

SAN DIEGO COUNTY  
WATER AUTHORITY



TWELFTH ANNUAL REPORT  
1958

SAN DIEGO COUNTY WATER AUTHORITY

TWELFTH  
ANNUAL REPORT  
*of Authority Operations*

*For*

*Fiscal Year Ending June 30, 1958*

Richard S. Holmgren  
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA  
1958

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BOARD OF DIRECTORS  
1957-58



Chairman  
Fred A. Heilbron  
San Diego  
7-44 to 6-58



W. Ray Coyle  
Vice Chairman  
South Bay  
Irrigation District  
6-55 to 6-58



Secretary  
Hans H. Doe  
Bueno Colorado  
Municipal Water District  
6-54 to 6-58



Executive Secretary  
Dorothy D. Miller  
8-49 to 6-58



R. E. Badger  
Santa Fe  
Irrigation District  
9-57 to 6-58



D. Maitland Bakewell  
Santa Fe  
Irrigation District  
12-48 to 8-57



Ralph E. Barger  
Otay Municipal  
Water District  
12-56 to 6-58



Paul Beermann  
San Diego  
2-55 to 6-58



Baylor Brooks  
San Diego  
5-54 to 6-58



Donald Burnham  
San Diego  
5-54 to 6-58



Herbert H. Carter  
Ramona Municipal  
Water District  
10-57 to 6-58



Charles R. Considine  
Valley Center  
Municipal Water  
District  
5-57 to 6-58



Charles A. Ceytser  
Rincon del Diablo  
Municipal Water District  
6-54 to 6-58



William B. Dennis  
Rainbow Municipal  
Water District  
5-55 to 6-58



Harry Griffen  
Helix  
Irrigation District  
7-56 to 6-58



Tom Harrington  
San Dieguito  
Irrigation District  
1-54 to 4-58

BOARD OF DIRECTORS  
1957-58  
(Continued)



Charles W. Hales  
San Dieguito  
Irrigation District  
6-58 to 6-58



G. R. Henderson  
San Diego  
10-55 to 6-58



Charles G. Kerch  
National City  
5-57 to 6-58



George Kerrigan  
San Diego  
9-53 to 6-58



H. Fred Landgraf  
San Diego  
10-55 to 6-58



R. M. Levy  
Helix  
Irrigation District  
5-53 to 6-58



Arthur H. Marston  
San Diego  
7-44 to 6-58



Jack E. McLean  
Rio San Diego  
Municipal  
Water District  
4-52 to 6-58



Lloyd M. Mitchell  
Escondido  
12-56 to 6-58



William W. Rogers  
Carlsbad Municipal  
Water District  
6-54 to 6-58



Franz R. Sachse  
Fallbrook Public  
Utility District  
10-56 to 6-58



T. Franklin Schneider  
San Diego  
11-54 to 6-58



David R. Shepardson  
Poway Municipal Water  
District  
4-54 to 6-58



Fred W. Simpson  
San Diego  
7-44 to 6-58



Robert A. Weese  
Oceanside  
3-55 to 6-58



Arthur C. Wells  
San Diego  
2-55 to 6-58

## SAN DIEGO COUNTY WATER AUTHORITY

### MEMBER AGENCIES AS OF JUNE 30, 1958

<i>Member Agencies</i>	<i>Date of Entry</i>
<b>Cities</b>	
Escondido .....	Oct. 9, 1950
National City .....	June 9, 1944
Oceanside .....	June 9, 1944
San Diego .....	June 9, 1944
<b>Irrigation Districts</b>	
Helix .....	June 9, 1944
San Dieguito .....	Dec. 13, 1948
Santa Fe .....	Dec. 13, 1948
South Bay .....	Nov. 3, 1952
(Includes City of Chula Vista, an independent member agency, from June 9, 1944, to Nov. 3, 1952)	
<b>Municipal Water Districts</b>	
Bueno Colorado .....	June 11, 1954
Carlsbad .....	June 16, 1954
Otay .....	Oct. 26, 1956
Poway .....	April 21, 1954
Rainbow .....	April 10, 1954
Ramona .....	August 27, 1957
Rincon del Diablo .....	June 14, 1954
Rio San Diego .....	June 7, 1956
(Includes Lakeside I.D., an independent member agency from June 9, 1944, to June 7, 1956.)	
Valley Center .....	May 9, 1955
<b>Public Utility District</b>	
Fallbrook .....	June 9, 1944

## COMMITTEES OF THE BOARD

June 30, 1958

### ENGINEERING AND OPERATIONS

Paul Beermann, Chairman  
Robert A. Weese, Vice Chairman  
Baylor Brooks  
Herbert H. Carter  
Charles A. Crytser  
Hans H. Doe  
Charles W. Hales  
George R. Henderson  
Arthur H. Marston  
Lloyd M. Mitchell

### FINANCE AND INSURANCE

Arthur C. Wells, Chairman  
Harry Griffen, Vice Chairman  
Ralph E. Barger  
Donald C. Burnham  
Charles R. Considine  
W. Ray Coyle  
Charles A. Crytser  
George Kerrigan  
H. Fred Landgraf  
R. M. Levy  
Jack E. McLean  
Lloyd M. Mitchell  
T. Franklin Schneider

