

WESTERN-SAN BERNARDINO WATERMASTER  
FOR  
WESTERN MUNICIPAL WATER DISTRICT, et al  
vs.  
EAST SAN BERNARDINO COUNTY WATER DISTRICT, et al  
CASE NO. 78426 - COUNTY OF RIVERSIDE

ANNUAL REPORT

OF THE

WESTERN-SAN BERNARDINO WATERMASTER

FOR

CALENDAR YEAR 1976

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AUGUST 1, 1977

# WESTERN-SAN BERNARDINO WATERMASTER

FOR  
WESTERN MUNICIPAL WATER DISTRICT, ET AL  
VS.  
EAST SAN BERNARDINO COUNTY WATER DISTRICT, ET AL  
CASE NO. 78426 - COUNTY OF RIVERSIDE

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August 1, 1977

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TO: Clerk of Superior Court of Riverside County  
and All Parties

RE: Watermaster Report for Calendar Year 1976

Gentlemen:

We have the honor of submitting the Annual Report of the Western-San Bernardino Watermaster for the Calendar Year 1976.

The provisions of Paragraph III and Paragraphs V through XII of the Judgment in Case No. 78426, entered April 17, 1969, became effective from and after January 1, 1971. The Judgment requires that the Watermaster report to the Court and to each Party in writing not more than seven months after the end of each year, or within such other time as the Court may fix, on each determination made by said Watermaster pursuant to the Judgment and such other items as the Parties may mutually request or the Watermaster may deem to be appropriate.

Accordingly, this report is submitted herewith under date of August 1, 1977, and presents the findings of the Watermaster for Calendar Year 1975 and summarizes the five-year period 1971 through 1975.

During the period 1971 through 1975, total extractions from the San Bernardino Basin Area by each Plaintiff were less than the Adjusted Base Right provided in the Judgment. However, the Judgment further limits such extractions as to the amount which can be delivered to specific service areas. During the five-year period 1971 through 1975, the Riverside Highland Water Company exceeded its allowable deliveries to areas outside San Bernardino Valley.

Provisions of the Judgment require that Western and San Bernardino Valley provide groundwater replenishment if certain base rights are exceeded. The determination of replenishment obligations for the five-year period 1971 through 1975 indicates that neither Western nor San Bernardino Valley is required to provide additional imported water for replenishment.

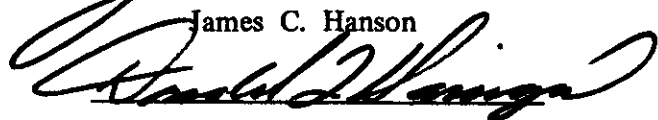
We, and each of us, hereby certify that this is a true and correct Report of the Watermaster work performed by us and under our supervision during 1976, pursuant to the requirements of the Judgment.

Respectfully submitted,

WESTERN-SAN BERNARDINO WATERMASTER

By 

James C. Hanson



Donald L. Harriger

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**CHAPTER I**  
**INTRODUCTION**



## CHAPTER I INTRODUCTION

Provisions of the physical solution set forth in the Judgment in Case No. 78426, Western Municipal Water District of Riverside County, et al., vs. East San Bernardino County Water District, et al., entered April 17, 1969, in the Superior Court of the State of California in and for the County of Riverside, established the entitlements and obligations of the two major water districts overlying the San Bernardino, Riverside, and Colton ground water basins, namely San Bernardino Valley Municipal Water District (SBVMWD) and Western Municipal Water District of Riverside County (WMWD).

The Court appointed a Watermaster, composed of two persons, to administer and enforce the provisions of the Judgment and to report annually to the Court and the parties. James C. Hanson and Donald L. Harriger were appointed pursuant to nominations by the SBVMWD and WMWD, respectively.

The provisions of the Judgment became effective January 1, 1971; however, progress reports were filed with the Court for the calendar years 1969, 1970, and 1971 reporting on the progress of verifications and initial determinations required by the Judgment. The recordation filings obtained from the State Water Resources Control Board and required for determination of annual extractions from the various basins are not available to the Watermaster until seven or eight months after the end of the calendar year for which the filings are made. This report for the calendar year 1976 includes a description and summary of the work completed during 1976 and also includes the annual accounting of extractions from the San Bernardino, Colton, and Riverside Basin areas and the distribution of such extractions to the various service areas for the calendar year 1975. The scope of this report for 1976 and a history of the litigation leading to the physical solution settling the case are set forth in some detail in succeeding paragraphs.

### Scope of Report

Paragraph XIII(e) of the Judgment requires the Watermaster to report to the Court and each Party not more than seven months after the end of each year.

The Annual Reports of the Western-San Bernardino Watermaster for the calendar years 1969 thru 1971 reported on the verifications and initial determinations required

by the Judgment including the safe yield of the San Bernardino Basin Area and the determination of the Adjusted Base Rights of the Plaintiffs. Beginning with the 1972 Report, the Watermaster began the annual accounting in accordance with the Judgment provisions. This report presents the activities of the Watermaster for the calendar year 1976 together with the annual accounting of extractions and deliveries for the calendar year 1975.

### History of Litigation

Before the turn of the century, the various water service organizations diverting surface water from the Santa Ana River and pumping from the underground water basins supplied by the underflow of the Santa Ana River and its tributaries have from time to time engaged in litigation over water rights within the San Bernardino, Riverside, and Orange County areas.

On October 18, 1963, the Orange County Water District (OCWD) filed suit against the City of Chino and others, seeking an adjudication of water rights against more than 2,500 water users in the Santa Ana River Watershed tributary to Prado Dam. Included among the defendants were the Chino Basin Municipal Water District (CBMWD), Western Municipal Water District of Riverside County (WMWD), and San Bernardino Valley Municipal Water District (SBVMWD). Thirteen cross complaints were filed in 1968, which extended the adjudication to more than 1,500 water users in the area downstream from Prado Dam, which included OCWD. Thus, some 4,000 parties were involved in the suit, including the three upper districts and OCWD.

With a case of this magnitude, it became obvious that every effort should be made to arrive at an equitable settlement and a physical solution in order to obviate the enormous expense and unwieldy litigation which would be involved if the case were brought to trial.

Attorneys and engineers representing the four major districts and a large number of the defendants worked diligently in order to effect a settlement and some type of physical solution which would prove acceptable to all parties.

As a result, in May of 1968, an outline of a proposal for settlement of the case was prepared and a committee, composed of attorneys and engineers for the parties, commenced preparation of the settlement documents.

In June, 1968, the Court held a hearing on the motions which it had received requesting a preliminary injunction and an order of reference. The plaintiff OCWD,

however, was concerned with the necessity of bringing the case to trial within the statutory period, and therefore, on July 15, 1968, submitted a motion to set the complaint in the case for trial. On October 15, 1968, the trial was commenced and adjourned after a half day of testimony on behalf of the Plaintiff.

Shortly thereafter, the parties filed settlement documents with the Court, including a stipulation for Judgment, and on April 17, 1969, the Court entered the stipulated Judgment, thus terminating the many years of controversy over water rights along the Santa Ana River involving the issues and parties included in the case of Orange County Water District vs. City of Chino, et al.

During the settlement negotiations, it became apparent that the San Bernardino Valley entities would participate only in a part of the Orange County settlement, in the belief that they had no responsibility for the waters of the Santa Ana River downstream from the point of rising water at Riverside Narrows. Therefore, the settlement of the OCWD action established an obligation of SBVMWD for the delivery of 15,250 acre-feet of Base Flow annually at the Riverside Narrows, subject, however, to adjustment for quality.

As a result of the Orange County settlement, it became apparent that a second settlement would be necessary between the Riverside and San Bernardino entities who diverted water from the Santa Ana River surface and ground water sources supplied by the Santa Ana River and tributaries above the Riverside Narrows.

For some time, increasing withdrawals from ground water resources above Bunker Hill Dike (San Jacinto Fault), which supplied in large part the water requirements of San Bernardino and Redlands as well as the Riverside exporters, had been the cause of concern to the exporters in Riverside County. As a result, on March 1, 1963, a suit was filed by WMWD and others, seeking a general adjudication of water rights within the San Bernardino Basin Area. This suit preceded the filing of the Orange County suit, and it was decided that this suit could well be used as a vehicle for a physical settlement between Riverside and San Bernardino interests.

Following extensive negotiations between Riverside and San Bernardino interests, a physical settlement was completed and documents delineating the settlement were entered in the Superior Court of the State of California in and for the County of Riverside on April 17, 1969, being Judgment No. 78426.

Summary of Judgment No. 78426

The physical solution as agreed upon and as set forth in the Judgment states that all instructions and orders of the Court are to be administered and enforced by a Watermaster consisting of a committee of two persons, one of whom shall be nominated by SBVMWD and the other by WMWD and appointed by the Court.

The Judgment directed the Watermaster to make certain initial determinations and to verify the amounts of water diverted and pumped from streams and ground water basins embraced by the Judgment where such amounts had been assumed for purposes of the Judgment. Upon completion of the verifications and initial determinations compliance with the Judgment requires an annual accounting of the ground and surface water production within the various basins in order that the Watermaster may properly report to the Court the comparisons of the year-by-year operations with the verified entitlements and an accounting as to the replenishment obligations or credits indicated by such comparison. The items verified or determined initially and to be reported on annually are as follows:

<u>Watermaster Determination Required by Judgment</u>	<u>Verified for 5 Calendar Years Ending with 1963</u>	<u>To be Determined Annually from And after 1971</u>
1. Total actual average annual extractions from the San Bernardino Basin Area by entities other than plaintiffs for use within San Bernardino County.	X	X
2. The natural safe yield of the San Bernardino Basin Area based upon the cultural conditions equivalent to those existing during the five-calendar year period ending with 1963.	1	1

<u>Watermaster Determination Required by Judgment</u>	<u>Verified for 5 Calendar Years Ending with 1963</u>	<u>To be Determined Annually from And after 1971</u>
3. The annual "adjusted right" of each Exporter (Plaintiff) to extract water from the San Bernardino Basin Area based upon the percentage of the natural safe yield determined by the methods used in Table B-2 of the Judgment.	X	
4. The annual production by plaintiff's for comparison with adjusted right determined in item 3 next preceding.		X
5. Annual discharge from the City of San Bernardino Water Quality Control Plant to the river as to quantity and quality.	2	X
6. Average annual extractions from the Colton Basin Area for use outside San Bernardino Valley.	X	X
7. Average annual extractions from the Riverside Basin Area within San Bernardino County for use outside San Bernardino Valley.	X	X
8. The average static water levels within the Colton Basin and Riverside Basin within San Bernardino County as determined by the three wells listed in Judgment.	3	X

<u>Watermaster Determination Required by Judgment</u>	<u>Verified for 5 Calendar Years Ending with 1963</u>	<u>To be Determined Annually from And after 1971</u>
9. The average annual extractions from that portion of the Riverside Basin Area in Riverside County which are tributary to the Riverside Narrows for use in Riverside County.	X	X
10. Annual amounts of water extracted for use within Western from the San Bernardino Basin and the area downstream therefrom to the Riverside Narrows which have been exported for use outside the area tributary to the Riverside Narrows.	X	X
11. Annual amount of water extracted for use within San Bernardino County from the San Bernardino Basin Area and Colton Basin Area for use on lands which are not tributary to the Riverside Narrows.	4	X
12. Reduction in return flow now contributing to base flows at Riverside Narrows which results from conversion of agriculture using water within Western to domestic or other uses connected to sewage or waste disposal system, the effluent from which is not tributary to the rising water at Riverside Narrows.	5	X

<sup>1</sup> Determined initially by supplemental order of the Court to be 232,100 acre-feet per annum. Such amount is subject to the continuing jurisdiction of the Court.

