SANTA ANA RIVER WATERMASTER

FOR

ORANGE COUNTY WATER DISTRICT Vs. CITY OF CHINO, et al

CASE No. 117628 – COUNTY OF ORANGE

SIXTH

ANNUAL REPORT

OF THE

SANTA ANA RIVER WATERMASTER

1975-76

MARCH 17, 1977

SANTA ANA RIVER WATERMASTER

FOR
ORANGE COUNTY WATER DISTRICT VS. CITY OF CHINO, ET AL
CASE NO. 117628 – COUNTY OF ORANGE

WATERMASTER
MAX BOOKMAN
WILLIAM J. CARROLL
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March 17, 1977

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

Re: Watermaster Report for 1975-76

Gentlemen:

We have the honor of submitting herewith the Sixth Annual Report of the Santa Ana River Watermaster.

The principal findings of the Watermaster for the water year 1975-76 are as follows:

At Prado

(1)	Base Flow at Prado	45,562 acre-feet
(2)	Annual Weighted TDS of Total Flow	688 ppm
(3)	Annual Adjusted Base Flow	46,018 acre-feet
(4)	Cumulative Adjusted Base Flow	273,209 acre-feet
(5)	Cumulative Entitlement of OCWD	252,000 acre-feet
(6)	Cumulative Credit	21,209 acre-feet
(7)	One-third of Cumulative Debit	0 acre-feet
(8)	Minimum Required Base Flow in 1976-77	37,000 acre-feet

At Riverside Narrows

(1)	Base Flow at Riverside Narrows	17,263 acre-feet
(2)	Annual Weighted TDS of Base Flow	723 ppm
(3)	Annual Adjusted Base Flow	16,977 acre-feet
(4)	Cumulative Adjusted Base Flow	98,414 acre-feet
(5)	Cumulative Entitlement of CBMWD and WMWD	91,500 acre-feet
(6)	Cumulative Credit	6,914 acre-feet
(7)	One-third of Cumulative Debit	0 acre-feet
(8)	Minimum Required Base Flow in 1976-77	13,420 acre-feet

The above findings show that at the end of the water year 1975-76 there was a credit of 21,209 acre-feet in the obligations of Chino Basin Municipal Water District and Western Municipal Water District in the discharge of Base Flow downstream from Prado Dam. During the following water year, 1976-77, the minimum required Base Flow is 37,000 acre-feet. At Riverside Narrows, there was a credit of 6,914 acre-feet. The obligation of San Bernardino Valley Municipal Water District during the water year 1976-77 is a minimum Base Flow of 13,420 acre-feet.

During the water year 1975-76, State water was purchased by Orange County Water District and released from the Rialto Reach of the Foothill Feeder at OC-59 into San Antonio Creek near Upland. The Committee has continued to study methods of determining the quantity and quality of released water that actually passed Prado but, based on data available, the Committee did not make a final determination. The Committee intends to continue investigation of the disposition of State water and to make a final determination and adjustment at some subsequent time.

Sincerely yours,

SANTA ANA RIVER WATERMASTER

By: Max Bookman
Max Bookman

Donald L. Harriger

William J. Carroll
William J. Carroll

John M. Toups
John M. Toups

James C. Hanson
James C. Hanson

TABLE OF CONTENTS

Page

CHAPTER I – WATERMASTER ACTIVITIES

Stream Flow and Water Quality Measurements 2
Compilation and Analysis of Basic Data 2
Administration Costs 2

CHAPTER II – WATER SUPPLY CONDITIONS

Precipitation During 1975-76 5
Runoff During 1975-76 5
Below Prado Dam 5
At Riverside Narrows 6
Sewage Effluent from Riverside Water Quality Control Plant 6
Effluent from CBMWD Regional Wastewater Treatment Plants 6
Source of Water Supply at Prado Dam 7

CHAPTER III – BASE FLOW AT PRADO

Total Flow at Prado 8
Nontributary Flow 8
Releases Above Riverside Narrows 8
Releases to San Antonio Creek 9
Storm Flow 10
Base Flow 10
Water Quality 10
Water Quality Adjustment for Nontributary Flow 11
Adjusted Base Flow 12
Entitlement and Credit or Debit 12

CHAPTER IV – BASE FLOW AT RIVERSIDE NARROWS

Total Flow at Riverside Narrows 14
Nontributary Flow 15
Base Flow 15
Water Quality 15
Adjusted Base Flow at Riverside Narrows 15
Entitlement and Credit or Debit 16

TABLE OF CONTENTS

LIST OF TABLES

No.	Title	Page
1	Cost to the Parties and USGS for Measurements Which Provide Data Used by the Santa Ana River Watermaster-July 1, 1975 to June 30, 1976	3
2	Santa Ana River Watermaster Budget	4
3	Components of Flow at Prado Dam for Water Year 1975-76	9
4	Components of Flow at Riverside Narrows for Water Year 1975-76	14

LIST OF FIGURES

Page	Title	Following Page
1	Variation in Precipitation at San Bernardino	5
2	Discharge of Santa Ana River Below Prado Dam	6
3	Discharge of Santa Ana River at Riverside Narrows	6
4	TDS as a Function of EC Below Prado Dam	10
5	TDS as a Function of EC at Riverside Narrows	15

LIST OF PLATES
(Located at Back of Report)

No.	Title
1	Santa Ana River Watershed
2	Flow of Santa Ana River Below Prado Dam
3	Dissolved Solids in the Santa Ana River Below Prado Dam
4	Flow of Santa Ana River at Riverside Narrows
5	Dissolved Solids in the Santa Ana River at the Riverside Narrows

APPENDICES
(Located at Back of Report)

No.	Title
A	State Water Released by MWD to San Antonio Creek Near Upland (Connection OC-59)
B	Water Quality - Santa Ana River Below Prado Dam
C	Water Quality - State Water Released at OC-59
D	Water Quality - Santa Ana River at Riverside Narrows
E	Santa Ana River Watermaster Financial Statements with Report on Examination of Certified Public Accountants

CHAPTER I

WATERMASTER ACTIVITIES

Prior to 1963, limited flows in the Santa Ana River resulted in many years of controversy between the water users in the lower portion of the watershed and those in the upper watershed. On October 18, 1963 a complaint was filed with the court against more than 2,500 water users in the area upstream of Prado Dam. Cross complaints were subsequently filed, extending the adjudication to include an additional 1,500 water users in the area downstream from Prado Dam.

As a means of settling this controversy, the parties agreed to a stipulated Judgment which was subsequently entered by the court on April 17, 1969. This stipulated Judgment became effective on October 1, 1970 and contains a declaration of rights of the entities in the lower area as against those in the upper area, and provided for a physical solution to implement the Judgment. The physical solution accomplishes, in general, a regional interbasin 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 Watershed; namely, the San Bernardino Valley Municipal Water District, Western Municipal Water District of Riverside County, Chino Basin Municipal Water District and Orange County Water District (See 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 the litigation and the Summary of the Judgment have been included in prior annual reports.

In order to administer the provisions of the Judgment, the court appointed a Watermaster composed of five persons and required that the Watermaster report annually to the court and the parties. During the 1975-76 water year the Santa Ana River Watermaster Committee consisted of Max Bookman, William J. Carroll, James C. Hanson, John M. Toups and Donald L. Harriger. Mr. Bookman served as Chairman during the 1975-76 water year, and John M. Toups served as Secretary. The office of the Santa Ana River Watermaster is located at 1010 North Main Street, P.O. Box 11465, Santa Ana, California 92711.

Section 7(c) of the Judgment requires the Watermaster to report to the Court and to each party not more than five months after the end of each water year starting with 1970-71. The items to be reported upon are listed in the letter of transmittal of this report. The unusual storm in September, 1976 delayed receipt of needed data and accordingly at the request of the Watermaster the Court, on January 11, 1977, approved an extension of time until April 30, 1977 for filing 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 was shared by the parties to the Judgment. Such costs are set forth in Table 1. The USGS measured and computed the mean daily discharge of Santa Ana River at Mission Boulevard, MWD Crossing, Prado Park, and Below Prado Dam as well as the daily discharge of the Riverside Water Quality Control Plant into the Santa Ana River. Discharge measurements were also provided for two smaller streams tributary to Prado Reservoir; Chino Creek at Schaefer Avenue and Cucamonga Creek near Mira Loma.

Additional data related to the operation of Prado Reservoir were obtained from the Corps of Engineers and water quality data were supplied to the Watermaster by the State Department of Water Resources, the Riverside and Corona City Sanitation Departments and the Chino Basin Municipal Water District. Data regarding the discharge of State water into the Santa Ana River were provided by the Metropolitan Water District and the State Department of Water Resources.

Compilation and Analysis of Basic Data

The Watermaster has established procedures for compiling and analyzing the basic data necessary in order to carry out the provisions of the Judgment. The records maintained by the Watermaster have been listed in prior annual reports. Based on these data, 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 III and IV.

Administration Costs

In accordance with Paragraph 7(d) of the Judgment, the fees and expenses of each of the members of the Watermaster are to be borne by the district which nominated such member. All other Watermaster administrative costs and expenses are borne by the parties, with OCWD paying 40 percent of the cost and CBMWD, SBVMWD and WMWD each paying 20 percent of the cost. The 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 25, 1976 the Watermaster adopted a budget for the fiscal year 1975-76 in the amount of $14,000. At its meeting on May 14, 1976 the Watermaster adopted a budget for the fiscal year 1976-77 in the amount of $13,000. Table 2 shows the items and amounts included in said budgets.

TABLE 1

COSTS TO THE PARTIES AND USGS FOR MEASUREMENTS WHICH PROVIDE DATA USED BY THE SANTA ANA RIVER WATERMASTER
July 1, 1975 to June 30, 1976

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT		
At Riverside Water Quality Control Plant		
Surface Water Gage	$ 385.00	
Water Quality Monitor/TDS Samples	791.00	
Rehabilitate Conductance Equipment	84.00	
At Riverside Narrows (MWD Crossing)		
Water Quality Monitor/TDS Samples	825.00	
Dozer	117.00	
Rehabilitate Conductance Equipment	83.00	
At Prado Park	397.00	
At Mission Boulevard		
Surface Water Gage	308.00	
Relocate Gage House and Install Orifice Line	440.00	$ 3,430.00
WESTERN MUNICIPAL WATER DISTRICT		
Same as SBVMWD	$3,430.00	
Cucamonga Creek Discharge	675.00	
Chino Creek Discharge	675.00	4,780.00
CHINO BASIN MUNICIPAL WATER DISTRICT		
Same as WMWD		4,780.00
ORANGE COUNTY WATER DISTRICT		
At Prado Dam		
Water Quality Monitor/TDS Samples, Water Quality Sampling and Conductivity Programs	$6,975.00	
Rehabilitate Temperature Equipment	250.00	
At Prado Park	794.00	
At Mission Boulevard		
Surface Water Gage	616.00	
Relocate Gage House and Install Orifice Line	880.00	
San Antonio Creek Water Quality Program	1,230.00	
Chino Creek		
Flow Pattern Determination	400.00	
Construction	1,575.00	12,720.00
TOTAL FOR PARTIES		$25,710.00
UNITED STATES GEOLOGICAL SURVEY		$25,710.00
GRAND TOTAL		$51,420.00

TABLE 2

SANTA ANA RIVER WATERMASTER BUDGET

	July 1, 1975 to June 30, 1976	July 1, 1976 to June 30, 1977
Administration	$ 3,000.00	$ 4,000.00
Support Engineering Services	7,000.00	8,000.00
Reproduction of Annual Report	1,500.00	1,000.00
Additional gaging and monitoring stations, including construction, operation and maintenance	2,500.00	
Total	$14,000.00	$13,000.00

An audit prepared by Diehl, Evans and Company showing the income and expenses of the Santa Ana River Watermaster for the fiscal year 1975-76 is included herein as Appendix E. The expenses as shown total $10,880.

CHAPTER II

WATER SUPPLY CONDITIONS

The 1975-76 precipitation in the Watershed as represented by rainfall measured at San Bernardino was again below normal. With the exception of five above normal precipitation years as shown in Figure 1, the general trend of below normal rainfall since 1944-45 continues. The total flow in the Santa Ana River below Prado Dam (discounting the Nontributary Flow) during the water year 1975-76 decreased. While there was a slight increase compared to the prior year in Storm Flow at Prado, the Base Flow decreased. This decrease in Base Flow at Prado occurred even though there was an increase in the discharge of treated wastewater into Prado Reservoir from the Riverside Water Quality Control Plant and from the CBMWD Regional Wastewater Treatment Plants in the Chino Basin.

Precipitation During 1975-76

During the 1975-76 water year the precipitation at the San Bernardino County Hospital amount to 15.86 inches, which is 88 percent of the Base Period average. Unusual precipitation occurred during the month of September, 1976 when 5.12 inches of rainfall occurred. The only other large rainfall occurred in February amounting to 4.80 inches.

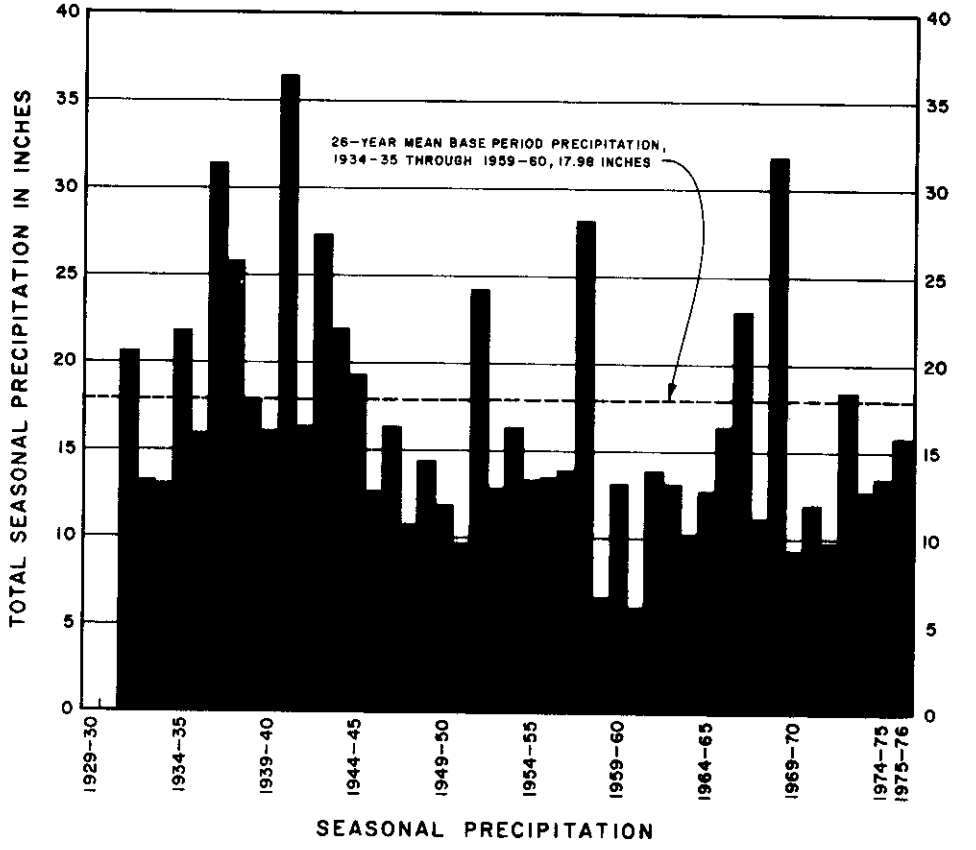
Figure 1 shows the seasonal precipitation from 1931-32 through 1975-76 and the accumulated departure from the 1934-35 through 1959-60 Base Period average.

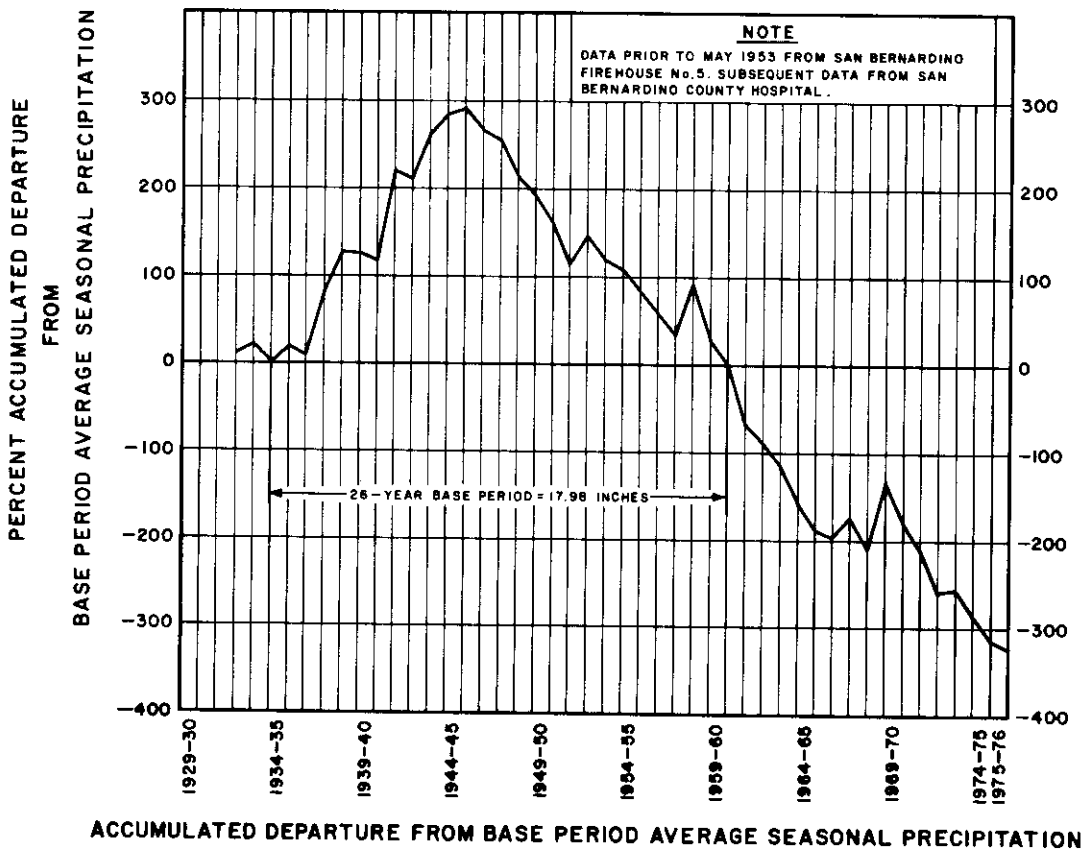
Runoff During 1975-76

Below Prado Dam

During 1975-76 the total flow of the Santa Ana River at Prado Dam, less the credit for Nontributary Flow was 59,355 acre-feet, which is below the 26-year Base Period (1934-35 through 1959-60) average of 78,780 acre-feet per year.

