

**SANTA ANA RIVER WATERMASTER
FOR
ORANGE COUNTY WATER DISTRICT
VS. CITY OF CHINO et al.
CASE NO. 117628 - COUNTY OF ORANGE**

**TWENTY-THIRD
ANNUAL REPORT
OF THE
SANTA ANA RIVER WATERMASTER**

**FOR WATER YEAR
OCTOBER 1, 1992 - SEPTEMBER 30, 1993**

APRIL 30, 1994

SANTA ANA RIVER WATERMASTER

ORANGE COUNTY WATER DISTRICT VS. CITY OF CHINO ET AL.
CASE NO. 117628-COUNTY OF ORANGE

WATERMASTER

Harvey O. Banks
William J. Carroll
Donald L. Harriger
William R. Mills, Jr.
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MAILING ADDRESS

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April 30, 1994

To: Clerk of Superior Court of Orange County and all Parties

Re: Watermaster Report for Water Year October 1, 1992 - September 30, 1993

Gentlemen:

We have the honor of submitting herewith the Twenty-third Annual Report of the Santa Ana River Watermaster. We wish to point out that, in the interest of economy, the report format has been changed, and supporting basic data heretofore presented as Appendices have been eliminated from the report. These basic data are available for review at the office of the Secretary of the Watermaster upon request.

The principal findings of the Watermaster for the water year 1992-93 are as follows:

At Prado

1. Base Flow at Prado	128,067 acre-feet
2. Annual Weighted TDS in Base and Storm Flows	368 mg/L
3. Annual Adjusted Base Flow	163,499 acre-feet
4. Cumulative Adjusted Base Flow	2,234,408 acre-feet
5. Cumulative Entitlement of OCWD	966,000 acre-feet
6. Cumulative Credit	1,268,408 acre-feet
7. One-third of Cumulative Debit	0 acre-feet
8. Minimum Required Base Flow in 1993-94	34,000 acre-feet

At Riverside Narrows

1. Base Flow at Riverside Narrows	41,434 acre-feet
2. Annual Weighted TDS in Base Flow	634 mg/L
3. Annual Adjusted Base Flow	41,434 acre-feet
4. Cumulative Adjusted Base Flow	842,797 acre-feet
5. Cumulative Entitlement of CBMWD and WMWD	350,750 acre-feet
6. Cumulative Credit	492,047 acre-feet
7. One-third of Cumulative Debit	0 acre-feet
8. Minimum Required Base Flow in 1993-94	12,420 acre-feet

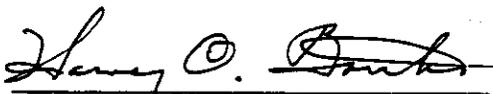
The above findings show that at the end of the 1992-93 water year, Chino Basin Municipal Water District and Western Municipal Water District have a cumulative credit of 1,268,408 acre-feet to their Base Flow obligation at Prado Dam. San Bernardino Valley Municipal Water District has a cumulative credit of 492,047 acre-feet to its Base Flow obligation at Riverside Narrows.

Based on these findings, the Watermaster concludes that there was full compliance with the provisions of the Stipulated Judgment in 1992-93.

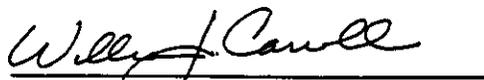
The Watermaster continued to exercise surveillance over the many active and proposed projects within the watershed for their potential effect on Base Flow.

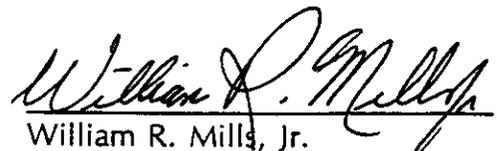
Sincerely yours,

Santa Ana River Watermaster

By: 
Harvey O. Banks


Donald L. Harriger


William J. Carroll


William R. Mills, Jr.


Robert L. Reiter

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(Bound separately and available for review
at the office of the Secretary of the Watermaster)

CHAPTER I

WATERMASTER ACTIVITIES AND WATER CONDITIONS

This is the Twenty-third Annual Report of the Santa Ana River Watermaster required by the Stipulated Judgment for water year 1992-93 in the case of Orange County Water District vs. City of Chino et al., entered by the court on April 17, 1969 (Case No. 117628 - County of Orange). This Stipulated Judgment became effective on October 1, 1970, and contains a declaration of rights of the entities in the Lower Area of the Santa Ana River Basin downstream of Prado Dam as against those in the Upper Area, and provides a physical solution to implement the provisions of the Judgment. The physical solution accomplishes, in general, a regional intrabasin allocation of the surface flow of the Santa Ana River System. All defendants and cross-defendants were dismissed except the four major public water districts within the Santa Ana River Basin, namely, the San Bernardino Valley Municipal Water District (SBVMWD), Western Municipal Water District (WMWD), Chino Basin Municipal Water District (CBMWD), and Orange County Water District (OCWD). The boundaries of these districts are shown on Plate 1. This arrangement leaves to each of the major hydrologic units in the watershed the determination and regulation of individual rights therein and the development and implementation of its own basin management plan. The History of Litigation and the Summary of Judgment are included as Appendices G and H of the Twentieth Annual Report.

In order to administer the provisions of the Judgment, the court appointed a Watermaster composed of five persons. Since August 15, 1985, the Santa Ana River Watermaster Committee has consisted of Harvey O. Banks, William J. Carroll, William R. Mills, Jr., Donald L. Harriger, and Robert L. Reiter. In 1992-93 Mr. Banks continued to serve as chairman, and Mr. Reiter continued to serve as secretary/treasurer.

The time for submission of the annual report is seven months after the end of the water year. The items to be reported upon are listed in the letter of transmittal of this report.

Stream Flow and Water Quality Measurements

Stream flow measurements and water quality data required by the Watermaster are, for the most part, furnished by the U.S. Geological Survey (USGS). The financing of the cooperative monitoring program with the USGS is shared by the parties to the Judgment. These costs are set forth in Table 1.

The USGS measured and computed the mean daily discharges of the Santa Ana River at the Metropolitan Water District of Southern California (MWDSC) Upper Feeder Crossing and below Prado Dam. Runoff data have also been provided for the Santa Ana River at E Street in San Bernardino and for several smaller streams tributary to Prado Reservoir; namely, Chino Creek at Schaefer Avenue, Cucamonga Creek near Mira Loma and Temescal Wash in the City of Corona.

TABLE 1

**COST TO THE PARTIES AND USGS FOR MEASUREMENTS
WHICH PROVIDE DATA USED BY THE
SANTA ANA RIVER WATERMASTER**

October 1, 1992 to September 30, 1993

	<u>Agency Cost</u>	<u>USGS Cost</u>
SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT		
At Riverside Narrows (MWD Crossing)		
Water Quality Monitoring/TDS Samples	\$917	\$2,750
Surface Water Gage	2,337	7,010
WESTERN MUNICIPAL WATER DISTRICT		
Same as SBVMWD	3,254	
Cucamonga Creek Discharge	2,500	5,000
Chino Creek Discharge	1,666	5,000
CHINO BASIN MUNICIPAL WATER DISTRICT		
Same as WMWD	7,420	
ORANGE COUNTY WATER DISTRICT		
At Prado Dam		
Water Quality Monitoring/TDS Samples		
Water Quality Sampling & Conductivity Programs	7,220	6,080
Chino Creek		
Surface Water Gage	1,666	
TOTAL FOR PARTIES	<u>\$26,980</u>	
UNITED STATES GEOLOGICAL SURVEY		<u>\$25,840</u>
GRAND TOTAL		<u>\$52,820</u>

Precipitation during 1992-93 was above normal and totaled 30.92 inches at San Bernardino County Hospital, 172% of the 26-year base period (1934-35 through 1959-60) average of 17.98 inches. Plate 2 shows the annual precipitation from 1934-35 through 1992-93.

The 1992-93 discharge record for the USGS gaging station, "Santa Ana below Prado," is considered by the USGS to be a "good" record. Twenty (20) direct discharge measurements, which ranged from about 122 to 5,980 cfs, were made during the year.

No State Water Project water was released by MWDSC from turnout OC-59 into San Antonio Creek.

The Arlington Desalter operated intermittently during the water year as shown on Plate 3 and described in Chapter II of this report. It discharged a total of 2,910 acre-feet of product water to the drainage tributary to the Santa Ana River below Riverside Narrows.

The overall 1992-93 discharge recorded for the USGS gaging station, "Santa Ana River at MWD Crossing", is considered by the USGS to be a "poor" record at both low and high stages because of the shifting channel and vegetative growth. The station was located at the MWDSC Upper Feeder Crossing for the entire year. Nineteen (19) direct discharge measurements, which ranged from about 27 to 1,700 cfs, were made during the year.

Compilation and Analysis of Basic Data

The Watermaster has established procedures for compiling and analyzing the basic data necessary to carry out the provisions of the Stipulated Judgment. Determinations were made of the Base Flow, Storm Flow, Nontributary Flow, and relationships between electrical conductivity (EC) and total dissolved solids (TDS). These determinations are explained in detail in Chapters II and III.

Administration Costs

In accordance with Paragraph 7(d) of the Stipulated Judgment, the fees and expenses of each of the members of the Watermaster are borne by the district which nominated such member. All other Watermaster administrative costs and expenses are borne by the parties, with OCWD paying 40% of the cost and WMWD, SBVMWD, and CBMWD each paying 20% of the cost. The Stipulated Judgment further provides that the Watermaster may from time to time, at its discretion, require advances of operating capital from the parties.

At its meeting on April 9, 1992, the Watermaster adopted a budget for the fiscal year 1992-93 in the amount of \$16,000. Table 2 shows the items and amount included in said budget. The expenses for the fiscal year 1992-93 are also shown. The budget for fiscal year 1993-94 was adopted on April 13, 1993.

An audit prepared by Diehl, Evans and Company showing the details of income and expenses of the Santa Ana River Watermaster for the fiscal year 1992-93 is available for review at the office of the Secretary of the Watermaster upon request.

TABLE 2

SANTA ANA RIVER WATERMASTER BUDGET AND EXPENSES

Budget Item	July 1, 1992 to June 30, 1993 Budget	July 1, 1992 to June 30, 1993 Expenses	July 1, 1993 to June 30, 1994 Budget
Administration	\$1,200.00	\$1,256.00	\$1,200.00
Support Engineering Services	9,000.00	8,830.00	9,000.00
Reproduction of Annual Report	<u>5,800.00</u>	<u>3,054.00</u>	<u>5,800.00</u>
TOTAL	\$16,000.00	\$13,140.00	\$16,000.00

Summary of Findings

A summary of findings by the Watermaster for the period 1970-71 through 1992-93 is presented in Table 3. The Base Flow obligations at both Riverside Narrows and Prado Dam provided for in the Stipulated Judgment have been met and cumulative credits have been established.

TABLE 3
SUMMARY OF FINDINGS
AT PRADO

Water Year	Rainfall (in) ⁽¹⁾	Total Flow (ac-ft) ⁽²⁾	Base Flow (ac-ft)	Weighted TDS (mg/L) ⁽³⁾	Adjusted Base Flow (ac-ft)	Cumulative Credit (ac-ft)
1970-71	11.97	51,864	38,402	727	38,402	-3,598
1971-72	9.62	51,743	40,146	707	40,416	-5,182
1972-73	18.46	77,484	48,999	638	51,531	4,349
1973-74	12.72	63,620	43,106	633	45,513	7,862
1974-75	13.49	61,855	50,176	694	51,263	17,125
1975-76	15.86	59,209	45,627	635	48,098	23,223
1976-77	11.95	62,953	48,387	660	50,000	31,223
1977-78	30.47	252,837	58,501	383	73,955	63,178
1978-79	17.51	134,486	71,863	580	79,049	100,227
1979-80	30.93	527,760	82,509	351	106,505	164,732
1980-81	10.45	117,888 ⁽⁴⁾	74,875 ⁽⁵⁾	728	74,875 ⁽⁵⁾	205,652 ⁽⁶⁾
1981-82	18.34	143,702	81,548	584	89,431	253,083
1982-83	32.36	426,273 ⁽⁴⁾	111,692 ⁽⁵⁾	411	138,591 ⁽⁵⁾	353,036 ⁽⁶⁾
1983-84	10.81	178,395 ⁽⁴⁾	109,231 ⁽⁵⁾	627	115,876 ⁽⁵⁾	431,514 ⁽⁶⁾
1984-85	12.86	162,912	125,023	617	133,670	523,184
1985-86	17.86	196,565	127,215 ⁽⁸⁾	567	141,315	622,499
1986-87	8.08	140,538	119,848	622	127,638	708,137
1987-88	13.78	170,279 ⁽⁹⁾	124,104 ⁽⁹⁾	582	136,308	802,445
1988-89	12.64	152,743 ⁽⁹⁾	119,572 ⁽⁹⁾	583	131,230	891,675
1989-90	8.53	144,817	119,149 ⁽¹⁰⁾	611	127,986	977,611
1990-91	15.48	195,186	111,151 ⁽¹¹⁾	514	128,379	1,064,040
1991-92	16.54	198,280	106,948 ⁽¹¹⁾	499	124,869	1,146,909
1992-93	30.92	572,001	128,067 ⁽¹¹⁾	368	163,499	1,268,408

TABLE 3 (Continued)

**SUMMARY OF FINDINGS
AT RIVERSIDE NARROWS**

Water Year	Rainfall (in) ⁽¹⁾	Total Flow (ac-ft) ⁽²⁾	Base Flow (ac-ft)	Weighted TDS (mg/L) ⁽³⁾	Adjusted Base Flow (ac-ft)	Cumulative Credit (ac-ft)
1970-71	11.97	24,112	17,061	704	17,021	1,762
1971-72	9.62	22,253	16,157	712	16,017	2,529
1972-73	18.46	32,571	17,105	700	17,105	4,384
1973-74	12.72	24,494	16,203	700	16,203	5,337
1974-75	13.49	19,644	15,445	731	15,100	5,187
1975-76	15.86	26,540	17,263	723	16,977	6,914
1976-77	11.95	23,978	18,581	722	18,286	9,950
1977-78	30.47	181,760	22,360	726	21,941	16,641
1978-79	17.51	47,298	26,590	707	26,456	27,847
1979-80	30.93	254,077	25,549 ⁽⁷⁾	676	25,549	38,146
1980-81	10.45	34,278	19,764	715	19,550	42,446
1981-82	18.34	83,050	32,778	678	32,778	59,974
1982-83	32.36	279,987	57,128	610	57,128	101,852
1983-84	10.81	82,745	56,948	647	56,948	143,550
1984-85	12.86	79,771	69,722 ⁽⁸⁾	633	69,772	198,072
1985-86	17.86	99,258	68,220 ⁽⁸⁾	624	68,220	251,042
1986-87	8.08	77,752	59,808	649	59,808	295,600
1987-88	13.78	79,706	55,324	620	55,324	335,674
1988-89	12.64	62,376	52,259	607	52,259	372,683
1989-90	8.53	58,500	53,199	590	53,583	411,016
1990-91	15.48	74,525	45,041	616	45,041	440,807
1991-92	16.54	71,768	40,306	620	40,306	465,863
1992-93	30.92	267,384	41,434	634	41,434	492,047

TABLE 3 (Continued)

- (1) Measured at San Bernardino County Hospital.
- (2) Excludes Nontributary Flow.
- (3) For Base and Storm Flow at Prado and Base Flow only at Riverside Narrows.
- (4) Includes 16,090 acre-feet of water pumped from Lake Elsinore which passed Prado Dam in 1980-81; 7,720 acre-feet in 1982-83; and 12,550 acre-feet in 1983-84.
- (5) Excludes water pumped from Lake Elsinore.
- (6) Includes 8,045 acre-feet in 1980-81; 3,362 acre-feet in 1982-83; and 4,602 acre-feet in 1983-84 of Lake Elsinore discharge.
- (7) Includes Rubidoux Wastewater in 1979-80 and subsequent years.
- (8) Includes groundwater pumped from San Bernardino Basin and released to the river in accordance with Court Orders approving agreement and allowing temporary additional extractions of water from the San Bernardino Basin Area.
- (9) Excludes Nontributary Flow released to San Antonio Creek by MWDSC under the Ontario/MWDSC Exchange Program
- (10) Excludes water discharged to Santa Ana River from Arlington Desalter in 1989-90 and subsequent years in accordance with an agreement between OCWD, WMWD, and Santa Ana Watershed Project Authority.
- (11) Excludes groundwater pumped from San Bernardino, Colton, and Riverside Basins and discharged to Santa Ana River to flow to OCWD under the Exchange Water agreements.

Note: For the years 1973-74 through 1979-80, a correction has been made for different losses of State Water than assumed in reports published for these years. The values changed are Base Flow, weighted TDS, and Adjusted Base Flow. These changes, in turn, have changed the cumulative credit for these years. See Appendix C in the Twelfth Annual Report 1981-82.

CHAPTER II

BASE FLOW AT PRADO

This chapter deals with determinations of 1) the components of flow at Prado, which include Nontributary Flow, Arlington Desalter Flow, Exchange Water, Storm Flow and Base Flow and 2) the Adjusted Base Flow at Prado credited to CBMWD and WMWD.

Total Flow at Prado

The Total Flow of the Santa Ana River amounted to 571,138 acre-feet, measured at the USGS gaging station below Prado. There was no storage behind Prado Dam at the beginning of the year. Storage at the end of the water year was 863 acre-feet. The inflow to the reservoir comprised 128,067 acre-feet of Base Flow and 438,563 acre-feet of Storm Flow. Nontributary Flow during 1992-93 due to the release of State Water Project water above Riverside Narrows during 1972-73 was 334 acre-feet. Other flows due to Arlington Desalter Project water releases to Temescal Creek and Exchange Water during 1992-93 were 2,910 acre-feet and 2,127 acre-feet, respectively. The Storm and Base Flow components of Total Flow of the Santa Ana River at Prado Dam for each month in the 1992-93 water year are listed in Table 4 and are shown graphically on Plate 3. The components of flow of the Santa Ana River at Prado during the period 1934-35 through 1992-93 are presented on Plate 4.

Chino Basin Groundwater Storage Program

The Sixteenth Annual Report described a program proposed by MWDSC to store State Water Project water in the Chino Basin for its future use. The project was never implemented. In the 1991-92 water year, a small, modified project, now called the "Mini Conjunctive Use Project" was implemented. Through the Mini Conjunctive Use Project, MWDSC delivered 4,806 acre-feet of surface water to purveyors who normally pump groundwater in exchange for and in-lieu of their pumping the groundwater. MWDSC may at some future date remove this water from the basin. Storage of this quantity of water should have no impact on the rising groundwater and, therefore, has no impact on the base flow in the Santa Ana River. Should a larger scale project of this nature be implemented, the Watermaster will evaluate its effect at that time.

Discharge of Groundwater from San Bernardino Basin Area to Santa Ana River

This program also was described in the Sixteenth Annual Report. No groundwater was pumped from San Bernardino Basin and discharged to the Santa Ana River in 1992-93 under this program.

Ontario/MWDSC Exchange Program

The Sixteenth Annual Report presents a description of this program and its implications with respect to the responsibilities and activities of the Watermaster. During 1992-93 MWDSC did not deliver any Colorado River exchange water to the City of Ontario.

Nontributary Flow

Since May 1973, OCWD has from time to time purchased State Water Project water for the replenishment of the groundwater basin in Orange County. The water has been released at two locations: Santa Ana River above Riverside Narrows (1972-73 only) and San Antonio Creek near Upland.

Releases above Riverside Narrows

As fully discussed in Appendix F of the Fifth Annual Report, the Watermaster Committee determined a schedule of credits to OCWD for State Water Project water which was released above Riverside Narrows during 1972-73. A portion of this water, because it percolated in the basin above the Narrows, did not reach the Narrows in 1972-73. The schedule as developed in the Fifth Annual Report, is the best estimate of the amount that reaches Riverside Narrows each year. In 1992-93 the credit is 334 acre-feet, assumed to be distributed uniformly throughout the year, as shown in Table 4.

Releases to San Antonio Creek

There were no releases from OC-59 into San Antonio Creek during the water year 1992-93.

Arlington Desalter

The underflow from the Arlington groundwater sub-basin has historically been a component of the Santa Ana River flow. These groundwaters have increasingly been degraded through agricultural and other uses. Two participants to the Stipulated Judgment, WMWD and OCWD, as members of the Santa Ana Watershed Project Authority, constructed a groundwater cleanup project which is designed to eliminate the poor quality underflow from the sub-basin. This project is known as the Arlington Desalter and consists of five extraction wells and a treatment facility which reduces salinity. The capacity of the facility is approximately 6 mgd. The facility began operations in July 1990, with OCWD buying the product water delivered through the Santa Ana River. During the 1992-93 water year, 2,910 acre-feet of water discharged from the Arlington Desalter was determined to have reached Prado Dam.

All parties to the Stipulated Judgment agreed that the product water from this facility would not be considered as Santa Ana River Base Flow.