<sup>2</sup> Assumed for purposes of judgment to be 16,000 acre-feet annually, verification not required.

<sup>3</sup> Established at 822.04 feet above sea level, based on fall season of 1963.

<sup>4</sup> Revised by Watermaster during preparation of the Annual Report for calendar year 1974.

<sup>5</sup> Average for 5 years ending with 1963 established by judgment to be 3,916 acres; verification not required.

The foregoing initial determinations and verifications required by the Judgment have been completed and were reported in the *Annual Report of the Western-San Bernardino Watermaster for Calendar Years 1971 and 1972*.

**CHAPTER II**  
**WATERMASTER ACTIVITIES**



## CHAPTER II

### WATERMASTER ACTIVITIES

The Watermaster activities have included principally the collection, tabulation, and analysis of data, the maintenance of records, and the preparation of the annual report which presents the determinations and findings of the Watermaster as required by the Judgment.

#### Ground Water Extractions

The most important data required for implementing the provisions of the Judgment are the annual tabulations of the ground water extractions and surface water diversions made within the San Bernardino, Colton, and Riverside Basin Areas. These extractions and diversions were initially determined and verified for the 1959-63 Base Period and were assembled and summarized in the Watermaster Report on Verification of Extractions, Volume 1 consisting of three parts, Volumes 2, 3, and 4 for the San Bernardino Basin Area, Colton Basin Area, Riverside Basin Area in San Bernardino County, and Riverside Basin Area in Riverside County, respectively. A program has been established for obtaining and tabulating annual notices of groundwater extractions and surface diversions filed with the State Water Resources Control Board. These data are verified by the Watermaster and provide the basis for the annual accounting of extractions as required by the Judgment. Such extractions have been determined for the calendar year 1975 and are summarized herein. Listings of the verified extractions by each individual owner for the calendar year 1975 are assembled in Report of Watermaster, Volumes 1-1975, 1A-1975, 2-1975, 3-1975, and 4-1975.

#### Distribution of Extractions

In addition to the annual accounting of the extractions from each Basin, the Judgment also requires a determination as to the distribution of such extractions to the various service areas.

The distribution of verified extractions from the Colton and Riverside Basin Areas and the distribution of the Plaintiffs' extractions from the San Bernardino Basin Area were determined initially for the 1959-63 Base Period, and were reported in Report

of Watermaster, Volume 5, entitled *Distribution of Extractions*. Such distribution has been determined for the calendar year 1975 and is summarized herein. Detailed work sheets are assembled in Report of Watermaster, Volume 5-1975.

The Watermaster is also required to determine the amounts of water extracted from the various Basin Areas and delivered to areas not tributary to Riverside Narrows. Such amounts fall into two classifications, described as follows:

- 1) Extractions from the San Bernardino Basin Area, Colton Basin Area, and Riverside Basin Area for use within Western on lands not tributary to the Riverside Narrows.
- 2) Extractions from the San Bernardino Basin Area and Colton Basin Area within the San Bernardino Valley Municipal Water District for use on lands not within Western nor tributary to the Riverside Narrows.

The amounts of water extracted and delivered under Classification No. 1 were determined initially for the 1959-63 Base Period and were reported in the Report of Watermaster, Volume 6, dated June, 1972. The amounts determined for the calendar year 1975 are summarized herein. Detailed work sheets are assembled in the Report of Watermaster in Volume 6-1975.

The water extracted and delivered under Classification No. 2 was completed for the 1959-63 Base Period and the additional years 1970 and 1971 and was published in the Report of Watermaster, Volume 7, dated February, 1973. The amounts determined for the calendar year 1975 are summarized herein. Detailed work sheets are assembled in the Report of Watermaster, Volume 7-1975.

#### Ground Water Level Measurements

Ground water surface elevation data required for three key wells located in the Colton Basin Area and the Riverside Basin Area within San Bernardino County, are currently furnished by the City of Riverside on a weekly basis and by San Bernardino Valley Municipal Water District (SBVMWD) on a monthly basis.

These data are shown in both tabular and graphical form for the calendar years 1963 thru 1975 in Volume 8 of previous Watermaster reports. The determination for the calendar year 1976 is shown in the Report of Watermaster, Volume 8-1975.

### Stream Flow and Water Quality Measurements

The program of stream flow measurements conducted by the United States Geological Survey (USGS) in cooperation with the Watermaster has continued to provide basin inflow and stream diversion data.

The Western-San Bernardino Watermaster participates with the Santa Ana River Watermaster in part of the expense of the cooperative program with the USGS on surface water gages and water quality monitors at various locations. These expenses have been previously presented in a report filed by the Santa Ana River Watermaster. The costs incurred for stream flow data collected and analyzed by the USGS on behalf of the Western-San Bernardino Watermaster are set forth in Table No. 1.

TABLE NO. 1

COSTS TO THE PARTIES FOR USGS  
SURFACE WATER MEASUREMENTS USED BY  
WESTERN-SAN BERNARDINO WATERMASTER

July 1, 1976 to June 30, 1977

<u>Meeks &amp; Daley Water Co. Near Colton</u>	\$ 1,350
<u>Plunge Creek Near East Highland</u>	2,900
<u>Santa Ana River Diversion Near Mentone</u>	1,150
<u>Waterman Canyon at Arrowhead Springs</u>	1,450
<u>Devil Canyon Creek Near San Bernardino</u>	1,610
<u>East Twin Creek Near Arrowhead Springs</u>	1,500
<u>San Bernardino Water Quality Control Plant</u>	3,525 <sup>1</sup>
<u>Crafton Canal</u>	440
<u>San Timoteo Creek Near Redlands</u>	1,450
<u>Lytle Creek at Fontana Union Head Gates</u>	
Weir No. 1 - Discharge Upper Power House	195
Weir No. 2 - Infiltration Line	450
Weir No. 3 - Head Gate Diversion	450
Weir No. 4 - Breed Line Diversion	450
Parshall Flume - Return to Creek	450
20 Ft. Weir - Return to Creek	450
<u>Southern California Edison Lower Power House on Lytle Creek</u>	
20 Ft. Weir - Discharge Lower Power House	450
Parshall Flume - Return to Creek from Afterbay	450
Fontana Diversion	<u>450</u>
<u>SUB-TOTAL FOR PARTIES AND WATERMASTER</u>	\$19,170
United States Geological Survey	\$19,170
<b>TOTAL</b>	<b>\$38,340</b>

<sup>1</sup>  
Includes \$2,625 for payment by SAWPA

### Field Inspections

During the verification of the 1975 extractions from the San Bernardino, Colton, and Riverside Basin Areas, many of the pumping facilities installed for extractions of groundwater and diversion of surface water were visited by the Watermaster or his representatives. Contact was made with many of the smaller extractors to review their methods of computing production for annual reports filed with the State Water Resources Control Board.

During the initial verification program in the San Bernardino Basin Area, it was found that many groundwater producers and several divertors of surface water did not file their extractions and diversions with the State Water Resources Control Board. This condition was found to exist in many locations during the current year, which again necessitated inspection trips and contacts with various owners by the Watermasters or their representatives.

**CHAPTER III**  
**EXTRACTIONS FROM THE**  
**SAN BERNARDINO BASIN AREA**

**CHAPTER III**  
**EXTRACTIONS FROM THE**  
**SAN BERNARDINO BASIN AREA**

The extractions from the San Bernardino Basin Area have been classified as first, those extractions and diversions for use by other than Plaintiffs and second, those extractions and diversions for use by Plaintiffs.

The total verified extractions by other than Plaintiffs for calendar years 1971 through 1975 are shown on Table No. 2. The individual work sheets for the 1975 verifications are included in Report of Watermaster, Volume 1-1975.

The total verified extractions from the San Bernardino Basin Area by Plaintiffs for the calendar years 1971 through 1975 are shown on Table No. 3. The individual work sheets for the 1975 verifications and distribution of extractions by Plaintiffs are included in Report of Watermaster, Volume 1A-1975 and Volume 5-1975.

For reference, the Adjusted Base Rights of other than Plaintiffs and Plaintiffs are also shown on Table No. 2 and No. 3.

Paragraph VII of the Judgment entitled *Water Discharged Across Bunker Hill Dike* recites as follows:

*San Bernardino Valley shall keep in force an agreement with the City of San Bernardino that the present annual quantity of municipal sewage effluent discharged across Bunker Hill Dike, assumed for all purposes herein to be 16,000 acre-feet annually, shall be committed to the discharge of the downstream obligations imposed on San Bernardino Valley under this Judgment or under the Orange County Judgment, and that such effluent shall comply with the requirements of the Santa Ana River Basin Regional Water Quality Control Board in effect December 31, 1968.*

The Judgment does not charge the Watermaster with verification of the 16,000 acre-foot amount, and the enforcement of the quality requirements is considered to be the responsibility of the California Regional Water Quality Control Board-Santa Ana Region.

Prior to December, 1972, sewage effluent was discharged across the Bunker Hill Dike via Warm Creek (Plant No. 1) and the Santa Ana River (Plant No. 2). With the completion of the new Water Quality Control Plant at the "E" Street site (Plant No. 2) the total effluent discharge of the City of San Bernardino Water Quality Control Plant

accrues to the Santa Ana River immediately upstream from the "E" Street Bridge. In January, 1973, the Watermaster in cooperation with the USGS began operation of a gaging station on the plant outfall to obtain a continuous record of the quantity and mineral quality of the sewage effluent discharged to the Santa Ana River.