The Base Flow at Prado Dam decreased progressively during the extended drought period and reached a low in 1960-61 of 26,190 acre-feet. Since that year, the Base Flow has generally increased. During the five year period 1970-71 through 1974-75 the Base Flow has averaged 44,818 acre-feet per year. This compares to the 26-year Base Period average of 47,470 acre-feet. The 1975-76 Base Flow amounted to 45,562 acre-feet, an increase of 744 acre-feet over the preceding five year average.





VARIATION IN PRECIPITATION AT SAN BERNARDINO

FEBRUARY 1977

FIGURE 1

Figure 2 shows the Storm and Base Flow components of the Total Flow in the Santa Ana River below Prado Dam.

At Riverside Narrows

The total natural flow (excluding City of Riverside's sewage effluent and State water) at Riverside Narrows for the 1975-76 water year was below the 26-year Base Period average, amounting to 26,540 acre-feet as compared to the Base Period annual average of 44,650 acre-feet.

The Base Flow at Riverside Narrows decreased from 27,120 acre-feet in 1943-44 to an all-time low of 13,450 acre-feet in 1965-66. Since that time the Base Flow at Riverside Narrows has gradually increased. During the five year period 1970-71 through 1974-75 the Base Flow has averaged 16,394 acre-feet per year. This compares to the Base Period average of 22,190 acre-feet. The 1975-76 Base Flow amounted to 17,263 acre-feet, an increase of 869 acre-feet over the preceding five year average.

Figure 3 shows the components of natural flow in the Santa Ana River at Riverside Narrows and the sewage effluent from the Riverside Water Quality Control Plant for the period from 1934-35 through 1975-76.

Sewage Effluent from Riverside Water Quality Control Plant

Since the late 1940's the sewage effluent from the Riverside Water Quality Control Plant, which is discharged at the Riverside Narrows between Pedley Bridge and the MWD Crossing, has been increasing in amount. In 1949-50, the amount of treated effluent discharged was 3,960 acre-feet. By 1959-60, the discharge had increased to 9,900 acre-feet. By 1969-70, the discharge of sewage effluent from the treatment plant was 18,657 acre-feet. During this period wastewater effluent discharged by the City of Riverside increased at a rate of about 800 acre-feet per year. Since 1969-70 the wastewater effluent discharge has only increased at a rate of about 140 acre-feet per year. This trend is illustrated on Figure 3. The wastewater discharge of the Riverside Water Quality Control Plant during 1975-76 was 19,579 acre-feet.

Effluent from CBMWD Regional Wastewater Treatment Plants.

The quantity of effluent discharged from CBMWD's Regional Plants No. 1 and 2, during the water year 1975-76, amounted to 18,395 acre-feet.

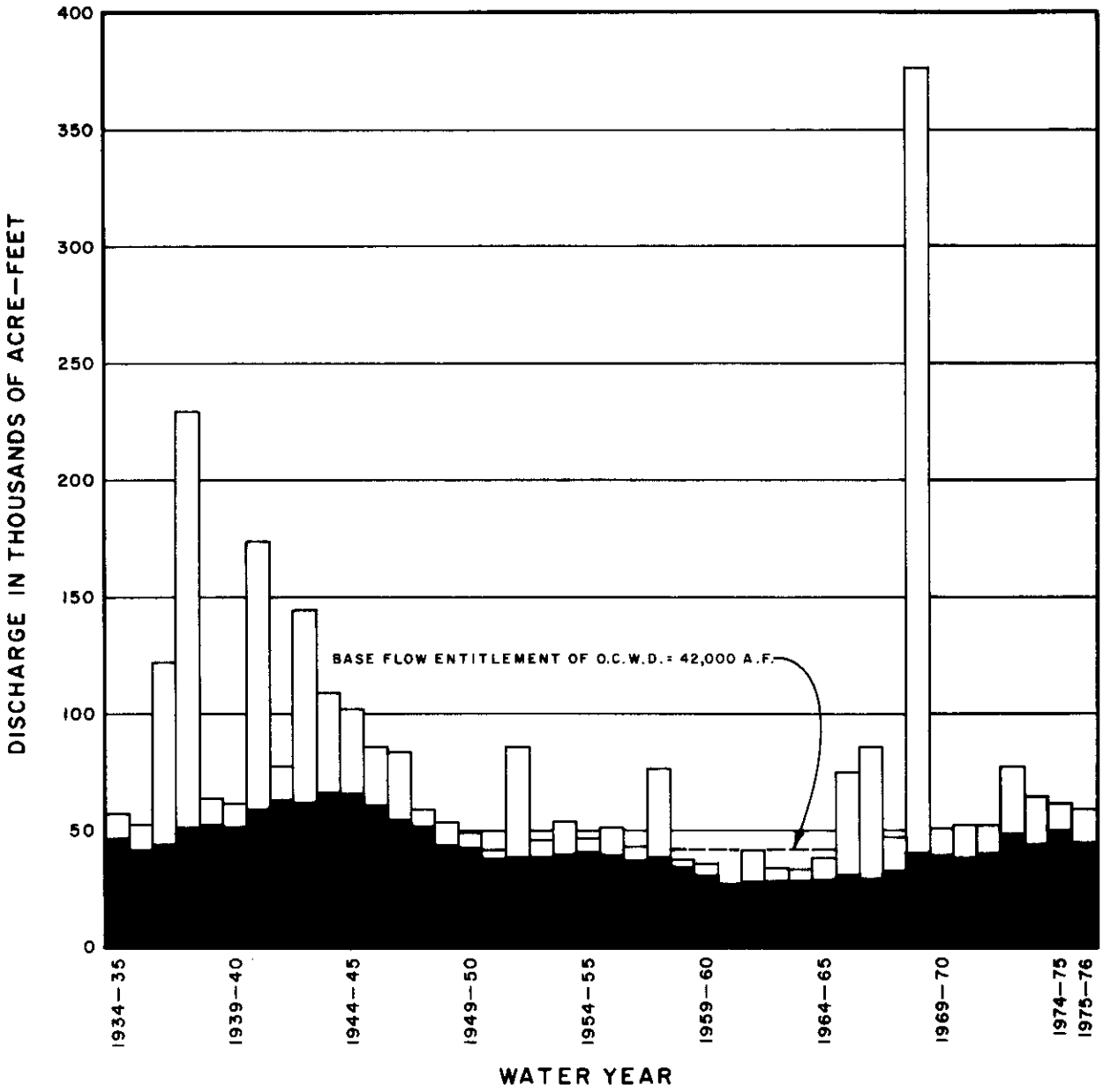
NOTE

DISCHARGE EXCLUDES IMPORTED M.W.D. COLORADO RIVER OR STATE WATER PROJECT WATER BEING TRANSPORTED IN THE SANTA ANA RIVER.

LEGEND

STORM FLOW

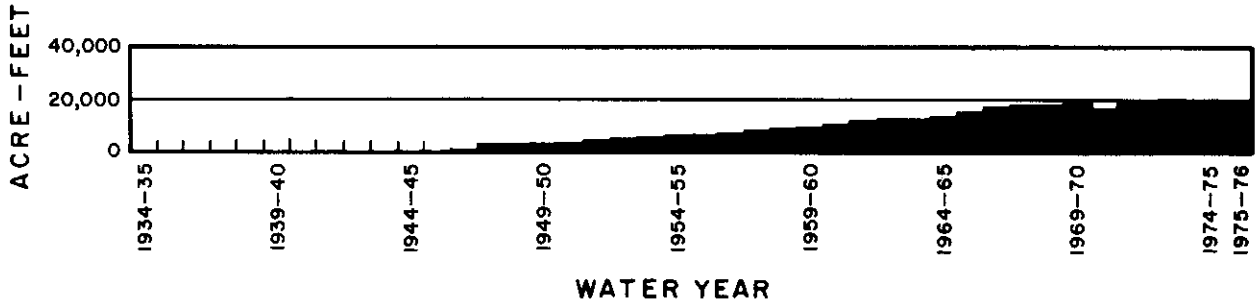
BASE FLOW



DISCHARGE OF SANTA ANA RIVER BELOW PRADO DAM

FEBRUARY 1977

FIGURE 2



SEWAGE EFFLUENT FROM RIVERSIDE WATER QUALITY CONTROL PLANTS

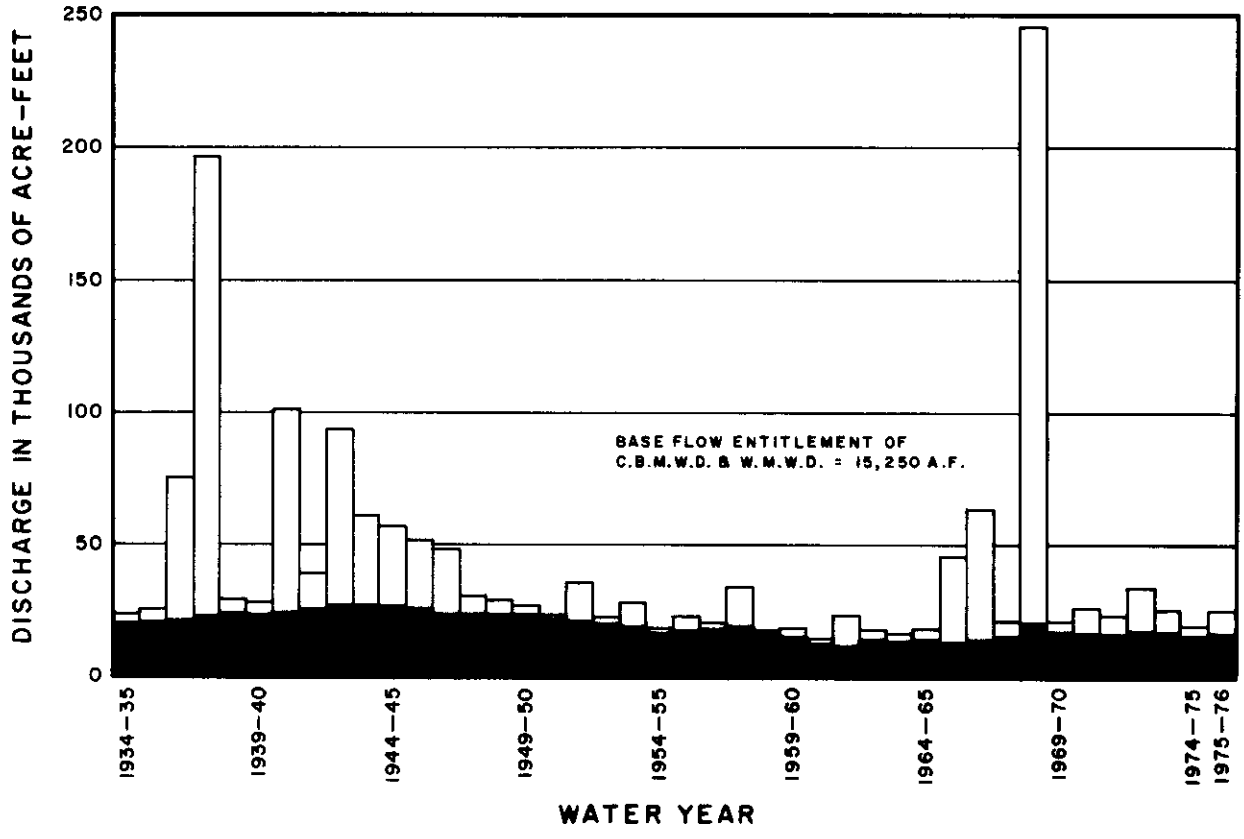
NOTE

DISCHARGE EXCLUDES SEWAGE EFFLUENT FROM THE RIVERSIDE WATER QUALITY CONTROL PLANTS AND IMPORTED M.W.D. COLORADO RIVER OR STATE WATER PROJECT WATER BEING TRANSPORTED IN THE SANTA ANA RIVER.

LEGEND

STORM FLOW

BASE FLOW



DISCHARGE OF SANTA ANA RIVER AT RIVERSIDE NARROWS

FEBRUARY 1977

FIGURE 3

Source of Water Supply at Prado Dam

Prior to the regional allocation of water accomplished under the Judgment, the flow in the Santa Ana River reaching Prado Dam originated as a result of storm runoff and rising water. Using the Base Period 1934-35 through 1959-60 for negotiating purposes, agreement between the parties to the Judgment determined that the Base Flow entitlement of Orange County Water District, in the future, should average 42,000 acre-feet. Historically the Base Flow was comprised of rising water; however, under the Judgment, Base Flow is defined as that portion of the total surface flow passing a point of measurement which remains after deduction of Storm Flow. As discussed herein, in more recent years treated wastewater has also been discharged to the River from a number of wastewater treatment plants. It is interesting to note that during the water year 1975-76 the discharge to the River from the Riverside Quality Control Plant, the CBMWD Regional Wastewater Treatment Plants and the Corona Sewage Treatment Plant total 42,675 acre-feet. The total amount of Base Flow at Prado Dam during this year amounted to 45,562 acre-feet.

CHAPTER III
BASE FLOW AT PRADO

This chapter deals with determinations of 1) the components of flow at Prado Dam, which include Nontributary Flow; 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 at Prado amounted to 120,590 acre-feet, measured at the USGS gaging station below Prado Dam. Separated into its components, Base Flow was 45,562 acre-feet, Storm Flow was 13,793 acre-feet, Nontributary flow during 1975-76 due to the release of State water above Riverside Narrows during 1971-72 was 1,065 acre-feet, and Nontributary Flow due to State water released into San Antonio Creek was assumed to be 60,170 acre-feet. The above determination of Nontributary Flow resulting from releases at San Antonio Creek is based on the assumption that 98% of the State water released at OC-59 passed Prado. This assumption is subject to review and the above amounts are subject to revision in subsequent years. The components of flow of the Santa Ana River at Prado Dam for each month in the 1975-76 water year are listed in Table 3, and are shown graphically on Plate 2.

With an adjustment for the State water flows, the total discharge of local water at Prado was 19,425 acre-feet less than the 26 year average annual flow of 78,780 acre-feet during the Base Period of 1934-35, through 1959-60. In terms of the total flow passing Prado, the minimum monthly discharge of 2,410 acre-feet occurred in August and the maximum monthly discharge of 18,040 acre-feet occurred in January.

Nontributary Flow

Since May 1973, OCWD has purchased State water for the replenishment of the groundwater basins in Orange County. The water has been released at two locations: Santa Ana River above Riverside Narrows and San Antonio Creek near Upland.

Releases Above Riverside Narrows

As fully discussed in Appendix F, the Fifth Annual Report, the Watermaster Committee made a determination of a schedule of credits to OCWD for State water released above Riverside Narrows during 1972-73. For 1975-76, the credit is 1,065 acre-feet, assumed to be distributed uniformly throughout the year, as shown in Table 3.

TABLE 3

COMPONENTS OF FLOW AT PRADO DAM FOR WATER YEAR 1975-76
(Acre-Feet)

Month	USGS Measured Outflow	Change in Storage[1]	Computed Inflow	Storm Flow	Base Flow	Nontributary Flow: San Antonio Creek[2]	Nontributary Flow: Riverside Narrows[3]
1975							
Oct	5,310	0	5,310	98	2,993	2,131	88
Nov	10,480	0	10,480	169	3,511	6,712	88
Dec	17,100	-2	17,098	317	4,545	12,148	88
1976							
Jan	18,040	-2	18,038	0	5,217	12,732	89
Feb	13,850	+169	14,019	5,412	5,316	3,202	89
Mar	14,380	-157	14,223	1,647	5,694	6,793	89
Apr	5,090	-14	5,076	530	4,457	0	89
May	5,870	+6	5,876	226	3,717	1,844	89
June	14,700	-2	14,698	365	2,784	11,460	89
July	5,640	0	5,640	0	2,403	3,148	89
Aug	2,410	0	2,410	0	2,321	0	89
Sept	7,720	2	7,722	5,029	2,604	0	89
Totals	120,590	0	120,590	13,793	45,562	60,170	1,065

1. The monthly change in storage is included in the monthly components of flow.
2. State water released into San Antonio Creek during 1975-76 assumed to have reached Prado Dam in 1975-76.
3. That portion of State water released during 1972-73 upstream of Riverside Narrows, determined to have reached Prado Dam in 1975-76.

Releases to San Antonio Creek

During water year 1975-76, 61,324 acre-feet of State water were purchased by OCWD and released from the Rialto Reach of the Foothill Feeder at OC-59 into San Antonio Creek near Upland. The measured flows at OC-59 are set forth in Appendix A. The Committee continued the study of methods of determining how much of the released water passed Prado in water year 1975-76 and the disposition of the water that did not pass Prado in water year 1975-76. The Committee did not make a final determination and intends to continue investigation of the disposition of State water released into San Antonio Creek in water years 1973-74, 1974-75, and 1975-76 and to make a final determination and adjustment for each of these years at some subsequent time.

For the purpose of arriving at findings in this report, the Committee assumed that 98 percent of the State water released passed Prado and assumed a 12-hour delay for travel time. Based on the above assumptions, 60,170 acre-feet of the State water released to San Antonio Creek passed Prado Dam during 1975-76. The monthly and annual amounts are shown in Table 3.

Storm Flow

Generally during storms, the Corps of Engineers operates the Prado gates so that some of the storm runoff is temporarily held in storage behind the dam. As the storm ends, Prado Reservoir storage is gradually reduced by the controlled releases to the downstream water conservation facilities operated by Orange County Water District. Monthly and annual quantities of Storm Flow are shown in Table 3.

During the 1975-76 water year, water was stored behind Prado Dam during the periods November 26 to December 6; December 12; December 16 to December 22; January 5 to January 19; February 2 to February 23; February 25 to March 6; March 10 to April 1; April 13; May 27 to June 11; and September 11 to September 15. During these periods, the water stored in Prado Reservoir varied up to a maximum of 996 acre-feet and the maximum mean daily flow released to the Santa Ana River was 423 cfs.