TABLE 4
COMPONENTS OF FLOW AT PRADO DAM
FOR WATER YEAR 1992-93
(acre-feet)

	USGS Measured Outflow	Storage Change ⁽¹⁾	Computed Inflow	Storm Flow	Nontributary Water Riverside Narrows ⁽²⁾	Exchange Water ⁽³⁾	Arlington Desalter	Base Flow
1992 October	9,856	1,845	11,701	1,821	28	908	545	8,399
November	12,133	-1,838	10,295	453	28	0	530	9,284
December	27,608	6,823	34,431	23,067	28	0	237	11,099
1993 January	217,823	2,295	220,118	207,253	28	0	66	12,771
February	147,846	-925	146,921	134,777	28	0	0	12,116
March	53,724	75	53,799	40,026	28	0	0	13,746
April	31,991	-213	31,778	18,405	28	0	0	13,345
May	24,926	-3,930	20,996	7,443	28	0	0	13,525
June	17,363	-2,107	15,256	5,318	28	0	0	9,910
July	12,555	-2,025	10,530	0	28	221	603	9,678
August	8,753	0	8,753	0	27	869	605	7,251
September	6,559	863	7,422	0	27	364	325	6,707
Total	571,138	863	572,001	438,563	334	2,127 ⁽⁴⁾	2,910	128,067 ⁽⁴⁾

- (1) The monthly change in storage is included in the monthly components of flow.
- (2) That portion of State Water Project water released during 1972-73 upstream of Riverside Narrows, determined to have reached Prado in 1992-93.
- (3) Exchange Water pumped from the San Bernardino, Colton and Riverside groundwater basins and discharged into the Santa Ana River less an estimated loss of 5% for losses above Prado.
- (4) To account for 5% evapotransporative losses not accounted for in 1991-92, that amount (236 acre-feet) was subtracted from the 1992-93 Exchange Water total of 2,362 acre-feet, to yield 2,127 acre-feet for 1992-93.

Releases of Exchange Water from Riverside Canal

During water year 1992-93, both Drought Emergency Exchange and Demonstration Local Storage (DLS) Program water were delivered to the Santa Ana River upstream of Prado Dam. The Drought Emergency Exchange plan is more fully described in Chapter II of the Twenty-first Annual Report.

In 1993, OCWD and WMWD entered into an agreement to participate in MWDSC's DLS Program. The agreement provides for delivery of MWDSC water to WMWD, and WMWD would cause a like amount of groundwater, pumped from the basins above the Riverside Narrows, to be delivered to OCWD via the Santa Ana River. Because the mechanism is identical to the Drought Emergency Exchange Program, waters discharged to the river from these two programs are combined and termed Exchange Waters.

The combined amount of Exchange groundwater delivered by WMWD below Van Buren Boulevard during 1992-93 was 2,127 acre-feet. This amount reflects 1) the agreed upon 5% decrease in flow to compensate for losses between the point of delivery and replenishment basins in Orange County in 1992-93 and 2) the 5% losses for 1991-92, totaling 236 acre-feet, which were not accounted for in the Twenty-second Annual Report.

Since the Exchange Waters are effectively nontributary water delivered upstream of Prado Dam for the benefit of OCWD, the amount of pumped Exchange groundwater reaching Prado Dam is excluded from the computation of Base Flow and Base Flow quality.

Storm Flow

Portions of storm flows are retained behind Prado Dam for regulation of downstream flows and for water conservation purposes. The U.S. Army Corps of Engineers (ACOE) owns Prado Dam and operates it according to a release schedule utilizing a debris pool elevation of 494 feet until March 1 of each year. By the end of 1993, an agreement was nearing completion between OCWD, ACOE and the U.S. Fish and Wildlife Service (USFWS), which would provide that after March 1, the pool would be raised, given sufficient flows, to elevation 497 feet. This elevation would be increased year by year, as additional biological habitat mitigation by OCWD comes on line, to a maximum elevation of 505 feet. Storm flows captured within the reservoir are released following the storm to downstream groundwater recharge facilities. Monthly and annual quantities of Storm Flow are shown in Table 4.

During the 1992-93 water year, the amount of water stored in Prado Reservoir reached a maximum of 70,120 acre-feet on January 18, 1993, and the maximum daily flow released to the Santa Ana River was 6,210 cfs on January 20, 1993.

During the year, construction continued on elements of the Santa Ana River Mainstem flood control project, including the Seven Oaks Dam, located on the Santa Ana River

above the community of Mentone.

Base Flow

The Base Flow is affected by Nontributary Flow which had been released previously above Riverside Narrows. The general procedure used by the Watermaster to separate the 1992-93 flow components was the same as used for previous years and is fully described in the Fifth Annual Report and the Twelfth Annual Report. The monthly and annual quantities of Base Flow are shown in Table 4.

Lake Elsinore Project

Work on modifications to Lake Elsinore itself have been largely completed, but construction of the outlet channel which would discharge to the headwaters of Temescal Creek has not been started. It is understood that the ACOE will start work on the channel soon. The discharge of lake overflows to the Santa Ana River basin must be considered by the Watermaster as water contributing to Base Flow as it has in the past.

Wastewater Effluent Discharges

A portion of the Base Flow at Prado is made up of treated wastewater effluent discharged from a number of wastewater treatment plants located above Prado Dam. For the year 1992-93, about 140,670 acre-feet were discharged above Prado Dam by major agencies as shown in Table 5.

Water Quality

The weighted average total dissolved solids (TDS) for the total flow passing Prado Dam, including Nontributary Flow released above Riverside Narrows, Exchange Water and Arlington Desalter output, was found to be 369 mg/L. This determination was based on records from a continuous monitoring device, operated by the USGS for electrical conductivity (EC) of the Santa Ana River flow below Prado, supplemented by grab samples for EC and TDS determination, and a statistical correlation of EC and TDS.

The EC of the outflow at Prado was recorded hourly on a punched tape by the USGS. The USGS collected a total of 19 grab samples and performed laboratory analyses for TDS. Daily flow-weighted EC values were calculated from the hourly EC data. A correlation between TDS and EC was developed using the TDS data from the grab samples and the field EC recorded by the technician at the times when the samples were collected. Data used for the statistical analysis are available for review at the office of the Secretary of the Watermaster upon request. The statistical analysis yields the best fit equation shown as follows:

$$\text{TDS} = \text{EC} \times 0.616852$$

TABLE 5
WASTEWATER EFFLUENT DISCHARGED
ABOVE PRADO BY MAJOR AGENCIES
(acre-feet)

Year	Redlands	San Bernardino	Colton	Rialto	Riverside	Corona	CBMWD #1	CBMWD #2	CBMWD CCWRF*	Total
1970-71	2,650	17,860	2,520	2,270	18,620	3,190	--	--	--	47,110
1971-72	2,830	16,020	2,230	2,400	19,010	3,230	6,740	--	--	52,460
1972-73	2,810	18,670	2,530	2,260	19,060	3,340	10,380	--	--	59,050
1973-74	2,770	17,680	2,530	2,320	19,560	3,510	11,440	2,320	--	61,950
1974-75	2,540	16,750	1,980	2,320	19,340	4,020	14,960	2,280	--	64,190
1975-76	2,450	17,250	2,540	2,240	19,580	4,700	15,450	2,950	--	67,160
1976-77	3,170	17,650	3,260	2,330	18,770	5,010	14,640	3,380	--	68,210
1977-78	3,280	18,590	3,810	2,380	20,310	5,200	14,650	4,060	--	72,280
1978-79	3,740	19,040	3,850	3,050	21,070	5,390	15,040	5,070	--	76,250
1979-80	4,190	20,360	4,190	2,990	22,910	5,360	14,410	5,520	--	79,930
1980-81	4,410	20,550	3,930	3,370	24,180	5,590	17,270	5,260	--	84,560
1981-82	4,420	23,340	3,780	3,470	25,640	5,410	19,580	5,360	--	91,000
1982-83	4,530	24,160	3,600	3,620	25,020	5,860	20,790	4,290	--	91,870
1983-84	5,150	22,080	3,700	3,830	26,090	6,200	20,950	3,950	--	91,950
1984-85	4,990	23,270	3,830	4,070	27,750	6,250	25,160	4,280	--	99,600
1985-86	5,200	24,720	4,010	4,720	28,820	5,900	28,240	2,660	--	104,270
1986-87	5,780	26,810	4,170	5,350	30,340	6,170	27,160	5,000	--	110,780
1987-88	6,060	27,880	5,240	6,040	34,660	6,050	31,290	5,500	--	122,720
1988-89	5,250	27,640	5,550	6,280	35,490	8,080	35,510	6,180	--	129,980
1989-90	6,360	28,350	5,810	6,260	33,210	9,140	34,760	5,730	--	129,620
1990-91	6,690	27,570	5,670	6,290	32,180	9,110	36,840	6,100	--	130,450
1991-92	6,230	25,060	5,660	6,360	32,660	9,010	40,360	5,780	1,550	132,670
1992-93	6,880	25,550	6,210	6,460	34,100	9,600	41,510	5,640	4,720	140,670

* CCWRF = Carbon Canyon Water Reclamation Facility

The amounts shown in this table were determined from data provided by the agencies where the units of TDS and EC are mg/L and microsiemens/cm, respectively.

Using the daily EC data, flow-weighted average daily values for TDS were calculated using the above equation. The plot of TDS on Plate 5 shows the daily average TDS concentration of the Santa Ana River flow passing Prado Dam.

Water Quality Adjustment for Nontributary Flow

The weighted average annual TDS value of 369 mg/L represents the quality of Total Flow which includes Nontributary Flow from release of State Water Project water to the Santa Ana River above Riverside Narrows. The Stipulated Judgment requires that Base Flow shall be subject to adjustment based on the TDS of Base Flow and Storm Flow only. Hence a determination of the TDS of Base Flow plus Storm Flow only, is detailed in the following paragraphs.

The flow-weighted average TDS of State Water Project water released above Riverside Narrows during 1972-73 was 235 mg/L and was adjusted to 242 mg/L to reflect a 3% evapotranspiration loss of the water released.

Water Quality Adjustment for Arlington Desalter

During the 1989-90 water year, Arlington Desalter began to discharge product water into a storm channel tributary to the Santa Ana River. The amount of product water discharged to the Santa Ana River during the 1992-93 water year totaled 2,910 acre-feet at an average TDS of 459 mg/L. This flow-weighted average TDS of 459 mg/L was estimated from periodic TDS measurements of product water discharged into the channel.

Water Quality Adjustment for Exchange Water

The City of Riverside continued to pump groundwater which was discharged into the Riverside Canal for delivery to OCWD. The amount of water discharged to the Santa Ana River during the 1992-93 water year was 2,127 acre-feet at an average TDS of 458 mg/L. This flow-weighted average TDS of 458 mg/L was estimated from periodic grab samples taken at the Riverside Canal gaging station near Jefferson Street.

Type of Flow	Annual Flow (acre-feet)	Average TDS (mg/L)	Annual Flow x Average TDS (acre-feet x mg/L)
1. Total Flow	571,138	369	210,749,922
2. Less Nontributary Flow Riverside Narrows	334	242	80,828
3. Less Arlington Desalter	2,910	459	1,335,690
4. Less Exchange Water	2,127	458	974,166
5. Total Flow less lines 2, 3, and 4	565,767	368*	208,359,238
*Average TDS in total Base and Storm Flows		$208,359,238 \div 565,767 = 368 \text{ mg/L}$	

After adjusting for Nontributary Flow of State Water Project water from above Riverside Narrows, Exchange Water and the Arlington Desalter flows, the weighted average annual TDS of Storm Flow and Base Flow for 1992-93 was 368 mg/L, as shown above.

Adjusted Base Flow at Prado

The Stipulated Judgment provides that the amount of Base Flow at Prado received during any year shall be subjected to adjustment based on weighted average annual TDS of the Base Flow and Storm Flow at Prado as follows:

If the Weighted Average TDS in Base Flow and Storm Flow at Prado is:	Then the Adjusted Base Flow shall be determined by the formula:
Greater than 800 mg/L	$Q - \frac{35}{42,000} Q(\text{TDS}-800)$
700 mg/L to 800 mg/L	Q
Less than 700 mg/L	$Q + \frac{35}{42,000} Q(700-\text{TDS})$

Where: Q = Base Flow actually received.

The weighted average annual TDS of 368 mg/L is less than 700 mg/L. Therefore, the Base Flow must be adjusted by the above equation for TDS less than 700 mg/L. Thus the Adjusted Base Flow is as follows:

$$(128,067 \text{ ac-ft}) + \frac{35}{42,000} (128,067 \text{ ac-ft}) (700 - 368) = 163,499 \text{ ac-ft}$$

Entitlement and Credit or Debit

Paragraph 5(c) of the Stipulated Judgment states that "CBMWD and WMWD shall be responsible for an average annual Adjusted Base Flow of 42,000 acre-feet at Prado. CBMWD and WMWD each year shall be responsible for not less than 37,000 acre-feet of Base Flow at Prado, plus one-third of any cumulative debit; provided, however, that for any year commencing on or after October 1, 1986, when there is not cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 30,000 acre-feet, said minimum shall be 34,000 acre-feet."

The Watermaster's findings concerning flow at Prado for 1992-93 required under the Stipulated Judgment are as follows:

1. Total Flow at Prado	571,138 acre-feet
2. Base Flow at Prado	128,067 acre-feet
3. Annual Weighted TDS of Base and Storm Flow	368 mg/L
4. Annual Adjusted Base Flow	163,499 acre-feet
5. Cumulative Adjusted Base Flow	2,234,408 acre-feet
6. Cumulative Entitlement of OCWD	966,000 acre-feet
7. Cumulative Credit	1,268,408 acre-feet
8. One-Third of Cumulative Debit	0 acre-feet
9. Minimum Required Base Flow in 1993-94	34,000 acre-feet

CHAPTER III

BASE FLOW AT RIVERSIDE NARROWS

This chapter deals with determinations of 1) the components of flow at Riverside Narrows, which include Nontributary Flow, Storm Flow and Base Flow and 2) the Adjusted Base Flow at Riverside Narrows credited to SBVMWD.

Total Flow at Riverside Narrows

The total flow of the Santa Ana River at Riverside Narrows amounted to 267,384 acre-feet, measured at the USGS gaging station near the MWDSC Upper Feeder Crossing. Separated into its components, Base Flow was 41,434 acre-feet, Storm Flow was 227,670 acre-feet, Nontributary Flow due to a prior release of State Water Project water above Riverside Narrows was 341 acre-feet. Included in Base Flow are 2,061 acre-feet of wastewater from Rubidoux Community Services District which now bypasses the USGS gaging station. The Storm and Base Flow components of the Total Flow of the Santa Ana River at Riverside Narrows for each month in the 1992-93 water year are listed in Table 6 and graphically shown on Plate 6. The components of flow of the Santa Ana River at Riverside Narrows during the period 1934-35 through 1992-93 are presented on Plate 7.

Nontributary Flow

During the period May through September 1973, 11,617 acre-feet of State Water Project water from the East Branch of the California Aqueduct were purchased by OCWD and released into the Santa Ana River in the vicinity of Colton.

The Watermaster's determination of the effect of these releases was discussed in the Fifth Annual Report of the Watermaster. For the water year 1992-93 the amount of State Water Project water reaching Riverside Narrows was agreed upon as 341 acre-feet.

Release of Exchange Water

During water year 1992-93, no Exchange Water was delivered to the Santa Ana River upstream of the Riverside Narrows.

Base Flow

Based on the hydrograph shown on Plate 6 and utilizing in general the procedures reflected in the Work Papers of the engineers (as referenced in Paragraph 2 of the Engineering Appendix of the Stipulated Judgment), a separation was made between Storm Flow and the sum of Base Flow and Nontributary Flow.

TABLE 6
COMPONENTS OF FLOW AT RIVERSIDE NARROWS
FOR WATER YEAR 1992-1993
(acre-feet)

		Total Flow USGS Measurement	Storm Flow	Non- tributary Flow	Exchange Water ⁽¹⁾	Rubidoux Waste- water	Base Flow ⁽²⁾
1992	October	3,144	656	29	0	179	2,638
	November	3,088	161	29	0	170	3,068
	December	14,511	11,049	29	0	175	3,609
1993	January	113,046	109,300	29	0	191	3,908
	February	46,385	42,579	29	0	166	3,944
	March	34,304	29,646	28	0	180	4,810
	April	24,238	19,757	28	0	168	4,621
	May	15,243	11,197	28	0	168	4,186
	June	6,567	3,327	28	0	162	3,375
	July	2,721	0	28	0	168	2,861
	August	1,991	0	28	0	168	2,131
	September	2,144	0	28	0	166	2,282
Total		267,384	227,670	341	0	2,061	41,434

(1) Exchange Water pumped from the San Bernardino, Colton, and Riverside groundwater basins and discharged into the Santa Ana River above Riverside Narrows.

(2) Base Flow includes Rubidoux wastewater discharged below Riverside Narrows.

Nontributary Flow was assumed to be equally distributed throughout the year (341 acre-feet divided by 12 months) and subtracted from the sum of the Base Flow and Nontributary Flow as shown on Table 6.

In April 1980, Rubidoux Community Services District made the first delivery of wastewater to the regional treatment plant at Riverside. Prior to that time, Rubidoux had discharged to the river upstream of the Riverside Narrows Gaging Station. Wastewater from Rubidoux during water year 1992-93, in the amount of 2,061 acre-feet, has been added to the streamflow as measured at the gaging station.

Water Quality

The determination of water quality at the Riverside Narrows Gaging Station was made using periodic grab samples taken and analyzed for TDS by the USGS, DWR, and the City of Riverside. Water quality data based on samples taken during storm flow periods were not used in the calculations.

The flow-weighted quality of wastewater from Rubidoux was 723 mg/L. The Base Flow quality resulting from exclusion of the Nontributary Flow and inclusion of the Rubidoux wastewater is shown in the following table as 634 mg/L.

Type of Flow	Annual Flow (acre-feet)	Average TDS (mg/L)	Annual Flow x Average TDS (ac-ft x mg/L)
1. Base Flow including Nontributary Flow	39,714	626	24,860,964
2. Less Nontributary Flow	341	237	80,817
3. Plus Rubidoux Wastewater	2,061	723	1,490,103
4. Base Flow less line 2 plus line 3	41,434	634*	26,270,250
*Average TDS in Base Flow		$26,270,250 \div 41,434 = 634 \text{ mg/L}$	

Adjusted Base Flow at Riverside Narrows

The Stipulated Judgment provides that the amount of Base Flow at Riverside Narrows received during any year shall be subject to adjustment based on the weighted average annual TDS in the Base Flow as follows:

If the Weighted Average TDS in Base Flow at Riverside Narrows is:	Then the Adjusted Base shall be determined by the formula:
Greater than 700 mg/L	$Q - \frac{11}{15,250} Q(\text{TDS}-700)$
600 mg/L to 700 mg/L	Q
Less than 600 mg/L	$Q + \frac{11}{15,250} Q(600-\text{TDS})$

Where: Q = Base Flow actually received.

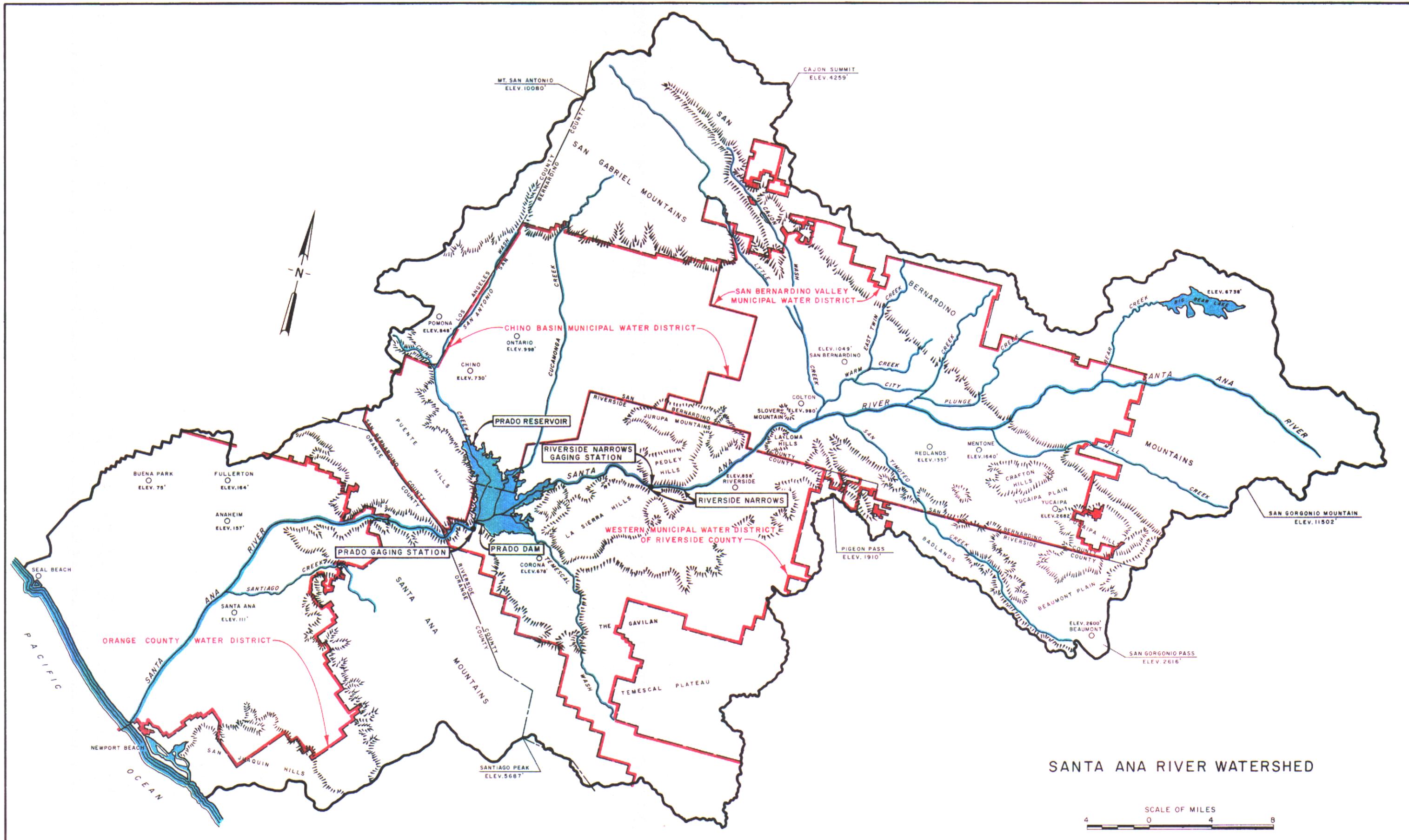
From the previous subsection, the weighted average annual TDS in the Base Flow at Riverside Narrows for the water year 1992-93 was 634 mg/L. Therefore, no adjustment is necessary, and the Adjusted Base Flow for 1992-93 is 41,434 acre-feet.