The discharge to the Santa Ana River upstream from the Bunker Hill Dike has been determined by the Watermaster as shown on the following table:

	Acre-Feet				
	1971	1972	1973	1974	1975
PLANT NO. 1 (Warm Creek)	5,705	6,784	0	0	0
PLANT NO. 2 (Santa Ana River)	<u>8,925</u>	<u>9,963</u>	<u>17,640</u>	<u>17,070</u>	<u>16,820</u>
TOTAL	<u>14,630</u>	<u>16,747</u>	<u>17,640</u>	<u>17,070</u>	<u>16,820</u>



TABLE NO. 2

VERIFIED EXTRACTIONS FROM THE SAN BERNARDINO  
BASIN AREA BY OTHER THAN PLAINTIFFS  
(All Values in Acre-Feet)

VERIFIED EXTRACTIONS				
Calendar Year	By Owners Who Have Filed With SWRCB	By Owners Who Have Not Filed With SWRCB	Total	Adjusted Base Right
1971	154,836 <sup>2</sup>	8,350 <sup>2</sup>	163,186 <sup>2</sup>	171,342 <sup>1</sup>
1972	159,628 <sup>2</sup>	7,599 <sup>2</sup>	167,227 <sup>2</sup>	167,238
1973	152,604 <sup>3</sup>	7,177 <sup>3</sup>	159,781 <sup>3</sup>	167,238
1974	153,099 <sup>4</sup>	5,586 <sup>4</sup>	158,685 <sup>4</sup>	167,238
1975	147,199	4,482	151,681	167,238
<b>Total for Years 1971-75</b>	<b>767,366</b>	<b>33,194</b>	<b>800,560</b>	<b>840,294</b>
1976				
1977				
1978				
1979				
1980				
<b>Total for Years 1976-80</b>				

<sup>1</sup> Adjusted Base Right not effective until January 1, 1972; therefore, 1971 Base Right is as verified for five-year Base Period 1959-63.

<sup>2</sup> Amount corrected during verification of 1973 extractions.

<sup>3</sup> Amount corrected during verification of 1974 extractions.

<sup>4</sup> Amount corrected during verification of 1975 extractions.

Note: See Report of Watermaster, Volume 1.

TABLE NO. 3

VERIFIED EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA  
FOR USE BY PLAINTIFFS CLASSIFIED ACCORDING TO SERVICE AREA  
(All Values in Acre-Feet)

PLAINTIFFS

	City of Riverside (including those rights acquired as successor to the Riverside Water Company and The Gage Canal Company)	Riverside Highland Water Company	Agua Mansa Water Company and Meeks & Deley Water Co.	The Regents of the University of California	Total
<b>Total Extractions in San Bernardino Basin Area</b>					
Adjusted Base Right <sup>1</sup>	52,199	4,294	7,833	536	64,862
1971 Extractions	53,882	4,012	2,902	219	61,015
1972 Extractions	45,694	4,532	3,527	239	53,992
1973 Extractions	43,022	3,512	2,979	239	49,752
1974 Extractions	43,367	4,088	4,504	267	52,226
1975 Extractions	47,962	4,709	3,950	179	56,800
<b>Delivery to San Bernardino Basin Area</b>					
Adjusted Base Right <sup>1</sup>	1,427	0	0	0	1,427
1971 Extractions	98 <sup>2</sup>	0	0	0	98 <sup>2</sup>
1972 Extractions	85	0	0	0	85
1973 Extractions	156	0	0	0	156
1974 Extractions	0	0	0	0	0
1975 Extractions	0	0	0	0	0
<b>Delivery to Colton Basin Area &amp; Riverside Basin Area in San Bernardino County</b>					
Adjusted Base Right <sup>1</sup>	1,230	2,449	318	0	3,997
1971 Extractions	669	2,388	383	0	3,440
1972 Extractions	547	2,239	377	0	3,163
1973 Extractions	512	1,751	250	0	2,513
1974 Extractions	550	1,985	246	0	2,781
1975 Extractions	575	2,002	168	0	2,745
<b>Delivery to Area Outside San Bernardino Valley</b>					
Adjusted Base Right <sup>1</sup>	49,542 <sup>2</sup>	1,845	7,515	536	59,438 <sup>2</sup>
1971 Extractions	53,115	1,624	2,519	219	57,477 <sup>2</sup>
1972 Extractions	45,062	2,293	3,150	239	50,744
1973 Extractions	42,354	1,761	2,729	239	47,083
1974 Extractions	42,817	2,103	4,258	267	49,445
1975 Extractions	47,387	2,707	3,782	179	54,055

<sup>1</sup> Adjusted Base Right became effective on January 1, 1972; Base Right for Calendar Year 1971 is as shown in Table B-1 of the Judgment.

<sup>2</sup> 1971 amount corrected during verification of 1972 extractions.

Note: See Report of Watermaster, Volume 1A and Volume 5.

**CHAPTER IV**

**NATURAL SAFE YIELD OF THE  
SAN BERNARDINO BASIN AREA AND ADJUSTED BASE  
RIGHTS OF PLAINTIFF EXPORTERS**

## CHAPTER IV

### NATURAL SAFE YIELD OF THE SAN BERNARDINO BASIN AREA AND ADJUSTED BASE RIGHTS OF PLAINTIFF EXPORTERS

The Watermaster has determined the natural safe yield of the water supply accruing to the San Bernardino Basin Area at 232,100 acre-feet per annum from which the Adjusted Base Rights of Plaintiff exporters were also determined. Such determination of safe yield and Adjusted Base Rights of Plaintiff exporters was set forth in detail in Report of Watermaster, Volume 9, entitled *Determination of Natural Safe Yield of the San Bernardino Basin Area and Adjusted Base Rights of Plaintiff Exporters*.

The Adjusted Base Rights of Plaintiffs' extractions from the San Bernardino Basin Area, classified according to service areas and based on the natural safe yield of 232,100 acre-feet per annum have been summarized on the following table for ease of reference. The Adjusted Base Right of other than Plaintiffs was also based on the natural safe yield of the San Bernardino Basin Area and was determined to be 167,238 acre-feet. Such base rights were not effective until January 1, 1972; therefore, the 1971 base rights for both Plaintiffs and other than Plaintiffs are based on the actual average annual extractions from the San Bernardino Basin Area during the five-year base period 1959-63.

The Judgment provides for continuing jurisdiction of the Court in the following matters:

- 1) The hydrologic condition of any one or all of the separate basins described in this Judgment in order to determine from time to time the safe yield of the San Bernardino Basin Area, and
- 2) The adjusted rights of the Plaintiffs as required to comply with the provisions hereof with respect to changes in the natural safe yield of the San Bernardino Basin Area. If such changes occur, the Court shall adjudge that the adjusted rights and replenishment obligations of each party shall be changed proportionately to the respective base rights.

In order to provide a basis for future determination of safe yield, the Watermaster maintains a continuing program of collecting and analyzing current hydrologic data pertinent to the annual water supply to, and utilization of water from, the San Bernardino Basin Area.

Such data will be summarized and reported from time to time in subsequent supplemental reports of the Watermaster.

**ADJUSTED RIGHTS FOR EXTRACTIONS BY PLAINTIFFS  
FROM THE SAN BERNARDINO BASIN AREA BASED ON NATURAL  
SAFE YIELD OF 232,100 ACRE-FEET PER ANNUM <sup>1</sup>**

**CLASSIFIED ACCORDING TO SERVICE AREA  
(All Values in Acre-Feet)**

<u>Plaintiff</u>	<u>Total Extractions in San Bernardino Basin Area</u>	<u>Delivery to San Bernardino Basin Area</u>	<u>Delivery to Colton Basin and Riverside Basin Area in San Bernardino County</u>	<u>Delivery to Areas Outside San Bernardino Valley</u>
City of Riverside (including those rights acquired as successor to the Riverside Water Company and The Gage Canal Company)	52,199 <sup>2</sup>	1,427	1,230	49,542 <sup>2</sup>
Riverside Highland Water Company	4,294	0	2,449	1,845
Agua Mansa Water Company, and Meeks & Daley Water Company	7,833	0	318	7,515
The Regents of the University of California	536 <sup>2</sup>	0	0	536 <sup>2</sup>
<b>TOTAL</b>	<b>64,862</b>	<b>1,427</b>	<b>3,997</b>	<b>59,438</b>

<sup>1</sup>  
Effective January 1, 1972

<sup>2</sup>  
The Adjusted Base Rights allocated to the City of Riverside and The Regents of the University of California were established at 52,169 and 566 acre-feet per annum respectively. On the basis of an amended recordation filing for the 1959-63 Base Period, the adjusted right for The Regents of the University of California was reduced to 536 acre-feet, and the City of Riverside adjusted right was increased to 52,199 acre-feet.

**CHAPTER V**

**EXTRACTIONS FROM COLTON BASIN AREA  
AND RIVERSIDE BASIN AREA IN SAN BERNARDINO COUNTY**

## CHAPTER V

### EXTRACTIONS FROM THE COLTON BASIN AREA AND RIVERSIDE BASIN AREA IN SAN BERNARDINO COUNTY

#### For Use Outside San Bernardino Valley Municipal Water District

The extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County for use outside San Bernardino Valley during the 1975 calendar year have been verified by the Watermaster as 3,873 acre-feet and 14,963 acre-feet, respectively. The individual work sheets for these determinations are included in Report of Watermaster, Volume 2-1975, Volume 3-1975, and Volume 5-1975 entitled *Verified Extractions From Colton Basin Area, Verified Extractions From Riverside Basin Area Within San Bernardino County and Distribution of Extractions From the San Bernardino Basin Area, Colton Basin Area, and Riverside Basin Area for Use Outside the San Bernardino Valley Municipal Water District*, respectively.

#### For Use Within San Bernardino Valley Municipal Water District

Provided minimum water surface elevations within the Colton Basin and that portion of Riverside Basin Area within San Bernardino County are maintained by San Bernardino Valley Municipal Water District, extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County for use within San Bernardino Valley are not limited and therefore verification of such amounts are not specifically required by the Judgment. However, proper allocation of the total extractions from these areas for use on areas outside San Bernardino Valley necessitates the verification of these extractions. The individual work sheets for the 1975 verification and distribution of extractions are also included in Report of Watermaster, Volumes 2-1975, 3-1975 and 5-1975.

The extractions from the Colton Basin Area and the Riverside Basin Area in San Bernardino County for the calendar years 1971 through 1975 are summarized in Table Nos. 4 and 5 following.