Base Flow

The determination of Base Flow was affected, as in the previous three years, by the significant quantity of State water which was released upstream of Prado Dam.

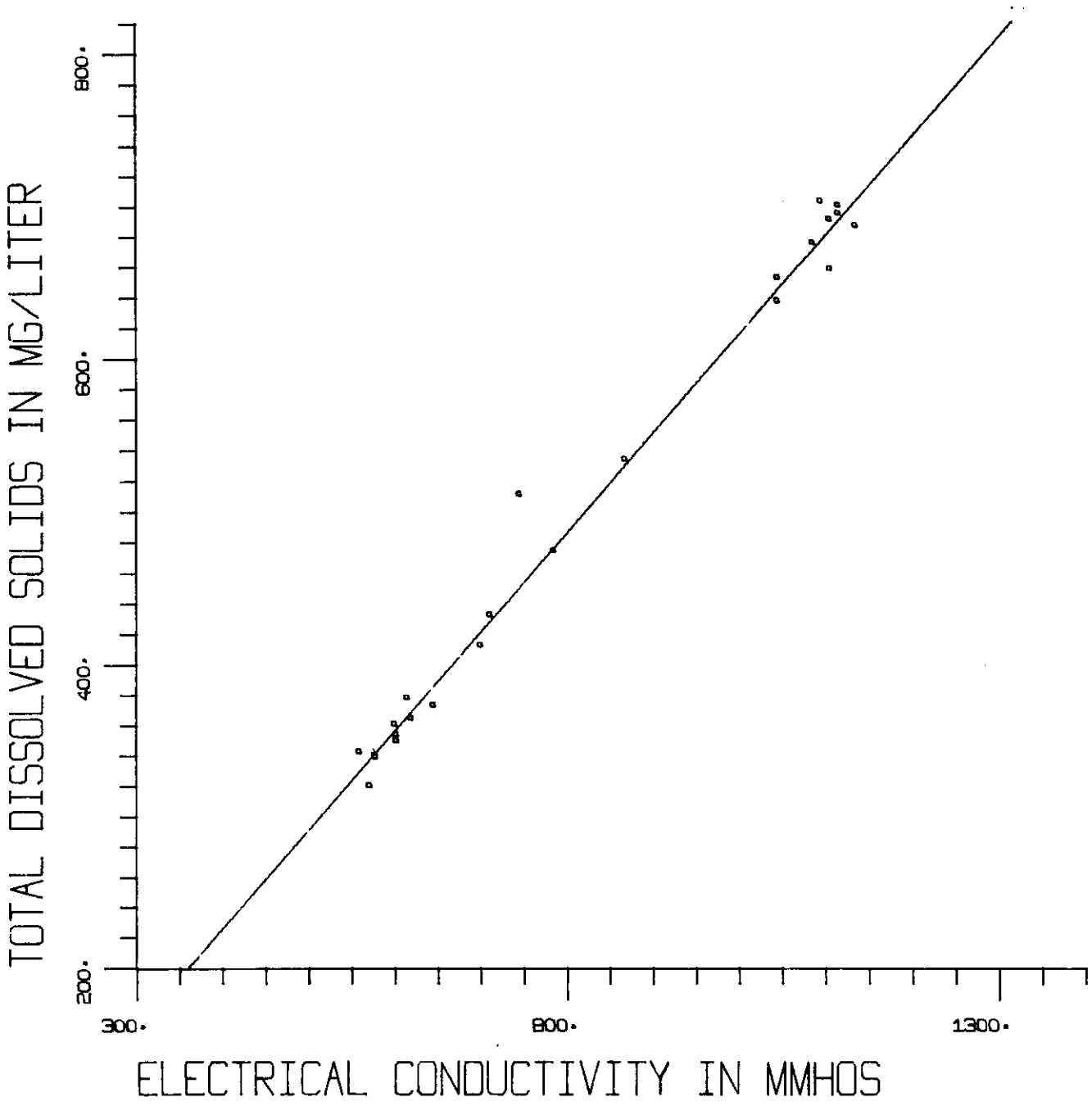
The general procedure used by the members of the Watermaster to separate the 1975-76 flow components was the same as used for 1974-75 and is fully described in the Fifth Annual Report. The monthly and annual amounts are shown in Table 3.

Water Quality

The weighted average total dissolved solids (TDS) for the total flow passing Prado, including Nontributary Flow, was found to be 435 ppm. This determination was based on continuous measurements of electrical conductivity (EC) by the USGS at the Santa Ana River below Prado Station and a statistical correlation of EC and TDS.

The EC of the river was recorded hourly on a punched tape by the USGS. The USGS also collected 24 samples and performed laboratory analyses for EC and TDS. Results of these analyses, listed in Table B-1, Appendix B, were used to develop the correlation between EC and TDS as shown on Figure 4.

T.D.S. AS A FUNCTION OF E.C.
BELOW PRADO DAM



JANUARY 1977

FIGURE 4

Application of the equation relating EC to TDS provided hourly TDS values. Using hourly data, flow weighted average daily values for TDS were computed and are listed in Table B-2, Appendix B.

The plot of TDS on Plate 3 shows the effects of the State water. In general, the TDS fluctuated in the 325 to 450 ppm range when State water was being released. When the releases of State water were terminated or reduced substantially, there were corresponding increases in TDS to the 650 to 750 ppm range.

Water Quality Adjustment for Nontributary Flow

The weighted average annual TDS value of 435 ppm, referred to in the previous section, represents the quality of total flow which includes Nontributary Flow from release of State water to San Antonio Creek and Santa Ana River above Riverside Narrows. The judgment requires that Base Flow shall be subject to adjustment based on the TDS of Base Flow and Storm Flow only. Hence, the following determination of Base Flow plus Storm Flow TDS has been made.

		Annual Flow	Avg. TDS	(Annual Flow) x (Avg. TDS)
1.	Total Flow	120,590 A.F.	435 ppm	52,456,650 A.F. - ppm
2.	Nontributary Flow Riverside Narrows	1,065 A.F.	242 ppm	257,730 A.F. - ppm
3.	Nontributary Flow San Antonio Creek	60,170 A.F.	189 ppm	11,372,130 A.F. - ppm
4.	Total Flow Less Nontributary Flow	59,355 A.F.		40,826,790 A.F. - ppm
5.	Avg. TDS of Total Flow Less Nontributary Flow	40,826,790 divided by 59,355 = 688 ppm		

The flow weighted average TDS of the State water released to San Antonio Creek in 1975-76 was 185 ppm as shown in Table C-1, Appendix C. This was adjusted to 189 ppm for use in the above calculation to reflect the evapotranspiration associated with the assumption that 2% of the water released was lost. The flow weighted average TDS of State water released above Riverside Narrows during 1972-73 was 235 ppm and was similarly adjusted to 242 ppm to reflect a 3% evapotranspiration loss.

After adjusting for releases of State water, the weighted average annual TDS of Storm Flow and Base Flow for 1975-76 was 688 ppm. It is understood that this value and similar values for

water years 1973-74 and 1974-75 will be adjusted when the Committee makes a final determination of the disposition of State water released into San Antonio Creek in water years 1973-74, 1974-75, and 1975-76.

Adjusted Base Flow

According to the Judgment, "The amount of Base Flow at Prado received during any year shall be subjected to adjustment based on weighted average annual TDS in 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 ppm	$Q - \frac{35}{42,000} Q (TDS-800)$
700 ppm-800 ppm	Q
Less than 700 ppm	$Q + \frac{35}{42,000} Q (700-TDS)$

Where: Q = Base Flow actually received."

The weighted average annual TDS of 688 ppm is less than 700 ppm. Therefore, the Base Flow of 45,562 acre-feet must be adjusted by the equation above for TDS less than 700 ppm. Thus the Adjusted Base Flow is as follows:

$$(45,562 \text{ A.F.}) + \frac{35}{42,000} (45,562 \text{ A.F.}) (700-688) = 46,018 \text{ A.F.}$$

Entitlement and Credit or Debit

From pages 12 and 13 of the Judgment, the following obligation of the CBMWD and WMWD is given: "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...."

The Watermaster's findings at Prado for 1975-76 required under the Judgment are as follows:

(1)	Base Flow at Prado	45,562 acre-feet
(2)	Annual Weighted TDS of Total Flow	688 ppm
(3)	Annual Adjusted Base Flow	46,018 acre-feet
(4)	Cumulative Adjusted Base Flow	273,209 acre-feet
(5)	Cumulative Entitlement of OCWD	252,000 acre-feet
(6)	Cumulative Credit	21,209 acre-feet
(7)	One-Third of Cumulative Debit	0 acre-feet
(8)	Minimum Required Base Flow in 1976-77	37,000 acre-feet

CHAPTER IV

BASE FLOW AT RIVERSIDE NARROWS

This chapter deals with determination 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 27,627 acre-feet, measured at the USGS gaging station just upstream of the MWD Upper Feeder Crossing. Separated into its components, Base Flow was 17,263 acre-feet, Storm Flow was 9,277 acre-feet, and Nontributary Flow due to the release of State water above Riverside Narrows was 1,087 acre-feet. The components of flow of the Santa Ana River at Riverside Narrows for each month in the 1975-76 water year are listed in Table 4 and graphically shown on Plate 4.

TABLE 4

COMPONENTS OF FLOW AT RIVERSIDE NARROWS FOR WATER YEAR 1975-76
(Quantities in Acre-Feet)

		Total Flow USGS Measurement	Storm Flow	Base Flow	Nontributary Flow
1975	October	1,357	18	1,248	91
	November	1,450	30	1,329	91
	December	1,720	101	1,528	91
1976	January	1,708	0	1,617	91
	February	3,628	1,888	1,649	91
	March	2,376	569	1,716	91
	April	1,906	260	1,555	91
	May	1,686	36	1,560	90
	June	1,525	14	1,421	90
	July	1,313	4	1,219	90
	August	1,254	0	1,164	90
	September	7,704	6,357	1,257	90
Total -	Acre Feet	27,627	9,277	17,263	1,087

Nontributary Flow

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

The Watermaster's determination of the effect of these releases has been discussed in previous reports. For the water year 1975-76 the amount of State water reaching Riverside Narrows has been agreed upon as 1,087 acre-feet.

Base Flow

Based on the hydrograph shown on Plate 4 and utilizing in general the same procedures reflected in the Work Papers of the engineers (as referenced in Paragraph 2 of the Engineering Appendix of the Judgment), a separation was made between Storm Flow and the sum of Base Flow and Nontributary Flow. Nontributary Flow was assumed to be equally distributed throughout the year (1,087 acre-feet divided by 12 months) and subtracted from the sum of the Base Flow and Nontributary Flow to arrive at Base Flow. The Base Flow was determined to be 17,263 acre-feet, as shown on Table 4.

Water Quality

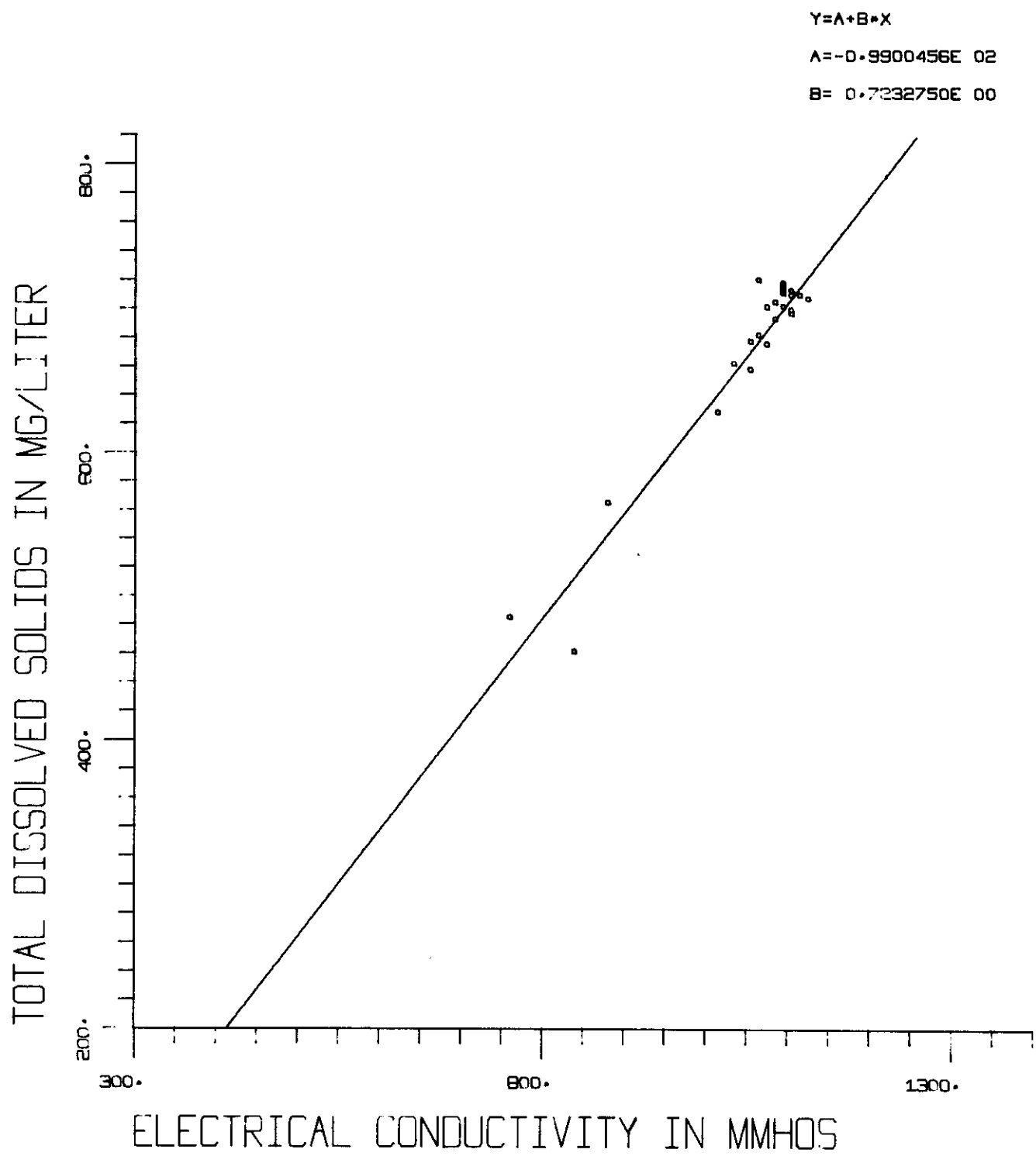
The weighted average total dissolved solids (TDS) for the Base Flow plus Nontributary Flow at Riverside Narrows was found to be 694 ppm and for Base Flow only was found to be 723 ppm. This determination of the water quality was made using periodic grab samples taken and analyzed for EC and TDS by the USGS, which operates a continuous EC recorder at the Riverside Narrows. The data for this analysis are listed in Table D-4, Appendix D. The relationship between EC and TDS at Riverside Narrows is shown on Figure 5.

A plot of the TDS of the total daily flow, including Nontributary Flow, at Riverside Narrows for the year year 1975-76, is shown on Plate 5.

Adjusted Base Flow at Riverside Narrows

The 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 such Base Flow as follows:

T.D.S. AS A FUNCTION OF E.C. AT RIVERSIDE NARROWS



JANUARY 1977

FIGURE 5

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

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 1975-76 was 723 ppm. Therefore, a downward adjustment to the Base Flow of 286 acre-feet is necessary, and the Adjusted Base Flow for 1975-76 is 16,977 acre-feet.

Entitlement and Credit or Debit

Paragraph 5(b) of the 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 13,240 acre-feet of Base Flow plus one-third of any cumulative debit...."

The Watermaster's findings at Riverside Narrows for 1975-76 required under the Judgment are as follows:

(1)	Base Flow at Riverside Narrows	17,263 acre-feet
(2)	Annual Weighted TDS of Base Flow	723 ppm
(3)	Annual Adjusted Base Flow	16,977 acre-feet
(4)	Cumulative Adjusted Base Flow	98,414 acre-feet
(5)	Cumulative Entitlement of CBMWD and WMWD	91,500 acre-feet
(6)	Cumulative Credit	6,914 acre-feet
(7)	One-Third Cumulative Debit	0 acre-feet
(8)	Minimum Required Base Flow in 1976-77	13,420 acre-feet

APPENDIX A

STATE WATER RELEASED BY MWD TO SAN ANTONIO CREEK NEAR UPLAND

CONNECTION OC-59

1975-76

PREPARED BY

DONALD L. HARRIGER

TABLE A-1

SUMMARY OF NONTRIBUTARY WATER
RELEASED FROM MWD FOOTHILL FEEDER AT OC-59

WATER YEAR 1975-76

Month	Acre Feet
October	2,124 [1]
November	7,095 [1]
December	12,262 [2]
January	12,959 [2]
February	3,168 [2]
March	6,930 [2]
April	0 [1]
May	2,075 [1]
June	11,643 [1]
July	3,068 [1]
August	0
September	0
Total	61,324

1) Quantity of nontributary water determined using records from the MWD 42" Venturi Meter at OC-59. Monthly totals are based on flow through the meter from midnight on the first day of the month to midnight of the last day of the month.

2) Quantity of nontributary water determined by subtracting the average daily flow rates of Live Oak Reservoir inlet and CB-IT construction meter from the sum of the daily flowrates of DWR 36" and 90" venturi meters at Devil Canyon Power Plant.

TABLE A-2

NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

October 1975		November 1975	
Day	cfs	Day	cfs
1	48.78	1	0
2	49.09	2	0
3	48.39	3	0
4	48.74	4	0
5	49.17	5	0
6	15.11	6	0
7	0	7	0
8	0	8	0
9	0	9	0
10	0	10	63.51
11	0	11	100.02
12	0	12	102.56
13	0	13	104.08
14	0	14	102.27
15	0	15	101.51
16	0	16	101.51
17	33.44	17	100.78
18	51.74	18	165.36
19	50.60	19	205.37
20	48.41	20	202.04
21	48.07	21	200.61
22	47.36	22	195.50
23	48.37	23	200.44
24	49.82	24	200.16
25	48.33	25	203.43
26	47.36	26	232.48
27	78.72	27	248.96
28	97.69	28	248.21
29	98.96	29	249.22
30	62.79	30	249.22
31	0	31	
	1,070.94 cfs days		3,577.24 cfs days
	2,124.21 A.F.		7,095.46 A.F.