Entitlement and Credit or Debit

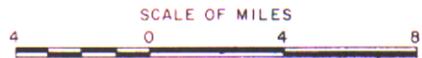
Paragraph 5(b) of the Stipulated Judgment states that "SBVMWD shall be responsible for an average annual Adjusted Base Flow of 15,250 acre-feet at Riverside Narrows... SBVMWD each year shall be responsible at Riverside Narrows for not less than 13,420 acre-feet of Base Flow plus one-third of any cumulative debit, provided, however, that for any year commencing on or after October 1, 1986, when there is no cumulative debit, or for any year prior to 1986 whenever the cumulative credit exceeds 10,000 acre-feet, said minimum shall be 12,420 acre-feet."

The Watermaster's findings at Riverside Narrows for 1992-93 required under the Stipulated Judgment are as follows:

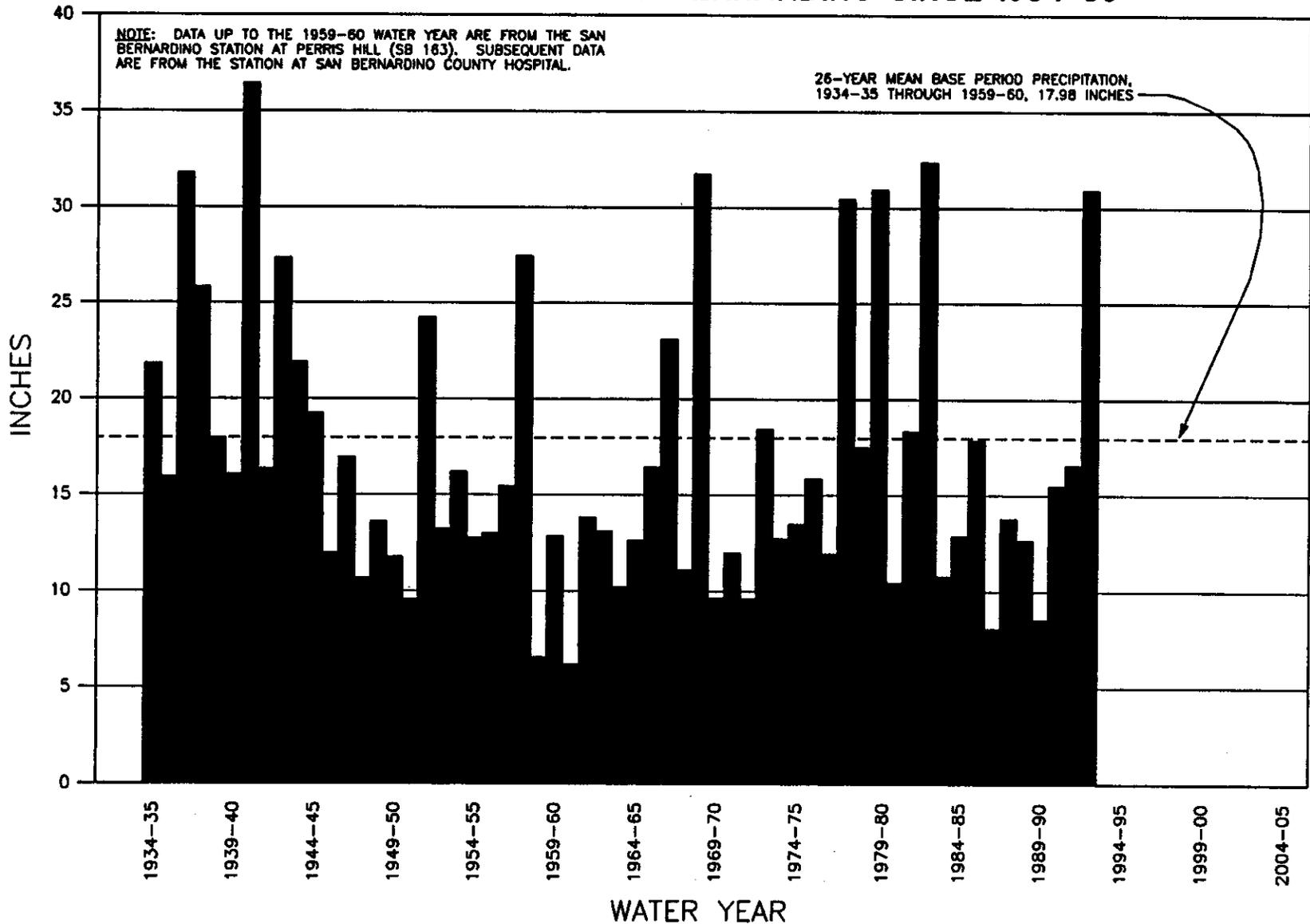
1. Base Flow at Riverside Narrows	41,434 acre-feet
2. Annual Weighted TDS of Base Flow	634 acre-feet
3. Annual Adjusted Base Flow	41,434 acre-feet
4. Cumulative Adjusted Base Flow	842,797 acre-feet
5. Cumulative Entitlement of CBMWD and WMWD	350,750 acre-feet
6. Cumulative Credit	492,047 acre-feet
7. One-Third of Cumulative Debit	0 acre-feet
8. Minimum Required Base Flow in 1993-94	12,420 acre-feet

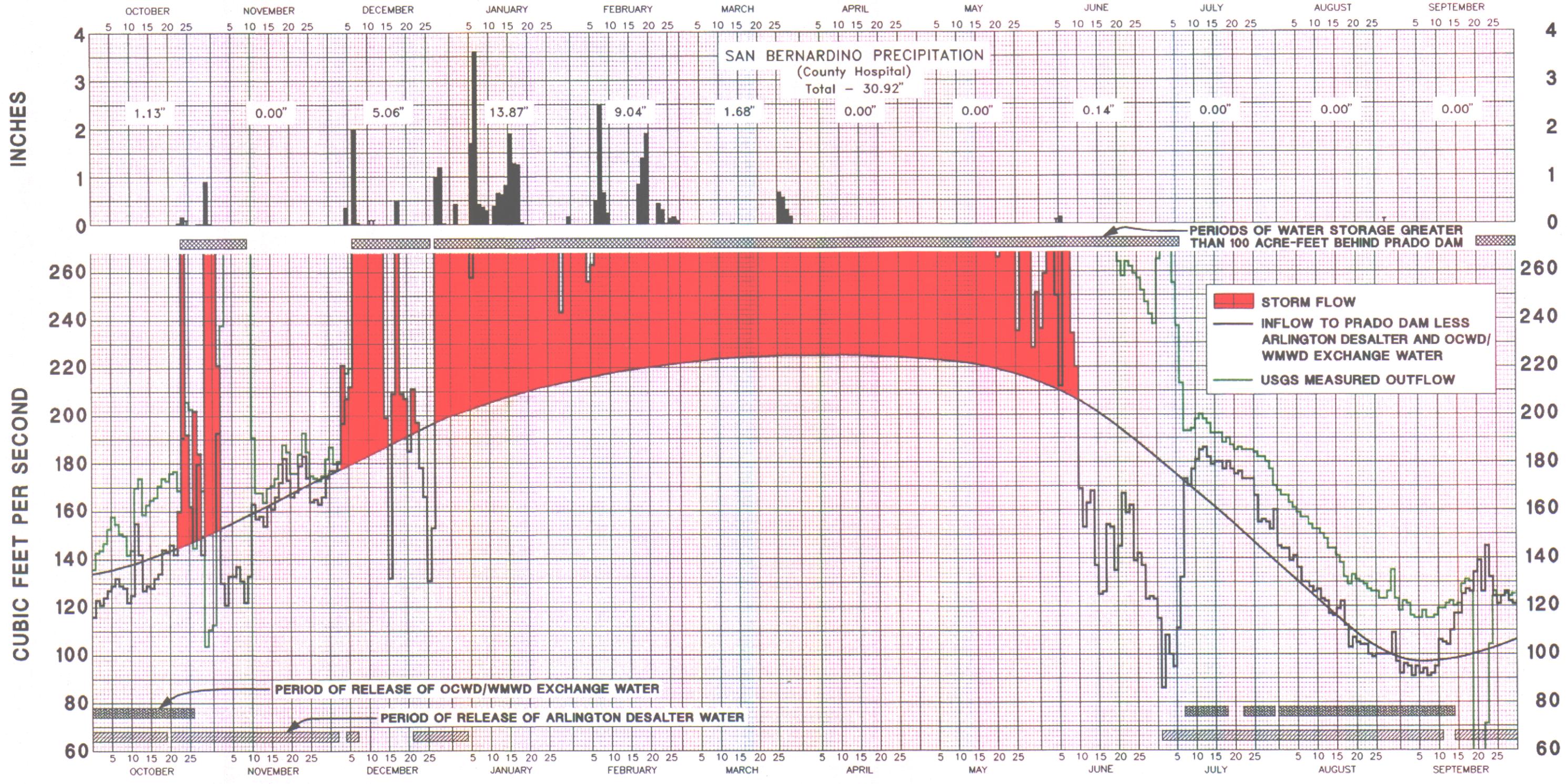


SANTA ANA RIVER WATERSHED



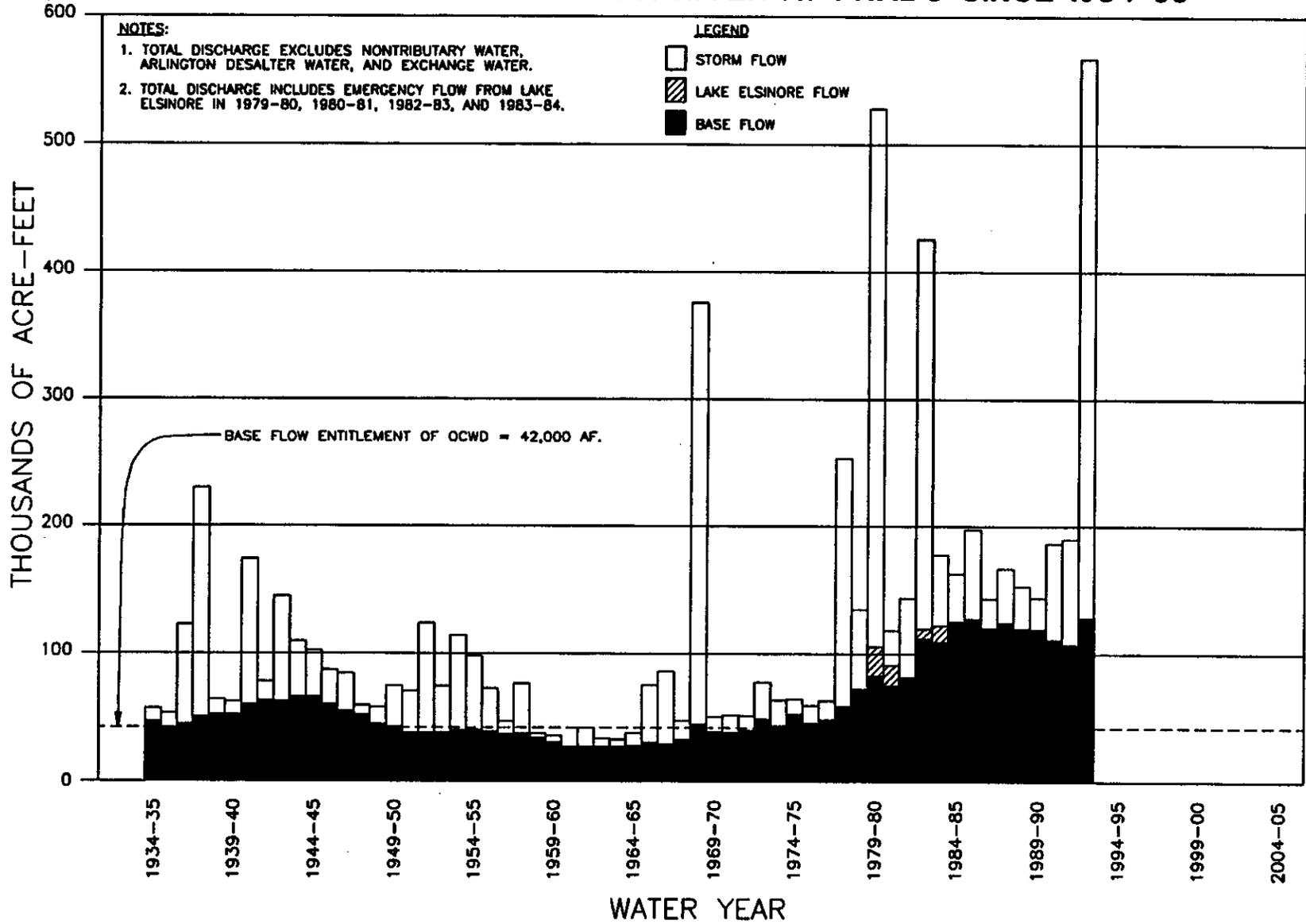
PRECIPITATION AT SAN BERNARDINO SINCE 1934-35

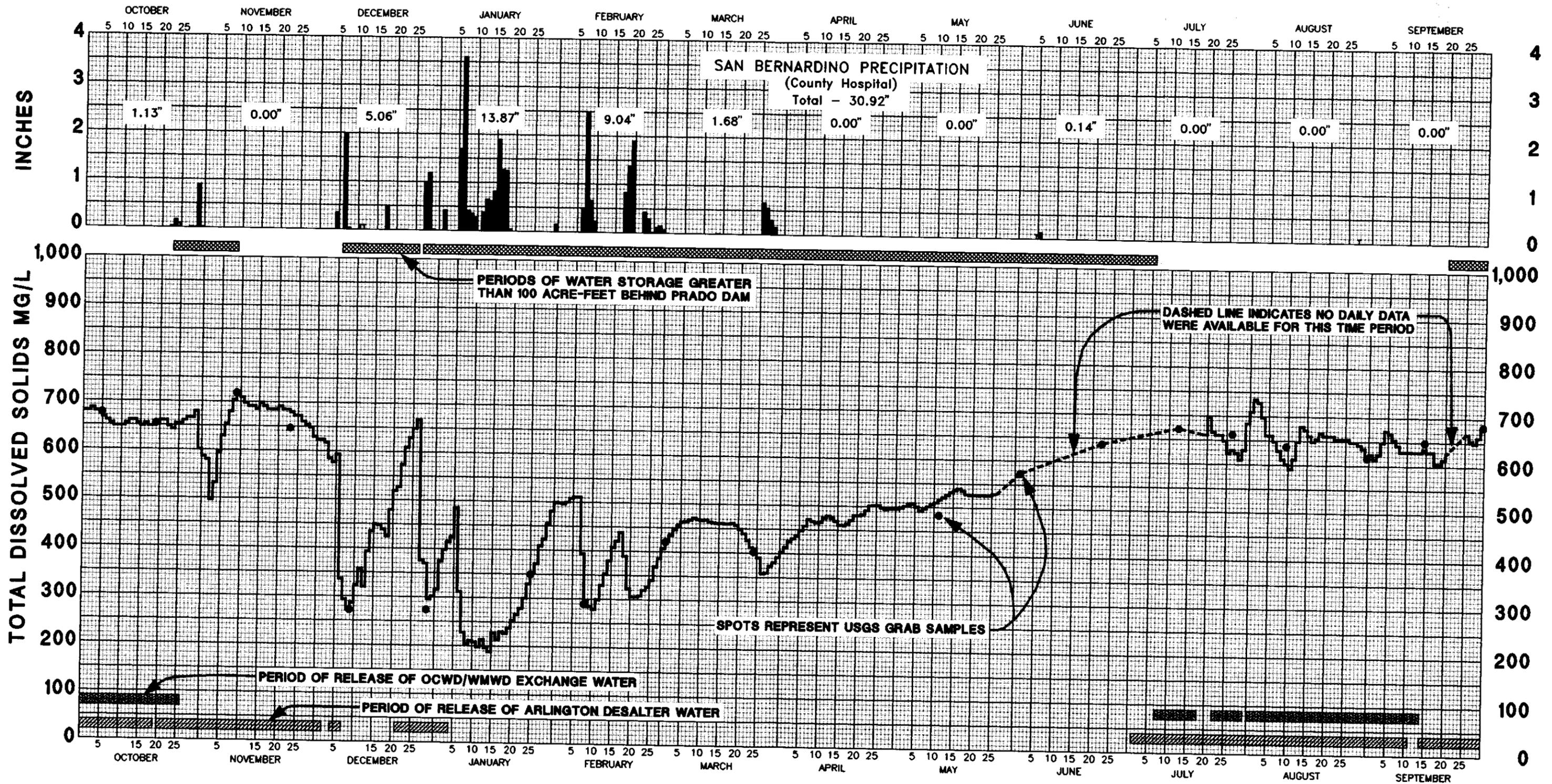




**DISCHARGE OF SANTA ANA RIVER AT PRADO DAM & SAN BERNARDINO PRECIPITATION
WATER YEAR 1992-93**

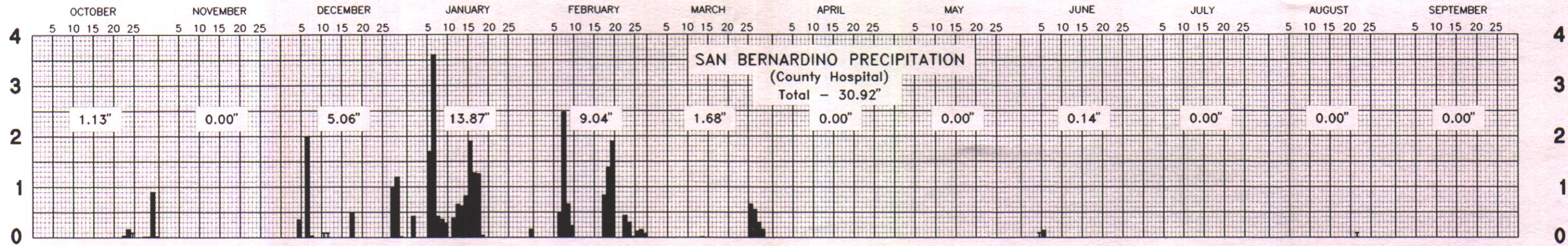
DISCHARGE OF SANTA ANA RIVER AT PRADO SINCE 1934-35