TABLE NO. 4

VERIFIED EXTRACTIONS FROM COLTON BASIN AREA  
 BY SAN BERNARDINO AND RIVERSIDE COUNTY  
 ENTITIES FOR USE WITHIN EACH COUNTY  
 (All Values in Acre-Feet)

Extractions for Calendar Years	Total From Basin	Extracted by San Bernardino County Entities	Extracted by Riverside County Entities			
			Total	Used in San Bernardino County	Used in Riverside County	Base Right for Use in Riverside County <sup>1</sup>
<b>5-Year Base Period 1959-63</b>	11,731 <sup>3</sup>	8,235 <sup>3</sup>	3,496	115	3,381	3,381
1971	11,388 <sup>2</sup>	8,363 <sup>2</sup>	3,025	248	2,777	3,381
1972	10,414	7,532	2,882	271	2,611	3,381
1973	7,844	6,982	862	247	615	3,381
1974	8,906	7,169	1,737	273	1,464	3,381
1975	11,083	6,821	4,262	389	3,873	3,381
<b>Total for Years 1971-75</b>	<b>49,635</b>	<b>36,867</b>	<b>12,768</b>	<b>1,428</b>	<b>11,340</b>	<b>16,905</b>
1976						
1977						
1978						
1979						
1980						
<b>Total for Years 1976-80</b>						

<sup>1</sup> Extractions for use in Riverside County are limited to the verified extractions for the five-year Base Period 1959-63.

<sup>2</sup> Amount corrected during verification of 1972 extractions.

<sup>3</sup> Amount corrected during verification of 1972 and 1973 extractions.

Note: See Report of Watermaster, Volume 2 and Volume 5.



TABLE NO. 5

VERIFIED EXTRACTIONS FROM RIVERSIDE BASIN AREA  
 IN SAN BERNARDINO COUNTY BY SAN BERNARDINO AND  
 RIVERSIDE COUNTY ENTITIES FOR USE WITHIN EACH COUNTY  
 (All Values in Acre-Feet)

Extractions for Calendar Years	Total From Basin	Extracted by San Bernardino County Entities	Extracted by Riverside County Entities			Base Right for Use in Riverside County <sup>1</sup>
			Total	Used in San Bernardino County	Used in Riverside County	
<b>5-Year Base Period 1959-63</b>	<b>33,729</b>	<b>9,609</b>	<b>24,120</b>	<b>3,035</b>	<b>21,085</b>	<b>21,085</b>
1971	29,070	8,748	20,322	2,214	18,108	21,085
1972	28,148	7,963	20,185	1,597	18,588	21,085
1973	21,809	6,490	15,319	1,333	13,986	21,085
1974	21,881	6,899	14,982	1,399	13,583	21,085
1975	22,701	6,513	16,188	1,225	14,963	21,085
<b>Total for Years 1971-75</b>	<b>123,609</b>	<b>36,613</b>	<b>86,996</b>	<b>7,768</b>	<b>79,228</b>	<b>105,425</b>
1976						
1977						
1978						
1979						
1980						
<b>Total for Years 1976-80</b>						

<sup>1</sup> Extractions for use in Riverside County are limited to the verified extractions for five-year Base Period 1959-63.  
 Note: See Report of Watermaster, Volume 3 and Volume 5.

Minimum Water Surface Elevations

Extractions from the Colton Basin Area and that portion of the Riverside Basin Area within San Bernardino County for use in San Bernardino Valley are not limited, provided that the average static water surface elevation as measured at wells numbered 1S/4W-21Q3, 1S/4W-29H1, and 1S/4W-29Q1 is not less than 822.04 feet, as set forth in the Judgment. This elevation is determined each year by averaging the lowest static water level occurring in each of the three wells at or near the same time of the year.

Hydrographs of the 1976 static water surface elevations in the three key wells are shown on Figures 1, 2, and 3 which follow. Data pertinent to the key wells as well as the records of historic water surface measurements are included in Report of Watermaster, Volume 8-1975 entitled *Ground Water Surface Elevations in Wells Numbered 1S/4W-21Q3, 1S/4W-29H1, and 1S/4W-29Q1 Located Within the Colton Basin Area and Riverside Basin Area in San Bernardino County through December, 1976.*

The lowest static water surface elevation measured in each of the three wells during 1976 is as follows:

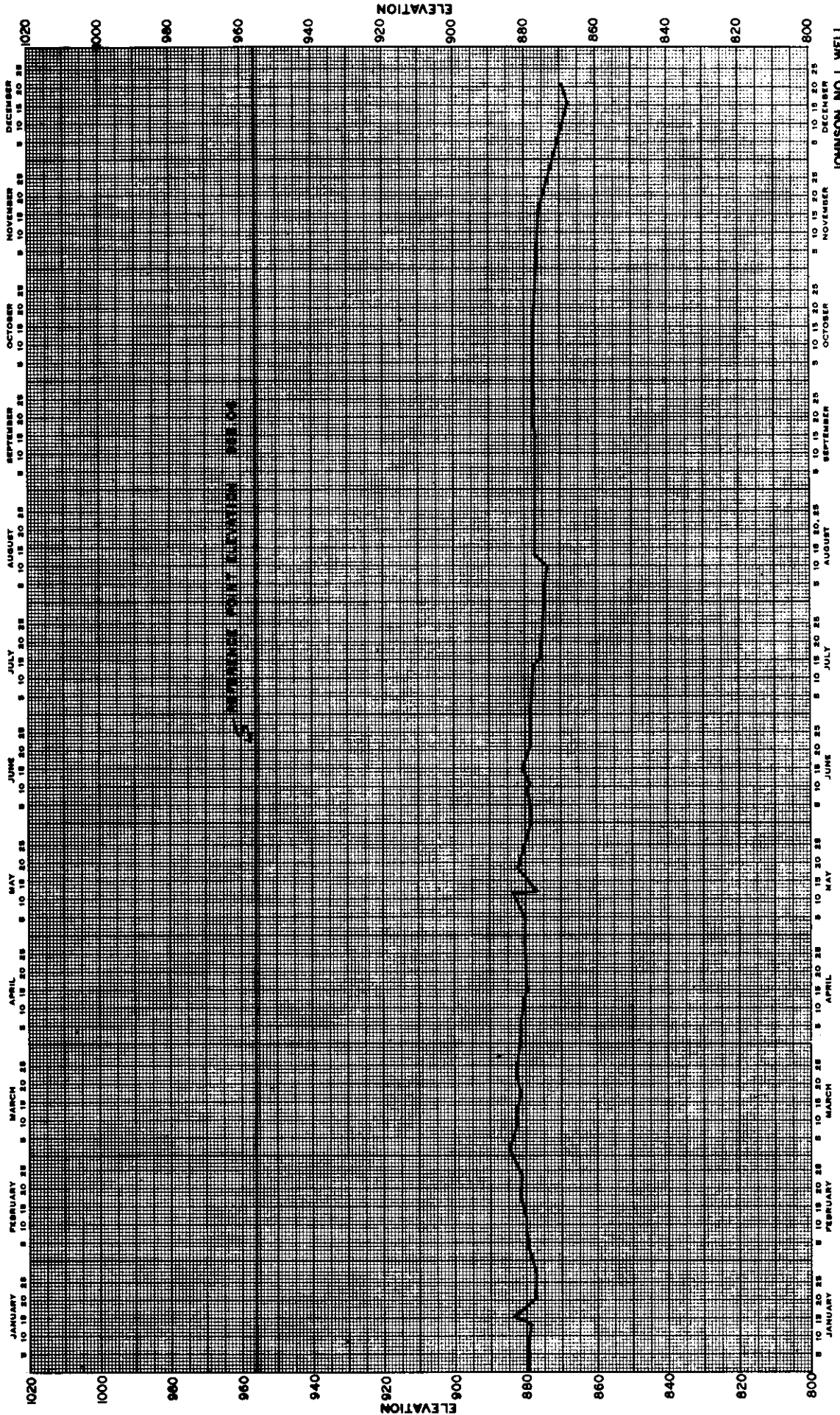
<u>Well Number</u>	<u>Date of Measurement</u>	<u>Elevation of Water Surface</u>
1S/4W-21Q3	7/15/76	875.88
1S/4W-29H1	6/30/76	853.08
1S/4W-29Q1	7/15/76	<u>849.63</u>
TOTAL		2,578.59
Average		859.53

Thus, the lowest average water surface elevation for the calendar year 1976 is 5.58 feet below the 1975 average of 865.11 and 37.49 feet above the 1963 average of 822.04.

# GROUND WATER SURFACE ELEVATION JOHNSON NO. 1 WELL

1976

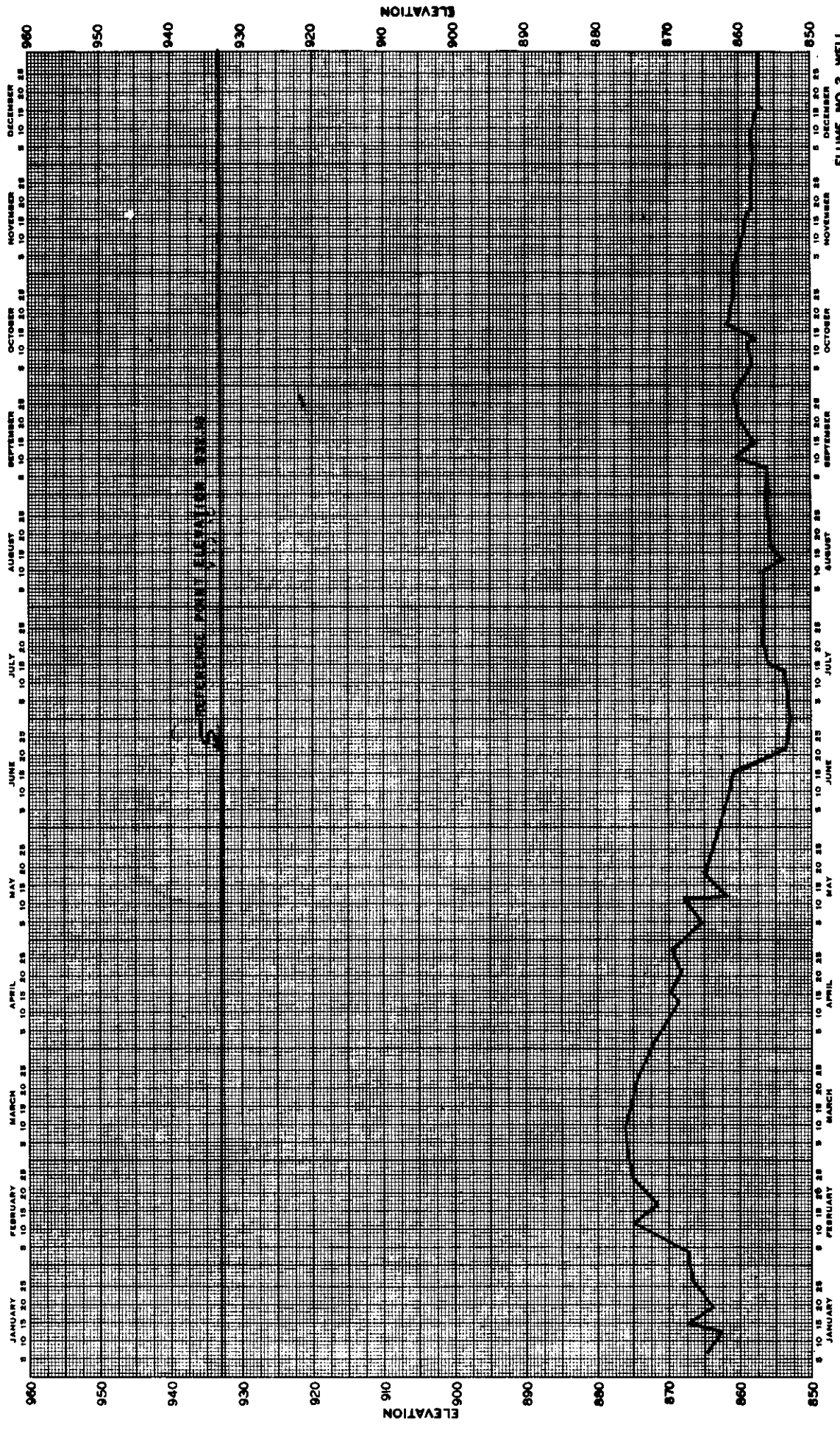
STATE WELL NUMBER 18/AW-2103  
 RECORDATION NUMBER 36-01480  
 BASIN COLTON  
 OWNER CITY OF RIVERSIDE