TABLE A-2

NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

December 1975

Day	Total Released from Devil Canyon to Rialto Pipeline cfs	Less Delivery to Live Oak cfs	CB-1T cfs	Total Released at OC-59 cfs
1	526.01	277.25	0.10	248.66
2	521.29	259.66	0.10	261.53
3	521.29	278.63	0.09	242.57
4	521.29	297.38	0.10	223.81
5	545.29	271.88	0.10	273.31
6	575.91	283.26	0.09	292.56
7	575.91	283.26	0.10	292.55
8	553.80	361.03	0.10	192.67
9	523.13	419.22	0.09	103.82
10	523.13	422.39	0.10	100.64
11	523.13	421.97	0.10	101.06
12	420.78	324.02	0.09	96.67
13	318.86	222.91	0.10	95.85
14	321.56	223.75	0.10	97.71
15	319.90	222.57	0.09	97.24
16	458.93	255.36	0.10	203.47
17	445.89	196.88	0.10	248.91
18	422.10	169.83	0.09	252.18
19	422.10	173.36	0.10	248.64
20	422.10	174.82	0.10	247.18
21	422.10	169.83	0.09	252.18
22	422.22	198.49	0.10	223.63
23	423.16	226.69	0.10	196.37
24	430.86	226.91	0.09	203.86
25	427.51	226.69	0.10	200.72
26	427.38	228.40	0.10	198.88
27	422.54	225.20	0.09	197.25
28	422.54	225.20	0.10	197.24
29	371.15	173.44	0.10	197.61
30	349.93	152.03	0.09	197.81
31	347.41	152.03	0.10	195.28
cfs days	13,929.20	7,744.34	3.00	6,181.86
AF	27,628.57	15,360.90	5.95	12,261.72

TABLE A-2

NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

January 1976

Day	Total Released from Devil Canyon to Rialto Pipeline cfs	Less Delivery to Live Oak cfs	CB-1T cfs	Total Released at OC-59 cfs
1	342.00	152.03	0.17	189.80
2	344.39	152.03	0.17	192.19
3	342.00	152.03	0.17	189.80
4	342.00	152.03	0.17	189.80
5	417.98	184.13	0.17	233.68
6	448.22	200.66	0.17	247.39
7	450.50	199.22	0.17	251.11
8	508.40	245.83	0.16	262.41
9	467.31	212.88	0.17	254.26
10	435.44	196.86	0.17	238.41
11	402.36	161.81	0.17	240.38
12	488.98	245.95	0.16	242.87
13	472.98	229.09	0.17	243.72
14	444.05	199.27	0.17	244.61
15	450.80	209.48	0.17	241.15
16	458.47	220.08	0.17	238.22
17	459.51	210.47	0.17	248.87
18	417.85	185.33	0.17	232.35
19	306.57	107.40	0.17	199.00
20	322.08	126.46	0.16	195.46
21	318.35	132.25	0.17	185.93
22	359.07	303.04	0.16	55.87
23	353.54	248.77	0.17	104.60
24	320.74	105.78	0.17	214.79
25	206.09	0.	0.17	205.92
26	358.83	150.05	0.16	208.62
27	353.85	149.98	0.17	203.70
28	353.40	146.85	0.17	206.38
29	357.05	150.60	0.17	206.28
30	369.48	176.85	0.17	192.46
31	356.68	182.98	0.17	173.53
cfs days	12,028.97	5,490.19	5.22	6,533.56
AF	23,859.46	10,889.79	10.36	12,959.31

TABLE A-2

NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

February 1976

Day	Total Released from Devil Canyon to Rialto Pipeline cfs	Less Delivery to Live Oak cfs	CB-1T cfs	Total Released at OC-59 cfs	
1	345.61	173.73	0.08	171.80	
2	356.98	124.87	0.09	232.02	
3	417.74	184.60	0.08	233.06	
4	401.59	312.80	0.09	88.70	
5	254.24	251.26	0.09	0	*
6	218.32	207.11	0.09	0	*
7	100.02	96.28	0.08	0	*
8	0	0	0.09	0	*
9	59.50	59.29	0.09	0	*
10	62.97	61.26	0.09	0	*
11	62.97	63.30	0.08	0	*
12	62.81	62.15	0.09	0	*
13	62.97	62.28	0.09	0	*
14	37.38	38.67	0.09	0	*
15	0	0	0.08	0	*
16	66.61	71.72	0.09	0	*
17	334.69	344.79	0.09	0	*
18	347.45	344.29	0.09	0	*
19	336.16	333.74	0.08	0	*
20	347.53	345.79	0.08	0	*
21	334.20	327.70	0.09	0	*
22	313.01	316.62	0.09	0	*
23	440.24	413.38	0.09	0	*
24	338.27	328.54	0.08	0	*
25	351.55	212.68	0.09	138.78	
26	435.58	239.96	0.09	195.53	
27	435.58	242.46	0.09	193.03	
28	423.69	233.93	0.08	189.68	
29	422.46	267.62	0.08	154.76	
cfs days	7,370.12	5,720.82	2.51	1,597.37	
AF	14,618.63	11,347.25	4.98	3,168.38	

* OC-59 connection turned off. Therefore, OC-59 releases assumed to be zero.

TABLE A-2
NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

March 1976

Day	Total Released from Devil Canyon to Rialto Pipeline cfs	Less Delivery to Live Oak cfs	CB-1T cfs	Total Released at OC-59 cfs
1	399.32	410.88	0.0	0 *
2	78.83	76.67	0.0	0 *
3	74.94	80.12	0.0	0 *
4	77.63	76.63	0.0	0 *
5	363.02	347.07	0.0	0 *
6	297.27	293.59	0.0	0 *
7	342.81	342.00	0.0	0 *
8	451.96	451.96	0.0	0 *
9	220.92	220.92	0.0	0 *
10	419.20	285.77	0.0	133.43
11	481.45	301.32	0.0	180.13
12	459.86	265.28	0.0	194.58
13	452.73	250.36	0.0	202.37
14	391.95	201.81	0.0	190.14
15	418.21	253.65	0.0	164.56
16	435.34	247.43	0.0	187.91
17	489.38	283.68	0.0	205.70
18	463.59	245.66	0.0	217.93
19	647.45	491.78	0.0	155.67
20	641.15	504.39	0.0	136.76
21	644.78	508.02	0.01	136.76
22	628.53	491.47	0.0	137.06
23	621.27	485.75	0.0	135.52
24	621.27	480.94	0.0	140.33
25	621.27	480.32	0.0	140.95
26	621.27	480.32	0.0	140.95
27	621.27	480.32	0.0	140.95
28	621.27	498.88	0.01	122.38
29	627.55	486.66	0.0	140.89
30	608.18	458.42	0.0	149.76
31	584.19	444.98	0.0	139.21
cfs days	14,427.86	10,927.05	0.02	3,493.94
AF	28,617.66	21,673.80	0.05	6,930.23

* OC-59 Connections turned off. Therefore, OC-59 releases assumed to be zero.

TABLE A-2

NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

April 1976		May 1976	
Day	cfs	Day	cfs
1	0	1	0
2	0	2	0
3	0	3	0
4	0	4	0
5	0	5	0
6	0	6	0
7	0	7	0
8	0	8	0
9	0	9	0
10	0	10	0
11	0	11	0
12	0	12	0
13	0	13	0
14	0	14	0
15	0	15	0
16	0	16	0
17	0	17	0
18	0	18	0
19	0	19	0
20	0	20	0
21	0	21	0
22	0	22	0
23	0	23	0
24	0	24	0
25	0	25	0
26	0	26	74.42
27	0	27	198.88
28	0	28	197.53
29	0	29	183.60
30	0	30	196.47
31	0	31	195.13
	0 cfs days		1,046.03 cfs days
			2,074.80 a/f

TABLE A-2

NONTRIBUTARY WATER RELEASED
FROM MWD FOOTHILL FEEDER AT OC-59

June 1976		July 1976	
Day	cfs	Day	cfs
1	195.46	1	162.78
2	197.30	2	175.54
3	196.69	3	171.32
4	195.45	4	170.06
5	195.45	5	108.52
6	195.10	6	70.91
7	191.29	7	85.61
8	191.96	8	123.62
9	192.79	9	76.25
10	258.51	10	75.11
11	287.79	11	76.21
12	290.63	12	76.21
13	293.24	13	74.40
14	225.62	14	75.59
15	189.86	15	24.69
16	196.60	16	0
17	197.20	17	0
18	196.60	18	0
19	196.86	19	0
20	195.43	20	0
21	196.29	21	0
22	195.62	22	0
23	195.62	23	0
24	188.73	24	0
25	140.24	25	0
26	120.38	26	0
27	120.38	27	0
28	142.18	28	0
29	145.22	29	0
30	145.59	30	0
31		31	0
	5,870.08 cfs days		1,546.82 cfs days
	11,643.30 a/f		3,068.12 a/f

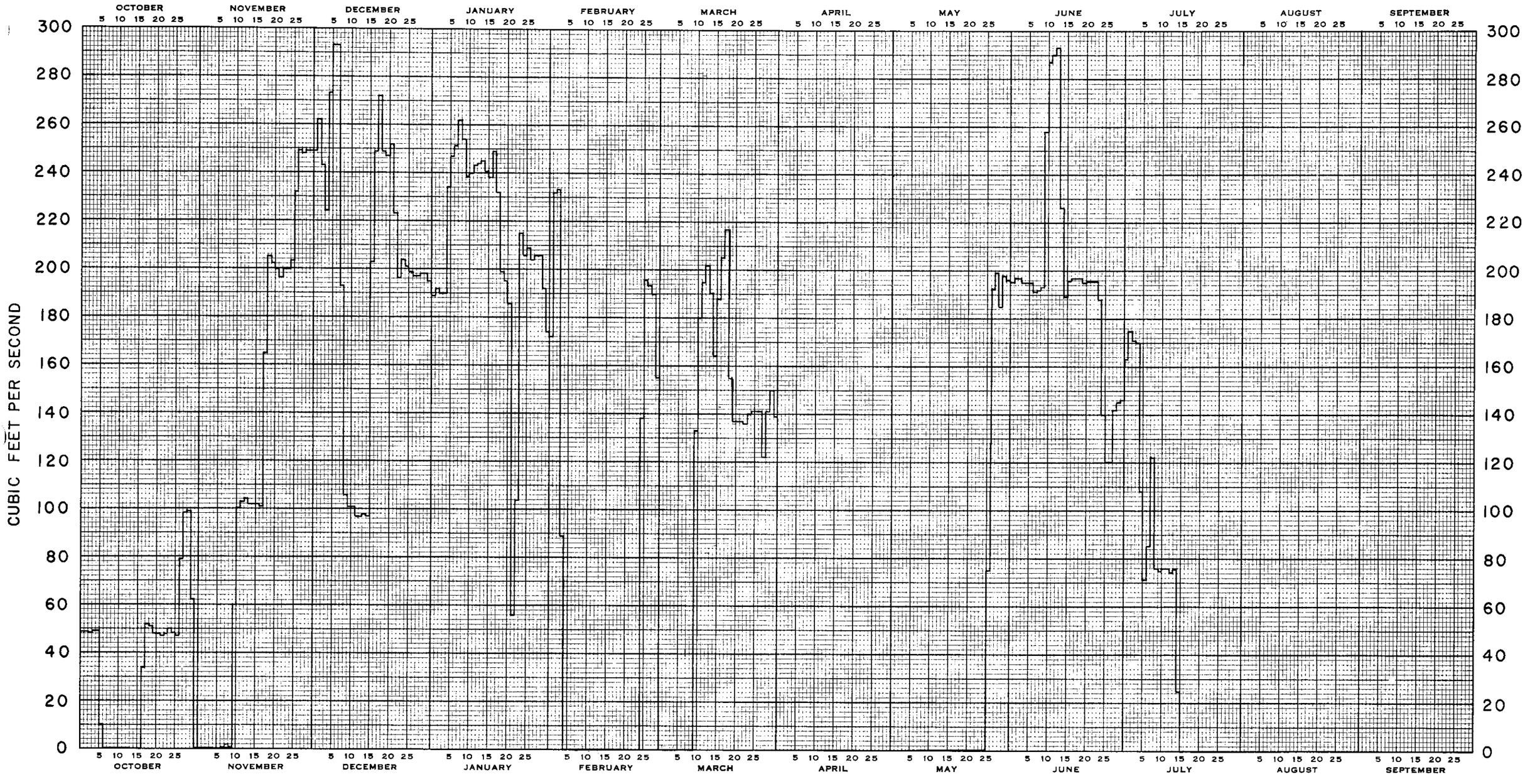


PLATE A-1

NONTRIBUTARY WATER RELEASED AT OC-59

Water Year 1975-76

APPENDIX B

WATER QUALITY – SANTA ANA RIVER BELOW PRADO DAM

1975-76

PREPARED BY

JOHN M. TOUPS

Method of Analysing Water Quality Data

Utilizing the USGS water quality records, the following analyses were performed by the Watermaster to determine the annual weighted TDS:

(1) Mean daily flow weighted specific conductivity was calculated using the punched tape from the Prado water quality recorder, processed by a newly developed computer program designed by USGS. Input to the program included hourly specific conductivity data from the recorder tape, which was flow weighted using hourly discharge measurements from the water stage recorder. This newly developed procedure is a significant refinement over the previous manual calculation of daily weighted specific conductivity.

(2) Laboratory analyses of the 24 grab samples taken by the USGS below Prado Dam during the 1975-76 season were run to determine both specific conductance and TDS. Data from the grab samples is given in Table B-1. Results of these analyses were used to prepare a correlation between specific conductance and the corresponding TDS. A detailed discussion of this statistical analysis is presented in the Fifth Annual Watermaster Report. The resulting graph of plotted data points and equation of the best fit line are shown in Chapter III of this report.

(3) The equation from the curve fitting operation was then used to determine the mean daily TDS corresponding to the mean daily specific conductance values for each day of the year. This data is given in Table B-2.

(4) The mean daily TDS values were then multiplied by the mean daily flow as shown in Table B-2. These products were then summed and divided by the total flow for the year to determine the weighted average TDS value for the water year. This value for TDS for the total flow including Nontributary water was 435 ppm of total dissolved solids for the 1975-76 water year. The weighted TDS calculation for the water year 1975-76 is shown in Table B-3.

TABLE NO. B-1

U.S.G.S. WATER QUALITY SAMPLES
BELOW PRADO DAM
WATER YEAR 1975-76

Date	E.C.	T.D.S.	Date	E.C.	T.D.S.
Oct. 1975	790	471	April 1976	1050	631
	1110	684		620	377
Nov. 1975	1140	680	May 1976	1120	693
	705	411		1100	696
	607	349	June 1976	650	372
Dec. 1975	576	320		574	*
	583	338	July 1976	592	*
	605	359		705	*
Jan. 1976	564	342		1050	646
	624	363	Aug. 1976	1090	669
Feb. 1976	580	342	Sept. 1976	1120	688
	750	507			
	1100	652			
Mar. 1976	873	530			
	716	430			
	607	353			

* Samples taken but T.D.S. not determined.

TABLE B-2

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM — WATER YEAR 1975-1976 — TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
OCT 1	98.0	780	469	45962.
OCT 2	99.0	773	464	45936.
OCT 3	97.0	763	458	44426.
OCT 4	89.0	752	451	40139.
OCT 5	84.0	748	448	37632.
OCT 6	88.0	886	536	47168.
OCT 7	54.0	1074	657	35478.
OCT 8	49.0	1085	664	32536.
OCT 9	48.0	1098	672	32256.
OCT 10	48.0	1105	676	32448.
OCT 11	51.0	1125	689	35139.
OCT 12	51.0	1120	686	34986.
OCT 13	48.0	1116	683	32784.
OCT 14	49.0	1120	686	33614.
OCT 15	50.0	1114	682	34100.
OCT 16	52.0	1103	675	35100.
OCT 17	52.0	1007	614	31928.
OCT 18	96.0	846	511	49056.
OCT 19	100.0	824	497	49700.
OCT 20	100.0	815	491	49100.
OCT 21	100.0	835	504	50400.
OCT 22	100.0	844	510	51000.
OCT 23	100.0	822	496	49600.
OCT 24	100.0	806	485	48500.
OCT 25	100.0	803	484	48400.
OCT 26	100.0	808	487	48700.
OCT 27	120.0	758	455	54600.
OCT 28	150.0	710	424	63600.
OCT 29	150.0	696	415	62250.
OCT 30	160.0	746	447	71520.
OCT 31	95.0	1043	637	60515.
TOTAL	2678.			1388573.
MONTHLY WEIGHTED T.D.S.			519	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM — WATER YEAR 1975-1976 — TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
NOV 1	66.0	797	480	31680.
NOV 2	66.0	824	497	32802.
NOV 3	66.0	981	597	39402.
NOV 4	66.0	1130	692	45672.
NOV 5	66.0	1146	702	46332.
NOV 6	66.0	1132	694	45804.
NOV 7	66.0	1136	696	45936.
NOV 8	66.0	1134	695	45870.
NOV 9	66.0	1134	695	45870.
NOV 10	71.0	1092	668	47428.
NOV 11	149.0	751	450	67050.
NOV 12	149.0	698	416	61984.
NOV 13	152.0	697	416	63232.
NOV 14	155.0	700	418	64790.
NOV 15	155.0	696	415	64325.
NOV 16	154.0	695	415	63910.
NOV 17	153.0	704	420	64260.
NOV 18	176.0	689	411	72336.
NOV 19	258.0	613	362	93396.
NOV 20	260.0	604	356	92560.
NOV 21	256.0	603	356	91136.
NOV 22	254.0	596	351	89154.
NOV 23	258.0	584	344	88752.
NOV 24	251.0	567	333	83583.
NOV 25	264.0	595	351	92664.
NOV 26	269.0	569	334	89846.
NOV 27	317.0	571	335	106195.
NOV 28	329.0	612	362	119098.
NOV 29	339.0	622	368	124752.
NOV 30	321.0	582	342	109782.
TOTAL	5284.			2129601.
MONTHLY WEIGHTED T.D.S.			403	