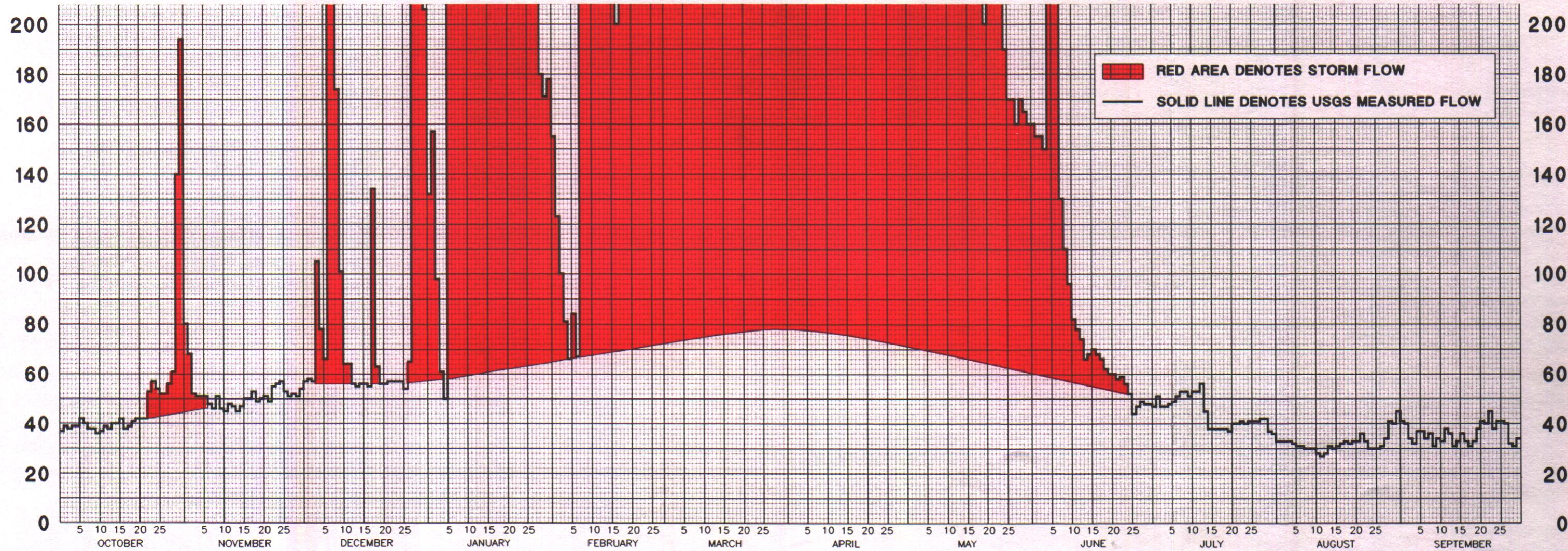


**DISSOLVED SOLIDS IN SANTA ANA RIVER BELOW PRADO DAM
WATER YEAR 1992-93**

INCHES

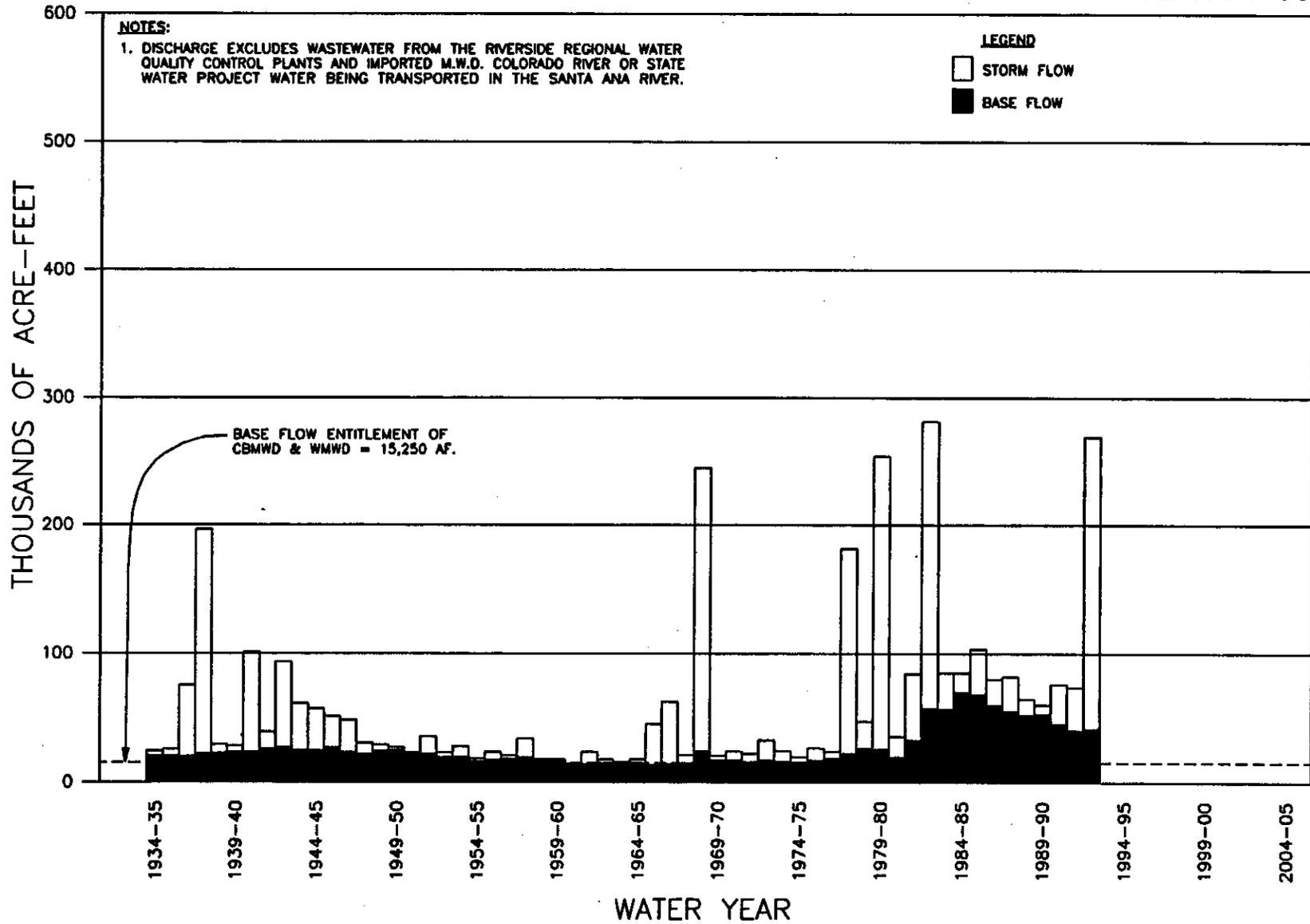


CUBIC FEET PER SECOND



**DISCHARGE OF SANTA ANA RIVER AT RIVERSIDE NARROWS & SAN BERNARDINO PRECIPITATION
WATER YEAR 1992-93**

DISCHARGE OF SANTA ANA RIVER AT RIVERSIDE NARROWS SINCE 1934-35



**SANTA ANA RIVER WATERMASTER
FOR
ORANGE COUNTY WATER DISTRICT
VS. CITY OF CHINO et al.
CASE NO. 117628 - COUNTY OF ORANGE**

**BASIC DATA
FOR THE
TWENTY-THIRD ANNUAL REPORT
OF THE
SANTA ANA RIVER WATERMASTER**

**FOR WATER YEAR
OCTOBER 1, 1992 - SEPTEMBER 30, 1993**

APRIL 30, 1994

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- G Emergency Exchange Groundwater Discharged to the Santa Ana River above Prado
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APPENDIX A

**NONTRIBUTARY WATER RELEASED BY MWDSC
TO SAN ANTONIO CREEK NEAR UPLAND**

CONNECTION OC-59

WATER YEAR 1992-93

PREPARED BY

DONALD L. HARRIGER

TABLE A-1
NONTRIBUTARY WATER FROM OC-59
MONTHLY TOTALS
(Acre-Feet)
WATER YEAR 1992-93

**No water released during Water Year 1992-93
for the Orange County Water District.**

APPENDIX B

**WATER QUALITY
SANTA ANA RIVER BELOW PRADO DAM**

WATER YEAR 1992-93

**PREPARED BY
WILLIAM R. MILLS, JR.**

TABLE B-1
 USGS WATER QUALITY SAMPLES BELOW PRADO DAM
 WATER YEAR 1992-93

DATE	EC (μ siemens/cm)	TDS (mg/L)	SOURCE
10/06	1100	678	USGS
10/20	1070	656	USGS
11/10	1160	720	USGS
11/24	1120	648	USGS
12/10	460	274	USGS
12/30	456	276	USGS
01/26	575	351	USGS
02/09	465	291	USGS
03/02	687	422	USGS
03/25	665	404	USGS
05/12	790	485	USGS
06/02	901	574	USGS
06/23	982	638	USGS
07/13	1060	672	USGS
07/27	1070	662	USGS
08/10	1000	638	USGS
08/31	1020	616	USGS
09/15	1060	649	USGS
09/30	1120	682	USGS

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

AUGUST 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	168	1,150	709	119,176
2	166	1,190	734	121,853
3	166	1,180	728	120,829
4	163	1,130	697	113,618
5	161	1,070	660	106,265
6	159	1,070	660	104,945
7	157	1,050	648	101,688
8	157	1,020	629	98,783
9	154	991	611	94,140
10	152	975	601	91,417
11	152	958	591	89,824
12	150	990	611	91,603
13	148	1,050	648	95,859
14	144	1,100	679	97,709
15	144	1,090	672	96,821
16	141	1,070	660	93,064
17	138	1,050	648	89,382
18	132	1,060	654	86,310
19	129	1,080	666	85,940
20	133	1,070	660	87,784
21	131	1,070	660	86,464
22	130	1,070	660	85,804
23	129	1,060	654	84,348
24	127	1,060	654	83,041
25	126	1,060	654	82,387
26	126	1,060	654	82,387
27	123	1,050	648	79,666
28	123	1,050	648	79,666
29	126	1,040	642	80,832
30	135	1,030	635	85,773
31	123	1,000	617	75,873
TOTAL	4,413			2,893,252
MONTHLY FLOW WEIGHTED TDS			656	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
 SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
 FOR WATER YEAR 1992-93

SEPTEMBER 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	118	1,010	623	73,516
2	122	994	613	74,804
3	121	1,010	623	75,385
4	116	1,050	648	75,133
5	115	1,090	672	77,322
6	115	1,080	666	76,613
7	118	1,060	654	77,156
8	115	1,040	642	73,775
9	115	1,020	629	72,357
10	116	1,020	629	72,986
11	119	1,020	629	74,873
12	119	1,020	629	74,873
13	121	1,020	629	76,132
14	122	1,020	629	76,761
15	120	1,030	635	76,243
16	121	1,020	629	76,132
17	129	1,020	629	81,165
18	131	980	605	79,191
19	130	979	604	78,507
20	49	996	614	30,100
21	6	1,013	625	3,748
22	46	1,030	635	29,212
23	71	1,046	645	45,826
24	104	1,063	656	68,205
25	126	1,080	666	83,941
26	124	1,080	666	82,609
27	124	1,060	654	81,079
28	125	1,050	648	80,962
29	124	1,070	660	81,844
30	125	1,100	679	84,817
TOTAL				
MONTHLY FLOW		3,307		
WEIGHTED TDS			640	2,115,269

1. TDS = EC x 0.616852

TABLE B-2
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

OCTOBER 1992

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	136	1,100	679	92,281
2	143	1,100	679	97,031
3	144	1,110	685	98,598
4	147	1,100	679	99,745
5	153	1,100	679	103,816
6	158	1,080	666	105,260
7	155	1,070	660	102,305
8	151	1,060	654	98,733
9	150	1,050	648	97,154
10	142	1,050	648	91,973
11	144	1,050	648	93,268
12	170	1,060	654	111,157
13	174	1,070	660	114,845
14	159	1,070	660	104,945
15	163	1,060	654	106,580
16	165	1,050	648	106,870
17	166	1,060	654	108,541
18	171	1,050	648	110,756
19	174	1,050	648	112,699
20	173	1,060	654	113,118
21	176	1,070	660	116,166
22	177	1,070	660	116,826
23	169	1,050	648	109,460
24	191	1,040	642	122,531
25	206	1,060	654	134,696
26	203	1,060	654	132,734
27	145	1,070	660	95,705
28	180	1,080	666	119,916
29	169	1,080	666	112,588
30	104	1,100	679	70,568
31	111	974	601	66,690
TOTAL	4,969			3,267,554
MONTHLY FLOW WEIGHTED TDS			658	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
 SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
 FOR WATER YEAR 1992-93

NOVEMBER 1992

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	113	950	586	66,219
2	193	941	580	112,028
3	238	805	497	118,183
4	281	863	532	149,588
5	306	965	595	182,150
6	297	1,020	629	186,869
7	286	1,060	654	187,005
8	278	1,100	679	188,633
9	297	1,140	703	208,854
10	276	1,160	716	197,491
11	191	1,150	709	135,492
12	168	1,130	697	117,103
13	168	1,120	691	116,067
14	164	1,120	691	113,303
15	170	1,110	685	116,400
16	171	1,130	697	119,194
17	174	1,120	691	120,212
18	180	1,110	685	123,247
19	188	1,110	685	128,725
20	185	1,110	685	126,671
21	176	1,120	691	121,594
22	176	1,110	685	120,508
23	184	1,110	685	125,986
24	193	1,100	679	130,958
25	185	1,090	672	124,388
26	175	1,090	672	117,665
27	174	1,070	660	114,845
28	173	1,060	654	113,118
29	175	1,050	648	113,347
30	182	1,020	629	114,512
TOTAL	6,117		656	4,010,356
MONTHLY FLOW WEIGHTED TDS			656	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

DECEMBER 1992

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	187	1,010	623	116,505
2	180	1,010	623	112,144
3	181	1,000	617	111,650
4	197	948	585	115,201
5	218	935	577	125,733
6	220	962	593	130,551
7	517	545	336	173,807
8	915	477	294	269,228
9	773	441	272	210,281
10	670	466	287	192,594
11	645	523	323	208,086
12	638	579	357	227,866
13	624	518	320	199,386
14	533	638	394	209,763
15	478	706	435	208,168
16	471	730	450	212,092
17	464	726	448	207,795
18	486	712	439	213,451
19	491	689	425	208,680
20	484	778	480	232,277
21	476	842	519	247,229
22	466	855	527	245,772
23	452	930	574	259,300
24	436	987	609	265,451
25	418	1,020	629	263,001
26	391	1,050	648	253,249
27	335	1,080	666	223,177
28	346	610	376	130,193
29	298	600	370	110,293
30	434	480	296	128,503
31	495	490	302	149,617
TOTAL	13,919		428	5,961,042
MONTHLY FLOW WEIGHTED TDS				

1. TDS = EC x 0.616852

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

JANUARY 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	494	512	316	156,019
2	340	608	375	127,516
3	403	647	399	160,839
4	574	672	415	237,937
5	510	689	425	216,756
6	258	787	485	125,249
7	1,280	506	312	399,523
8	4,700	370	228	1,072,706
9	5,150	332	205	1,054,693
10	4,430	342	211	934,568
11	5,950	338	208	1,240,551
12	4,480	321	198	887,082
13	4,080	345	213	868,281
14	5,850	320	197	1,154,747
15	4,820	304	188	903,861
16	4,540	370	228	1,036,188
17	4,840	347	214	1,035,991
18	4,840	373	230	1,113,615
19	5,720	368	227	1,298,449
20	6,210	386	238	1,478,631
21	6,040	412	254	1,535,024
22	6,020	431	266	1,600,496
23	5,990	453	279	1,673,809
24	6,020	486	300	1,804,736
25	5,920	535	330	1,953,693
26	4,500	571	352	1,585,001
27	1,650	603	372	613,737
28	856	663	409	350,081
29	2,260	686	423	956,343
30	473	737	455	215,035
31	621	780	481	298,791
TOTAL	109,819			28,089,946
MONTHLY FLOW WEIGHTED TDS			256	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
 SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
 FOR WATER YEAR 1992-93

FEBRUARY 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	620	809	499	309,401
2	460	807	498	228,988
3	326	806	497	162,082
4	326	810	500	162,886
5	327	823	508	166,008
6	328	828	511	167,527
7	326	829	511	166,707
8	3,010	638	394	1,184,590
9	5,870	480	296	1,738,042
10	5,650	462	285	1,610,169
11	4,380	452	279	1,221,219
12	1,540	484	299	459,777
13	709	534	329	233,544
14	710	573	353	250,954
15	713	616	380	270,926
16	1,390	662	408	567,615
17	1,420	682	421	597,384
18	404	712	439	177,436
19	2,550	633	390	995,692
20	6,080	524	323	1,965,241
21	6,140	496	306	1,878,586
22	5,940	496	306	1,817,394
23	5,730	499	308	1,763,746
24	5,720	518	320	1,827,708
25	5,630	530	327	1,840,625
26	4,480	553	341	1,528,214
27	2,230	598	369	822,597
28	1,530	626	386	590,808
TOTAL	74,539			24,705,863
MONTHLY FLOW WEIGHTED TDS			331	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

MARCH 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	1,270	660	407	517,045
2	1,040	685	423	439,445
3	899	705	435	390,958
4	929	723	446	414,319
5	911	737	455	414,159
6	879	750	463	406,660
7	878	753	464	407,822
8	632	757	467	295,117
9	614	764	471	289,363
10	772	758	468	360,967
11	754	756	466	351,620
12	764	758	468	357,226
13	797	753	464	370,198
14	796	749	462	367,770
15	591	745	460	271,597
16	596	747	461	274,630
17	608	745	460	279,409
18	675	746	460	310,616
19	850	748	461	392,194
20	980	741	457	447,946
21	977	728	449	438,740
22	709	714	440	312,266
23	692	690	426	294,534
24	809	668	412	333,354
25	832	663	409	340,265
26	1,670	634	391	653,111
27	1,790	580	358	640,416
28	1,140	584	360	410,675
29	984	606	374	367,831
30	695	618	381	264,944
31	553	636	392	216,952
TOTAL	27,086			11,632,149
MONTHLY FLOW WEIGHTED TDS			429	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
 SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
 FOR WATER YEAR 1992-93

APRIL 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	569	653	403	229,196
2	564	670	413	233,096
3	562	689	425	238,856
4	564	698	431	242,837
5	492	708	437	214,872
6	531	726	448	237,800
7	461	742	458	211,002
8	417	765	472	196,779
9	516	758	468	241,268
10	572	754	465	266,041
11	573	756	466	267,213
12	530	770	475	251,737
13	486	778	480	233,237
14	606	770	475	287,835
15	644	761	469	302,309
16	566	748	461	261,155
17	607	745	460	278,950
18	610	752	464	282,962
19	533	763	471	250,861
20	538	780	481	258,856
21	546	780	481	262,705
22	490	785	484	237,272
23	507	797	492	249,257
24	505	814	502	253,569
25	507	815	503	254,886
26	514	816	503	258,723
27	524	807	498	260,847
28	523	802	495	258,736
29	548	804	496	271,780
30	524	804	496	259,877
TOTAL	16,129		468	7,554,514
MONTHLY FLOW WEIGHTED TDS			468	

1. TDS = EC x 0.615268

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

MAY 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ^(1, 2) (mg/L)	OUTFLOW x TDS
1	495	804	496	245,495
2	490	809	499	244,526
3	485	813	502	243,228
4	475	820	506	240,264
5	460	824	508	233,812
6	458	812	501	229,405
7	462	800	493	227,988
8	451	805	497	223,951
9	442	813	502	221,663
10	446	820	506	225,595
11	451	826	510	229,793
12	450	837	516	232,337
13	407	844	521	211,894
14	391	853	526	205,734
15	389	862	532	206,842
16	390	869	536	209,057
17	404	876	540	218,306
18	406	867	535	217,133
19	431	856	528	227,579
20	424	852	526	222,837
21	416	854	527	219,145
22	409	853	526	215,205
23	399	854	527	210,190
24	418	852	526	219,683
25	352	853	526	185,213
26	300	857	529	158,593
27	298	—	535	159,451
28	292	—	541	158,118
29	292	—	548	159,995
30	292	—	554	161,872
31	292	—	561	163,749
TOTAL	12,567			6,528,654
MONTHLY FLOW WEIGHTED TDS			520	

1. TDS = EC x 0.616852

2. May 27 - 31, 1993 TDS values are estimates.

TABLE B-2 (continued)
 SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
 FOR WATER YEAR 1992-93

JUNE 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ^(1, 2) (mg/L)	OUTFLOW x TDS
1	292	-	567	165,626
2	292	901	574	167,608
3	294	-	577	169,652
4	293	-	580	169,968
5	250	-	583	145,786
6	212	-	586	124,272
7	304	-	589	179,128
8	363	-	592	215,000
9	341	-	595	203,009
10	332	-	598	198,662
11	331	-	601	199,073
12	332	-	604	200,686
13	330	-	608	200,483
14	338	-	611	206,373
15	343	-	614	210,471
16	339	-	617	209,050
17	320	-	620	198,309
18	313	-	623	194,924
19	297	-	626	185,865
20	295	-	629	185,513
21	264	-	632	166,823
22	258	-	635	163,818
23	264	982	638	168,432
24	262	-	640	167,601
25	259	-	641	166,123
26	257	-	643	165,277
27	252	-	645	162,490
28	247	-	647	159,686
29	242	-	648	156,864
30	238	-	650	154,676
TOTAL	8,754			5,361,248
MONTHLY FLOW WEIGHTED TDS			612	

1. TDS = EC x 0.616852

2. June 2 and 23, 1993 EC and TDS data are from Table B-1.
 The remainder of June 1993 TDS data are estimates.

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

JULY 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ^(1, 2) (mg/L)	OUTFLOW x TDS
1	265	—	652	172,674
2	292	—	653	190,764
3	283	—	655	185,365
4	271	—	657	177,966
5	255	—	658	167,892
6	237	—	660	156,444
7	213	—	662	140,963
8	193	—	664	128,056
9	193	—	665	128,384
10	194	—	667	129,379
11	198	—	669	132,383
12	200	—	670	134,060
13	198	1,060	672	133,056
14	196	—	670	131,376
15	192	—	669	128,366
16	192	—	667	128,037
17	192	—	665	127,707
18	188	—	663	124,725
19	190	—	662	125,726
20	187	1,070	660	123,426
21	185	1,130	697	128,953
22	186	1,080	666	123,913
23	185	1,070	660	122,106
24	185	1,070	660	122,106
25	185	1,050	648	119,823
26	184	1,010	623	114,636
27	182	1,020	629	114,512
28	182	1,010	623	113,390
29	180	987	609	109,590
30	177	1,020	629	111,366
31	170	1,110	685	116,400

TOTAL	6,330			4,163,541
MONTHLY FLOW WEIGHTED TDS			658	

1. TDS = EC x 0.616852
2. July 13, 1993 EC and TDS data are from Table B-1.
July 1 - 12 and 14 - 19 TDS data are estimates.