JOHNSON NO. 1 WELL  
FIGURE NO. 1

# GROUND WATER SURFACE ELEVATION FLUME NO. 2 WELL 1976

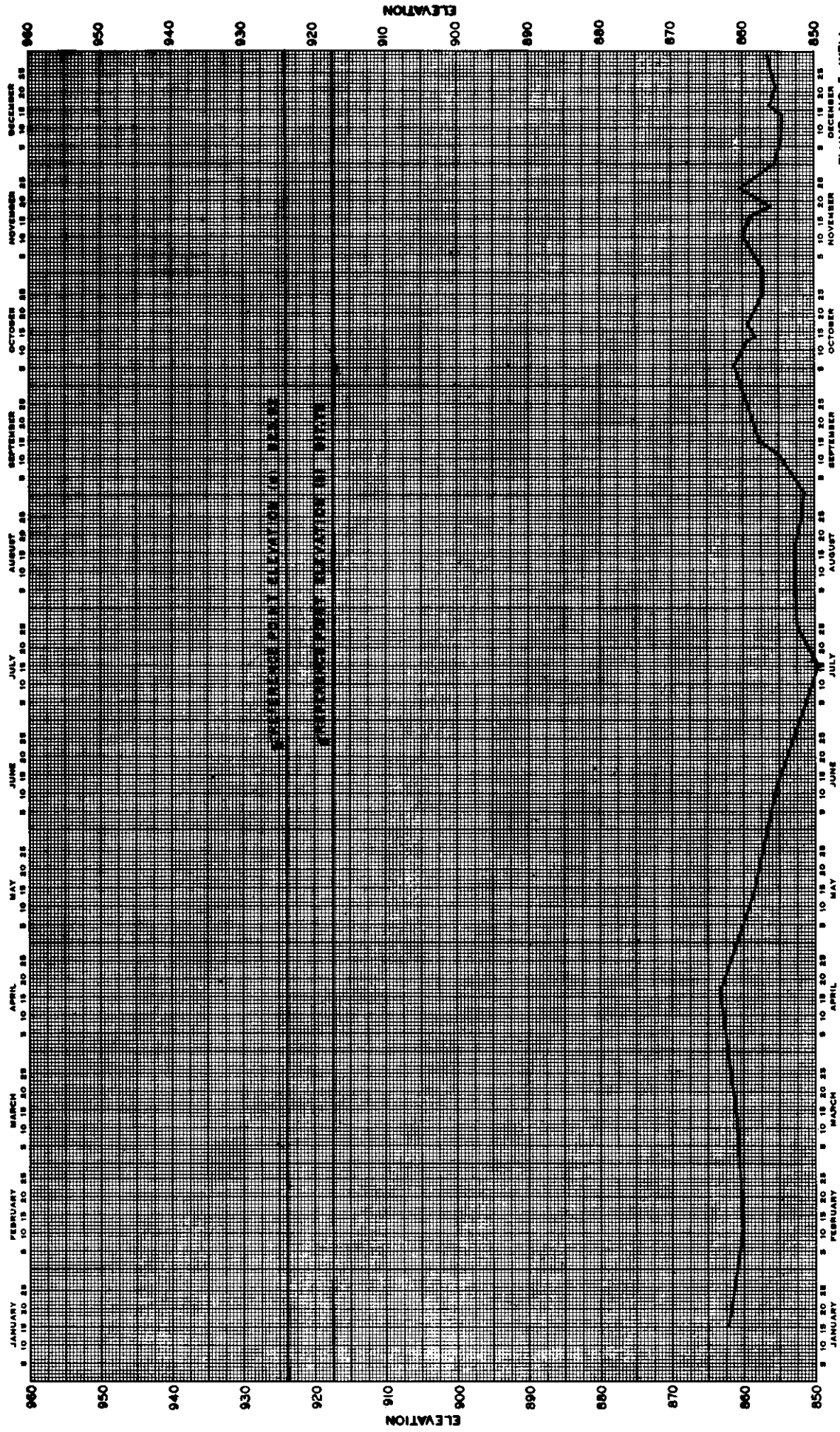
STATE WELL NUMBER 1549W-29H1  
 RECORDATION NUMBER 36-04684  
 BASIN RIVERSIDE  
 OWNER CITY OF RIVERSIDE



FLUME NO. 2 WELL  
 FIGURE NO. 2

# GROUND WATER SURFACE ELEVATION FLUME NO. 5 WELL 1976

STATE WELL NUMBER 18/AW-2901  
 RECORDATION NUMBER 38-0487  
 BASIN RIVERSIDE  
 OWNER CITY OF RIVERSIDE



FLUME NO. 5 WELL  
 FIGURE NO. 3

**CHAPTER VI**

**EXTRACTIONS FROM THE PORTION OF  
RIVERSIDE BASIN AREA IN RIVERSIDE COUNTY  
WHICH IS TRIBUTARY TO THE RIVERSIDE NARROWS**

**CHAPTER VI**  
**EXTRACTIONS FROM THE PORTION OF**  
**RIVERSIDE BASIN AREA IN RIVERSIDE COUNTY**  
**WHICH IS TRIBUTARY TO THE RIVERSIDE NARROWS**

Extractions

The extractions from that portion of the Riverside Basin area in Riverside County which is tributary to the Riverside Narrows for use within Riverside County for the calendar year 1975 have been verified by the Watermaster as 28,285 acre-feet. The individual work sheets are included in Report of Watermaster, Volume 4-1975, entitled *Verified Extractions from Riverside Basin Area Within Riverside County* and are summarized in Table No. 6 following.

**TABLE NO. 6**  
**VERIFIED EXTRACTIONS FROM THE RIVERSIDE BASIN**  
**AREA IN RIVERSIDE COUNTY FOR USE IN RIVERSIDE COUNTY**  
**(All Values in Acre-Feet)**

Calendar Year	Total Verified Extractions	Base Right for Use in Riverside County
5-Year Base Period 1959-63	29,633	29,633
1971	30,942 <sup>1</sup>	29,633
1972	37,804 <sup>2</sup>	29,633
1973	33,094	29,633
1974	38,304 <sup>2</sup>	29,633
1975	28,285	29,633
Total for Years 1971-75	168,429	148,165

<sup>1</sup> Amount corrected during verification of 1972 extractions.

<sup>2</sup> These extractions exceeded the Base Right plus peaking allowance of 20% by 2,244 acre-feet in 1972, and 2,744 acre-feet in 1973.

Note: See Report of Watermaster, Volume 4.

Return Flows

The Judgment provides for additional replenishment by Western if the urbanization of the Riverside Basin Area results in a diminution of the return flow accruing from the extractions described above and which would have otherwise accrued to the rising water at Riverside Narrows. The extent of such diminution is determined by the permanent reduction in the irrigated areas within the various water service organizations delivering water to the area as compared to the areas served at the time the Judgment was entered. To the extent that such reduction causes an increase in the urban uses requiring sewage disposal through the Riverside Treatment Plant, (the effluent which bypasses the Riverside Narrows), Western may, from time to time, be required to provide replenishment. Such irrigated acreages in the Riverside Basin Area in Riverside County at the time the Judgment was entered, from which return flow was tributary to Riverside Narrows, are set forth in Table D-5 of Appendix "D" of the Judgment and are as follows:

**APPENDIX D**

**TABLE D-5**

**IRRIGATED ACREAGE IN RIVERSIDE BASIN AREA  
IN RIVERSIDE COUNTY PRESENTLY TRIBUTARY TO  
RIVERSIDE NARROWS WHICH UPON CONVERSION  
TO URBAN USES REQUIRING SEWAGE DISPOSAL  
THROUGH THE RIVERSIDE TREATMENT PLANT WILL  
BE DISCHARGED TO THE RIVER BELOW  
RIVERSIDE NARROWS**

<u>Entity Serving Acreage</u>	<u>Acres</u>
Gage Canal Company	1,752
Alta Mesa Water Company	65
East Riverside Water Company	926
Riverside Highland Water Company	1,173
<b>TOTAL</b>	<b>3,916</b>



The service areas of the companies listed in Table D-5 were investigated and re-mapped in June, 1977. These maps showing the current irrigated acreage were compared to the 1968 maps used to determine the acreages shown on Table D-5. This comparison indicated those lands no longer being irrigated and the present use of the converted land. Additional study of these converted lands indicated the date irrigation ceased and the date such lands were connected to a sewage disposal system discharging to the river below Riverside Narrows.

The number of dwelling units connected to the City of Riverside waste water disposal system and a discharge unit factor of 0.22 acre-feet per year per dwelling unit was used to determine the waste water discharged to the river from the converted lands. These data have been summarized for the five-year period 1971 through 1975 and are shown on Table No. 7.