TABLE B-2 (Continued)
TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM — WATER YEAR 1975-1976 — TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
DEC 1	318.0	563	330	104940.
DEC 2	323.0	562	330	106590.
DEC 3	345.0	562	330	113850.
DEC 4	280.0	615	363	101640.
DEC 5	327.0	567	333	108891.
DEC 6	362.0	555	325	117650.
DEC 7	366.0	548	321	117486.
DEC 8	339.0	555	325	110175.
DEC 9	180.0	711	425	76500.
DEC 10	175.0	723	432	75600.
DEC 11	168.0	745	446	74928.
DEC 12	178.0	725	434	77252.
DEC 13	203.0	771	463	93989.
DEC 14	181.0	780	469	84889.
DEC 15	174.0	776	466	81084.
DEC 16	194.0	694	414	80316.
DEC 17	331.0	593	349	115519.
DEC 18	333.0	580	341	113553.
DEC 19	330.0	578	340	112200.
DEC 20	330.0	577	339	111870.
DEC 21	354.0	595	351	124254.
DEC 22	335.0	596	351	117585.
DEC 23	287.0	630	373	107051.
DEC 24	286.0	629	372	106392.
DEC 25	286.0	624	369	105534.
DEC 26	281.0	615	363	102003.
DEC 27	276.0	620	367	101292.
DEC 28	271.0	617	365	98915.
DEC 29	270.0	603	356	96120.
DEC 30	268.0	619	366	98088.
DEC 31	269.0	630	373	100337.
TOTAL	8620.			3136493.
MONTHLY WEIGHTED T.D.S.			364	

TABLE B-2 (Continued)
TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
JAN 1	265.0	625	370	98050.
JAN 2	262.0	616	364	95368.
JAN 3	266.0	623	369	98154.
JAN 4	264.0	626	371	97944.
JAN 5	281.0	605	357	100317.
JAN 6	329.0	575	338	111202.
JAN 7	328.0	573	337	110536.
JAN 8	338.0	572	336	113568.
JAN 9	340.0	581	342	116280.
JAN 10	339.0	567	333	112887.
JAN 11	334.0	575	338	112892.
JAN 12	329.0	578	340	111860.
JAN 13	339.0	572	336	113904.
JAN 14	338.0	574	337	113906.
JAN 15	332.0	571	335	111220.
JAN 16	328.0	568	333	109224.
JAN 17	337.0	560	328	110536.
JAN 18	334.0	574	337	112558.
JAN 19	316.0	586	345	109020.
JAN 20	270.0	616	364	98280.
JAN 21	269.0	611	361	97109.
JAN 22	235.0	651	386	90710.
JAN 23	95.0	1050	641	60895.
JAN 24	287.0	602	355	101885.
JAN 25	286.0	593	349	99814.
JAN 26	273.0	591	348	95004.
JAN 27	261.0	589	347	97507.
JAN 28	283.0	590	348	98484.
JAN 29	274.0	601	355	97270.
JAN 30	274.0	603	356	97544.
JAN 31	271.0	612	362	98102.
TOTAL	9097.			3192030.
MONTHLY WEIGHTED T.D.S.			351	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
FEB 1	255.0	625	370	94350.
FEB 2	292.0	578	340	99280.
FEB 3	334.0	580	341	113894.
FEB 4	286.0	611	361	103246.
FEB 5	197.0	853	515	101455.
FEB 6	270.0	779	468	126360.
FEB 7	279.0	991	604	168516.
FEB 8	307.0	915	555	170385.
FEB 9	321.0	783	471	151191.
FEB 10	296.0	694	414	122544.
FEB 11	279.0	612	362	100998.
FEB 12	266.0	592	349	92834.
FEB 13	215.0	674	401	86215.
FEB 14	180.0	784	471	84780.
FEB 15	180.0	898	544	97920.
FEB 16	178.0	969	589	104842.
FEB 17	177.0	1043	637	112749.
FEB 18	206.0	1079	660	135960.
FEB 19	254.0	1106	677	171958.
FEB 20	264.0	1121	687	181368.
FEB 21	256.0	1168	717	183552.
FEB 22	237.0	1235	759	179883.
FEB 23	162.0	1316	811	131382.
FEB 24	107.0	1182	725	77575.
FEB 25	132.0	976	594	78408.
FEB 26	252.0	627	371	93492.
FEB 27	263.0	624	369	97047.
FEB 28	267.0	630	373	99591.
FEB 29	270.0	624	369	99630.
TOTAL	6982.			3461405.
MONTHLY WEIGHTED T.D.S.			496	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
MAR 1	216.0	639	379	81864.
MAR 2	217.0	675	402	87234.
MAR 3	265.0	775	466	123490.
MAR 4	286.0	737	441	126126.
MAR 5	270.0	971	591	159570.
MAR 6	203.0	1235	759	154077.
MAR 7	102.0	1201	738	75276.
MAR 8	97.0	1172	719	69743.
MAR 9	97.0	1170	718	69646.
MAR 10	139.0	941	572	79508.
MAR 11	247.0	623	369	91143.
MAR 12	250.0	648	385	96250.
MAR 13	256.0	626	371	94976.
MAR 14	260.0	610	360	93600.
MAR 15	263.0	644	382	100466.
MAR 16	280.0	617	365	102200.
MAR 17	290.0	622	368	106720.
MAR 18	290.0	614	363	105270.
MAR 19	294.0	614	363	106722.
MAR 20	284.0	670	399	113316.
MAR 21	277.0	688	410	113570.
MAR 22	263.0	693	413	108619.
MAR 23	246.0	700	418	102828.
MAR 24	237.0	699	417	98829.
MAR 25	234.0	693	413	96642.
MAR 26	230.0	685	408	93840.
MAR 27	230.0	678	404	92920.
MAR 28	230.0	675	402	92460.
MAR 29	227.0	663	394	89438.
MAR 30	234.0	660	392	91728.
MAR 31	234.0	666	396	92664.
TOTAL	7248.			3110735.
MONTHLY WEIGHTED T.D.S.			429	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
APR 1	158.0	815	491	77578.
APR 2	79.0	1160	711	56169.
APR 3	73.0	1178	723	52779.
APR 4	107.0	1020	622	66554.
APR 5	128.0	1002	611	78208.
APR 6	77.0	1149	704	54208.
APR 7	70.0	1184	727	50890.
APR 8	72.0	1169	717	51624.
APR 9	70.0	1150	705	49350.
APR 10	68.0	1144	701	47668.
APR 11	66.0	1134	695	45870.
APR 12	73.0	1109	679	49567.
APR 13	158.0	820	494	78052.
APR 14	130.0	997	607	78910.
APR 15	92.0	1087	665	61180.
APR 16	105.0	998	608	63840.
APR 17	81.0	1100	673	54513.
APR 18	79.0	1110	679	53641.
APR 19	75.0	1101	674	50550.
APR 20	77.0	1102	674	51898.
APR 21	77.0	1100	673	51821.
APR 22	76.0	1082	662	50312.
APR 23	79.0	1108	678	53562.
APR 24	72.0	1110	679	48888.
APR 25	73.0	1099	672	49056.
APR 26	73.0	1101	674	49202.
APR 27	72.0	1110	679	48888.
APR 28	72.0	1127	690	49680.
APR 29	68.0	1138	697	47396.
APR 30	67.0	1144	701	46967.
TOTAL	2567.			1668821.
MONTHLY WEIGHTED T.D.S.			650	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM — WATER YEAR 1975-1976 — TDS= 0.6384036O(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
MAY 1	63.0	1154	708	44604.
MAY 2	60.0	1152	706	42360.
MAY 3	62.0	1121	687	42594.
MAY 4	66.0	1124	688	45408.
MAY 5	77.0	1118	685	52745.
MAY 6	76.0	1127	690	52440.
MAY 7	108.0	1021	623	67284.
MAY 8	90.0	1007	614	55260.
MAY 9	74.0	1025	625	46250.
MAY 10	71.0	1007	614	43594.
MAY 11	69.0	1052	642	44298.
MAY 12	66.0	1087	665	43890.
MAY 13	59.0	1071	655	38645.
MAY 14	60.0	1097	671	40260.
MAY 15	60.0	1085	664	39840.
MAY 16	57.0	1075	657	37449.
MAY 17	56.0	1062	649	36344.
MAY 18	58.0	1106	677	39266.
MAY 19	56.0	1116	683	38248.
MAY 20	58.0	1098	672	38976.
MAY 21	56.0	1099	672	37632.
MAY 22	56.0	1092	668	37408.
MAY 23	61.0	1085	664	40504.
MAY 24	71.0	1089	666	47286.
MAY 25	75.0	1082	662	49650.
MAY 26	75.0	1097	671	50325.
MAY 27	216.0	709	423	91368.
MAY 28	252.0	604	356	89712.
MAY 29	247.0	627	371	91637.
MAY 30	253.0	605	357	90321.
MAY 31	252.0	577	339	85428.
TOTAL	2960.			1601026.
MONTHLY WEIGHTED T.D.S.			541	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
JUN 1	258.0	574	337	86946.
JUN 2	248.0	582	342	84816.
JUN 3	254.0	583	343	87122.
JUN 4	255.0	576	339	86445.
JUN 5	255.0	566	332	84660.
JUN 6	255.0	563	330	84150.
JUN 7	257.0	566	332	85324.
JUN 8	255.0	565	332	84660.
JUN 9	257.0	570	335	86095.
JUN 10	311.0	587	346	107606.
JUN 11	382.0	552	323	123386.
JUN 12	370.0	532	311	115070.
JUN 13	362.0	518	302	109324.
JUN 14	326.0	519	302	98452.
JUN 15	244.0	561	329	80276.
JUN 16	248.0	573	337	83576.
JUN 17	245.0	574	337	82565.
JUN 18	237.0	561	329	77973.
JUN 19	237.0	552	323	76551.
JUN 20	238.0	543	318	75684.
JUN 21	234.0	537	314	73476.
JUN 22	229.0	531	310	70990.
JUN 23	231.0	533	311	71841.
JUN 24	229.0	527	307	70303.
JUN 25	198.0	557	326	64548.
JUN 26	153.0	601	355	54315.
JUN 27	152.0	597	352	53504.
JUN 28	152.0	588	346	52592.
JUN 29	170.0	557	326	55420.
JUN 30	170.0	558	327	55590.
TOTAL	7412.			2423260.
MONTHLY WEIGHTED T.D.S.			327	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
JUL 1	180.0	571	335	60300.
JUL 2	203.0	545	319	64757.
JUL 3	200.0	547	320	64000.
JUL 4	203.0	557	326	66178.
JUL 5	178.0	575	338	60164.
JUL 6	110.0	687	409	44990.
JUL 7	107.0	684	408	43656.
JUL 8	167.0	602	355	59285.
JUL 9	109.0	682	406	44254.
JUL 10	107.0	672	400	42800.
JUL 11	107.0	674	401	42907.
JUL 12	107.0	684	408	43656.
JUL 13	105.0	682	406	42630.
JUL 14	107.0	681	406	43442.
JUL 15	105.0	721	431	45255.
JUL 16	53.0	1020	622	32966.
JUL 17	43.0	1108	678	29154.
JUL 18	45.0	1093	669	30105.
JUL 19	49.0	1071	655	32095.
JUL 20	47.0	1069	653	30691.
JUL 21	47.0	1099	672	31584.
JUL 22	50.0	1091	667	33350.
JUL 23	49.0	1090	667	32683.
JUL 24	45.0	1088	665	29925.
JUL 25	42.0	1070	654	27468.
JUL 26	46.0	1061	648	29808.
JUL 27	47.0	1071	655	30785.
JUL 28	47.0	1064	650	30550.
JUL 29	46.0	1056	645	29670.
JUL 30	45.0	1064	650	29250.
JUL 31	45.0	1060	648	29160.
TOTAL	2841.			1257518.
MONTHLY WEIGHTED T.D.S.			443	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.63840360(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
AUG 1	42.0	1095	670	28140.
AUG 2	41.0	1080	660	27060.
AUG 3	45.0	1068	653	29385.
AUG 4	46.0	1081	661	30406.
AUG 5	41.0	1067	652	26732.
AUG 6	33.0	1041	635	20955.
AUG 7	36.0	1066	651	23436.
AUG 8	35.0	1072	655	22925.
AUG 9	34.0	1071	655	22270.
AUG 10	38.0	1076	658	25004.
*** 11	42.0	1109	679	28518.
AUG 12	37.0	1081	661	24457.
AUG 13	38.0	1078	659	25042.
AUG 14	41.0	1080	660	27060.
AUG 15	41.0	1084	663	27183.
AUG 16	38.0	1093	669	25422.
AUG 17	36.0	1098	672	24192.
AUG 18	37.0	1107	678	25086.
AUG 19	43.0	1088	665	28595.
AUG 20	49.0	1087	665	32585.
AUG 21	53.0	1081	661	35033.
AUG 22	43.0	1079	660	28380.
AUG 23	40.0	1063	649	25960.
AUG 24	36.0	1059	647	23292.
AUG 25	36.0	1069	653	23508.
AUG 26	35.0	1083	662	23170.
AUG 27	41.0	1084	663	27183.
AUG 28	37.0	1078	659	24383.
AUG 29	36.0	1083	662	23832.
AUG 30	33.0	1073	656	21648.
AUG 31	34.0	1072	655	22270.
TOTAL	1217.			803112.
MONTHLY WEIGHTED T.D.S.			660	

TABLE B-2 (Continued)

TOUPS CORPORATION

WEIGHTED T.D.S. CALCULATION SHEET

BELOW PRADO DAM WATER YEAR 1975-1976 TDS= 0.6384036O(EC)+ -29.128590

MONTH-DAY	U.S.G.S. MEAN DAILY FLOW (CFS-DAY)	U.S.G.S. MEAN DAILY SPECIFIC CONDUCTANCE (E.C.) (MICROMHOS)	MEAN DAILY ADJUSTED T.D.S. (PPM)	MEAN DAILY FLOW TIMES ADJUSTED T.D.S.
SEP 1	33.0	1068	653	21549.
SEP 2	34.0	1097	671	22814.
SEP 3	36.0	1113	681	24516.
SEP 4	40.0	1102	674	26960.
SEP 5	44.0	1094	669	29436.
SEP 6	47.0	1073	656	30832.
SEP 7	46.0	1088	665	30590.
SEP 8	64.0	1130	692	44288.
SEP 9	49.0	1132	694	34006.
SEP 10	149.0	913	554	82546.
SEP 11	423.0	804	484	204732.
SEP 12	410.0	597	352	144320.
SEP 13	398.0	691	412	163976.
SEP 14	378.0	943	573	216594.
SEP 15	329.0	1156	709	233261.
SEP 16	114.0	1196	734	83676.
SEP 17	100.0	1168	717	71700.
SEP 18	86.0	1165	715	61490.
SEP 19	87.0	1164	714	62118.
SEP 20	86.0	1149	704	60544.
SEP 21	85.0	1135	695	59075.
SEP 22	86.0	1124	688	59168.
SEP 23	87.0	1099	672	58464.
SEP 24	86.0	1104	676	58136.
SEP 25	137.0	974	593	81241.
SEP 26	98.0	1092	668	65464.
SEP 27	90.0	1086	664	59760.
SEP 28	87.0	1082	662	57594.
SEP 29	86.0	1083	662	56932.
SEP 30	98.0	1070	654	64092.
TOTAL	3893.			2269874.
MONTHLY WEIGHTED T.D.S.			583	

TABLE NO. B-3

SUMMARY OF WEIGHTED TDS
BELOW PRADO DAM
WATER YEAR 1975-76

	Monthly Flow cfs-day	Monthly Flow Times TDS	Monthly Weighted TDS
October	2,678	1,388,573	519
November	5,284	2,129,601	403
December	8,620	3,136,493	364
January	9,097	3,192,030	351
February	6,982	3,461,405	496
March	7,248	3,110,735	429
April	2,567	1,668,821	650
May	2,960	1,601,026	541
June	7,412	2,423,260	327
July	2,841	1,257,518	443
August	1,217	803,112	660
September	3,893	2,269,874	583
Total	60,799	26,442,448	
Yearly Weighted TDS			435

APPENDIX C

WATER QUALITY – STATE WATER RELEASED AT OC-59

1975-76

PREPARED BY

JOHN M. TOUPS

TABLE NO. C-1

SUMMARY OF WEIGHTED TDS
OF NONTRIBUTARY WATER RELEASED
FROM OC-59 FOR
WATER YEAR 1975-76

	Monthly Flow cfs-day	Monthly Flow Times TDS	Monthly Weighted TDS
October	1,071	217,413	203
November	3,577	640,283	179
December	6,182	1,162,216	188
January	6,534	1,156,518	177
February	1,647	275,049	167
March	3,629	645,962	178
April	0	0	-
May	1,046	193,510	185
June	5,870	1,115,300	190
July	1,547	335,699	217
August	0	0	-
September	0	0	-
Total	31,103	5,741,950	
Yearly Weighted TDS			185

APPENDIX D

WATER QUALITY – SANTA ANA RIVER AT RIVERSIDE NARROWS

1975-76

PREPARED BY

DONALD L. HARRIGER

TABLE D-1

U.S.G.S. WATER QUALITY SAMPLES
SANTA ANA RIVER AT RIVERSIDE NARROWS
Water Year 1975-76

Date		E.C. @ 25°C	T.D.S. mg/l
1975 October	1	1100	708
	16	1120	702
November	4	1110	692
	17	1080	669
December	1	1110	689
	17	1090	686
	30	1110	705
1976 January	7	1110	707
	20	1110	702
February	2	1090	697
	10	845	459
	12	1020	622
	20	1130	699
March	2	886	561
	16	1100	694
	25	1110	705
	31	1080	694
April	1	1070	675
	14	1040	656
May	5	1100	703
	7	766	482
	11	1060	670
	20	1070	712
June	2	1060	652
	17	1060	Pending*
July	1	1080	Pending*
	13	1060	Pending*
August	2	1110	705
	16	1100	705
September	1	1100	710

* Samples believed lost in transit to laboratory

Source: U.S.G.S.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC)—99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
OCT 1	21.0	0.0	21.0	1100	697	14637.	0.	14637.
OCT 2	21.0	0.0	21.0	1100	697	14637.	0.	14637.
OCT 3	21.0	0.0	21.0	1100	697	14637.	0.	14637.
OCT 4	21.0	0.0	21.0	1100	697	14637.	0.	14637.
OCT 5	21.0	0.0	21.0	1100	697	14637.	0.	14637.
OCT 6	22.0	0.0	22.0	1100	697	15334.	0.	15334.
OCT 7	21.0	0.0	21.0	1110	704	14784.	0.	14784.
OCT 8	21.0	0.0	21.0	1110	704	14784.	0.	14784.
OCT 9	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 10	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 11	23.0	0.0	23.0	1110	704	16192.	0.	16192.
OCT 12	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 13	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 14	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 15	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 16	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 17	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 18	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 19	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 20	23.0	0.0	23.0	1110	704	16192.	0.	16192.
OCT 21	24.0	0.0	24.0	1110	704	16896.	0.	16896.
OCT 22	23.0	0.0	23.0	1110	704	16192.	0.	16192.
OCT 23	22.0	0.0	22.0	1110	704	15488.	0.	15488.
OCT 24	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 25	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 26	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 27	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 28	22.0	0.0	22.0	1120	711	15642.	0.	15642.
OCT 29	22.0	0.0	22.0	1110 (1)	704	15488.	0.	15488.
OCT 30	24.0	0.0	24.0	1100 (1)	697	16728.	0.	16728.
OCT 31	24.0	0.0	24.0	1110	704	16896.	0.	16896.
	648.	0.	648.			481557.	0.	481557.