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

AUGUST 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	168	1,150	709	119,176
2	166	1,190	734	121,853
3	166	1,180	728	120,829
4	163	1,130	697	113,618
5	161	1,070	660	106,265
6	159	1,070	660	104,945
7	157	1,050	648	101,688
8	157	1,020	629	98,783
9	154	991	611	94,140
10	152	975	601	91,417
11	152	958	591	89,824
12	150	990	611	91,603
13	148	1,050	648	95,859
14	144	1,100	679	97,709
15	144	1,090	672	96,821
16	141	1,070	660	93,064
17	138	1,050	648	89,382
18	132	1,060	654	86,310
19	129	1,080	666	85,940
20	133	1,070	660	87,784
21	131	1,070	660	86,464
22	130	1,070	660	85,804
23	129	1,060	654	84,348
24	127	1,060	654	83,041
25	126	1,060	654	82,387
26	126	1,060	654	82,387
27	123	1,050	648	79,666
28	123	1,050	648	79,666
29	126	1,040	642	80,832
30	135	1,030	635	85,773
31	123	1,000	617	75,873
TOTAL	4,413			2,893,252
MONTHLY FLOW WEIGHTED TDS			656	

1. TDS = EC x 0.616852

TABLE B-2 (continued)
SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
FOR WATER YEAR 1992-93

SEPTEMBER 1993

DAY	PRADO OUTFLOW (cfs-day)	DAILY MEAN EC (μ siemens/cm)	COMPUTED TDS ⁽¹⁾ (mg/L)	OUTFLOW x TDS
1	118	1,010	623	73,516
2	122	994	613	74,804
3	121	1,010	623	75,385
4	116	1,050	648	75,133
5	115	1,090	672	77,322
6	115	1,080	666	76,613
7	118	1,060	654	77,156
8	115	1,040	642	73,775
9	115	1,020	629	72,357
10	116	1,020	629	72,986
11	119	1,020	629	74,873
12	119	1,020	629	74,873
13	121	1,020	629	76,132
14	122	1,020	629	76,761
15	120	1,030	635	76,243
16	121	1,020	629	76,132
17	129	1,020	629	81,165
18	131	980	605	79,191
19	130	979	604	78,507
20	49	996	614	30,100
21	6	1,013	625	3,748
22	46	1,030	635	29,212
23	71	1,046	645	45,826
24	104	1,063	656	68,205
25	126	1,080	666	83,941
26	124	1,080	666	82,609
27	124	1,060	654	81,079
28	125	1,050	648	80,962
29	124	1,070	660	81,844
30	125	1,100	679	84,817
TOTAL	3,307		640	2,115,269
MONTHLY FLOW WEIGHTED TDS			640	

1. TDS = EC x 0.616852

TABLE B-3
 ANNUAL SUMMARY OF WEIGHTED TDS BELOW PRADO DAM
 WATER YEAR 1992-93

MONTH	MONTHLY FLOW (cfs-days)	MONTHLY WEIGHTED TDS ⁽¹⁾ (mg/L)	MONTHLY FLOW x TDS
OCTOBER	4,969	658	3,267,554
NOVEMBER	6,117	656	4,010,356
DECEMBER	13,919	428	5,961,042
JANUARY	109,819	256	28,089,946
FEBRUARY	74,539	331	24,705,863
MARCH	27,086	429	11,632,149
APRIL	16,129	468	7,554,514
MAY	12,567	520	6,528,654
JUNE	8,754	612	5,361,248
JULY	6,330	658	4,163,541
AUGUST	4,413	656	2,893,252
SEPTEMBER	3,307	640	2,115,269
TOTAL	287,949		106,283,388
	WATER YEAR WEIGHTED TDS	369	

1. Values for May, June, and July include estimated data from May 27 - July 19, 1993.

APPENDIX C

**WATER QUALITY
SANTA ANA RIVER AT RIVERSIDE NARROWS**

WATER YEAR 1992-93

PREPARED BY

DONALD L. HARRIGER

TABLE C-1

WATER QUALITY ANALYSES
SANTA ANA RIVER AT RIVERSIDE NARROWS
WATER YEAR 1992-93

Date Sampled	EC Microsiemens/cm	TDS mg/L	Source
<u>1992</u>			
10-01	1030	671	C OF R
10-06	962	596	USGS
10-06	980	623	C OF R
10-13	989	621	DWR
10-15	940	598	C OF R
10-20	990	608	USGS
10-20	1000	596	C OF R
11-03	975	601	C OF R
11-12	950	600	C OF R
11-24	945	624	USGS
11-26	895	576	C OF R
12-01	960	*582	C OF R
12-02	965	*593	DWR
12-14	1020	*618	C OF R
12-15	955	594	USGS
12-23	1040	640	C OF R
12-28	820	*543	C OF R
12-30	374	*220	USGS
<u>1993</u>			
01-26	510	*289	USGS
01-11	640	*335	C of R
01-26	320	*332	C of R
02-02	880	*555	C OF R
02-09	247	*155	USGS
02-11	420	*275	C of R
02-16	710	*570	C of R
03-02	470	*257	C of R
03-03	348	*208	USGS
03-11	590	*288	C of R
03-16	550	*309	C of R

* Data not used in determining monthly averages, storm flow.
C of R City of Riverside
USGS United States Geological Survey
DWR Dept. of Water Resources

SANTA ANA RIVER AT RIVERSIDE NARROWS

WATER YEAR 1992-93

Date Sampled	EC Microsiemens/cm	TDS mg/L	Source
03-25	345	*222	USGS
03-25	420	*173	C of R
03-30	510	*301	C of R
04-06	392	*242	USGS
04-08	480	*323	C of R
04-13	480	*283	C of R
04-22	530	*313	C of R
04-27	580	*326	C of R
05-12	510	*306	USGS
05-05	560	*324	C of R
05-11	520	*334	C of R
05-20	670	*412	C of R
05-25	770	*420	C of R
06-02	701	*436	USGS
06-08	540	-	C of R
06-17	1080	*606	C of R
06-22	1040	*609	C of R
06-23	967	*596	USGS
07-03	920	714	C of R
07-08	1020	615	C of R
07-13	1020	656	USGS
07-17	540	*704	C of R
07-22	1120	673	C of R
07-27	1120	700	USGS
07-29	920	721	C of R
08-03	980	761	C of R
08-10	1150	732	USGS
08-12	880	764	C of R
08-17	980	808	C of R
08-26	880	758	C of R
08-31	1050	656	USGS
09-09	1160	756	C of R
09-17	1110	672	USGS
09-23	1020	685	C of R
09-28	1240	763	C of R
09-30	1150	704	USGS

* Data not used in determining monthly averages, storm flow.
 C of R City of Riverside
 USGS United States Geological Survey
 DWR Dept. of Water Resources

TABLE C - 2

FLOW WEIGHTED TDS OF BASE FLOW AT RIVERSIDE NARROWS
 (Including Nontributary Flow)
 Discharged Above the Narrows

WATER YEAR 1992-93

Month	Acre-feet (1)	TDS (2) mg/L	Acre-feet times TDS
October	2,488	602	1,497,776
November	2,927	609	1,782,543
December	3,463	605	2,095,115
January	3,746	605	2,266,330
February	3,807	600	2,284,200
March	4,658	600	2,794,800
April	4,481	600	2,688,600
May	4,046	620	2,508,520
June	3,240	650	2,106,000
July	2,721	670	1,823,070
August	1,991	747	1,487,277
September	2,144	716	1,535,104
Total	39,712		24,869,335
Flow weighted TDS	$\frac{24,869,335}{39,712} = 626$ mg/L		

December through July data estimated

- (1) Total Flow minus Storm Flow from Table 6
- (2) Estimated average TDS based on water quality data from Table C - 1

APPENDIX D

**QUANTITY AND QUALITY OF
WASTEWATER FROM
RUBIDOUX COMMUNITY SERVICES DISTRICT
DISCHARGED BELOW THE
RIVERSIDE NARROWS GAGING STATION**

WATER YEAR 1992-93

PREPARED BY

DONALD L. HARRIGER

TABLE D-1

QUANTITY AND QUALITY OF WASTEWATER FROM RUBIDOUX
DISCHARGE BELOW THE
RIVERSIDE NARROWS GAGING STATION

WATER YEAR 1992-93

Month	Acre-feet	TDS mg/L	Acre-feet times TDS
1992			
October	179	737	131,794
November	170	755	128,062
December	175	643	112,281
1993			
January	191	815	155,972
February	166	591	98,141
March	180	800	144,288
April	168	732	122,948
May	168	772	129,808
June	162	706	114,421
July	168	715	120,158
August	168	705	118,586
September	166	682	113,336
	2,061		1,489,794
Flow Weighted TDS =		723	mg/L

APPENDIX E

**WATER RELEASED FROM THE
ARLINGTON DESALTER
TO THE
ARLINGTON VALLEY DRAIN**

WATER YEAR 1992-93

**PREPARED BY
DONALD L. HARRIGER**

TABLE E-1
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE
 ARLINGTON VALLEY DRAIN
 MONTHLY TOTALS
 (Acre-Feet)
 WATER YEAR 1992-93

<u>1992</u>	Acre Feet Discharged
October	545
November	529
December	237
<u>1992</u>	
January	66
February	0
March	0
April	0
May	0
June	0
July	603
August	605
<u>September</u>	<u>325</u>
Total	2,910

TABLE E-2
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
October 1992		
1	9	19
2	9	18
3	10	19
4	10	19
5	10	19
6	10	20
7	10	19
8	10	19
9	10	19
10	10	19
11	10	19
12	10	19
13	10	19
14	10	19
15	10	19
16	10	19
17	10	19
18	10	19
19	3	7
20	0	0
21	4	8
22	10	19
23	5	9
24	10	20
25	10	20
26	10	19
27	10	20
28	10	20
29	10	19
30	10	19
31	10	19
Total	275	545

TABLE E-2
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
November 1992		
1	7	14
2	10	19
3	3	6
4	5	10
5	10	19
6	10	19
7	10	19
8	9	19
9	10	19
10	10	19
11	10	19
12	10	19
13	10	19
14	9	19
15	9	19
16	9	19
17	9	19
18	9	19
19	9	18
20	9	18
21	9	18
22	9	18
23	9	18
24	9	18
25	9	18
26	9	17
27	9	17
28	9	18
29	9	18
30	9	18
Total	267	530

TABLE E-2
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
December 1992		
1	9	18
2	4	7
3	0	0
4	0	0
5	5	10
6	10	20
7	3	6
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	4	8
23	9	18
24	10	20
25	6	12
26	10	20
27	10	20
28	10	20
29	10	20
30	10	20
31	10	20
Total	120	237

TABLE E-2

WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
January 1993		
1	9	19
2	9	19
3	9	19
4	5	9
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
Total	33	66

TABLE E-2
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
July 1993		
1	0	0
2	6	11
3	10	21
4	10	21
5	10	21
6	10	21
7	10	21
8	10	21
9	10	21
10	10	21
11	10	21
12	10	21
13	10	21
14	10	21
15	10	21
16	10	20
17	10	20
18	10	20
19	10	20
20	10	20
21	10	20
22	10	20
23	10	20
24	10	20
25	10	20
26	10	20
27	10	20
28	10	20
29	10	20
30	10	20
31	10	20
Total	304	603

TABLE E-2
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
August 1993		
1	10	20
2	10	20
3	10	20
4	10	20
5	9	17
6	10	20
7	10	20
8	9	18
9	8	17
10	10	20
11	10	20
12	10	20
13	10	19
14	10	20
15	10	20
16	10	20
17	10	20
18	10	20
19	10	20
20	10	20
21	10	20
22	10	20
23	10	20
24	10	20
25	10	20
26	10	20
27	10	20
28	10	20
29	10	20
30	10	20
31	10	20
Total	305	605

TABLE E-2
 WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Discharge to the Santa Ana River in CFS-days	Discharge to the Santa Ana River in A.F.
September 1993		
1	10	20
2	10	19
3	10	19
4	10	19
5	10	19
6	10	19
7	10	19
8	10	19
9	10	19
10	10	19
11	3	5
12	0	0
13	0	0
14	0	0
15	3	5
16	4	8
17	4	8
18	4	8
19	4	8
20	4	8
21	4	8
22	4	8
23	4	8
24	4	8
25	4	8
26	4	8
27	4	8
28	4	8
29	4	8
30	4	8
Total	164	325

TABLE E-3
 QUALITY OF WATER DISCHARGED FROM THE
 ARLINGTON DESALTER
 TO THE ARLINGTON VALLEY DRAIN
 Water Year 1992-93

Month	Acre Feet	TDS	AF x TDS
1992			
October	545	443	241,262
November	530	446	236,380
December	237	443	105,088
1993			
January	66	443	29,131
February	0	-	-
March	0	-	-
April	0	-	-
May	0	-	-
June	0	-	-
July	603	443	267,024
August	605	424	256,707
September	325	612	198,856
Total	2,910		1,334,449
		<u>1,334,449</u>	= 459
		2,910	

Flow Weighted average TDS for 1992-93 is 459 mg/L

TDS values for October and December thru July are 91/92's weighted annual average

APPENDIX F

**SANTA ANA RIVER WATERMASTER
FINANCIAL STATEMENTS WITH REPORT
ON EXAMINATION BY
CERTIFIED PUBLIC ACCOUNTANTS**

SANTA ANA RIVER WATERMASTER

FINANCIAL STATEMENTS

**WITH REPORT ON AUDIT
BY INDEPENDENT
CERTIFIED PUBLIC ACCOUNTANTS**

JUNE 30, 1993



**DIEHL, EVANS
& COMPANY**
CERTIFIED PUBLIC ACCOUNTANTS

A PARTNERSHIP INCLUDING ACCOUNTANCY CORPORATIONS

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THOMAS M. PERLOWSKI, CPA
HARVEY J. SCHROEDER, CPA

March 9, 1994

INDEPENDENT AUDITORS' REPORT

Santa Ana River Watermaster
San Bernardino, California

We have audited the accompanying statement of assets and liabilities arising from cash transactions of Santa Ana River Watermaster as of June 30, 1993, and the related statement of revenue collected, expenses paid and changes in fund balance for the year then ended. These financial statements are the responsibility of the Watermaster's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

As described in Note 1, these financial statements were prepared on the basis of cash receipts and disbursements, which is a comprehensive basis of accounting other than generally accepted accounting principles.

In our opinion, the financial statements referred to above present fairly, in all material respects, the assets and liabilities arising from cash transactions of Santa Ana River Watermaster as of June 30, 1993, and its revenue collected, expenses paid, and changes in fund balance during the year then ended, on the basis of accounting described in Note 1.

-1-

Diehl, Evans and Company

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SANTA ANA RIVER WATERMASTER
STATEMENT OF ASSETS AND LIABILITIES
ARISING FROM CASH TRANSACTIONS

June 30, 1993

ASSETS

Cash in checking account (Note 3)	\$ 6,182
Cash in savings account (Note 3)	<u>2,123</u>
TOTAL ASSETS	<u>\$ 8,305</u>

FUND BALANCE

Fund balance	<u>\$ 8,305</u>
--------------	-----------------

See independent auditors' report and notes to financial statements.

SANTA ANA RIVER WATERMASTER

STATEMENT OF REVENUE COLLECTED, EXPENSES
PAID AND CHANGES IN FUND BALANCE

For the year ended June 30, 1993

	<u>Actual</u>	<u>Budget</u>	<u>Over (Under) Budget</u>
REVENUE COLLECTED:			
Water district contributions (Note 2):			
Orange County Water District	\$ 6,400	\$ 6,400	\$ -
Chino Basin Municipal Water District	3,200	3,200	-
San Bernardino Valley Municipal Water District	3,200	3,200	-
Western Municipal Water District	3,200	3,200	-
Interest from savings account	<u>53</u>	<u>-</u>	<u>53</u>
TOTAL REVENUE COLLECTED	<u>16,053</u>	<u>16,000</u>	<u>53</u>
EXPENSES PAID:			
Professional engineering services	8,830	9,000	(170)
Administrative expenses:			
Office and bank service charges	\$ 61		
Auditing services	<u>1,195</u>	1,200	56
Annual reports	<u>3,054</u>	<u>5,800</u>	<u>(2,746)</u>
TOTAL EXPENSES PAID	<u>13,140</u>	<u>16,000</u>	<u>(2,860)</u>
EXCESS OF REVENUE COLLECTED OVER EXPENSES PAID	2,913	<u>\$ -</u>	<u>\$ (2,913)</u>
FUND BALANCE AT JULY 1, 1992	<u>5,392</u>		
FUND BALANCE AT JUNE 30, 1993	<u>\$ 8,305</u>		

See independent auditors' report and notes to financial statements.

SANTA ANA RIVER WATERMASTER

NOTES TO FINANCIAL STATEMENTS

June 30, 1993

1. SIGNIFICANT ACCOUNTING POLICIES:

Basis of Accounting:

The Santa Ana River Watermaster's ("Watermaster") policy is to prepare its financial statements on the cash basis of accounting; consequently, certain revenues are recognized when received rather than when earned, and certain expenses are recognized when cash is disbursed rather than when the obligation is incurred.

2. ORGANIZATION AND HISTORY:

The Santa Ana River Watermaster is composed of a committee of five representatives from four water districts. Two representatives serve from Orange County Water District and one representative each serves from Chino Basin Municipal Water District, Western Municipal Water District and San Bernardino Valley Municipal Water District. The committee was established on April 23, 1969 by order of the Superior Court of California in Orange County as part of a judgment resulting from a lawsuit by the Orange County Water District as plaintiff vs. City of Chino, et al, as defendants.

Costs and expenses incurred by the individual representatives are reimbursed directly from the water districts. Collective Watermaster costs and expenses are budgeted and paid for by the Watermaster after receiving contributions from the water districts. Water district contributions are made in the following ratios:

Orange County Water District	40%
Chino Basin Municipal Water District	20%
Western Municipal Water District	20%
San Bernardino Valley Municipal Water District	<u>20%</u>
Total	<u>100%</u>

The Watermaster issues a report each year to satisfy its obligation to monitor and test water flows from the Upper Area to the Lower Area of the Santa Ana River.

See independent auditors' report.

SANTA ANA RIVER WATERMASTER
NOTES TO FINANCIAL STATEMENTS
(CONTINUED)

June 30, 1993

3. CASH IN BANK:

The following disclosures are made in accordance with Statement No. 3 of the Governmental Accounting Standards Board (GASB 3):

Cash at June 30, 1993 consisted of the following:

Bank of America:	
Checking account	\$ 6,182
Savings account	<u>2,123</u>
	<u>\$ 8,305</u>

All cash is fully insured by the FDIC.

See independent auditors' report.

APPENDIX G

**EMERGENCY EXCHANGE GROUNDWATER
DISCHARGED TO THE SANTA ANA RIVER
ABOVE PRADO**

WATER YEAR 1992-93

**PREPARED BY
DONALD L. HARRIGER**

TABLE G-1
 DROUGHT EMERGENCY
 EXCHANGE GROUNDWATER
 DISCHARGED TO THE SANTA ANA RIVER
 ABOVE PRADO

MONTHLY TOTALS
 (Acre-Feet)

WATER YEAR 1992-93

	Discharged Below the Narrows
<hr/>	
<u>1992</u>	
October	956
November	0
December	0
<u>1993</u>	
January	0
February	0
March	0
April	0
May	0
June	0
July	233
August	915
<u>September</u>	<u>383</u>
Total	2,487

TABLE G-2

DROUGHT EMERGENCY
EXCHANGE GROUNDWATER
DISCHARGED TO THE SANTA ANA RIVER
ABOVE PRADO DAM

W.Y. 1992-93

October 1992

<u>Day</u>	<u>Discharged at Van Buren Blvd.</u>
1	10
2	11
3	13
4	13
5	16
6	19
7	13
8	12
9	12
10	10
11	10
12	12
13	16
14	22
15	25
16	27
17	26
18	28
19	28
20	29
21	27
22	25
23	25
24	18
25	20
26	15
27	0
28	0
29	0
30	0
31	0
Total in CFS-DAYS	482
Total In AF	956

TABLE G-2

DROUGHT EMERGENCY
EXCHANGE GROUNDWATER
DISCHARGED TO THE SANTA ANA RIVER
ABOVE PRADO DAM

W.Y. 1992-93

July 1993

<u>Day</u>	<u>Discharged at Van Buren Blvd.</u>
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	4
10	9
11	6
12	6
13	5
14	2
15	3
16	3
17	1
18	2
19	1
20	0
21	0
22	0
23	0
24	2
25	2
26	2
27	8
28	16
29	16
30	15
31	14
<hr/>	<hr/>
Total in CFS-DAYS	117
Total In AF	233

TABLE G-2

DROUGHT EMERGENCY
EXCHANGE GROUNDWATER
DISCHARGED TO THE SANTA ANA RIVER
ABOVE PRADO DAM

W.Y. 1992-93

August 1993

<u>Day</u>	<u>Discharged at Van Buren Blvd.</u>
1	13
2	12
3	12
4	13
5	12
6	13
7	17
8	18
9	18
10	16
11	15
12	17
13	17
14	17
15	18
16	12
17	5
18	10
19	16
20	16
21	17
22	16
23	15
24	17
25	17
26	16
27	13
28	13
29	16
30	16
31	16
<hr/> Total in CFS-DAYS	461
Total In AF	914

TABLE G-2

DROUGHT EMERGENCY
 EXCHANGE GROUNDWATER
 DISCHARGED TO THE SANTA ANA RIVER
 ABOVE PRADO DAM

W.Y. 1992-93

September 1993

<u>Day</u>	<u>Discharged at Van Buren Blvd.</u>
1	16
2	16
3	16
4	15
5	11
6	13
7	14
8	15
9	13
10	12
11	11
12	14
13	17
14	12
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
<hr/>	<hr/>
Total in CFS-DAYS	193
Total In AF	383

APPENDIX H

**USGS FLOW MEASUREMENTS OF THE
SANTA ANA RIVER
BELOW PRADO, AT MWD CROSSING,
AND AT E STREET, AND
TEMESCAL CREEK ABOVE MAIN STREET (AT CORONA)**

WATER YEAR 1992-93

SANTA ANA RIVER BASIN

11074000 SANTA ANA RIVER BELOW PRADO DAM, CA
(National stream-quality accounting network station)

LOCATION.--Lat 33°53'00", long 117°38'40", in La Sierra Grant, Riverside County, Hydrologic Unit 18070203, on left bank of outlet channel, 2,500 ft downstream from axis of Prado Dam, and 4.5 mi west of Corona.