**TABLE NO. 7**  
**REDUCTION IN RETURN FLOW CONTRIBUTING TO BASE FLOW**  
**AT RIVERSIDE NARROWS**  
**RESULTING FROM CONVERSION OF AGRICULTURAL USES**  
**OF WATER TO DOMESTIC USES CONNECTED TO A SEWAGE SYSTEM**  
**DISCHARGING TO THE RIVER BELOW RIVERSIDE NARROWS**  
**(All Values in Acre-Feet)**

<u>CALENDAR YEAR</u>	<u>GAGE CANAL</u>	<u>ALTA MESA</u>	<u>EAST RIVERSIDE</u>	<u>RIVERSIDE HIGHLAND</u>	<u>TOTAL</u>
1971	6	0	9	0	15
1972	13	0	10	0	23
1973	16	3	63	0	82
1974	16	3	63	0	82
1975	40	19	88	0	147
<b>TOTAL 1971-75</b>	<b>91</b>	<b>25</b>	<b>233</b>	<b>0</b>	<b>349</b>

Table No. 7 shows that during the five-year period 1971 through 1975, the reduction in return flow contributing to Base Flow at Riverside Narrows resulting from the conversion of land from agricultural use to urban uses in the Riverside Basin Area was 349 acre-feet. Western's obligation associated with the land use conversion and resulting replenishment requirements are shown on summary Tables 16 and 18.

**CHAPTER VII**

**EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA,  
COLTON BASIN AREA AND RIVERSIDE BASIN AREA  
FOR USE WITHIN WESTERN ON LANDS THAT ARE NOT  
TRIBUTARY TO THE RIVERSIDE NARROWS**

## CHAPTER VII

### EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA, COLTON BASIN AREA AND RIVERSIDE BASIN AREA FOR USE WITHIN WESTERN ON LANDS THAT ARE NOT TRIBUTARY TO THE RIVERSIDE NARROWS

The extractions from the San Bernardino, Colton and Riverside Basin Areas which were delivered for use within Western on lands not tributary to the Riverside Narrows during the calendar year 1975 were verified by the Watermaster to be 38,737 acre-feet. Said amount is summarized by entity on Table No. 8.

The detailed work sheets for this determination are contained in Report of Watermaster, Volume 6-1975, entitled *Verified Extractions from the San Bernardino Basin Area, Colton Basin Area, and Riverside Basin Area for Use Within Western on Lands Not Tributary to the Riverside Narrows*.

TABLE NO. 8

**VERIFIED EXTRACTIONS  
FROM THE SAN BERNARDINO BASIN AREA,  
COLTON BASIN AREA AND THE RIVERSIDE BASIN AREA  
FOR USE WITHIN WESTERN ON LANDS THAT ARE NOT TRIBUTARY  
TO THE RIVERSIDE NARROWS  
(All Values in Acre-Feet)**

Entities Within WMWD	Annual Base Right 1959-63 Average	CALENDAR YEAR					1971-75 Average
		1971 Verified Delivery	1972 Verified Delivery	1973 Verified Delivery	1974 Verified Delivery	1975 Verified Delivery	
City of Riverside, including Irrigation Division water extracted by The Gage Canal Company and former Riverside Water Company	23,836	26,616	25,416	22,504 <sup>2</sup>	24,832	28,418	25,558
Meeks & Daley Water Company, Agua Mansa Water Company, and Temescal Water Company, including water received from City of Riverside	13,229	8,195	8,570	4,291	4,667	4,711	6,087
Extractions delivered by West Riverside Canal received from Twin Buttes Water Company, La Sierra Water Company, Agua Mansa Water Company, Salazar Water Company, West Riverside 350 Inch Water Company, and Jurupa Water Company	4,903	5,952	5,456	3,710	4,869	4,874	4,972
Rubidoux Community Services District	531	794	807	545	566	640	670
Jurupa Hills Water Company	36	55 <sup>1</sup>	65	83	86	94	77
<b>TOTAL</b>	<b>42,535</b>	<b>41,612<sup>1</sup></b>	<b>40,314</b>	<b>31,133<sup>2</sup></b>	<b>35,020</b>	<b>38,737</b>	<b>37,364</b>

<sup>1</sup> Amount corrected during verification of 1972 deliveries.

<sup>2</sup> Amount corrected during verification of 1975 deliveries.

Note: See Report of Watermaster, Volume 6.

**CHAPTER VIII**

**VERIFICATION OF EXTRACTIONS FROM THE  
SAN BERNARDINO BASIN AREA AND COLTON BASIN AREA  
WITHIN THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT  
FOR USE ON LANDS NOT WITHIN WESTERN  
NOR TRIBUTARY TO THE RIVERSIDE NARROWS**

## CHAPTER VIII

### VERIFICATION OF EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA AND COLTON BASIN AREA WITHIN THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT FOR USE ON LANDS NOT WITHIN WESTERN NOR TRIBUTARY TO THE RIVERSIDE NARROWS

#### Deliveries to Chino Basin

The extractions from the Colton and San Bernardino Basin Areas which were delivered for use on lands not within Western nor tributary to the Riverside Narrows (Chino Basin) during the calendar year 1975, were verified by the Watermaster to be 17,910 acre-feet. Said amount is summarized by entity on Table No. 9.

#### Deliveries to Areas Other Than Chino Basin

Paragraph X of the Judgment also provides for replenishment by San Bernardino Valley to the extent exports are made from the San Bernardino Basin Area for use in the Yucaipa, San Timoteo, Oak Glen, and Beaumont Basins.

The results of the verification of the base period production from the San Bernardino Basin Area indicated that such exports were not made during the five-calendar years ending with 1963. The verification of production for the 1975 calendar year indicated that such exports were not made during 1975.

TABLE NO. 9

VERIFIED EXTRACTIONS FROM THE  
 SAN BERNARDINO BASIN AREA AND COLTON BASIN AREA  
 WITHIN THE SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT  
 FOR USE ON LANDS NOT WITHIN WESTERN  
 NOR TRIBUTARY TO THE RIVERSIDE NARROWS  
 (All Values in Acre-Feet)

Entities Within SBVMWD	Annual Base Right Average 1959-63	CALENDAR YEAR					
		1971 Verified Delivery	1972 Verified Delivery	1973 Verified Delivery	1974 Verified Delivery	1975 Verified Delivery	1971-75 Average
Fontana Union Water Company	10,170 <sup>1</sup>	14,596 <sup>1</sup>	14,803 <sup>1</sup>	19,333	13,586	15,775	15,619
West San Bernardino County Water District	1,806	1,260	2,223	2,220	2,102	1,535	1,868
City of Rialto	551 <sup>1</sup>	694 <sup>1</sup>	405 <sup>1</sup>	276	563	600	508
TOTAL	12,527 <sup>1</sup>	16,550 <sup>1</sup>	17,431 <sup>1</sup>	21,829	16,251	17,910	17,995

<sup>1</sup> Amount corrected during verification of 1973 deliveries.

**CHAPTER IX**

**ANNUAL ACCOUNTING OF EXTRACTIONS,  
DELIVERIES, AND REPLENISHMENT OBLIGATIONS**



## CHAPTER IX

### ANNUAL ACCOUNTING OF EXTRACTIONS DELIVERIES, AND REPLENISHMENT OBLIGATIONS

The Judgment requires the annual determination of extractions from the San Bernardino, Colton, and Riverside Basin Areas by both Plaintiffs and Non-Plaintiffs, and further requires that a determination be made as to that portion of such extractions delivered to each of the service areas tributary to the Riverside Narrows as well as the deliveries to those areas not tributary to the Riverside Narrows. A comparison of the annual extractions and deliveries with the verified five-year Base Period amounts provides the basis for the annual accounting of replenishment obligations, if any, which accrue by reason of production or deliveries in excess of such amounts.

#### Plaintiffs' Extractions from San Bernardino Basin Area

The Judgment specifically defines the Adjusted Base Right of the City of Riverside, Gage Canal Company, Riverside Highland Water Company, Agua Mansa Water Company, Meeks and Daley Water Company and the Regents of University of California to produce water from the San Bernardino Basin Area for use in three specific service areas. These rights, expressed in terms of the five-year total allowable production and the maximum allowable production in any one year are shown on Tables 10 through 13.

Tables 10 through 13 also show the actual extractions for use by the Plaintiffs in the specific service areas. A comparison of the Plaintiffs' Adjusted Base Rights to actual extractions and deliveries indicates that Riverside Highland Water Company exceeded its maximum allowable right to deliver San Bernardino Basin Area water to areas outside San Bernardino Valley by 309 acre-feet in 1975. Riverside Highland also exceeded the five-year Base Right to deliver water to areas outside San Bernardino Valley by 1,218 acre-feet. (See Table 11.) Actual extractions from the San Bernardino Basin Area and deliveries to the specified service areas by all other Plaintiffs during the five-year period 1971 through 1975 were less than their respective Adjusted Base Rights.

#### Non-Plaintiffs' Extractions from San Bernardino Basin Area

The Judgment provides that the Non-Plaintiffs as a group can produce a specific amount of water from the San Bernardino Basin Area without incurring an obligation

to replenish the basin with imported water. During the period 1971 through 1975, the Non-Plaintiffs' production did not exceed the Adjusted Base Right. (See Table 17.)

A comparison of Adjusted Base Rights to actual production by Plaintiffs and Non-Plaintiffs for the period 1971 through 1975 is as follows:

(All Values in Acre-Feet)

	<u>Adjusted Base Right 1971-1975</u>	<u>Actual Extractions</u>	<u>Difference</u>
Plaintiffs	325,902	273,785	52,117
Non-Plaintiffs	<u>840,294</u>	<u>800,560</u>	<u>39,734</u>
TOTAL	1,166,196	1,074,345	91,851

Exports to Areas Not Tributary to Riverside Narrows

The Judgment limits the amount of water that can be extracted from the various basins for use on lands that are not tributary to the Riverside Narrows. Western and San Bernardino Valley are responsible for any obligation that may result from excess exports to these non-tributary lands located in Riverside County and San Bernardino County, respectively.

Tables 14 and 15 indicate the Base Right and actual export for use on lands in Riverside County and San Bernardino County not tributary to the Riverside Narrows. Table 14 shows that during the period 1971 through 1975 the exports by entities within Western was 25,859 acre-feet less than the Base Right. Table 15 shows that exports from San Bernardino Valley for use in San Bernardino County (Chino Basin) exceeded the Base Right by 27,336 acre-feet. The obligation of San Bernardino Valley associated with this excess export is shown on Table 17.