(1) Mean Daily E.C. estimated by interpolation

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) — 99.004560

Month-Day	U.S.G.S. Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
NOV 1	24.0	0.0	24.0	1120	711	17064.	0.	17064.
NOV 2	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 3	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 4	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 5	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 6	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 7	23.0	0.0	23.0	1130.	718	16514.	0.	16514.
NOV 8	23.0	0.0	23.0	1130	718	16514.	0.	16514.
NOV 9	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 10	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 11	24.0	0.0	24.0	1120	711	17064.	0.	17064.
NOV 12	25.0	0.0	25.0	1090	689	17225.	0.	17225.
NOV 13	29.0	0.0	29.0	1120	711	20619.	0.	20619.
NOV 14	24.0	0.0	24.0	1120	711	17064.	0.	17064.
NOV 15	25.0	0.0	25.0	1090	689	17225.	0.	17225.
NOV 16	24.0	0.0	24.0	1110	704	16896.	0.	16896.
NOV 17	24.0	0.0	24.0	1110	704	16896.	0.	16896.
NOV 18	24.0	0.0	24.0	1110	704	16896.	0.	16896.
NOV 19	23.0	0.0	23.0	1100	697	16031.	0.	16031.
NOV 20	25.0	0.0	25.0	1080	682	17050.	0.	17050.
NOV 21	24.0	0.0	24.0	1070	675	16200.	0.	16200.
NOV 22	24.0	0.0	24.0	1090	689	16536.	0.	16536.
NOV 23	24.0	0.0	24.0	1110	704	16896.	0.	16896.
NOV 24	24.0	0.0	24.0	1110	704	16896.	0.	16896.
NOV 25	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 26	23.0	0.0	23.0	1120	711	16353.	0.	16353.
NOV 27	25.0	2.0	23.0	1100	697 * 697	17425.	1394.	16031.
NOV 28	35.0	11.0	24.0	974	605 * 697	21175.	4447.	16728.
NOV 29	26.0	2.0	25.0	1090	689 * 697	17914.	489.	17425.
NOV 30	25.0	0.0	25.0	1100	697	17425.	0.	17425.
	731.	15.	716.			510702.	6330.	504372.

* Adjusted T.D.S. for Base Flow, calculated by averaging the T.D.S. on the day before and the day after the Storm Flow.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) − 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
DEC 1	25.0	0.0	25.0	1110 (1)	704	17600.	0.	17600.
DEC 2	25.0	0.0	25.0	1110 (1)	704	17600.	0.	17600.
DEC 3	25.0	0.0	25.0	1110 (1)	704	17600.	0.	17600.
DEC 4	25.0	0.0	25.0	1110 (1)	704	17600.	0.	17600.
DEC 5	25.0	0.0	25.0	1110 (1)	704	17600.	0.	17600.
DEC 6	25.0	0.0	25.0	1110 (1)	704	17600.	0.	17600.
DEC 7	25.0	0.0	25.0	1100 (1)	697	17425.	0.	17425.
DEC 8	25.0	0.0	25.0	1100 (1)	697	17425.	0.	17425.
DEC 9	25.0	0.0	25.0	1100 (1)	697	17425.	0.	17425.
DEC 10	25.0	0.0	25.0	1100 (1)	697	17425.	0.	17425.
DEC 11	26.0	0.0	26.0	1100 (1)	697	18122.	0.	18122.
DEC 12	37.0	11.0	26.0	1090 (1)	689 * 697	25493.	7371.	18122.
DEC 13	32.0	6.0	26.0	1090 (1)	689 * 697	22048.	3926.	18122.
DEC 14	29.0	3.0	26.0	1090 (1)	689 * 697	19981.	1859.	18122.
DEC 15	32.0	6.0	26.0	1090 (1)	689 * 697	22048.	3926.	18122.
DEC 16	28.0	1.0	27.0	1090 (1)	689 * 697	19292.	473.	18819.
DEC 17	27.0	0.0	27.0	1090	689 * 697	18603.	0.	18603.
DEC 18	28.0	0.0	28.0	1090	689 * 697	19292.	0.	19292.
DEC 19	27.0	0.0	27.0	1080	682 * 697	18414.	0.	18414.
DEC 20	43.0	16.0	27.0	960	595 * 697	25585.	6766.	18819.
DEC 21	31.0	4.0	27.0	1060	668 * 697	20708.	1889.	18819.
DEC 22	29.0	2.0	27.0	1080	682 * 697	19778.	959.	18819.
DEC 23	30.0	3.0	27.0	1100	697 * 697	20910.	2091.	18819.
DEC 24	28.0	1.0	27.0	1100	697 * 697	19516.	697.	18819.
DEC 25	26.0	0.0	26.0	1100	697	18122.	0.	18122.
DEC 26	27.0	0.0	27.0	1110	704	19008.	0.	19008.
DEC 27	27.0	0.0	27.0	1120	711	19197.	0.	19197.
DEC 28	28.0	0.0	28.0	1110	704	19712.	0.	19712.
DEC 29	28.0	0.0	28.0	1110	704	19712.	0.	19712.
DEC 30	27.0	0.0	27.0	1110	704	19008.	0.	19008.
DEC 31	27.0	0.0	27.0	1110	704	19008.	0.	19008.
	867.	53.	814.			598857.	29957.	568900.

(1) Mean Daily E.C. estimated by interpolation

* Adjusted T.D.S. for Base Flow calculated by averaging the T.D.S. on the day before and the day after Storm Flow.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS

WATER YEAR 1975-76

T.D.S.=0.72327500(EC) – 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Adjusted T.D.S. Times Mean Daily Flow: Storm Flow	Adjusted T.D.S. Times Mean Daily Flow: Base Flow
JAN 1	27.0	0.0	27.0	1100	697	18819.	0.	18819.
JAN 2	28.0	0.0	28.0	1090	689	19292.	0.	19292.
JAN 3	29.0	0.0	29.0	1080	682	19778.	0.	19778.
JAN 4	28.0	0.0	28.0	1090	689	19292.	0.	19292.
JAN 5	27.0	0.0	27.0	1100	697	18819.	0.	18819.
JAN 6	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 7	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 8	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 9	27.0	0.0	27.0	1100	697	18819.	0.	18819.
JAN 10	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 11	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 12	28.0	0.0	28.0	1070	675	18900.	0.	18900.
JAN 13	28.0	0.0	28.0	1050	660	18480.	0.	18480.
JAN 14	29.0	0.0	29.0	1060	668	19372.	0.	19372.
JAN 15	29.0	0.0	29.0	1000	624	18096.	0.	18096.
JAN 16	28.0	0.0	28.0	1080	682	19096.	0.	19096.
JAN 17	28.0	0.0	28.0	1080	682	19096.	0.	19096.
JAN 18	27.0	0.0	27.0	1100	697	18819.	0.	18819.
JAN 19	26.0	0.0	26.0	1120	711	18486.	0.	18486.
JAN 20	27.0	0.0	27.0	1110	704	19008.	0.	19008.
JAN 21	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 22	29.0	0.0	29.0	1090	689	19981.	0.	19981.
JAN 23	27.0	0.0	27.0	1100	697	18819.	0.	18819.
JAN 24	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 25	27.0	0.0	27.0	1110	704	19008.	0.	19008.
JAN 26	27.0	0.0	27.0	1110	704	19008.	0.	19008.
JAN 27	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JAN 28	27.0	0.0	27.0	1100	697	18819.	0.	18819.
JAN 29	27.0	0.0	27.0	1110	704	19008.	0.	19008.
JAN 30	29.0	0.0	29.0	1100	697	20213.	0.	20213.
JAN 31	28.0	0.0	28.0	1100	697	19516.	0.	19516.
	861.	0.	861.			594672.	0.	594672.

TABLE D-2

Page 5 of 12

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) — 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
FEB 1	28.0	0.0	28.0	1090	689	19292.	0.	19292.
FEB 2	29.0	0.0	29.0	1100	697	20213.	0.	20213.
FEB 3	28.0	0.0	28.0	1090	689	19292.	0.	19292.
FEB 4	36.0	8.0	28.0	949	587 * 697	21132.	1616.	19516.
FEB 5	46.0	18.0	28.0	823	496 * 697	22816.	3300.	19516.
FEB 6	66.0	38.0	28.0	831	502 * 697	33132.	13616.	19516.
FEB 7	102.0	74.0	28.0	513	272 * 697	27744.	8228.	19516.
FEB 8	98.0	70.0	28.0	531	285 * 697	27930.	8414.	19516.
FEB 9	567.0	539.0	28.0	284	106 * 697	60102.	40586.	19516.
FEB 10	131.0	103.0	28.0	845	512(1) * 697	67072.	47556.	19516.
FEB 11	70.0	41.0	29.0	960	595(1) * 697	41650.	21437.	20213.
FEB 12	50.0	21.0	29.0	1020	639(1) * 697	31950.	11737.	20213.
FEB 13	45.0	16.0	29.0	1060	668(1) * 697	30060.	9847.	20213.
FEB 14	42.0	13.0	29.0	1100	697(1) * 697	29274.	9061.	20213.
FEB 15	40.0	11.0	29.0	1120	711 * 697	28440.	8227.	20213.
FEB 16	37.0	8.0	29.0	1130	718 * 697	26566.	6353.	20213.
FEB 17	36.0	7.0	29.0	1130	718 * 697	25848.	5635.	20213.
FEB 18	34.0	5.0	29.0	1120	711 * 697	24174.	3961.	20213.
FEB 19	33.0	4.0	29.0	1120	711 * 697	23463.	3250.	20213.
FEB 20	32.0	3.0	29.0	1120	711 * 697	22752.	2539.	20213.
FEB 21	32.0	2.0	30.0	1120	711 * 697	22752.	1842.	20910.
FEB 22	32.0	2.0	30.0	1120	711 * 697	22752.	1842.	20910.
FEB 23	31.0	1.0	30.0	1110	704 * 697	21824.	914.	20910.
FEB 24	31.0	1.0	30.0	1110	704 * 697	21824.	914.	20910.
FEB 25	31.0	1.0	30.0	1110	704 * 697	21824.	914.	20910.
FEB 26	31.0	0.0	31.0	1110	704	21824.	0.	21824.
FEB 27	31.0	0.0	31.0	1110	704	21824.	0.	21824.
FEB 28	30.0	0.0	30.0	1110	704	21120.	0.	21120.
FEB 29	30.0	0.0	30.0	1110	704	21120.	0.	21120.
	1829.	986.	843.			799766.	211789.	587977.

(1) Mean Daily E.C. estimated by interpolation

* Adjusted T.D.S. for Base Flow calculated by averaging the T.D.S. on the day before and the day after Storm Flow.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) — 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
MAR 1	109.0	79.0	30.0	693	402 * 689	43818.	23148.	20670.
MAR 2	81.0	51.0	30.0	811	498 * 689	39528.	18858.	20670.
MAR 3	154.0	124.0	30.0	477	246 * 689	37884.	17214.	20670.
MAR 4	44.0	14.0	30.0	821	495 * 689	21780.	1110.	20670.
MAR 5	37.0	7.0	30.0	961	596 * 689	22052.	1382.	20670.
MAR 6	34.0	4.0	30.0	1030	646 * 689	21964.	1294.	20670.
MAR 7	31.0	1.0	30.0	1070	675(1) * 689	20925.	255.	20670.
MAR 8	31.0	1.0	30.0	1070	675(1) * 689	20925.	255.	20670.
MAR 9	30.0	0.0	30.0	1070	675(1)	20250.	0.	20250.
MAR 10	30.0	0.0	30.0	1070	675(1)	20250.	0.	20250.
MAR 11	31.0	1.0	30.0	1070	675(1) * 675	20925.	675.	20250.
MAR 12	32.0	2.0	30.0	1070	675(1) * 675	21600.	1350.	20250.
MAR 13	30.0	0.0	30.0	1070	675(1)	20250.	0.	20250.
MAR 14	28.0	0.0	28.0	1090	689(1)	19292.	0.	19292.
MAR 15	29.0	0.0	29.0	1100	697(1)	20213.	0.	20213.
MAR 16	29.0	0.0	29.0	1100	697(1)	20213.	0.	20213.
MAR 17	28.0	0.0	28.0	1090	689(1)	19292.	0.	19292.
MAR 18	27.0	0.0	27.0	1090	689(1)	18603.	0.	18603.
MAR 19	27.0	0.0	27.0	1090	689	18603.	0.	18603.
MAR 20	27.0	0.0	27.0	1080	682	18414.	0.	18414.
MAR 21	27.0	0.0	27.0	1080	682	18414.	0.	18414.
MAR 22	27.0	0.0	27.0	1090	689	18603.	0.	18603.
MAR 23	28.0	0.0	28.0	1090	689	19292.	0.	19292.
MAR 24	29.0	0.0	29.0	1080	682	19778.	0.	19778.
MAR 25	29.0	0.0	29.0	1070	675	19575.	0.	19575.
MAR 26	32.0	0.0	32.0	1100	697	22304.	0.	22304.
MAR 27	32.0	0.0	32.0	1100	697	22304.	0.	22304.
MAR 28	32.0	0.0	32.0	1120	711	22752.	0.	22752.
MAR 29	31.0	0.0	31.0	1120	711	22041.	0.	22041.
MAR 30	31.0	0.0	31.0	1100	697	21607.	0.	21607.
MAR 31	31.0	0.0	31.0	1080	682(1)	21142.	0.	21142.
	1198.	284.	914.			694593.	65541.	629052.

(1) Mean Daily E.C. estimated by interpolation

* Adjusted T.D.S. for Base Flow calculated by averaging the T.D.S. on the day before and the day after Storm Flow.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) — 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
APR 1	29.0	0.0	29.0	1090	689	19981.	0.	19981.
APR 2	28.0	0.0	28.0	1080	682	19096.	0.	19096.
APR 3	28.0	0.0	28.0	1060	668	18704.	0.	18704.
APR 4	54.0	26.0	28.0	830	501 * 671	27054.	8266.	18788.
APR 5	36.0	8.0	28.0	997	622 * 671	22392.	3604.	18788.
APR 6	31.0	3.0	28.0	1060	668 * 671	20708.	1920.	18788.
APR 7	30.0	2.0	28.0	1060	668 * 671	20040.	1252.	18788.
APR 8	30.0	2.0	28.0	1060	668 * 671	20040.	1252.	18788.
APR 9	30.0	2.0	28.0	1060	668 * 671	20040.	1252.	18788.
APR 10	28.0	0.0	28.0	1070	675	18900.	0.	18900.
APR 11	28.0	0.0	28.0	1070	675	18900.	0.	18900.
APR 12	29.0	1.0	28.0	1050	660 * 679	19140.	128.	19012.
APR 13	74.0	46.0	28.0	717	420 * 679	31080.	12068.	19012.
APR 14	38.0	10.0	28.0	1020	639 * 679	24282.	5270.	19012.
APR 15	38.0	10.0	28.0	1000	624 * 679	23712.	4700.	19012.
APR 16	35.0	7.0	28.0	1040	653 * 679	22855.	3843.	19012.
APR 17	32.0	4.0	28.0	1060	668 * 679	21376.	2364.	19012.
APR 18	31.0	3.0	28.0	1060	668 * 679	20708.	1696.	19012.
APR 19	30.0	2.0	28.0	1080	682 * 679	20460.	1448.	19012.
APR 20	29.0	1.0	28.0	1100	697 * 679	20213.	1201.	19012.
APR 21	27.0	0.0	27.0	1080	682	18414.	0.	18414.
APR 22	28.0	0.0	28.0	1070	675	18900.	0.	18900.
APR 23	28.0	0.0	28.0	1090	689	19292.	0.	19292.
APR 24	27.0	0.0	27.0	1100	697	18819.	0.	18819.
APR 25	28.0	0.0	28.0	1100	697	19516.	0.	19516.
APR 26	26.0	0.0	26.0	1100	697	18122.	0.	18122.
APR 27	26.0	0.0	26.0	1100	697	18122.	0.	18122.
APR 28	27.0	0.0	27.0	1110	704	19008.	0.	19008.
APR 29	29.0	0.0	29.0	1100	697	20213.	0.	20213.
APR 30	27.0	0.0	27.0	1100	697	18819.	0.	18819.
	961.	127.	834.			618906.	50264.	568642.

