.6	11.9	10.6	11.9	10.6	93.2	11.9	10.6	11.9	10.6	17.7	11.9
17	10.6	11.9	10.6	20.2	10.6	11.9	10.6	10.6	13.1	10.6	369.0	11.9
18	10.6	13.1	10.6	21.2	10.6	10.6	10.6	10.6	13.1	10.6	9.1	11.9
19	10.6	13.1	10.6	21.2	10.6	11.9	10.6	9.1	13.1	10.6	10.6	11.9
20	11.9	10.6	10.6	19.9	10.6	11.9	10.6	9.1	11.9	10.6	10.6	11.9
21	11.9	10.6	10.6	12.9	10.6	11.9	10.6	7.9	11.9	11.9	9.1	11.9
22	40.7	11.9	10.6	11.9	10.6	10.6	10.6	11.9	11.9	10.6	10.6	11.9
23	179.0	11.9	10.6	10.6	17.3	10.6	10.6	13.1	11.9	11.9	10.6	11.9
24	10.6	11.9	10.6	11.9	13.7	14.7	10.6	20.3	10.6	11.9	10.6	11.9
25	11.9	11.9	10.6	11.9	11.9	116.0	10.6	11.9	10.6	13.1	11.9	9.1
26	10.6	13.1	10.6	11.9	13.1	11.9	10.6	11.9	10.6	13.1	11.9	11.9
27	11.9	11.9	10.6	11.9	11.9	10.6	11.9	11.9	10.6	14.6	11.9	11.9
28	11.9	11.9	10.6	11.9	11.9	10.6	11.9	10.6	11.9	14.6	11.9	11.9
29	11.9	11.9	10.6	11.9	--	10.6	11.9	9.1	10.6	14.6	11.9	11.9
30	10.6	11.9	60.8	10.6	--	11.9	11.9	10.6	10.6	13.1	10.6	11.9
31	10.6	--	12.8	11.9	--	11.9	--	10.6	--	14.6	7.9	--
Total	535.4	433.0	382.3	949.4	320.8	542.6	331.0	861.9	344.9	356.0	747.4	327.0
Mean Daily Discharge	17.3	14.4	12.3	30.6	11.5	17.5	11.0	27.8	11.5	11.5	24.1	10.9
Max. Mean Daily Discharge	179.0	52.9	60.8	149.0	17.3	116.0	11.9	338.0	13.1	14.6	369.0	13.1
Min. Mean Daily Discharge	9.1	10.6	10.6	10.6	10.6	10.6	10.6	7.9	10.6	10.6	7.9	7.9
Runoff in Acre-feet	1062.0	859.0	758.0	1883.0	636.0	1080.0	657.0	1710.0	684.0	706.0	1480.0	649.0

Maximum Stage 2.61 feet at 0245 on October 23, 1976. Discharge 2880 second-feet. Total acre-feet 1976-77 12164.0

STATE OF CALIFORNIA
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Southern District

WATERMASTER SERVICE IN THE UPPER LOS ANGELES RIVER AREA LOS ANGELES COUNTY

OCTOBER 1, 1976 – SEPTEMBER 30, 1977

District Report

July 1978

CONVERSION FACTORS

English to Metric System of Measurement

Quantity	English unit	Multiply by	To get metric equivalent
Length	inches (in)	25.4	millimetres (mm)
		.0254	metres (m)
	feet (ft)	.3048	metres (m)
	miles (mi)	1.6093	kilometres (km)
Area	square inches (in^2)	6.4516×10^{-4}	square metres (m^2)
	square feet (ft^2)	.092903	square metres (m^2)
	acres	4046.9	square metres (m^2)
		.40469	hectares (ha)
		.40469	square hectometres (hm^2)
		.0040469	square kilometres (km^2)
	square miles (mi^2)	2.590	square kilometres (km^2)
Volume	gallons (gal)	3.7854	litres (l)
		.0037854	cubic metres (m^3)
	million gallons (10^6 gal)	3785.4	cubic metres (m^3)
	cubic feet (ft^3)	.028317	cubic metres (m^3)
	cubic yards (yd^3)	.76455	cubic metres (m^3)
	acre-feet (ac-ft)	1233.5	cubic metres (m^3)
		.0012335	cubic hectometres (hm^3)
		1.233×10^{-6}	cubic kilometres (km^3)
Volume/Time (Flow)	cubic feet per second (ft^3/s)	28.317	litres per second (l/s)
		.028317	cubic metres per second (m^3/s)
	gallons per minute (gal/min)	.06309	litres per second (l/s)
		6.309×10^{-5}	cubic metres per second (m^3/s)
	million gallons per day (mgd)	.043813	cubic metres per second (m^3/s)
Mass	pounds (lb)	.45359	kilograms (kg)
	tons (short, 2,000 lb)	.90718	tonne (t)
		907.18	kilograms (kg)
Power	horsepower (hp)	0.7460	kilowatts (kW)
Pressure	pounds per square inch (psi)	6894.8	pascal (Pa)
Temperature	Degrees Fahrenheit (°F)	$\frac{tF - 32}{1.8} = tC$	Degrees Celsius (°C)