DRAINAGE AREA.--1,490 mi², excludes 768 mi² above Lake Elsinore.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1930 to November 1939 (irrigation seasons only), March 1940 to current year. Published as "at Santa Fe Railroad Bridge, near Prado" May 1930 to November 1931, as "at Atchison, Topeka, and Santa Fe Railroad Bridge, near Prado" May 1932 to November 1939, and as "below Prado Dam, near Prado" March 1940 to September 1950.

GAGE.--Water-stage recorder and concrete control since August 1944. Datum of gage is approximately 449 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Mar. 18, 1940, at about same site at various datums.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated since 1940 by Prado flood-control reservoir, capacity, 196,200 acre-ft. Natural streamflow affected by extensive ground-water withdrawals, diversion for irrigation, and return flow from irrigated areas. During the current year, no California Water Project releases were made. See schematic diagram of Santa Ana River basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,440 ft³/s, Feb. 21, 1980, gage height, 6.88 ft; minimum daily, 2.4 ft³/s, July 29 to Aug. 3, Sept. 20, 1978 (result of gate closure).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 2, 1938, reached a discharge of 100,000 ft³/s. on basis of slope-area measurement of peak flow at site 2.5 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,190 ft³/s, Jan. 19, gage height, 7.29 ft; minimum daily, 5.8 ft³/s, Sept. 21 (result of gate closure).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	113	187	494	620	1270	569	495	292	265	e168	118
2	143	193	180	340	460	1040	564	490	292	292	e166	122
3	144	238	181	403	326	899	562	485	294	283	e166	121
4	147	281	197	574	326	929	564	475	293	271	e163	116
5	153	306	218	510	327	911	492	460	250	255	e161	115
6	158	297	220	258	328	879	531	458	212	237	e159	115
7	155	286	517	1280	326	878	461	462	304	213	e157	118
8	151	278	915	4700	3010	632	417	451	363	193	e157	115
9	150	297	773	5150	5870	614	516	442	341	193	e154	115
10	142	276	670	4430	5650	772	572	446	332	194	e152	116
11	144	191	645	5950	4380	754	573	451	331	198	e152	119
12	170	168	638	4480	1540	764	530	450	332	200	e150	119
13	174	168	624	4080	709	797	486	407	330	198	e148	121
14	159	164	533	5850	710	796	606	391	338	196	144	122
15	163	170	478	4820	713	591	644	389	343	192	144	120
16	165	171	471	4540	1390	596	566	390	339	192	141	121
17	166	174	464	4840	1420	608	607	404	320	192	138	129
18	171	180	486	4840	404	675	610	406	313	188	132	131
19	174	188	491	5720	2550	850	533	431	297	190	129	130
20	173	185	484	6210	6080	980	538	424	295	187	133	49
21	176	176	476	6040	6140	977	546	416	264	185	131	5.8
22	177	176	466	6020	5940	709	490	409	258	186	130	46
23	169	184	452	5990	5730	692	507	399	264	185	129	71
24	191	193	436	6020	5720	809	505	418	262	185	127	104
25	206	185	418	5920	5630	832	507	352	259	185	126	126
26	203	175	391	4500	4480	1670	514	300	257	184	126	124
27	145	174	335	1650	2230	1790	524	298	252	182	123	124
28	180	173	346	856	1530	1140	523	292	247	e182	123	125
29	169	175	298	2260	---	984	548	292	242	e180	126	124
30	104	182	434	473	---	695	524	292	238	e177	135	125
31	111	---	495	621	---	553	---	292	---	e170	123	---
TOTAL	4969	6117	13919	109819	74539	27086	16129	12567	8754	6330	4413	3306.8
MEAN	160	204	449	3543	2662	874	538	405	292	204	142	110
MAX	206	306	915	6210	6140	1790	644	495	363	292	168	131
MIN	104	113	180	258	326	553	417	292	212	170	123	5.8
AC-FT	9860	12130	27610	217800	147800	53730	31990	24930	17360	12560	8750	6560

e Estimated.

PROVISIONAL DATA
SUBJECT TO REVISION

SANTA ANA RIVER BASIN

11066460 SANTA ANA RIVER AT MWD CROSSING, NEAR ARLINGTON, CA

LOCATION.--Lat 33°58'07", long 117°26'51", in NE 1/4 SW 1/4 sec.30, T.2 S., R.5 W., Riverside County, Hydrologic Unit 18070203, on right bank (left bank since June 17, 1993) at MWD pipeline crossing, 0.8 mi downstream from Union Pacific Railroad bridge, 1.1 mi upstream from bridge on Van Buren Boulevard, and 3.3 mi north of Arlington.

DRAINAGE AREA.--852 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1970 to current year.

REVISED RECORDS.--WDR CA-83-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 685 ft above National Geodetic Vertical Datum of 1929, from topographic map. Gage moved to left bank at present datum on June 17, 1993. Prior to Oct. 1, 1984, water-stage recorder at site 300 ft upstream on left bank at different datum.

REMARKS.--Records poor. Flow partly regulated by Big Bear Lake (station 11049000). Natural streamflow affected by ground-water withdrawals, diversions for irrigation, and return flows from irrigated areas. The records at this station are equivalent to those collected at Santa Ana River at Riverside Narrows, near Arlington minus the flow at Riverside Water Quality Control Plant at Riverside Narrows, near Arlington.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,200 ft³/s, Mar. 2, 1983, gage height, 15.38 ft, site and datum then in use, from rating curve extended above 5,100 ft³/s on basis of area-velocity study; maximum gage height, 20.23 ft, Mar. 4, 1978; minimum daily, 15 ft³/s, Sept. 7, 8, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1927, 100,000 ft³/s, Mar. 2, 1938, on basis of slope-area measurement at site 1.1 mi downstream. Flood of Jan. 22, 1862, 320,000 ft³/s, on basis of slope-conveyance study at site 8.2 mi upstream. Stage at that site was 5 ft higher than that of Mar. 2, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec. 7	1645	9,350	12.20	Feb. 8	Unknown	Unknown	Unknown
Dec. 29	1545	4,770	9.49	Feb. 20	Unknown	Unknown	Unknown
Jan. 7	2000	*16,000	*14.77	Mar. 26	Unknown	Unknown	Unknown
Jan. 16	1915	11,100	12.67	June 5	Unknown	Unknown	Unknown

Minimum daily, 27 ft³/s, Aug. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	80	57	132	155	e580	e410	e300	e160	47	33	41
2	39	68	58	157	123	e580	e405	e350	e155	51	33	40
3	38	52	57	98	100	e560	e390	e410	e155	47	33	34
4	39	51	105	61	81	e540	e400	e390	e150	47	33	32
5	39	51	78	50	66	e530	e390	e340	e560	48	32	37
6	42	51	66	1450	84	e500	e400	e305	e350	49	31	37
7	40	48	2890	e10600	67	e495	e410	e300	e230	51	31	34
8	38	46	466	e5000	e4500	e490	e420	e300	e130	53	30	36
9	38	51	e174	e1600	e2000	e485	e440	e290	e110	53	30	31
10	36	46	e101	e900	e1300	e500	e430	e270	e96	51	30	34
11	37	45	e64	e590	e900	e500	e430	e250	e82	53	28	33
12	39	48	64	e360	e330	e495	e440	e240	e78	53	27	38
13	38	47	56	1700	e290	e480	e490	e235	e74	56	28	36
14	40	45	55	3040	e280	e485	e540	e235	e66	45	31	31
15	40	47	56	2840	e260	e505	e590	e270	e68	38	30	33
16	42	50	56	8260	e250	e500	e500	e230	e70	38	31	36
17	38	50	55	5850	e200	e525	e460	e225	e68	38	32	33
18	39	53	134	5620	e450	e560	e450	e220	e66	38	33	31
19	41	49	63	e3030	e4300	e570	e430	e210	e62	38	32	33
20	42	50	56	e1700	e2200	e580	e400	e200	e60	37	33	38
21	42	51	56	e1000	e810	e595	e350	e225	e60	40	33	41
22	42	49	57	e740	e690	e610	e340	e260	e58	40	36	40
23	53	55	57	e360	e680	e610	e345	e230	59	41	33	45
24	57	56	57	e340	e760	e610	e350	e215	56	40	30	38
25	54	57	57	e310	e660	e690	e340	e190	52	41	30	41
26	52	53	54	e240	e640	e800	e340	e170	44	41	30	41
27	52	51	65	212	e620	e980	e335	e170	47	41	31	40
28	56	52	388	225	e590	e620	e335	e160	49	42	34	32
29	61	51	1140	180	---	e450	e330	e170	48	42	41	31
30	140	54	468	171	---	e440	e330	e165	48	37	40	34
31	194	---	206	178	---	e420	---	e160	---	36	45	---
TOTAL	1585	1557	7316	56994	23386	17295	12220	7685	3311	1372	1004	1081
MEAN	51.1	51.9	236	1839	835	558	407	248	110	44.3	32.4	36.0
MAX	194	80	2890	10600	4500	980	590	410	560	56	45	45
MIN	36	45	54	50	66	420	330	160	44	36	27	31
AC-FT	3140	3090	14510	113000	46390	34300	24240	15240	6570	2720	1990	2140

e Estimated.

PROVISIONAL DATA
SUBJECT TO REVISION

USGS SANTEE

TEL:619-557-73C4

Feb 16.94

12:33 No

UNITED STATES DEPARTMENT OF THE INTERIOR - GEOLOGICAL SURVEY - ADAPS

02/16/94

STATION NUMBER 11059300 SANTA ANA R A E ST NR SAN BERNARDINO CA STREAM SOURCE AGENCY USGS
LATITUDE 340354 LONGITUDE 1171758 DRAINAGE AREA 541.00 DATUM STATE 06 COUNTY 071
PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

Table with columns: DAY, OCT, NOV, DEC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP. Rows include daily discharge values and summary statistics (TOTAL, MEAN, MAX, MIN, AC-FT) for both 1992 and 1993.

CAL YR 1992 TOTAL 27999 MEAN 76.5 MAX 2010 MIN 30 AC-FT 55540
WTR YR 1993 TOTAL 106948 MEAN 293 MAX 7650 MIN 30 AC-FT 212100

e Estimated

11072100 TEMESCAL CREEK ABOVE MAIN STREET, AT CORONA, CA

LOCATION.--Lat 33°53'21", long 117°33'43", in La Sierra Grant, Riverside County, Hydrologic Unit 18070203, on right bank 500 ft upstream from Main Street bridge in Corona and 1.5 mi upstream from topographic boundary of Prado Flood control basin.

DRAINAGE AREA.--224 mi², excludes 768 mi² above Lake Elsinore.

PERIOD OF RECORD.--December 1980 to July 1983, February 1984 to current year. December 1967 to September 1974, water-stage recorder at site 1.2 mi downstream at different datum (published as Station 11072200, Temescal Creek At Corona, CA).

GAGE.--Water-stage recorder and concrete-lined flood control channel. Elevation of gage is 600 ft above National Geodetic Vertical Datum of 1929, from topographic map. December 1980 to July 1983 at site 500 ft downstream at different datum.

REMARKS.--Records poor. Flow regulated by several small storage reservoirs. Many diversions upstream from station for irrigation. Water discharged to channel from Arlington Desalter at times since September 1990; records for water years 1981 to 1990 and 1991 to current year are not equivalent.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,720 ft³/s, Mar. 1, 1983, gage height, 11.67 ft; minimum daily, 0.27 ft³/s, Sept. 25, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge 8,850 ft³/s, Feb. 25, 1969, gage height, 8.17 ft, from floodmark, at old site (Station 11072200) 1.2 mi downstream on basis of slope-area measurement of peak flow.

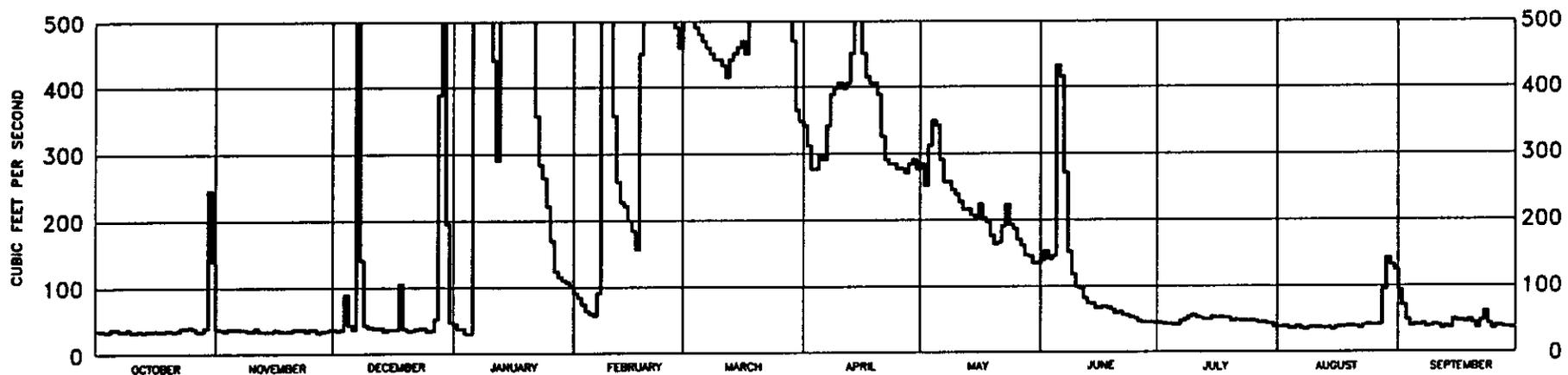
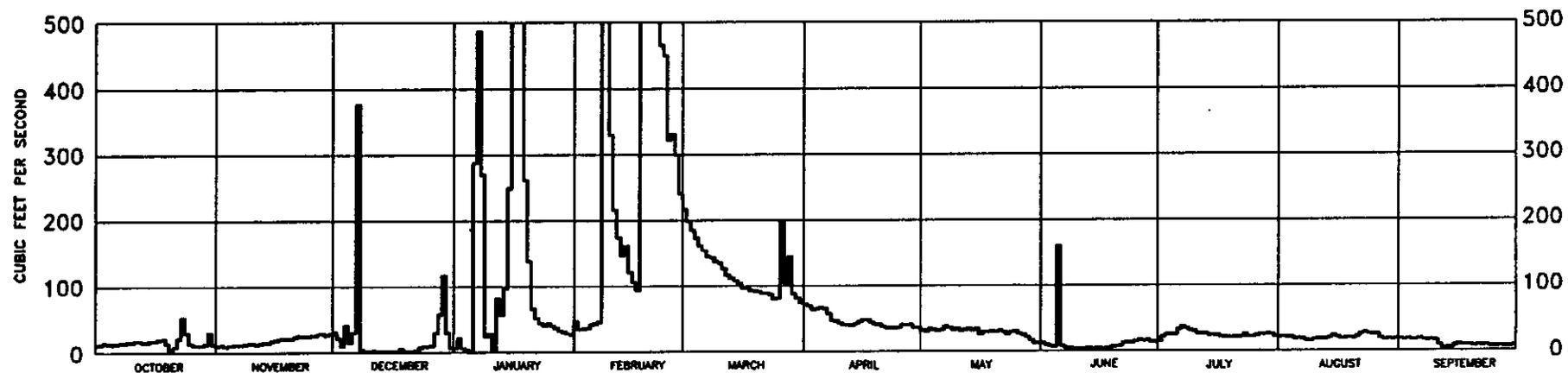
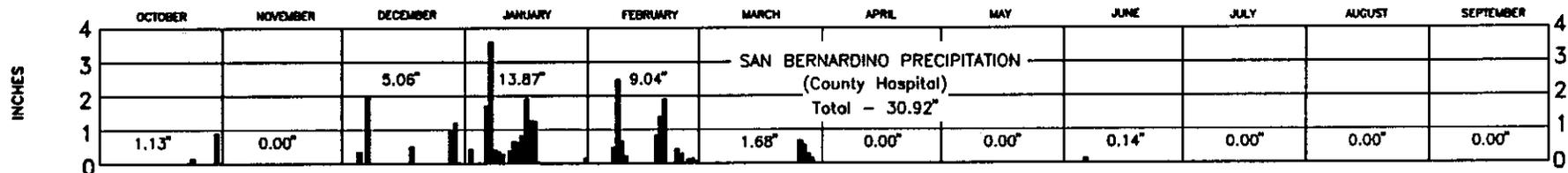
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,560 ft³/s, Jan. 7, gage height, 6.49 ft, from floodmark; minimum daily, 0.50 ft³/s, Jan. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.2	30	5.7	e46	217	72	33	12	15	21	18
2	12	11	22	21	e34	198	69	30	9.4	22	22	17
3	14	8.3	9.9	5.9	e35	185	64	34	8.1	25	21	18
4	13	10	40	3.6	e36	173	65	33	6.0	25	21	17
5	12	11	15	.50	e41	161	67	31	159	25	18	17
6	13	11	30	288	e43	154	65	33	7.9	33	19	18
7	14	11	376	468	e45	145	57	38	5.0	37	18	17
8	14	12	3.4	270	e970	143	47	36	4.3	34	16	16
9	16	13	1.2	24	e570	137	46	33	4.1	32	15	17
10	15	13	1.1	28	e330	135	43	34	3.6	30	17	16
11	17	12	1.9	2.7	216	126	40	31	3.6	27	18	8.8
12	17	13	1.0	81	174	116	40	33	3.9	26	18	3.6
13	16	15	.78	56	146	112	39	34	4.3	26	18	4.7
14	16	15	.93	97	161	108	42	32	4.0	24	20	4.4
15	17	17	1.2	249	121	104	45	34	4.9	24	23	7.6
16	17	18	.94	1010	106	96	48	26	3.7	23	21	9.9
17	19	20	1.0	514	94	97	48	29	4.1	22	18	8.2
18	20	21	4.3	639	517	93	44	29	4.6	21	19	8.6
19	13	21	.86	262	1660	92	41	30	6.2	21	20	9.0
20	3.8	21	.79	138	1190	91	41	29	7.0	21	19	7.2
21	8.1	23	.79	66	661	89	38	31	8.1	21	22	8.2
22	21	25	2.9	e51	515	89	36	29	12	22	26	7.9
23	52	24	7.3	e43	466	87	35	26	13	25	28	8.2
24	29	24	8.6	e40	450	80	36	29	13	22	26	6.7
25	13	25	8.9	e43	323	81	36	30	15	22	25	6.1
26	11	25	9.3	e40	331	198	40	27	17	23	25	6.7
27	10	28	29	e36	300	104	40	25	16	25	19	7.2
28	10	28	57	e32	240	144	40	22	17	25	17	6.5
29	12	26	116	e30	---	88	36	17	14	26	18	6.6
30	29	28	29	e28	---	81	36	12	14	25	17	7.9
31	11	---	6.3	e27	---	74	---	12	---	22	18	---
TOTAL	495.9	538.5	817.39	4599.40	9821	3798	1396	902	404.8	771	623	315.0
MEAN	16.0	17.9	26.4	148	351	123	46.5	29.1	13.5	24.9	20.1	10.5
MAX	52	28	376	1010	1660	217	72	38	159	37	28	18
MIN	3.8	8.3	.78	.50	34	74	35	12	3.6	15	15	3.6
AC-FT	984	1070	1620	9120	19480	7530	2770	1790	803	1530	1240	625

e Estimated.