* Adjusted T.D.S. for Base Flow calculated by averaging the T.D.S. on the day before and the day after Storm Flow.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) − 99.004560

Month-Day	U.S.G.S. Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
MAY 1	25.0	0.0	25.0	1110	704	17600.	0.	17600.
MAY 2	24.0	0.0	24.0	1110	704	16896.	0.	16896.
MAY 3	26.0	0.0	26.0	1110	704	18304.	0.	18304.
MAY 4	25.0	0.0	25.0	1110	704	17600.	0.	17600.
MAY 5	26.0	0.0	26.0	1110	704	18304.	0.	18304.
MAY 6	27.0	0.0	27.0	1090	689	18603.	0.	18603.
MAY 7	42.0	15.0	27.0	885	541* 697	22722.	3903.	18819.
MAY 8	30.0	3.0	27.0	1080	682* 697	20460.	1641.	18819.
MAY 9	30.0	3.0	27.0	1090	689* 697	20670.	1851.	18819.
MAY 10	29.0	2.0	27.0	1090	689* 697	19981.	1162.	18819.
MAY 11	29.0	2.0	27.0	1070	675* 697	19575.	756.	18819.
MAY 12	29.0	2.0	27.0	1080	682* 697	19778.	959.	18819.
MAY 13	28.0	1.0	27.0	1080	682* 697	19096.	277.	18819.
MAY 14	29.0	2.0	27.0	1090	689* 697	19981.	1162.	18819.
MAY 15	28.0	1.0	27.0	1120	711* 697	19908.	1089.	18819.
MAY 16	25.0	0.0	25.0	1110	704	17600.	0.	17600.
MAY 17	26.0	0.0	26.0	1120	711	18486.	0.	18486.
MAY 18	28.0	0.0	28.0	1110	704	19712.	0.	19712.
MAY 19	26.0	0.0	26.0	1100	697	18122.	0.	18122.
MAY 20	26.0	0.0	26.0	1090	689	17914.	0.	17914.
MAY 21	26.0	0.0	26.0	1080	682	17732.	0.	17732.
MAY 22	27.0	0.0	27.0	1080	682	18414.	0.	18414.
MAY 23	25.0	0.0	25.0	1090	689	17225.	0.	17225.
MAY 24	25.0	0.0	25.0	1090	689	17225.	0.	17225.
MAY 25	26.0	0.0	26.0	1090	689	17914.	0.	17914.
MAY 26	26.0	0.0	26.0	1070	675	17550.	0.	17550.
MAY 27	30.0	0.0	30.0	1070	675	20250.	0.	20250.
MAY 28	28.0	0.0	28.0	1080	682	19096.	0.	19096.
MAY 29	26.0	0.0	26.0	1080	682	17732.	0.	17732.
MAY 30	27.0	0.0	27.0	1080	682	18414.	0.	18414.
MAY 31	26.0	0.0	26.0	1090	689	17914.	0.	17914.
	850.	31.	819.			580778.	12800.	567978.

* Adjusted T.D.S. for Base Flow calculated by averaging the T.D.S. on the day before and the day after Storm Flow.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) — 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
JUN 1	26.0	0.0	26.0	1080	682	17732.	0.	17732.
JUN 2	29.0	0.0	29.0	1070	675	19575.	0.	19575.
JUN 3	26.0	0.0	26.0	1090	689	17914.	0.	17914.
JUN 4	27.0	0.0	27.0	1070	675	18225.	0.	18225.
JUN 5	26.0	0.0	26.0	1100	697	18122.	0.	18122.
JUN 6	28.0	0.0	28.0	1100	697	19516.	0.	19516.
JUN 7	26.0	0.0	26.0	1100.	697	18122.	0.	18122.
JUN 8	26.0	0.0	26.0	1090	689	17914.	0.	17914.
JUN 9	28.0	0.0	28.0	1070	675	18900.	0.	18900.
JUN 10	29.0	0.0	29.0	1040	653	18937.	0.	18937.
JUN 11	28.0	0.0	28.0	1050	660	18480.	0.	18480.
JUN 12	26.0	0.0	26.0	1080	682	17732.	0.	17732.
JUN 13	26.0	0.0	26.0	1110	704	18304.	0.	18304.
JUN 14	29.0	0.0	29.0	1110	704	20416.	0.	20416.
JUN 15	26.0	0.0	26.0	1100	697	18122.	0.	18122.
JUN 16	28.0	0.0	28.0	1090	689	19292.	0.	19292.
JUN 17	26.0	0.0	26.0	1080	682	17732.	0.	17732.
JUN 18	24.0	0.0	24.0	1090	689	16536.	0.	16536.
JUN 19	25.0	0.0	25.0	1090	689	17225.	0.	17225.
JUN 20	25.0	0.0	25.0	1090	689	17225.	0.	17225.
JUN 21	24.0	0.0	24.0	1070	675	16200.	0.	16200.
JUN 22	24.0	0.0	24.0	1050	660	15840.	0.	15840.
JUN 23	24.0	0.0	24.0	1070	675	16200.	0.	16200.
JUN 24	24.0	0.0	24.0	1060	668	16032.	0.	16032.
JUN 25	24.0	0.0	24.0	1050	660	15840.	0.	15840.
JUN 26	23.0	0.0	23.0	1040	653	15019.	0.	15019.
JUN 27	23.0	0.0	23.0	1040	653	15019.	0.	15019.
JUN 28	23.0	0.0	23.0	1060	668	15364.	0.	15364.
JUN 29	23.0	0.0	23.0	1090	689	15847.	0.	15847.
JUN 30	23.0	0.0	23.0	1090	689	15847.	0.	15847.
	769.	0.	769.			523229.	0.	523229.

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS

WATER YEAR 1975-76

T.D.S.=0.72327500(EC) −99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
JUL 1	23.0	0.0	23.0	1080	682	15686.	0.	15686.
JUL 2	22.0	0.0	22.0	1060	668	14696.	0.	14696.
JUL 3	22.0	0.0	22.0	1050	660	14520.	0.	14520.
JUL 4	22.0	0.0	22.0	1050	660	14520.	0.	14520.
JUL 5	22.0	0.0	22.0	1060	668	14696.	0.	14696.
JUL 6	22.0	0.0	22.0	1070	675	14850.	0.	14850.
JUL 7	22.0	0.0	22.0	1080	682	15004.	0.	15004.
JUL 8	22.0	0.0	22.0	1070	675	14850.	0.	14850.
JUL 9	23.0	0.0	23.0	1070	675	15525.	0.	15525.
JUL 10	23.0	0.0	23.0	1080	682	15686.	0.	15686.
JUL 11	23.0	0.0	23.0	1080	682	15686.	0.	15686.
JUL 12	23.0	0.0	23.0	1080	682	15686.	0.	15686.
JUL 13	23.0	0.0	23.0	1040	653	15019.	0.	15019.
JUL 14	22.0	0.0	22.0	1030	646	14212.	0.	14212.
JUL 15	22.0	0.0	22.0	1030	646	14212.	0.	14212.
JUL 16	22.0	0.0	22.0	1070	675	14850.	0.	14850.
JUL 17	20.0	0.0	20.0	1150	733	14660.	0.	14660.
JUL 18	20.0	0.0	20.0	1160	740	14800.	0.	14800.
JUL 19	20.0	0.0	20.0	1160	740	14800.	0.	14800.
JUL 20	21.0	0.0	21.0	1180	754	15834.	0.	15834.
JUL 21	21.0	0.0	21.0	1180	754	15834.	0.	15834.
JUL 22	21.0	0.0	21.0	1170(1)	747	15687.	0.	15687.
JUL 23	21.0	0.0	21.0	1170(1)	747	15687.	0.	15687.
JUL 24	19.0	0.0	19.0	1160(1)	740	14060.	0.	14060.
JUL 25	20.0	0.0	20.0	1160(1)	740	14800.	0.	14800.
JUL 26	21.0	0.0	21.0	1150(1)	733	15393.	0.	15393.
JUL 27	21.0	0.0	21.0	1150(1)	733	15393.	0.	15393.
JUL 28	20.0	0.0	20.0	1140(1)	726	14520.	0.	14520.
JUL 29	20.0	0.0	20.0	1140(1)	726	14520.	0.	14520.
JUL 30	20.0	0.0	20.0	1130(1)	718	14360.	0.	14360.
JUL 31	19.0	0.0	19.0	1130(1)	718	13642.	0.	13642.
	662.	0.	662.			463688.	0.	463688.

(1) Mean Daily E.C. estimated by interpolation

TABLE D-2

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS — WATER YEAR 1975-76 — T.D.S.=0.72327500(EC) - 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
AUG 1	19.0	0.0	19.0	1120(1)	711	13509.	0.	13509.
AUG 2	20.0	0.0	20.0	1120	711	14220.	0.	14220.
AUG 3	20.0	0.0	20.0	1090	689	13780.	0.	13780.
AUG 4	19.0	0.0	19.0	1090	689	13091.	0.	13091.
AUG 5	21.0	0.0	21.0	1080	682	14322.	0.	14322.
AUG 6	19.0	0.0	19.0	1120	711	13509.	0.	13509.
AUG 7	21.0	0.0	21.0	1120	711	14931.	0.	14931.
AUG 8	20.0	0.0	20.0	1120	711	14220.	0.	14220.
AUG 9	22.0	0.0	22.0	1120	711	15642.	0.	15642.
AUG 10	22.0	0.0	22.0	1120	711	15642.	0.	15642.
AUG 11	21.0	0.0	21.0	1110	704	14784.	0.	14784.
AUG 12	20.0	0.0	20.0	1100	697	13940.	0.	13940.
AUG 13	19.0	0.0	19.0	1110	704	13376.	0.	13376.
AUG 14	20.0	0.0	20.0	1100	697	13940.	0.	13940.
AUG 15	19.0	0.0	19.0	1110	704	13376.	0.	13376.
AUG 16	20.0	0.0	20.0	1110	704	14080.	0.	14080.
AUG 17	21.0	0.0	21.0	1110	704	14784.	0.	14784.
AUG 18	22.0	0.0	22.0	1100	697	15334.	0.	15334.
AUG 19	21.0	0.0	21.0	1090	689	14469.	0.	14469.
AUG 20	21.0	0.0	21.0	1100	697	14637.	0.	14637.
AUG 21	20.0	0.0	20.0	1110	704	14080.	0.	14080.
AUG 22	19.0	0.0	19.0	1110	704	13376.	0.	13376.
AUG 23	20.0	0.0	20.0	1110	704	14080.	0.	14080.
AUG 24	20.0	0.0	20.0	1090	689	13780.	0.	13780.
AUG 25	21.0	0.0	21.0	1090	689	14469.	0.	14469.
AUG 26	21.0	0.0	21.0	1080	682	14322.	0.	14322.
AUG 27	22.0	0.0	22.0	1090	689	15158.	0.	15158.
AUG 28	21.0	0.0	21.0	1100	697	14637.	0.	14637.
AUG 29	21.0	0.0	21.0	1100	697	14637.	0.	14637.
AUG 30	19.0	0.0	19.0	1110	704	13376.	0.	13376.
AUG 31	21.0	0.0	21.0	1110	704	14784.	0.	14784.
	632.	0.	632.			442285.	0.	442285.

(1) Mean Daily E.C. estimated by interpolation

WEIGHTED T.D.S. CALCULATION SHEET

RIVERSIDE NARROWS WATER YEAR 1975-76 T.D.S.=0.72327500(EC) - 99.004560

Month-Day	U.S.G.S.Mean Daily Flow (cfs-day)	Storm Flow (cfs-day)	Base Flow (cfs-day)	U.S.G.S. Mean Daily Specific Conductance (E.C.) (Micromhos)	Mean Daily Adjusted T.D.S. (PPM)	Adjusted T.D.S. Times Mean Daily Flow: U.S.G.S. Total Flow	Storm Flow	Base Flow
SEP 1	21.0	0.0	21.0	1110	704	14784.	0.	14784.
SEP 2	21.0	0.0	21.0	1110	704	14784.	0.	14784.
SEP 3	22.0	0.0	22.0	1100	697	15334.	0.	15334.
SEP 4	21.0	0.0	21.0	1100	697	14637.	0.	14637.
SEP 5	21.0	0.0	21.0	1100	697	14637.	0.	14637.
SEP 6	22.0	0.0	22.0	1110	704	15488.	0.	15488.
SEP 7	22.0	0.0	22.0	1110	704	15488.	0.	15488.
SEP 8	22.0	0.0	22.0	1090	689	15158.	0.	15158.
SEP 9	23.0	0.0	23.0	1080	682	15686.	0.	15686.
SEP 10	120.0	98.0	22.0	610	342 * 693	41040.	25794.	15246.
SEP 11	2890.0	2868.0	22.0	299	117 * 693	338130.	322884.	15246.
SEP 12	107.0	85.0	22.0	804	483 * 693	51681.	36435.	15246.
SEP 13	40.0	18.0	22.0	980(1)	610 * 693	24400.	9154.	15246.
SEP 14	35.0	13.0	22.0	1060(1)	668 * 693	23380.	8134.	15246.
SEP 15	30.0	8.0	22.0	1110(1)	704 * 693	21120.	5874.	15246.
SEP 16	26.0	4.0	22.0	1100(1)	697 * 693	18122.	2876.	15246.
SEP 17	23.0	1.0	22.0	1110(1)	704 * 693	16192.	946.	15246.
SEP 18	22.0	0.0	22.0	1110(1)	704	15488.	0.	15488.
SEP 19	23.0	0.0	23.0	1100(1)	697	16031.	0.	16031.
SEP 20	24.0	0.0	24.0	1100(1)	697	16728.	0.	16728.
SEP 21	24.0	0.0	24.0	1100(1)	697	16728.	0.	16728.
SEP 22	25.0	0.0	25.0	1100(1)	697	17425.	0.	17425.
SEP 23	25.0	0.0	25.0	1100(1)	697	17425.	0.	17425.
SEP 24	69.0	45.0	24.0	980(1)	610 * 697	42090.	25362.	16728.
SEP 25	58.0	34.0	24.0	900(1)	552 * 697	32016.	15288.	16728.
SEP 26	36.0	12.0	24.0	1030(1)	646 * 697	23256.	6528.	16728.
SEP 27	31.0	7.0	24.0	1070(1)	675 * 697	20925.	4197.	16728.
SEP 28	29.0	5.0	24.0	1100(1)	697 * 697	20213.	3485.	16728.
SEP 29	27.0	3.0	24.0	1100(1)	697 * 697	18819.	2091.	16728.
SEP 30	25.0	1.0	24.0	1100(1)	697 * 697	17425.	697.	16728.
	3884.	3201.	683.			944630.	469745.	474885.

(1) Mean Daily E.C. estimated by interpolation

* Adjusted T.D.S. for Base Flow calculated by averaging the T.D.S. on the day before and the day after Storm Flow.

TABLE D-3

SUMMARY
OF
WATER QUALITY FOR THE SANTA ANA RIVER
AT
RIVERSIDE NARROWS

Water Year 1975-76

Month	Mean Daily Flow			Monthly Weighted Average Adjusted T.D.S. (ppm)	Mean Daily Flow Times Adjusted T.D.S.		
	U.S.G.S. Total Flow (cfs-days)	Storm Flow (cfs-day)	Base * Flow (cfs-days)		U.S.G.S. Total Flow	Storm Flow	Base * Flow
October	684	0	684	704	481,557	0	481,557
November	731	15	716	704	510,702	6,330	504,372
December	867	53	814	699	598,857	29,957	568,900
January	861	0	861	691	594,672	0	594,672
February	1,829	986	843	697	799,766	211,789	587,977
March	1,198	284	914	688	694,593	65,541	629,052
April	961	127	834	682	618,906	50,264	568,642
May	850	31	819	694	580,778	12,800	567,978
June	769	0	769	680	523,229	0	523,229
July	662	0	662	700	463,688	0	463,688
August	632	0	632	700	442,285	0	442,285
September	3,884	3,201	683	695	944,630	469,745	474,885
TOTAL cfs	13,928	4,697	9,231	-	7,253,663	846,426	6,407,237
TOTAL a.f.	27,627	9,317	18,310	-	-	-	-

Weighted Average Annual (Base Flow*) T.D.S. = $\frac{6,407,237}{9,231}$ = 694 ppm

Weighted Average Annual (Storm Flow) T.D.S. = $\frac{846,426}{4,697}$ = 180 ppm

Weighted Average Annual (Total Flow) T.D.S. = $\frac{7,253,663}{13,928}$ = 521 ppm

* Including Nontributary water released from WR-23 and OC-2T in 1973

APPENDIX E

SANTA ANA RIVER WATERMASTER

FINANCIAL STATEMENTS WITH REPORT

ON

EXAMINATION BY CERTIFIED PUBLIC ACCOUNTANTS

ELLIS C. DIEHL, C. P. A. 1925 - 1956
BRYN B. EVANS, C. P. A.
W. G. PETERS, C. P. A.
DONALD H. PETERSON, C. P. A.
DONALD E. CALLAHAN, C. P. A.
J. PETER SCHERER, C. P. A.
JOHN A. RAABERG, C. P. A.
JAMES M. GAISER, C. P. A.
PHILIP H. HOLTKAMP, C. P. A.

DIEHL, EVANS AND COMPANY
CERTIFIED PUBLIC ACCOUNTANTS
1910 NORTH BUSH STREET
SANTA ANA, CALIFORNIA 92706
(714) 542-4453

OTHER OFFICES AT:
705 EAST MAIN STREET
SANTA MARIA, CALIFORNIA
(805) 925-2579

2965 ROOSEVELT STREET
CARLSBAD, CALIFORNIA 92008
(714) 744-4411

February 1, 1977

ACCOUNTANTS' REPORT

Santa Ana River Watermaster
Santa Ana, California

We have examined the statement of assets and liabilities resulting from cash transactions of the Santa Ana River Watermaster as of June 30, 1976 and the related statement of revenues collected, expenses disbursed and changes in fund balance for the year then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying statements present fairly the assets and liabilities, resulting from cash transactions, of the Santa Ana River Watermaster at June 30, 1976 and its revenues collected and expenses disbursed for the year then ended on a basis consistent with that of the preceding year.

Diehl, Evans and Company

SANTA ANA RIVER WATERMASTER

STATEMENT OF ASSETS AND LIABILITIES
RESULTING FROM CASH TRANSACTIONS

ASSETS

Cash in checking account	$ 500
Cash in savings account	3,770
TOTAL ASSETS	$ 4,270

LIABILITIES AND FUND BALANCE

Liabilities	$ -
Fund balance	4,270
TOTAL LIABILITIES AND FUND BALANCE	$ 4,270

See accompanying accountants' report and notes to financial statements.