Summary of Western's Credits and Obligations

Table 16 summarizes Western's credits and obligations in the Colton and Riverside Basin Areas. The actual extractions in these areas during the five-year period 1971 through 1975 were 11,498 acre-feet less than the total five-year Base Right. The extraction data shown on Table 6 indicate that the annual peaking limitation was exceeded during 1972 and 1974 in the Riverside Basin in Riverside County. Since the accumulated credits available in adjacent basins exceeded the excess extraction at the time the peaking occurred, replenishment was not required in the following years.

Table 6 also indicates that total extractions during the five-year period exceeded the five-year Base Right. The Judgment does however permit over-extraction from the individual basins without replenishment, provided the sum of the extractions in all basins does not exceed the total Base Right. The extraction data on Table 16 represents the total extractions from all basins and therefore any excess extraction has been offset by under-extractions in adjacent basins. Summation of the accumulated excess extraction and under-extraction results in extraction credits for the five-year period.

In addition to extraction credits, Western receives credit for return flows resulting from imported water used in areas that are tributary to the Riverside Narrows. Western's accumulated credit resulting from under-extraction and return of imported water is 18,059 acre-feet.

Western incurred an excess extraction obligation of 4,904 acre-feet in 1972. As indicated on Table 14 and as discussed in the previous section, Western has not incurred an obligation due to excess exports to areas not tributary to the Riverside Narrows. However, land conversion from agricultural uses to urban uses within Western during the five-year period has resulted in an obligation of 349 acre-feet. (See Table 7.) Western's accumulated obligation due to excess extractions and land use conversion during the period 1971 through 1975 is 5,253 acre-feet.

In summary, Table 16 shows that during the five-year period 1971 through 1975, Western's accumulated credits exceeded its accumulated obligations by 12,806 acre-feet.

#### Summary of San Bernardino Valley Credits and Obligations

Table 17 summarizes San Bernardino Valley's credits and obligations in the San Bernardino, Colton and Riverside Basins. As indicated previously the actual extractions from the San Bernardino Basin Area were less than the Base Right during the period 1971 through 1975. Hence, San Bernardino Valley incurred an extraction credit as shown on Table 17. San Bernardino Valley also receives credit for imported water that is used for replenishment in the San Bernardino Basin Area. Credits for such replenishment and from the under extraction total 103,544 acre-feet for the period 1971 through 1975.

As shown on Table 15 and as discussed previously, the exports from San Bernardino, Colton, and Riverside Basin Areas to areas not tributary to the Riverside Narrows (Chino Basin) exceeded the Base Right for the five-year period. The accumulated obligation resulting from this excess export is 27,336 acre-feet.

In summary, Table 17 shows that during the five-year period 1971 through 1975 San Bernardino Valley's accumulated credits exceeded its accumulated obligations by 76,208 acre-feet.

Chapter V indicates that extractions in the Colton Basin Area and Riverside Basin Area in Riverside County for use in San Bernardino Valley are not limited provided that San Bernardino Valley maintains a specified minimum static water surface elevation in these Basins. During the five-year period 1971 through 1975 the actual water surface elevation remained higher than the specified minimum; therefore, no additional water is required for maintenance of these basins.

#### Replenishment Requirements

Table 18 summarizes the accumulated credits and obligations of both Western and San Bernardino Valley. The credits exceeded the obligations for both parties during the five-year period 1971 through 1975. The Table also indicates that if a net accumulated obligation is incurred by either party, the replenishment required by that party would be reduced by the return flow resulting from any excess extraction. Since the extraction credits exceeded the excess extraction obligations for both parties as shown on Tables 16 and 17, no credit has been allowed for excess extraction return.

In summary, Table 18 shows that neither Western nor San Bernardino Valley is required to provide additional replenishment for obligations incurred during the five-year period 1971 through 1975.

TABLE NO. 10

ANNUAL ACCOUNTING  
OF

EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA  
AND THE DELIVERIES TO EACH SERVICE AREA BY THE CITY  
OF RIVERSIDE (INCLUDING THOSE RIGHTS ACQUIRED AS SUCCESSOR TO THE  
RIVERSIDE WATER COMPANY AND THE GAGE CANAL COMPANY)  
(All Quantities in Acre Feet)

Calendar Year	Verified Extractions from the San Bernardino Basin Area			Delivery to San Bernardino Basin Area			Delivery to Colton Basin Area & Riverside Basin Area in San Bernardino County			Delivery to Areas Outside San Bernardino Valley		
	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)
1971	53,448(4)	69,482	53,882	1,462(4)	1,901	98	1,260(6)	1,638	669	50,726(4)	65,944	53,115
1972	52,199(5)	67,859	45,694	1,427	1,855	85	1,230	1,599	547	49,542(5)	64,405	45,062
1973	52,199(5)	67,859	43,022	1,427	1,855	156	1,230	1,599	512	49,542(5)	64,405	42,354
1974	52,199(5)	67,859	43,367	1,427	1,855	-0-	1,230	1,599	550	49,542(5)	64,405	42,817
1975	52,199(5)	67,859	47,962	1,427	1,855	-0-	1,230	1,599	575	49,542(5)	64,405	47,387
Total for Years 1971-75	262,244	262,244	233,927	7,170	7,170	339	6,180	6,180	2,853	248,894	248,894	230,735
Excess Extract. from 1971-75	(28,317)*											
1976	(6,831)*											
1977	(3,327)*											
1978												
1979												
1980												
Total for Years 1976-80												
Excess Extract. from 1976-80	(18,159)*											

(1) Adjusted Right as determined and reported to the Court in the Annual Report of the Western-San Bernardino Watermaster for Calendar Year 1971 in Table No. 9, page 27.

(2) Maximum Allowable for any one year, not to exceed 30% of Adjusted Right.

(3) Actual verified extractions from Table No. 3 of Watermaster Report.

(4) Adjusted Right was not effective until January 1, 1972; thus the Adjusted Right for 1971 is as shown in Appendix B, Table B-1 of the Judgment.

(5) See Footnote 2 of Table on Page 18.

Note: Annual Accounting of Extractions as required in Paragraphs V and VI of the Judgment.

\* Parenthesis indicate that actual extractions are less than Adjusted Base Right.

TABLE NO. 11

ANNUAL ACCOUNTING  
OF

EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA  
AND THE DELIVERIES TO EACH SERVICE AREA BY  
RIVERSIDE HIGHLAND WATER COMPANY  
(All Quantities in Acre Feet)

Calendar Year	Verified Extractions from the San Bernardino Basin Area			Delivery to San Bernardino Basin Area			Delivery to Colton Basin Area & Riverside Basin Area in San Bernardino County			Delivery to Areas Outside San Bernardino Valley		
	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)
1971	4,399(4)	5,719	4,012	-0-(4)	-0-	-0-	2,509(4)	3,262	2,388	1,890(4)	2,457	1,624
1972	4,294	5,582	4,532	-0-	-0-	-0-	2,449	3,184	2,239	1,845	2,398	2,293
1973	4,294	5,582	3,512	-0-	-0-	-0-	2,449	3,184	1,751	1,845	2,398	1,761
1974	4,294	5,582	4,088	-0-	-0-	-0-	2,449	3,184	1,985	1,845	2,398	2,103
1975	4,294	5,582	4,709	-0-	-0-	-0-	2,449	3,184	2,002	1,845	2,398	2,707
Total for Years 1971-75	21,575	21,575	20,853	-0-	-0-	-0-	12,305	12,305	10,365	9,270	9,270	10,488
Excess Extract. from 1971-75		(722)*			-0-			(1,940)*			1,218	
1976												
1977												
1978												
1979												
1980												
Total for Years 1976-80												
Excess Extract. 1976-80												

(1) Adjusted Right as determined and reported to the Court in the Annual Report of the Western-San Bernardino Watermaster for Calendar Year 1971 in Table No. 9, page 27.

(2) Maximum Allowable for any one year, not to exceed 30% of Adjusted Right.

(3) Actual verified extractions from Table No. 3 of Watermaster Report.

(4) Adjusted Right was not effective until January 1, 1972; thus the Adjusted Right for 1971 is as shown in Appendix B, Table B-1 of the Judgment.

Note: Annual Accounting of Extractions as required in Paragraphs V and VI of the Judgment.

\* Parenthesis indicate that actual extractions are less than Adjusted Base Right.

TABLE NO. 12

ANNUAL ACCOUNTING

OF  
 EXTRactions FROM THE SAN BERNARDINO BASIN AREA  
 AND THE DELIVERIES TO EACH SERVICE AREA BY  
 AGUA MANSA WATER COMPANY AND MEERKS & DALEY WATER COMPANY  
 (All Quantities in Acre Feet)

Calendar Year	Verified Extractions from the San Bernardino Basin Area			Delivery to San Bernardino Basin Area			Delivery to Colton Basin Area & Riverside Basin Area in San Bernardino County			Delivery to Areas Outside San Bernardino Valley		
	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)
1971	8,026(4)	10,434	2,902	-0-(4)	-0-	-0-	326(4)	424	383	7,700(4)	10,010	2,519
1972	7,833	10,183	3,527	-0-	-0-	-0-	318	413	377	7,515	9,770	3,150
1973	7,833	10,183	2,979	-0-	-0-	-0-	318	413	250	7,515	9,770	2,729
1974	7,833	10,183	4,504	-0-	-0-	-0-	318	413	246	7,515	9,770	4,258
1975	7,833	10,183	3,950	-0-	-0-	-0-	318	413	168	7,515	9,770	3,782
Total for Years 1971-75	39,358	39,358	17,862	-0-	-0-	-0-	1,598	1,598	1,424	37,760	37,760	16,438
Excess Extract. from 1971-75	(21,496)*											
1976												
1977												
1978												
1979												
1980												
Total for Years 1976-80												
Excess Extract. from 1976-80												

(1) Adjusted Right as determined and reported to the Court in the Annual Report of the Western-San Bernardino Watermaster for Calendar Year 1971 in Table No. 9, page 27.

(2) Maximum Allowable for any one year, not to exceed 30% of Adjusted Right.

(3) Actual verified extractions from Table No. 3 of Watermaster Report.

(4) Adjusted Right was not effective until January 1, 1972; thus the Adjusted Right for 1971 is as shown in Appendix B, Table B-1 of the Judgment.

Note: Annual Accounting of Extractions as required in Paragraphs V and VI of the Judgment.

\* Parenthesis indicate that actual extractions are less than Adjusted Base Right.