PROVISIONAL DATA
SUBJECT TO REVISION



APPENDIX I

**DAILY PRECIPITATION DATA
AT SAN BERNARDINO COUNTY HOSPITAL**

WATER YEAR 1992-93

DAILY PRECIPITATION (INCHES)

CALIFORNIA
OCTOBER 1992

STATION	TOTAL	DAY OF MONTH																																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
PALOS VERDES EST FC43D	.80																					.55											.25		
PASADENA	1.67																					.05		T	.16							1.45	.01		
PIRU 2 ESE	1.01																						.22	.07								.47			
POMONA CAL POLY	2.02																																		
POMAY VALLEY	M																																		
RAMONA FIRE DEPT	1.38	.69																																	
REDLANDS	.90																							.38	.01								.30		
RIVERSIDE FIRE STN 3	.59																						.08	.19								.13	.30		
RIVERSIDE CITRUS EXP S	.58																						.23	.02					.03			.05	.20		
SALSIPUEDES GAGING STN	.66																						.08									.06	.37		
SAN BERNARDINO CO HOSP	1.13																																		
SANDBERG WSHO R	.54																																		
SAN DIEGO WSO AIRPORT R	.18																																		
SAN DIMAS FIRE FC95	1.91																																		
SAN GABRIEL CANYON PH	3.23																						.02												
SAN GABRIEL DAM FC425B	4.35																						.02	T	.51							.35	.80	2.67	
SAN GABRIEL FIRE DEPT	1.46																						.08	T		.14						.04	1.20	T	
SAN JACINTO RANGER STN	2.43																						.18	.31	.93							.49	.52		
SAN PASQUAL ANIMAL PAR	.47																						.19	.01								.04	.08	.15	
SANTA ANA FIRE STN	.72																						.08	.01	.16							.45	.02		
SANTA BARBARA	M																																		
SANTA BARBARA FAA ARPT	.82																																		
SANTA MARIA WSO ARPT R	.45																																		
SANTA MONICA PIER	.43																																		
SANTA PAULA	1.43																																		
SAUGUS POWER PLANT 1	1.99																						.04	.02	T	.24	.05					.02	1.60	.02	
SUN CITY	.92																																		
TOPANGA PATROL STN FC6 R	2.50																						.10	.10	.10							.10	2.00	.10	
TORRANCE	.74																																		
TUSTIN IRVINE RANCH	.94																						.30	T		.13	T					.02	.28	.01	
TWITCHELL DAM	1.61																																		
U C L A	1.25																																		
YAN NUYS FC15A	.60																																		
VINCENT FIRE STN FC120	.87																																		
VISTA 2 WNE	.45																																		
WALNUT HI FC102C	.96																																		
WHITTIER CITY YO FC106	.71																																		
SOUTHEAST DESERT BASINS 07																																			
BARSTON FIRE STATION	1.34																																		
BEAUMONT 1 E	1.96																																		
BENTON INSPECTION STN	.40	T																																	
BIG PINES PARK FC83B	1.30																																		
BISHOP CREEK INTAKE 2 //R	.97																																		
BISHOP WSO AIRPORT R	.53																																		
BLTYHE	.51																																		
BLTYHE FAA ARPT	.20																																		
BORREGO DESERT PARK	.51	.00																																	
BOULEVARD 2	.41																																		
BRAMLEY 2 SM //R	.16																																		
CALEXICO 2 ME	2.31																																		
CHINA LAKE ARMITAGE //	.00	T																																	
DAGGETT FAA AIRPORT	.38																																		
DEATH VALLEY	.15																																		
DEEP CANYON LABORATORY	M																																		
DEEP SPRINGS COLLEGE	.87																																		
EAGLE MOUNTAIN	.49																																		
EL CENTRO 2 SSM	1.88																																		
EL MIRAGE FIELD	.49																																		
FAIRMONT	1.10																																		
GOLD ROCK RANCH	.01																																		
GOLDSTONE ECHO 2	.43																																		
HAIWEE	.28																																		
HAYFIELD PUMPING PLANT	.22																																		
IMPERIAL	.45																																		

SEE REFERENCE NOTES FOLLOWING STATION INDEX

DAILY PRECIPITATION (INCHES)

CALIFORNIA
OCTOBER 1992

STATION	TOTAL	DAY OF MONTH																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
PALOS VERDES EST FC43D	.00																																
PASADENA	.00																																
PIRU 2 ESE	.00																																
POMONA CAL POLY	.00																																
POMAY VALLEY	.05																							.05									
RAMONA FIRE DEPT	.00																																
REDLANDS	.00																																
RIVERSIDE FIRE STN 3	.00																																
RIVERSIDE CITRUS EXP S	.00																																
SALSIPUEDES GAGING STN	.00																																
SAN BERNARDINO CO HOSP	.00																																
SANDBERG HSGD R	.90																							.03		.90							
SAN DIEGO HSO AIRPORT R	.03																																
SAN DIMAS FIRE FC95	.00																																
SAN GABRIEL CANYON PH	.00																																
SAN GABRIEL DAM FC425B	.00																																
SAN GABRIEL FIRE DEPT	.00																																
SAN JACINTO RANGER STN	.00																																
SAN PASQUAL ANIMAL PAR	.04																																
SANTA ANA FIRE STN	.00																																
SANTA BARBARA	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SANTA BARBARA FAA ARPT	.00																																
SANTA MARIA HSO ARPT R	.01																							.01									
SANTA MONICA PIER	.00																																
SANTA PAULA	.00																																
SAUGUS POWER PLANT 1	.00																																
SUN CITY	.00																																
TOPANGA PATROL STN FC6 R	.00																																
TORRANCE	.00																																
TUSTIN IRVINE RANCH	.00																																
THITCHMELL DAM	.03																																
U C L A	.00																																
VAN NUYS FC15A	.00																																
VINCENT FIRE STN FC120	.00																																
VISTA 2 MNE	.02																																
WALNUT HI FC102C	.00																																
WHITTIER CITY YD FC106	.00																																
SOUTHEAST DESERT BASINS 07	.00																																
BARSTON FIRE STATION	.00																																
BEALMONT 1 E	.00																																
BENTON INSPECTION STN	.00																																
BIG PINES PARK FC83B	.00																																
BISHOP CREEK INTAKE 2 //R	.00																																
BISHOP HSO AIRPORT R	.00																																
BLYTHE	.00																																
BLYTHE FAA ARPT	.00																																
BORREGO DESERT PARK	.00																																
BOULEVARD 2	.08																																
BRAWLEY 2 SW	.00																																
CALEXICO 2 NE	.00																																
CHINA LAKE ARMITAGE //	.00																																
DAGGETT FCNOS	.00																																
DEATH VALLEY	.00																																
DEEP CANYON LABORATORY	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEEP SPRINGS COLLEGE	.00																																
EAGLE MOUNTAIN	.00																																
EL CENTRO 2 SSM	.00																																
EL MIRAGE FIELD	.00																																
FAIRMONT	.00																																
GOLD ROCK RANCH	.00																																
GOLDSTONE ECHO 2	.00																																
HAIHEE	.02	.02																															
HAYFIELD PUMPING PLANT	.00																																
IMPERIAL	.00																																

SEE REFERENCE NOTES FOLLOWING STATION INDEX

DAILY PRECIPITATION (INCHES)

CALIFORNIA
DECEMBER 1952

STATION	TOTAL	DAY OF MONTH																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
PALOS VERDES EST FC430	3.61							1.76	.30			.07						.25											.35	.82	.06	
PASADENA	6.45				.05			3.50	.08			.20	.01					.54											.61	1.10	.36	
PIRU 2 ESE	4.26			.10				1.57	.97			.01																	.42	.79	.40	
POMONA CAL POLY	M 4.25							1.80				.08							.03										.67	1.67		
POMAY VALLEY	3.09				.16	.27	.04	.79	.38				.11					.17										.93	.03	.21		
RAMONA FIRE DEPT	3.97			.65		.13	.02	1.47	.12				.13					.20										.05	1.07	.13		
REDLANDS	4.77				.35	.01		2.20	.29			.01						.20										.83	.69	.19		
RIVERSIDE FIRE STN 3	3.30				.15		T	1.73	.02			T						.08									.10	.48	.54	.20		
RIVERSIDE CITRUS EXP 5	3.61				.18		.02	1.91				.01						.11	.04								.41	.21	.60	.12		
SALSIPUEDES GAGING STN	5.08				.10			2.75			.15	.44	.29																.85		.50	
SAN BERNARDINO CO HOSP	5.06					.35		2.00	.03			T	T					.49									.67	.33	1.19	.02		
SANBERG WSHO	8.64				.02		2.70	1.91				.03	.13				2.30	.05									.44	.16	.23	T	.03	
SAN DIEGO WSO AIRPORT	2.56			.13			T	1.15	.01			T						.12										.95	1.85	.42		
SAN DIMAS FIRE FC95	6.57				.16			2.82										.37										.82	1.04	1.48		
SAN GABRIEL CANYON PH	7.91					.12		2.59	1.07				.02					.77														
SAN GABRIEL DAM FC425B	11.10				.20		.50	3.80					.10				1.60											.60	.30	3.70	.30	
SAN GABRIEL FIRE DEPT	M 2.76				.08				.02			.07						.31									T	.68	1.20	.40		
SAN JACINTO RANGER STN	3.28				.09	.27		.22	1.00			.01					.30											.94	.04	.41		
SAN PASQUAL ANIMAL PAR	3.69				.26	.44	.03	.76	.32				.10					.28									.05	.95	.28	.22		
SANTA ANA FIRE STN	3.65							2.00	.09			.29	.02					.13									T	.50	.52	.10		
SANTA BARBARA	4.97			.02	.41		2.04	.83			.01		.23				.17										T	.43	.83			
SANTA BARBARA FAA ARPT	4.34			.02	.48	.04	1.34	.87				.29					.10											.50	.67	.03		
SANTA MARIA WSO ARPT	2.80				.04		.74	.78			.01		.53				.16											.22	.29	.02		
SANTA MONICA PIER	2.90				.08			1.75				.11					.25										T	.41	.28	.02		
SANTA PAULA	4.53			T	.19		2.30	.46		T	T	.25					.30											.33	.48	.22		
SAUGUS POWER PLANT 1	5.65				.16	T	.01	2.45	.09			.24	.03					.30										.49	1.34	.52		
SUN CITY	3.56					.51		.65	1.31								.16											.82	.07	.04		
TOPANGA PATROL STN FC6	9.70				.20		1.20	4.80				.10					.20										.50	.10	2.40	.20		
TORRANCE	3.82				.17		.01	2.06	.17			.08						.20										.43	.66	.04		
TUSTIN IRVINE RANCH	4.63				.02		1.60	.97				.05					.30										.02	.58	.95	.14		
TWITCHELL DAM	3.49				.09		.02	1.58			.02		.58	.04			.45												.19	.39	.13	
U C L A	M																															
VAN NUYS FC15A	6.21				.04			3.36	.50							.13		.17											.38	1.20	.43	
VINCENT FIRE STN FC120	3.51				.46			1.22	.77			.06																	.49	.32	.19	
VISTA 2 NNE	2.89			.01	.16			1.07	.05			.05	.09					.37									.05	.67	.33	.04		
WALNUT NJ FC102C	5.02				.20	.62	.70	.85				.10						.14											.79	.52	1.10	
WHITTIER CITY YD FC106	4.40						2.80																					.63	.93	.04		
SOUTHEAST DESERT BASINS	07																															
BARSTON FIRE STATION	1.11				.20			.77	.08				.05					.01										.42	1.70	.15		
BEALMONT 1 E	3.15				.02	.21	.15	T													.50											
BENTON INSPECTION STN	2.34					T	1.45	.12					T				.05	T														
BIG PINES PARK FC83B	7.40				.60		.30	1.80	.10	.80							.50	.20									.40	.50	2.10	.10		
BISHOP CREEK INTAKE 2 //R	3.36						.18	1.69	.10								.10												.01	.38	.07	
BISHOP WSO AIRPORT	1.50						.32	.65				.07					T												.71			
BLYTHE	2.32				.70			.88										.03														
BLYTHE FAA ARPT	2.20			.38	.41			.75	.02									.06										.36	.22			
BORREGO DESERT PARK	2.35				.60	.14		.77	.20				.02	.15				.18										.04	.60			
BOULEVARD 2	3.75			.09	.53	.03	.01	.44	.28																			.05	1.12			
BRAMLEY 2 SW	1.08				.53													T										.56	.51			
CALEXICO 2 NE	1.24			.51	.02			.15					T					T														
CHINA LAKE ARMITAGE //	1.47				.05		T	1.39										T												.03		
DAGGETT FCWOS	.79				.09			.26				.03					T	.05										.20	.16	T	T	
DEATH VALLEY	.87							.25	.53				.04																.05			
DEEP CANYON LABORATORY	1.88				.58	.24			.65			T						T											.39		.02	
DEEP SPRINGS COLLEGE	M .15																	T													.14	
EAGLE MOUNTAIN	1.52				.39				.51																				.62			
EL CENTRO 2 SSM	1.40	.00			.56	.02			.20									.04											.35	.05	.20	.01
EL MIRAGE FIELD	2.66				.15	.34		.88	.64																				.46	1.35	.47	
FAIRMONT	5.97				.15	.11		2.00	1.11			.06	.05					.21									.69					
GOLD ROCK RANCH	1.86				.72			.45																								
GOLDSTONE ECHO 2	1.81				T	T		.33	.65			.15						.06											.43	.01	.18	
HAIWEE	2.33	T			.30	.35		1.30	.62			.02	.05					.14											.66		.08	.12
HAYFIELD PUMPING PLANT	1.84				.30				.53																			.35	.21			
IMPERIAL	1.36			.32	.31			.17																								

SEE REFERENCE NOTES FOLLOWING STATION INDEX

DAILY PRECIPITATION (INCHES)

CALIFORNIA
JANUARY 1993

STATION	TOTAL	DAY OF MONTH																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
PASADENA	15.99		.53				1.77	2.00	2.00	.13	.17	.04	.61	1.72	1.10	1.26	.54	1.88	2.19													.05
PIRU 2 ESE	M																															.18
POMONA CAL POLY	13.39		.58					3.55	.95		.25	.10	.31	1.40	.98	1.01	1.50	.49	2.05	.04											.40	
POMAY VALLEY	12.64		.30	.07			.94	2.07	1.42	.09	.15	.09	.08	1.11	1.37	.35	1.90	.72	1.18	.40												
RAKONA FIRE DEPT	M																															
REDLANDS	11.69		.18				1.30	2.50	.84	.16	.24	.29	.48	.09	.87	.60	2.20	.69	.92	.14											.19	
RIVERSIDE FIRE STN 3	9.14		.01				1.04	2.22	.36	.10	.27	.03	.26	.43	.27	.76	1.93	.51	.93	.02											.21	
RIVERSIDE CITRUS EXP S	9.32		.15			.08	1.44	2.01	.20	.04	.27		.54	.15	.31	1.27	1.31	.52	.76												.06	
SALSIPUEDES GAGING STN	5.80		.46				1.51	.27	.06				1.30	.76		.42	1.60				.35		.07									
SAN BERNARDINO CO HOSP	13.87		.42				1.70	3.60	.42	.36	.28		.38	.65	.62	.82	1.90	1.27	1.25	.04											.16	
SANDBERG WSHO R	9.09		.28				.23	1.02	.19			1.90	.58	1.14	.47	.92	.06	.08	2.22												.01	
SAN DIEGO WSO AIRPORT R	9.09		.19			.04	1.19	1.00	.18	.07	.06		.85	.60	.01	1.80	1.12	.33	.99												.65	
SAN DIMAS FIRE FC95	16.81		.60				1.25	3.38	1.90	.16	.03	.20		1.68	1.75	.31	1.70	.60	3.00	.15											.10	
SAN GABRIEL CANYON PH	20.23		.50	.03			1.59	2.67	3.38	.16	.01	.33		1.94	2.60	.12	2.32	1.36	2.75	.35											.10	
SAN GABRIEL DAM FC4258	28.76		.66	.02			1.33	3.01	4.77	.18	.01	.57		3.78	4.60	.16	3.40	1.35	4.51	.32											.09	
SAN GABRIEL FIRE DEPT	14.76		.43				1.83	2.13	1.62	.08	.15		.66	.98	1.01	1.36	.76	1.05	2.65	.03											.02	
SAN JACINTO RANGER STN	14.19	.05	.33	T		.53	2.20	.73	.15	.02	.25		.88	1.05	.10	1.71	3.07	1.64	1.06												.42	
SAN PASQUAL ANIMAL PAR	12.05		.39	.02			1.00	1.89	1.88	.41	.14		.03	.20	.52	1.52	.50	1.61	.50	.82	.20										.42	
SANTA ANA FIRE STN	11.78		.57				1.71	1.74	.50	.27	.34	.04	.35	.32	.53	1.29	1.74	.53	1.10	.15	T										.39	
SANTA BARBARA	9.29	.48	.07				1.16	1.37	.10		.30		.68	2.12	.13	1.31	.22	.74	.31	.30											.21	
SANTA BARBARA FAA ARPT	9.07	.42	.08				2.14	1.33	T	T	.42		.62	2.15	.07	.84	.09	.67	.24													
SANTA MARIA WSO ARPT R	5.46	.64					1.03	.39	.35	.02	.53		.05	1.47	T	.14	.01	.39	.43		.01	T									.40	
SANTA MONICA PIER	8.82		.75				.98	1.02	.51		.21		.75	.33	.23	1.35	.65	.85	.67													
SANTA PAULA	9.76	.40				.33	1.21	1.28	.20	.04		.28	1.60	.93	.73	1.20	.22	1.34														
SAUGUS POWER PLANT 1	13.53		.81				.40	1.83	.98	.08	.41	.01	.53	2.45	.68	.96	1.53	1.40	1.43	.02												
SUN CITY	13.43		.23				1.02	2.37	.46	.07	*	.17		.66	.72	2.56	2.35	2.42													.40	
TOPANGA PATROL STN FC6 R	19.50		.90				1.90	3.20	.10		.30		1.50	2.00	.20	4.80	.60	1.80	1.70												.30	
TORRANCE	11.18		.49				1.29	1.23	.32	.03	.28		.63	.45	.30	1.31	.53	.81	1.93	.04											.24	
TUSTIN IRVINE RANCH	12.56		.49				1.68	1.49	.83	.08	.28		.46	.50	.52	1.81	2.23	.51	1.52	.03											.13	
TWITCHELL DAM	8.10		.78				.33	2.08	.40	.04	.62		.10	1.48	1.12	.07	.10	.37	.57			.04										
U C L A	14.19		.79				1.11	2.09	1.69	.12	.33	T	.73	.78	.67	1.62	1.20	1.22	1.20												.44	
VAN NUYS FC15A	14.75		.41				.72	1.70	.82	.12	.03	.14	.93	2.60	*	*	*	*	8.04												.20	
VINCENT FIRE STN FC120	7.11		.24				.65	1.01	1.08	.02	.03		.75	.93	.25	.35	.14	.34	.96	.36											.82	
VISTA 2 NNE	12.29		.30				1.50	1.03	1.10	.24	.30	T	.08	.51	1.24	.90	2.10	.95	1.17	.05											.10	
WALNUT HI FC102C	13.95		.51				1.20	2.00	1.82	.15	.20	.15		1.46	1.15	.32	1.60	1.05	1.85	.39												
WHITTIER CITY YD FC106	12.00		.31				1.50	2.71	.82	.05	.21		.85	.55	.57	.98	1.40	.54	1.46												.05	
SOUTHEAST DESERT BASINS 07																																
BARSTON FIRE STATION	2.91						.20	.63	.56				.05	.20	.11	.16	.25	.43	.32													
BEAUMONT 1 E	20.37		.46				1.75	*	6.07	.21	.21	.10	.15	.45	.94	.91	3.42	2.49	2.62	.19											.40	
BENTON INSPECTION STN	2.26		.12					.02	.27		.15		T	.10	.37	.21	.66	.17	.10													
BIG PINES PARK FC838	M		.40				2.60	4.70			.30	.10	1.20	4.90																		
BISHOP CREEK INTAKE 2 I/R	5.04	.30	.12					.78	.10		.29		.42	1.01	.10	.91	.21	.29	.09				.12								.18	
BISHOP WSO AIRPORT R	2.03		.08					.46			.06		.10	.30	.17	.40	.28	.12	.06												.12	
BLTYHE	2.58						.26	.56	.15		.05	.02		.33	.16	.16	.58	.08	.03												.05	
BLTYHE FAA ARPT	2.33					.02	.21	.20		T	.27		.36	.08	.19	.13	.79	.03													.30	
BONREGO DESERT PARK	8.78						1.00	1.75	1.07		.15		.22	.34	.92	.47	1.54	.38	.60	.02												
BOULEVARD 2	15.23		.12				1.93	2.90	1.50	.20	.53	.02	.70	.51	1.60	.73	2.10	.68	1.11	.51											.09	
BRANLEY 2 SH	M																															
CALEXICO 2 NE	3.25					.32	.74	.55			.13		.41	.01		.36	.36		.37													
CHINA LAKE ARMITAGE //	1.51						.33	.59	.04				.28	.19	.08																	
DAGGETT FCW05	2.49		.09				.27	1.10	.01		T		.02	.06	.10	.17	.56	.05	.06													
DEATH VALLEY	.67							.13	.08	T	T			.22	.07		.02		.15												.40	
DEEP CANYON LABORATORY	5.34		T				.25	1.08	.48			.12		.15	.30		.51	1.69	.36												.15	
DEEP SPRINGS COLLEGE	.95							.07			.03			.13	.06	T		.21	.30													
EAGLE MOUNTAIN	3.54						.27	.30	.23		.06	.18		.12	.09	.02	.06	2.01	.02												.18	
EL CENTRO 2 SSH	3.45						.30	.73	.44		.12	.05		.55	.08	.02	.33	.73		.10												
EL MIRAGE FIELD	4.55		.18					.42	1.07	.01	.02			.43	.25	.03	.22	.70	1.07	.15							T	T			T	
FAIRMONT	13.66		.46				.38	2.11	.80	.05	.03	.24		1.64	2.00	.13	1.78	.76	2.96	.32												
GOLD ROCK RANCH	3.27						.19	.96	.25		.63	.02		.34	.05	.05	.74	.04														
GOLDSTONE ECHO 2	3.67		.14	.17	.09		.14	.92	.50					.24	.25	T	.43	.37	.40	.02												
HAIHEE	2.51		T					.45	.57			.10		.40	.20		.23		.55	.01												
HAYFIELD PUMPING PLANT	4.47						.30	.39	.50		.13	.28		.19	.35		.43	1.80	.06												.02	
IMPERIAL	M																															.02
INDEPENDENCE	2.75							.50	.81			.05		.41	.63		.17	.18					T									