SANTA ANA RIVER WATERMASTER

STATEMENT OF REVENUES COLLECTED, EXPENSES DISBURSED AND CHANGES IN FUND BALANCE

For the year ended June 30, 1976

		Actual	Budget	Over (Under) Budget
REVENUES COLLECTED:				
Water district contributions:				
Orange County Water District		$ 4,000	$ 4,000	$ -
Chino Basin Municipal Water District		2,000	2,000	-
San Bernardino Valley Municipal Water District		2,000	2,000	-
Western Municipal Water District		2,000	2,000	-
Interest from savings account		81	-	81
TOTAL REVENUES COLLECTED		10,081	10,000	81
EXPENSES DISBURSED:				
Professional engineering services		4,063	7,000	(2,937)
Administrative expenses:				
Office and secretarial expense	$ 2,217			
Insurance	803			
Auditing services	850	3,870	3,000	870
Annual reports		2,947	1,500	1,447
Installation of cableway at Riverside Narrows		-	2,500	(2,500)
TOTAL EXPENSES DISBURSED		10,880	14,000	(3,120)
EXCESS OF EXPENSES DISBURSED OVER REVENUES COLLECTED		(799)	$ (4,000)	$(3,201)
FUND BALANCE AT JULY 1, 1975		5,069		
FUND BALANCE AT JUNE 30, 1976		$ 4,270		

See accompanying accountants' report and notes to financial statements.

SANTA ANA RIVER WATERMASTER

NOTES TO FINANCIAL STATEMENTS

June 30, 1976

1. SIGNIFICANT ACCOUNTING POLICIES:

The Watermaster uses the cash receipts and disbursed method of accounting for all of its financial activity.

2. ORGANIZATION AND HISTORY:

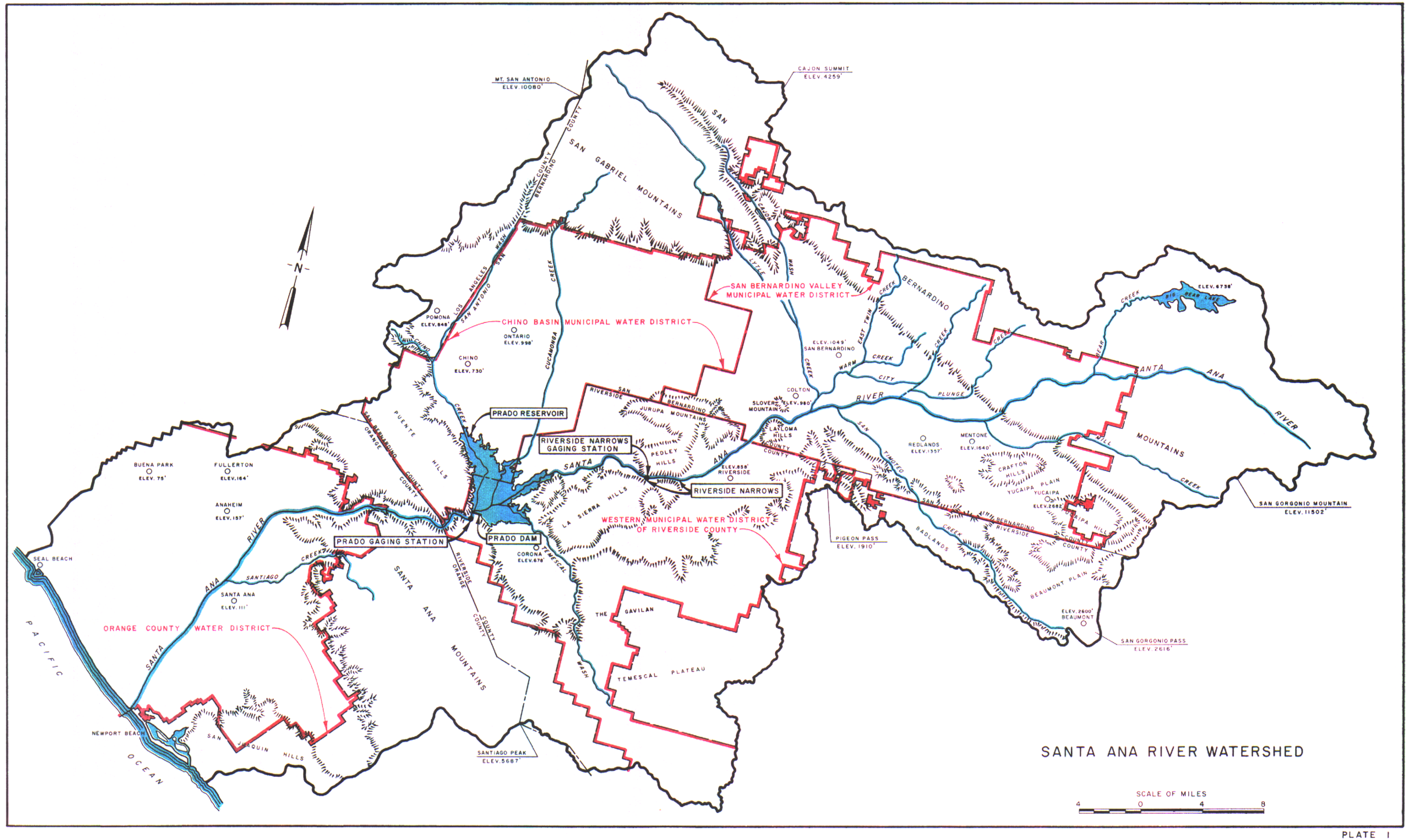
The Santa Ana River Watermaster is composed of a committee of five representatives of four water district. Two representatives serve from Orange County Water District and one representative each serves from Chino Basin Municipal Water District, Western Municipal Water District and San Bernardino Valley 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 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	20
Total	100%

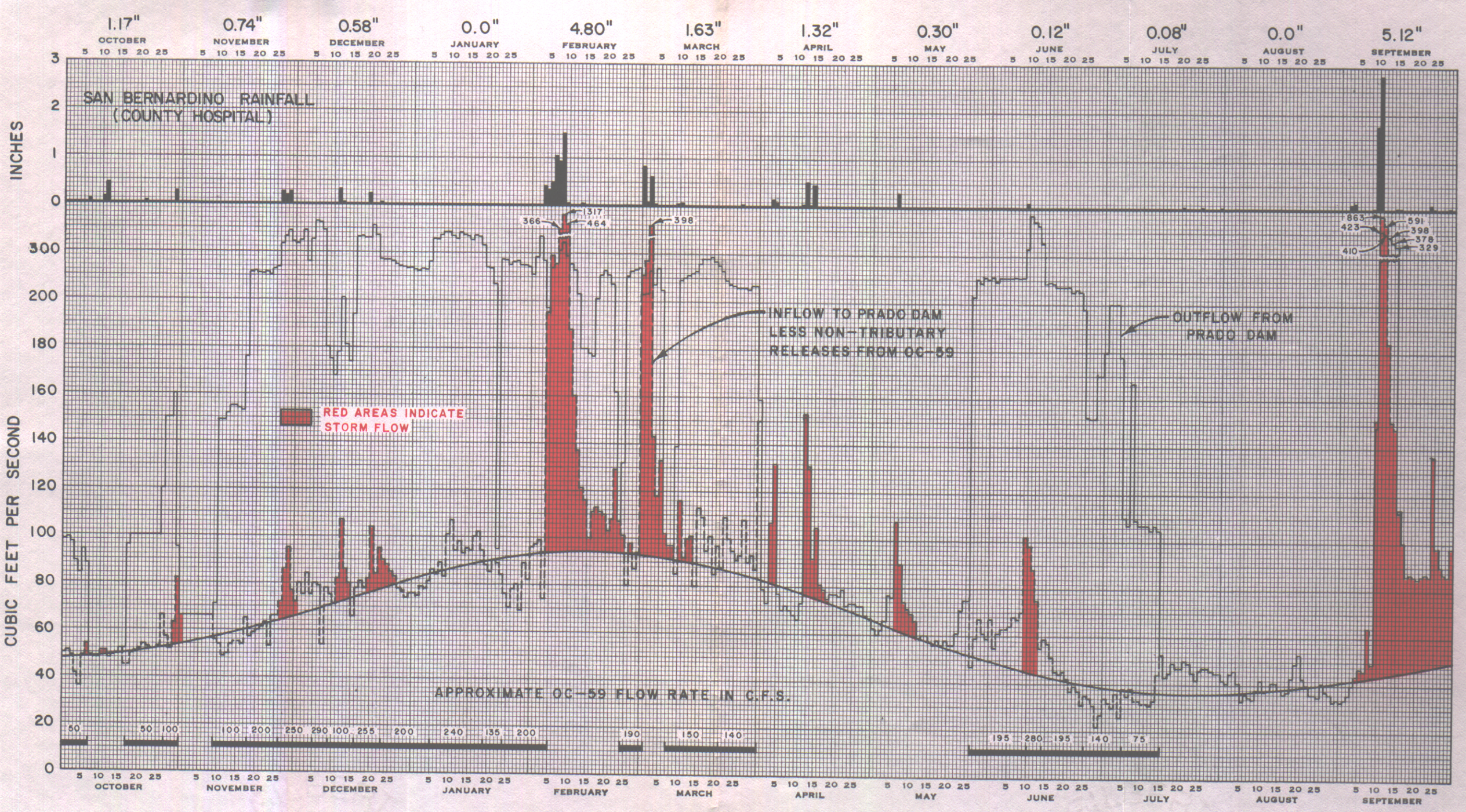
The Watermaster issues a report each year to satisfy its obligation to monitor and test water flows from the Upper Area to the Lower Area of the Santa Ana River.

See accompanying accountants' report.



SANTA ANA RIVER WATERSHED

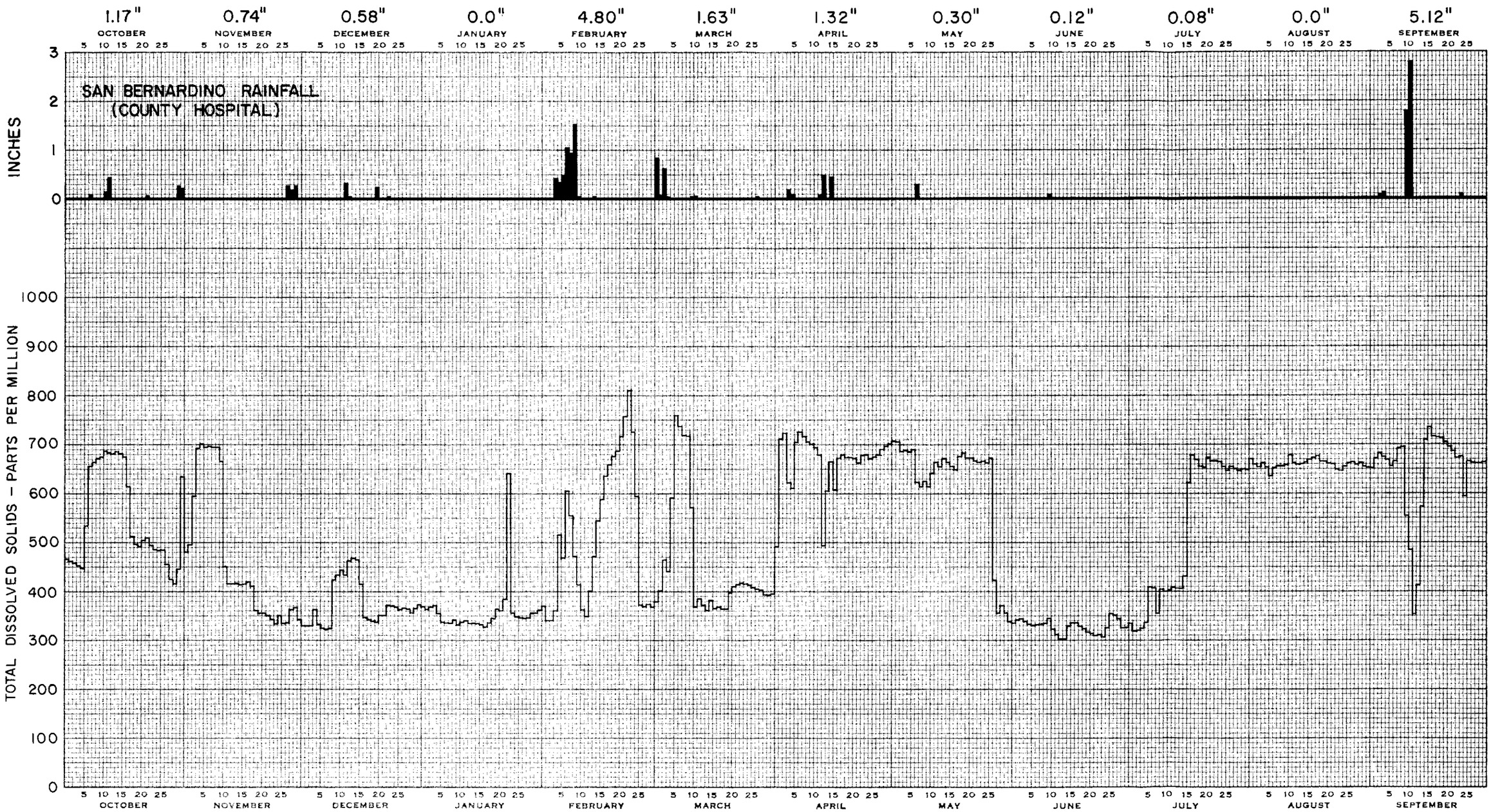
PLATE I



FLOW OF SANTA ANA RIVER BELOW PRADO DAM

PLATE 2

Water Year 1975 – 76



DISSOLVED SOLIDS IN SANTA ANA RIVER BELOW PRADO DAM

PLATE 3

Water Year 1975 – 76

1.17" OCTOBER | 0.74" NOVEMBER | 0.58" DECEMBER | 0.00" JANUARY | 4.80" FEBRUARY | 1.63" MARCH | 1.32" APRIL | 0.30" MAY | 0.12" JUNE | 0.08" JULY | 0.00" AUGUST | 5.12" SEPTEMBER

INCHES

SAN BERNARDINO RAINFALL (County Hospital)

22 353 37 30 98 1850 185

SANTA ANA RIVER SURFACE FLOW AT MISSION BLVD.

RED AREAS INDICATE STORM FLOW

567 131 154 2890 120

SANTA ANA RIVER SURFACE FLOW AT RIVERSIDE NARROWS

C.F.S.

CUBIC FEET PER SECOND

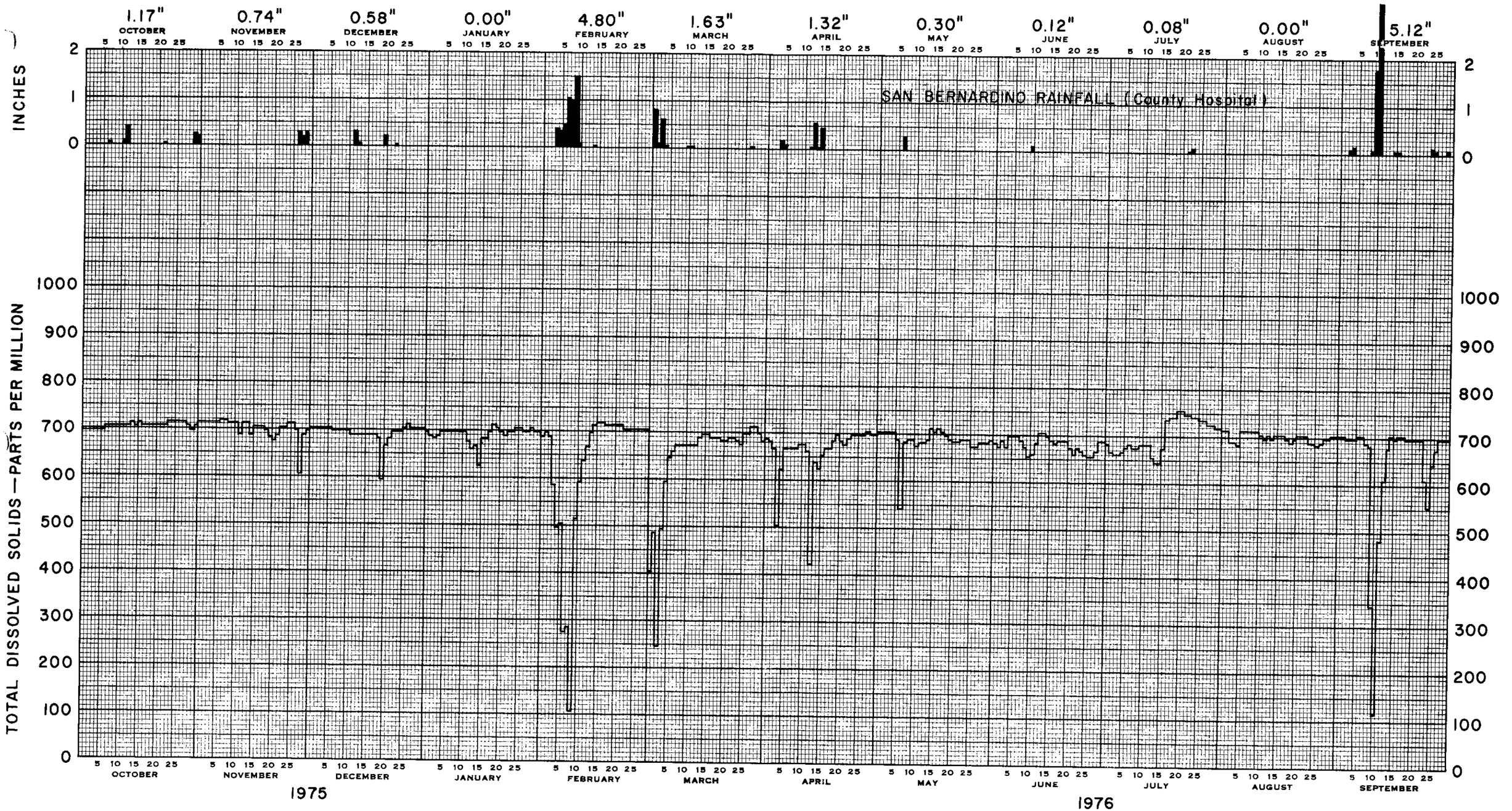
OCTOBER NOVEMBER DECEMBER JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER

1975 1976

FLOW OF — SANTA ANA RIVER AT RIVERSIDE NARROWS

PLATE 4

Water Year 1975 – 76



DISSOLVED SOLIDS IN THE SANTA ANA RIVER AT THE RIVERSIDE NARROWS

PLATE 5

Water Year 1975 – 76