TABLE NO. 13

ANNUAL ACCOUNTING

OF  
EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA  
AND THE DELIVERIES TO EACH SERVICE AREA BY  
THE REGENTS OF UNIVERSITY OF CALIFORNIA  
(All Quantities in Acre Feet)

Calendar Year	Verified Extractions from the San Bernardino Basin Area			Delivery to San Bernardino Basin Area			Delivery to Colton Basin Area & Riverside Basin Area in San Bernardino County			Delivery to Areas Outside San Bernardino Valley		
	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)	Adjusted Right (1)	Maximum Allowable (2)	Actual (3)
1971	581(4)	755	219	-0-(4)	-0-	-0-	-0-(4)	-0-	-0-	581(4)	755	219
1972	536(5)	697	239	-0-	-0-	-0-	-0-	-0-	-0-	536(5)	697	239
1973	536(5)	697	239	-0-	-0-	-0-	-0-	-0-	-0-	536(5)	697	239
1974	536(5)	697	267	-0-	-0-	-0-	-0-	-0-	-0-	536(5)	697	267
1975	536(5)	697	179	-0-	-0-	-0-	-0-	-0-	-0-	536(5)	697	179
Total for Years 1971-75	2,725	2,725	1,143	-0-	-0-	-0-	-0-	-0-	-0-	2,725	2,725	1,143
Excess Extract. from 1971-75		(1,582)*									(1,582)*	
1976												
1977												
1978												
1979												
1980												
Total for Years 1976-80												
Excess Extract. from 1976-80												

(1) Adjusted Right as determined and reported to the Court in the Annual Report of the Western-San Bernardino Watermaster for Calendar Year 1971 in Table No. 9, page 27.

(2) Maximum Allowable for any one year, not to exceed 30% of Adjusted Right.

(3) Actual verified extractions from Table No. 3 of Watermaster Report.

(4) Adjusted Right was not effective until January 1, 1972; thus the Adjusted Right for 1971 is as shown in Appendix B, Table B-1 of the Judgment.

(5) See Footnote 2 of Table on Page 18.

Note: Annual Accounting of Extractions as required in Paragraphs V and VI of the Judgment.

\* Parenthesis indicate that actual extractions are less than Adjusted Base Right.



TABLE NO. 14  
 ANNUAL ACCOUNTING  
 FOR  
 WESTERN MUNICIPAL WATER DISTRICT  
 EXPORT OF EXTRACTIONS FROM SAN BERNARDINO BASIN AREA,  
 COLTON BASIN AREA, AND RIVERSIDE BASIN AREA FOR  
 USE WITHIN WESTERN ON LANDS THAT ARE NOT TRIBUTARY  
 TO THE RIVERSIDE NARROWS  
 (All Values in Acre-Feet)

	CALENDAR YEAR				
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
<b><u>EXPORTS</u></b>					
Base Right	42,535	42,535	42,535	42,535	42,535
Actual Export <sup>1</sup>	41,612	40,314	31,133	35,020	38,737
ACCUMULATED EXPORT	41,612	81,926	113,059	148,079	186,816
<b><u>OBLIGATIONS</u></b>					
Excess Export <sup>2</sup>	(923)	(2,221)	(11,402)	(7,515)	(3,798)
ACCUMULATED EXCESS EXPORT	(923)	(29,003)	(14,546)	(22,061)	(25,859)

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<sup>1</sup>  
 See Table 8 of Watermaster Report.

<sup>2</sup>  
 Actual Export minus Base Right. Parentheses indicate that the Actual Export is less than the Base Right.

**TABLE NO. 15**  
**ANNUAL ACCOUNTING**  
**FOR**  
**SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT**  
**EXPORT OF EXTRACTIONS FROM SAN BERNARDINO BASIN AREA**  
**AND COLTON BASIN AREA FOR USE ON LANDS**  
**NOT WITHIN WESTERN NOR TRIBUTARY**  
**TO THE RIVERSIDE NARROWS**  
**(All Values in Acre-Feet)**

	CALENDAR YEAR				
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
<b><u>EXPORTS</u></b>					
Base Right	12,527	12,527	12,527	12,527	12,527
Actual Export <sup>1</sup>	16,550	17,431	21,829	16,251	17,910
<b>ACCUMULATED EXPORTS</b>	<b>16,550</b>	<b>33,781</b>	<b>55,810</b>	<b>72,061</b>	<b>89,971</b>
 <b><u>OBLIGATIONS</u></b>					
Excess Export <sup>2</sup>	4,023	4,904	9,302	3,724	5,383
<b>ACCUMULATED EXCESS EXPORT</b>	<b>4,023</b>	<b>8,927</b>	<b>18,229</b>	<b>21,953</b>	<b>27,336</b>

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<sup>1</sup>  
See Table 9 of Watermaster Report.

<sup>2</sup>  
Actual Export minus Base Right.

TABLE NO. 16

ANNUAL ACCOUNTING  
FOR  
WESTERN MUNICIPAL WATER DISTRICT  
EXTRACTIONS FROM COLTON BASIN AREA AND  
RIVERSIDE BASIN AREA  
IN RIVERSIDE AND SAN BERNARDINO COUNTIES  
FOR USE OUTSIDE SAN BERNARDINO VALLEY  
(All Values in Acre-Feet)

	CALENDAR YEAR				
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
<b><u>EXTRACTIONS</u></b>					
Base Right <sup>1</sup>	54,099	54,099	54,099	54,099	54,099
Actual Extractions <sup>1</sup>	51,827	59,003	47,695	53,351	47,121
<b>ACCUMULATED EXTRACTIONS</b>	<b>51,827</b>	<b>110,830</b>	<b>158,525</b>	<b>211,876</b>	<b>258,997</b>
<b><u>CREDITS</u></b>					
Extraction <sup>2</sup>	2,272	0	6,404	748	6,978
Return from Imported Water	331	345	305	346	330
<b>Total Credits</b>	<b>2,603</b>	<b>345</b>	<b>6,709</b>	<b>1,094</b>	<b>7,308</b>
<b>ACCUMULATED CREDITS</b>	<b>2,603</b>	<b>2,948</b>	<b>9,657</b>	<b>10,751</b>	<b>18,059</b>
<b><u>OBLIGATIONS</u></b>					
Excess Extractions <sup>3</sup>	0	4,904	0	0	0
Excess Export <sup>4</sup>	0	0	0	0	0
Land Use Conversion <sup>5</sup>	15	23	82	82	147
<b>Total Obligations</b>	<b>15</b>	<b>4,927</b>	<b>82</b>	<b>82</b>	<b>147</b>
<b>ACCUMULATED OBLIGATIONS</b>	<b>15</b>	<b>4,942</b>	<b>5,024</b>	<b>5,106</b>	<b>5,253</b>
<b>NET ACCUMULATED (CREDIT) OR OBLIGATION</b>	<b>(2,588)</b>	<b>1,994</b>	<b>(4,633)</b>	<b>(5,645)</b>	<b>(12,806)</b>

<sup>1</sup>  
See Tables 4, 5 and 6.

<sup>2</sup>  
Amounts which may be extracted without replenishment obligation, which in fact are not extracted. Equal to Base Right minus Actual Extraction.

<sup>3</sup>  
Actual Extraction minus Base Right.

<sup>4</sup>  
Reference Table 14. Note that Excess Export is shown as zero when Actual Export is less than Base Right.

<sup>5</sup>  
Reference Table 7.

**TABLE NO. 17**  
**ANNUAL ACCOUNTING**  
**FOR**  
**SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT**  
**EXTRACTIONS FROM THE SAN BERNARDINO BASIN AREA**  
**(All Values in Acre-Feet)**

	CALENDAR YEAR				
	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
<b><u>EXTRACTIONS</u></b>					
Base Right <sup>1</sup>	171,342	167,238	167,238	167,238	167,238
Actual Extractions <sup>1</sup>	163,186	167,227	159,781	158,685	151,681
<b>ACCUMULATED EXTRACTIONS</b>	<b>163,186</b>	<b>330,413</b>	<b>490,194</b>	<b>648,879</b>	<b>800,560</b>
<b><u>CREDITS</u></b>					
Extraction <sup>2</sup>	8,156	11	7,457	8,553	15,557
Replenishment	0	1,275	32,227	16,195	14,113
Total Credits	8,156	1,286	39,684	24,748	29,670
<b>ACCUMULATED CREDITS</b>	<b>8,156</b>	<b>9,442</b>	<b>49,126</b>	<b>73,874</b>	<b>103,544</b>
<b><u>OBLIGATIONS</u></b>					
Excess Extractions <sup>3</sup>	0	0	0	0	0
Excess Export <sup>4</sup>	4,023	4,904	9,302	3,724	5,383
* Total Obligations	4,023	4,904	9,302	3,724	5,383
<b>ACCUMULATED OBLIGATIONS</b>	<b>4,023</b>	<b>8,927</b>	<b>18,229</b>	<b>21,953</b>	<b>27,336</b>
<b>NET ACCUMULATED (CREDIT) OR OBLIGATIONS</b>	<b>(4,133)</b>	<b>(515)</b>	<b>(30,897)</b>	<b>(51,921)</b>	<b>(76,208)</b>

<sup>1</sup>  
See Table 2.

<sup>2</sup>  
Amounts which may be extracted without replenishment obligation, which in fact are not extracted. Equal to Base Right minus Actual Extraction.

<sup>3</sup>  
Actual Extraction minus Base Right.

<sup>4</sup>  
Reference Table 15.

TABLE NO. 18

**SUMMARY OF REPLENISHMENT OBLIGATIONS  
WESTERN AND SAN BERNARDINO VALLEY  
FIVE-YEAR PERIOD 1971 THROUGH 1975  
(All Values in Acre-Feet)**

**WESTERN MUNICIPAL WATER DISTRICT**

	<u>SAN BERNARDINO BASIN AREA</u>	<u>COLTON AND RIVERSIDE BASINS</u>
Accumulated Credits <sup>1</sup>	(See Tables 10-13)	18,059
Accumulated Obligations <sup>1</sup>	--	5,253
Net Accumulated (Credit) or Obligation	--	(12,806)
Excess Extraction Return Credit <sup>2</sup>	--	0
<b>REPLENISHMENT REQUIRED</b>	--	0

**SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT**

	<u>SAN BERNARDINO BASIN AREA</u>	<u>COLTON BASIN AND RIVERSIDE BASIN IN SAN BERNARDINO COUNTY</u>
Accumulated Credits <sup>3</sup>	103,544	--
Accumulated Obligations <sup>3</sup>	27,336	0
Net Accumulated (Credit) or Obligation <sup>3</sup>	(76,208)	0
Excess Extraction Return Credit <sup>2</sup>	0	--
<b>REPLENISHMENT REQUIRED</b>	0	0

<sup>1</sup> Reference Table 16 for Colton and Riverside Basins.

<sup>2</sup> When a net accumulated obligation exists, excess extraction returns are computed as 36% of the excess extraction and are subtracted from the net accumulated obligation to determine the required replenishment.

<sup>3</sup> Reference Table 17.