DAILY PRECIPITATION (INCHES)

CALIFORNIA
JANUARY 1993

STATION	TOTAL	DAY OF MONTH																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
PASADENA	9.19							.06	3.20	.49	.01				.23			1.45	1.60	.85		T	1.17			.11	.02	T					
PINO 2 ESE	H							.15	2.44	.40				.41			2.59	2.05	1.38				.26	.16		.35	.13	.04					
POMONA CAL POLY	10.56							.05	2.08	.54	.05						.15	1.00	1.09	.06			.50	.13		.02	.13	.16					
POMAY VALLEY	5.85								2.07	.52	.10						.40	1.70	1.35	.06			.75	.05		.02	.13	.20					
RAMONA FIRE DEPT	7.24																																
REDLANDS	7.55							.08	2.83	.34	.34				.05		.49	.73	1.79	.01			.34	.25	.03	.09	.18						
REVERSIDIE FIRE STN 3	5.30							.26	1.45	.39				.07	.14		.60	.52	1.15				.28	.23		.12	.16						
REVERSIDIE CITRUS EXP S	5.12							.44	1.54	.06					T		.70	1.08	.53				.50	.07	T	.13	.13						
SALSIPUEDES GAGING STN	8.47					.20			1.25	.48	.28						.83	1.38	1.50	.06			1.95	.21		.90	.25						
SAN BERNARDINO CO HOSP	9.04							.48	2.47	.66	.23												.43	.30	.02	.12	.15	.07					
SANDBERG WSO	H 8.11							1.25	.91	.21							1.98	.65	.03				.95	1.53		.53	.04	.03					
SAN DIEGO WSO AIRPORT	4.73							.58	.82	.06	.03						.61	1.47	.10	T			.61	.34		.09	.01	.01					
SAN DIMAS FIRE FC95	11.31								1.75	1.90				1.10			.02	4.14	1.28	.26		.38		.48									
SAN GABRIEL CANYON PH	13.37								1.71	1.05	.12				.57		.06	6.02	1.40	.13		.45	.21	1.25		.40							
SAN GABRIEL DAM FC4258	16.52								2.09	1.85	.53				.26		.11	6.57	1.78	.14		.02	.67	1.86	T	.03	.53	.08					
SAN GABRIEL FIRE DEPT	9.05							.10	2.30	.26					.15	T	1.60	2.21	1.02				.81			.15	.39	.06					
SAN JACINTO R S	7.54								2.00	1.50	.30				.14		1.16	1.24	.12				.63			.30	.12	.01					
SAN PASQUAL ANIMAL PAR	5.53							T	1.89	.47	.15						.18	.82	.97			.06		.76	.03	.07	.12	.01					
SANTA ANA FIRE STN	4.12							.04	1.22	.18	T				.01		.53	.65	.95				.25	.04		.25	T						
SANTA BARBARA	7.45							1.92	.98	.14							1.45	.26	.12				.43	.61		.27	1.20	.05					
SANTA BARBARA FAA ARPT	5.42					T		1.07	.44	.04						T	1.80	.10	.14	T		.45	.71		.25	.42	T						
SANTA MARIA WSO ARPT	3.91				.04			.24	.76	.04			T			T	.87	.18	.11			.30	.75	.05	.21	.33	.03						
SANTA MONICA PIER	5.88							.02	1.78	.06							1.50	1.28	.25				.65			.33	.01						
SANTA PAULA	8.92								2.38	.35							.90	1.90	.43			.73	.90		1.00	.05	.03	.28					
SALGUS POWER PLANT 1	9.77								2.21	.81	.22	T					.90	2.62	.88				1.55			.35	.20						
SUM CITY	10.87							T	2.13	1.27	.05						3.00	3.10	.67	.01				.40		.02	.22						
TOPANGA PATROL STN FC6	11.20							2.70	1.30						.10		3.60	.80	.30				1.40	.10		.90							
TORRANCE	H																																
TUSTIN IRVINE RANCH	6.03							.03	2.14	.64					.05		.64	.61	1.14				.33	.03		.38	.04						
THITCHELL DAM	6.03					.04		.07	1.16	.47			.09				.64	.59	.99	.20			1.23	.11		.15	.29						
U C L A	13.11							.01	5.60	.25					.01		2.82	1.40	1.07				1.43			.50	.02						
VAN NUYS FC15A	10.25								3.51	.66					.06		.19	4.09				.56	.39	.60		.19	.12	.17					
VINCENT FIRE STN FC120	6.81								1.46	.31				.01			1.00	2.80	.77			.01	.11		.05	.12	.14	.05					
VISTA 2 NNE	5.09							.04	1.47	.39	.09				.12		.75	.28	1.45	.01		.03	.03	.34	.01	.01	.14	.05					
WALNUT HT FC102C	7.40								1.72	.90							2.00	1.72						.48		.46							
WHITTIER CITY YD FC106	9.56							.44	1.90	.05					.35		2.42	2.20	2.05				.15										
SOUTHEAST DESERT BASINS	07																.19	.77					.37				.38	.03					
BARSTON FIRE STATION	2.69								.95								1.09	1.54	1.78				.45	.65	T	.09	.16	T					
BEAUMONT 1 E	11.74						T		3.70	1.33	.19				.76		.10	1.87	.08				.37	.26		.20	.02						
BENTON INSPECTION STN	3.10							T	.19	.01							4.40	4.40	.30				1.20	.10		.20							
BIG PINES PARK FC838	15.60							1.80	3.00	.10	.10																						
BISHOP CREEK INTAKE 2 //R	H 1.58							.10	.26	.10	.08					.69	.02	.10								.23							
BISHOP WSO AIRPORT	H 2.62							.05	.10	.04							1.24	.51	.06				.26			.02	.34						
BLYTNE	1.80								.46	.95								.25							.08								
BLYTNE FAA ARPT	2.19							T	1.66	.01					T	T	T	.40							.05								
BORREGO DESERT PARK	1.89								.97		T						.06	.49	.36				.01										
BOLLEVARD 2	6.87								.05	2.26	.35	.10					.35	1.55	.95	.02					.65	.08	.03	.46	.02				
BRAMLEY 2 SW	H																	.18	.06					T									
CALEXICO 2 NE	.67								.30	.10														.05									
CHINA LAKE ARMITAGE //	1.82							.06	.27							.00		1.01	.43							.04	.09	T					
DAGGETT FCNDS	2.02							T	.75	T							.35	.79															
DEATH VALLEY	1.35								.35	.10	.03													T		.55	T						
DEEP CANYON LABORATORY	2.22								.87	.05					.02		.28	.55	.65				.08	.05		.22	.06	.02					
DEEP SPRINGS COLLEGE	1.97								.79									.46	.06								.18						
EAGLE MOUNTAIN	1.79								.75	.25								.23	.38														
EL CENTRO 2 SSW	H																																
EL MIRAGE FIELD	2.63								.45	.32	.01						.10	1.07	.44			T		T	T	.28	.06	.06					
FAIRMONT	10.59								1.92	.85	.14							3.94	.88	.64			.42	.79	.25	.27	.39						
GOLD ROCK RANCH	1.54								.72	.02								.36									.30	.10					
GOLDSTONE ECHO 2	4.57								1.11	.15								2.00	.85				T	.11		.06							
HAINEE	1.38								1.19	.08																							
HAYFIELD PUMPING PLANT	1.76								.83	.03																	.18						
IMPERIAL //R	.84							.11	.32								.02	.38						T	.11		.01						
INDEPENDENCE	2.63								.52	.10							T	.89					.02		.47	.44	.05	.04					

DAILY PRECIPITATION (INCHES)

CALIFORNIA
APRIL 1993

STATION	TOTAL	DAY OF MONTH																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
PASADENA	.00																															
PIRU 2 ESE	.00																															
POHONA CAL POLY	.00																															
POMAY VALLEY	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
RAMONA FIRE DEPT	.00																															
REDLANDS	.00																															
RIVERSIDE FIRE STN 3	.00																															
RIVERSIDE CITRUS EXP S	.00																															
SALSIPUEDES GABING STN	.00																															
SAN BERNARDINO CO HOSP	.00																															
SANDBERG HSD	R	.00																														
SAN DIEGO HSD AIRPORT	R	.00																														
SAN DIMAS FIRE FC95		.00																														
SAN GABRIEL CANYON PH		.20																														
SAN GABRIEL DAN FC4258		.08																														
SAN GABRIEL FIRE DEPT		.00																														
SAN JACINTO R S		.00																														
SAN PASQUAL ANTHAL PAR	T	.00																														
SANTA ANA FIRE STN		.00																														
SANTA BARBARA		.00																														
SANTA BARBARA FAA ARPT		.00																														
SANTA MARIA HSD ARPT	R	.04	.03																													
SANTA MONICA PIER		.00																														
SANTA PAULA		.00																														
SAUGUS POWER PLANT 1		.00																														
SUN CITY		.00																														
TOPANGA PATROL STN FC6	R	.00																														
TORRANCE		.00																														
TUSTIN IRVINE RANCH	M		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TWITCHELL DAM	M	.14																														
U C L A		.00																														
VAN NUYS FC15A		.00																														
VINCENT FIRE STN FC120		.00																														
VISTA 2 NNE		.00																														
WALNUT N1 FC102C		.00																														
WHITTIER CITY YD FC106		.00																														
SOUTHEAST DESERT BASINS	07																															
BARSTON FIRE STATION		.00																														
BEAUMONT 1 E	T	.00																														
BENTON INSPECTION STN		.06																														
BIG PINES PARK FC38		.00																														
BISHOP CREEK INTAKE 2 //R		.34			.02	.03			.01			.02			.03		.01	.04		.01						.05	.04	.02		.02	.04	
BISHOP HSD AIRPORT	R	.00																														
BLTYHE		.00																														
BLTYHE FAA ARPT		.00																														
BORNEGO DESERT PARK		.00																														
BOLLEVARO 2		.00																														
BRAWLEY 2 SH		.00																														
CALEXICO 2 NE		.00																														
CHINA LAKE ARMITAGE //		.00																														
DAGGETT FC05		.00																														
DEATH VALLEY		.00																														
DEEP CANYON LABORATORY	M		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEEP SPRINGS COLLEGE		.00																														
EAGLE MOUNTAIN		.00																														
EL CENTRO 2 SSW		.00																														
EL MIRAGE FIELD		.00																														
FAYMONT		.00																														
GOLD ROCK RANCH		.00																														
GOLDSTONE ECHO 2		.00																														
HAINEE		.00																														
HAYFIELD PUMPING PLANT	//R	.00																														
IMPERIAL		.00																														
INDEPENDENCE	T	.00																														

DAILY PRECIPITATION (INCHES)

CALIFORNIA
MAY 1993

STATION	TOTAL	DAY OF MONTH																																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
PIRU 2 ESE	.02																									.02									
POMONA CAL POLY	.00																																		
POMAY VALLEY	.00																																		
RANDONA FIRE DEPT	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.04																			
REDLANDS	.04																	T				T		T											
RIVERSIDE FIRE STN 3	T														.03									T											
RIVERSIDE CITRUS EXP S	.03			T																				T			.09								
SALSIPIUEDES GAGING STN	.09																T																		
SAN BERNARDINO CO HOSP	T			T																						.02	.01								
SANDBERG HSD	R																																		
SAN DIEGO HSO AIRPORT	R															T																			
SAN DIMAS FIRE FC95	.01																																		
SAN GABRIEL CANYON PH	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
SAN GABRIEL DAN FC425B	T			T												.03																			
SAN GABRIEL FIRE DEPT	.03																																		
SAN JACINTO R S	.03																.03																		
SAN PASQUAL ANIMAL PAR	.00																																		
SANTA ANA FIRE STN	T																					T	T												
SANTA BARBARA	.05																																		
SANTA BARBARA FAA ARPT	.04																																		
SANTA MARIA HSO ARPT	R																									.20	T							.01	
SANTA MONICA PIER	.00																									.12									
SANTA PAULA	.12																										.07								
SAUGUS POWER PLANT 1	.07																																		
SUN CITY	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
TOPANGA PATROL STN FC6	R																																		
TORRANCE	T																																		
TUSTIN IRVINE RANCH	.00																																		
THITCHELL DAN	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
U C L A	T															T																			
VAN NUYS FC15A	.00																																		
VINCENT FIRE STN FC120	.02															.02																			
VISTA 2 NME	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
WALNUT HI FC102C	.00																																		
WHITTIER CITY YD FC106	.00																																		
SOUTHEAST DESERT BASINS	07																																		
BARSTON FIRE STATION	.00																																		
BEAUMONT 1 E	.11			T									T		T																				
BENTON INSPECTION STN	.01																																		
BIG PINES PARK FC83B	.00																																		
BISHOP CREEK INTAKE 2 IIR	.03																																		
BISHOP HSO AIRPORT	R																																		
BLYTHE	.04																																		
BLYTHE FAA ARPT	T																																		
BORREGO DESERT PARK	.06																																		
BOLLEVIARD 2	.08																																		
BRAWLEY 2 SW	.03																																		
CALEXICO 2 NE	.00																																		
CHINA LAKE ARMITAGE	//																																		
DAGGETT FCMS	T																																		
DEATH VALLEY	.00																																		
DEEP CANYON LABORATORY	.23																									.23									
DEEP SPRINGS COLLEGE	.11																									.10									
EAGLE MOUNTAIN	.08																																		
EL CENTRO 2 SSW	.00																																		
EL MIRAGE FIELD	.00																																		
FAIRMONT	.00																																		
GOLD ROCK RANCH	.36											.25																							
GOLDSTONE ECHO 2	.04																																		
HAIHEE	.00																																		
HAYFIELD PUMPING PLANT	.01																																		
IMPERIAL	IIR																																		
INDEPENDENCE	T																																		
INDIO FIRE STATION	.00																																		

SEE REFERENCE NOTES FOLLOWING STATION INDEX

DAILY PRECIPITATION (INCHES)

CALIFORNIA
JUNE 1993

STATION	TOTAL	DAY OF MONTH																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
POMONA CAL POLY	.96					.96																										
POMAY VALLEY	.59					.42	.17																									
RAMONA FIRE DEPT	.54					.32	.22																									
REDLANDS	1.09					1.00	.09																									
RIVERSIDE FIRE STN 3	.84					.83	.01																									
RIVERSIDE CITRUS EXP S	.92					.91	.01																									
SALSIPEDES GAGING STN	.08					.08																T										
SAN BERNARDINO CO HOSP	M .14						.14																									
SANDBERG WSMO	R 1.50					.78	.70	.02																								
SAN DIEGO WSO AIRPORT	R .41					.38	.03																									
SAN DIMAS FIRE FC95	1.00					.45	.55																									
SAN GABRIEL CANYON PH	1.70					.58	1.12																									
SAN GABRIEL DAM FC425B	1.99					.83	1.16															T										
SAN GABRIEL FIRE DEPT	.96					.96																										
SAN JACINTO R S	.85						.85																									
SAN PASQUAL ANIMAL PAR	.48					.15	.33																									
SANTA ANA FIRE STN	1.31					1.26	.05																									
SANTA BARBARA	.71				.06	.62															.01	.02										
SANTA BARBARA FAA ARPT	.38				.05	.33															T	.05	.03									
SANTA MARIA WSO ARPT	R .12				.04																											
SANTA MONICA PIER	.55					.55																										
SANTA PAULA	.64					.64																										
SAUGUS POWER PLANT 1	1.03					.89	.14																									
SUN CITY	.77					.04	.73																									
TOPANGA PATROL STN FC6	R 1.10					1.10																										
TORRANCE	.62					.62																										
TUSTIN IRVINE RANCH	1.36					1.36																										
TRITCHELL DAM	.43					.33		.10														T										
U C L A	1.29					1.29																										
VAN NUYS FC15A	.71						.71																									
VINCENT FIRE STN FC120	.47					.47																										
VISTA 2 NNE	.59					.57	.02																									
WALNUT HI FC102C	1.65						1.65																									
WHITTIER CITY YD FC106	.91					.91																										
SOUTHEAST DESERT BASINS	07																															
BARSTON FIRE STATION	.50					.50																										
BEALMONT 1 E	1.98					1.82	.16																									
BENTON INSPECTION STN	.08					.05	T															.03										
BIG PINES PARK FC39B	1.70					1.70																										
BISHOP CREEK INTAKE 2 //R	.08	.03				.05																										
BISHOP WSO AIRPORT	R .00																															
BLITHE	.00																															
BLITHE FAA ARPT	.00																															
BORRERO DESERT PARK	.00																															
BOULEVARD 2	.24					.09	.15																									
BRANLEY 2 SW	//R .00																															
CALEXICO 2 NE	.00																															
CHINA LAKE ARMITAGE //	.00																															
DAGGETT FCNOS	.08					.08																										
DEATH VALLEY	.00																															
DEEP CANYON LABORATORY	T .00					T																										
DEEP SPRINGS COLLEGE	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
EAGLE MOUNTAIN	.00																															
EL CENTRO 2 SSM	.00																															
EL MIRAGE FIELD	.52					.18	.34																									
FAIRMONT	1.49					.81	.67	.01																								
GOLD ROCK RANCH	.00																															
GOLDSTONE ECHO 2	.13						.13																									
HAIWEE	.02						.02																									
HAYFIELD PUMPING PLANT	.02						.02																									
IMPERIAL	//R .00																															
INDEPENDENCE	T .00	T					T																									
INDIO FIRE STATION	.00																															
INYO/KERN	.05				.02	.03																										

SEE REFERENCE NOTES FOLLOWING STATION INDEX

DAILY PRECIPITATION (INCHES)

CALIFORNIA
JULY 1993

STATION	TOTAL	DAY OF MONTH																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
POHONA CAL POLY	.00																																	
POHAY VALLEY	.02																																	
RAHONA FIRE DEPT	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
REDLANDS	.00																																	
RIVERSIDE FIRE STN 3	.00																																	
RIVERSIDE CITRUS EXP S	T .00																																	
SALSIPUEDES GAGING STN	T .00																																	
SAN BERNARDINO CO HOSP	.00																																	
SANDBERG HSGO	R .00																																	
SAN DIEGO HSO AIRPORT	R .03																																	
SAN DINAS FIRE FC95	.00																																	
SAN GABRIEL CANYON PH	.00																																	
SAN GABRIEL DAM FC425B	.00																																	
SAN GABRIEL FIRE DEPT	T .00																																	
SAN JACINTO R S	.00																																	
SAN PASQUAL ANIMAL PAR	.00																																	
SANTA ANA FIRE STN	.00																																	
SANTA BARBARA	.01																																	
SANTA BARBARA FAA ARPT	.01																																	
SANTA MARIA HSO ARPT	R T .00																																	
SANTA MONICA PIER	.00																																	
SANTA PAULA	.02																																	
SAUGUS POWER PLANT 1	.00																																	
SUN CITY	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOPANGA PATROL STN FC6 R	.00																																	
TORRANCE	.00																																	
TUSTIN IRVINE RANCH	.00																																	
MITCHELL DAM	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
U C L A	T .00																																	
VAN NUYS FC15A	.00																																	
VINCENT FIRE STN FC120	.00																																	
VISTA 2 HNE	.02																																	
WALNUT HI FC102C	.00																																	
WHITTIER CITY YD FC106	.00																																	
SOUTHEAST DESERT BASINS	O7																																	
BARSTON FIRE STATION	.00																																	
BEAUMONT 1 E	.01																																	
BENTON INSPECTION STN	.00																																	
BIG PINES PARK FC03B	.00																																	
BISHOP CREEK INTAKE 2 //R	.00																																	
BISHOP HSO AIRPORT	R .00																																	
BLTYHE	.00																																	
BLTYHE FCHOS	.00																																	
BORRERO DESERT PARK	.00																																	
BOULEVARD 2	.00																																	
BRANLEY 2 SH	.00																																	
CALEXICO 2 NE	.00																																	
CHINA LAKE ARMITAGE //	.00																																	
DAGGETT FCHOS	.00																																	
DEATH VALLEY	.00																																	
DEEP CANYON LABORATORY	.00																																	
DEEP SPRINGS COLLEGE	H	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
EAGLE MOUNTAIN	.00																																	
EL CENTRO 2 SSW	.00																																	
EL MIRAGE FIELD	.00																																	
FAIRMONT	.00																																	
GOLD ROCK RANCH	.00																																	
GOLDSTONE ECHO 2	.00																																	
HAIWEE	.00																																	
HAYFIELD PUMPING PLANT	.00																																	
IMPERIAL	//R .00																																	
INDEPENDENCE	.00																																	
INDIO FIRE STATION	.00																																	
INTOKERN	.00																																	

SEE REFERENCE NOTES FOLLOWING STATION INDEX