### WATER PROBLEMS

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Hans H. Doe, Vice Chairman  
R. E. Badger  
Paul Beermann  
W. Ray Coyle  
Fred A. Heilbron  
George R. Henderson  
R. M. Levy  
William W. Rogers  
Franz R. Sachse  
Fred W. Simpson

### LEGAL AND CLAIMS

Donald C. Burnham, Chairman  
Franz R. Sachse, Vice Chairman  
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W. B. Dennis  
Harry Griffen  
Charles G. Kerch  
George Kerrigan  
H. Fred Landgraf  
William W. Rogers  
T. Franklin Schneider  
David R. Shepardson  
Arthur C. Wells

### ORGANIZATION, PERSONNEL AND PUBLIC RELATIONS

Fred W. Simpson, Chairman  
David R. Shepardson,  
Vice Chairman  
Ralph E. Barger  
Baylor Brooks  
Herbert H. Carter  
W. Ray Coyle  
W. B. Dennis  
Charles W. Hales  
Charles G. Kerch  
Jack E. McLean  
Robert A. Weese

### LANDS AND RIGHTS OF WAY

Donald C. Burnham, Chairman  
Wm. W. Rogers, Vice Chairman  
Charles A. Crytser  
Harry Griffen  
H. Fred Landgraf  
Lloyd M. Mitchell  
Franz R. Sachse  
David R. Shepardson

### EXECUTIVE OFFICERS AND OPERATING STAFF

General Manager and Chief Engineer.....	Richard S. Holmgren
General Counsel.....	William H. Jennings
Assistant Chief Engineer.....	Allen H. Jones
Controller.....	Charles L. Royer
Treasurer.....	Harry L. Hall
Executive Secretary and Asst. Treasurer.....	Dorothy D. Miller
Project Construction Engineer.....	John D. McCoy
Project Design Engineer.....	James P. Larney
Superintendent, Maintenance and Operation.....	Joseph E. Lester



**SAN DIEGO AQUEDUCT  
SECOND AQUEDUCT : SOUTH SECTION  
THE FIRST PIPE**

DESIGNED : San Diego County Water Authority  
 FOR : San Diego County Water Authority  
 FINANCED : San Diego County Water Authority  
 WATER FROM : Metropolitan Water District of So Calif.  
 BUILT BY : Young and Anderson Co.  
 PIPE FAB. BY : Kaiser Steel - Fontana Fabricating Div.  
 - MARCH 16, 1958 -

*J. D. McCoy, B. Brooks, H. W. Anderson, R. S. Holmgren, F. A. Heilbron, J. P. Larney, H. A. Barnes and A. H. Marston. At top: J. E. Young and H. R. Voris.*



**SAN DIEGO COUNTY WATER AUTHORITY**

2750 FOURTH AVENUE  
 SAN DIEGO 3, CALIFORNIA

December 15, 1958

Board of Directors  
 San Diego County Water Authority  
 Building

Gentlemen:

Transmitted herewith is the Twelfth Annual Report covering operations of the Authority for the 1957-58 fiscal year, as prescribed in Ordinance No. 2 adopted by the Board of Directors December 1, 1944.

Again, both the area and the population of the Authority, 465,322 acres and 842,600 persons, respectively, substantially increased over the previous year. To meet the needs of the increased population, the Authority is making every effort to complete the Second San Diego Aqueduct by late 1960. As of June 30, 1958, contracts had been awarded for construction of two of the four sections of the aqueduct, making a total of 29 miles of aqueduct under contract. Series A Bonds in the amount of \$7,500,000 of the \$35,000,000 issue authorized by the voters of San Diego County July 9, 1957 were sold January 13, 1958, providing initial funds for construction of the aqueduct. Additional series will be sold as funds are needed.

Water production of member agencies during the year totaled 149,579 acre feet. This represents a decrease of 6.2 percent from the 1956-57 fiscal year, due to good spring runoff and to activities of the Don't Waste Water Program instituted to conserve water. Water supplies available now appear to be ample to meet the needs of the Authority area until late 1960, when the aqueduct will be completed.

Additional water must be available by 1970 if the area is to support the ever-increasing population of San Diego County. Therefore, all matters pertaining to a future supplemental water supply from Northern California are being actively followed and studied.

Very truly yours,

*Richard S. Holmgren*  
 General Manager and Chief Engineer

**CITIES**  
 ESCROWING  
 NATIONAL CITY  
 OCEANVIEW  
 SAN DIEGO

**IRRIGATION DISTRICTS**  
 HELIX  
 SAN GREGORIO  
 SANTA FE  
 SOUTH BAY

**MEMBER AGENCIES**  
 PUBLIC UTILITY DISTRICTS  
 FALLBROOK

**MUNICIPAL WATER DISTRICTS**  
 BUREAU COLORADO  
 CARLSBAD  
 GRAY  
 POWAY  
 RAINBOW  
 SANORA  
 SANON DEL DIABLO  
 SAN DIEGO  
 VALLEY CENTER

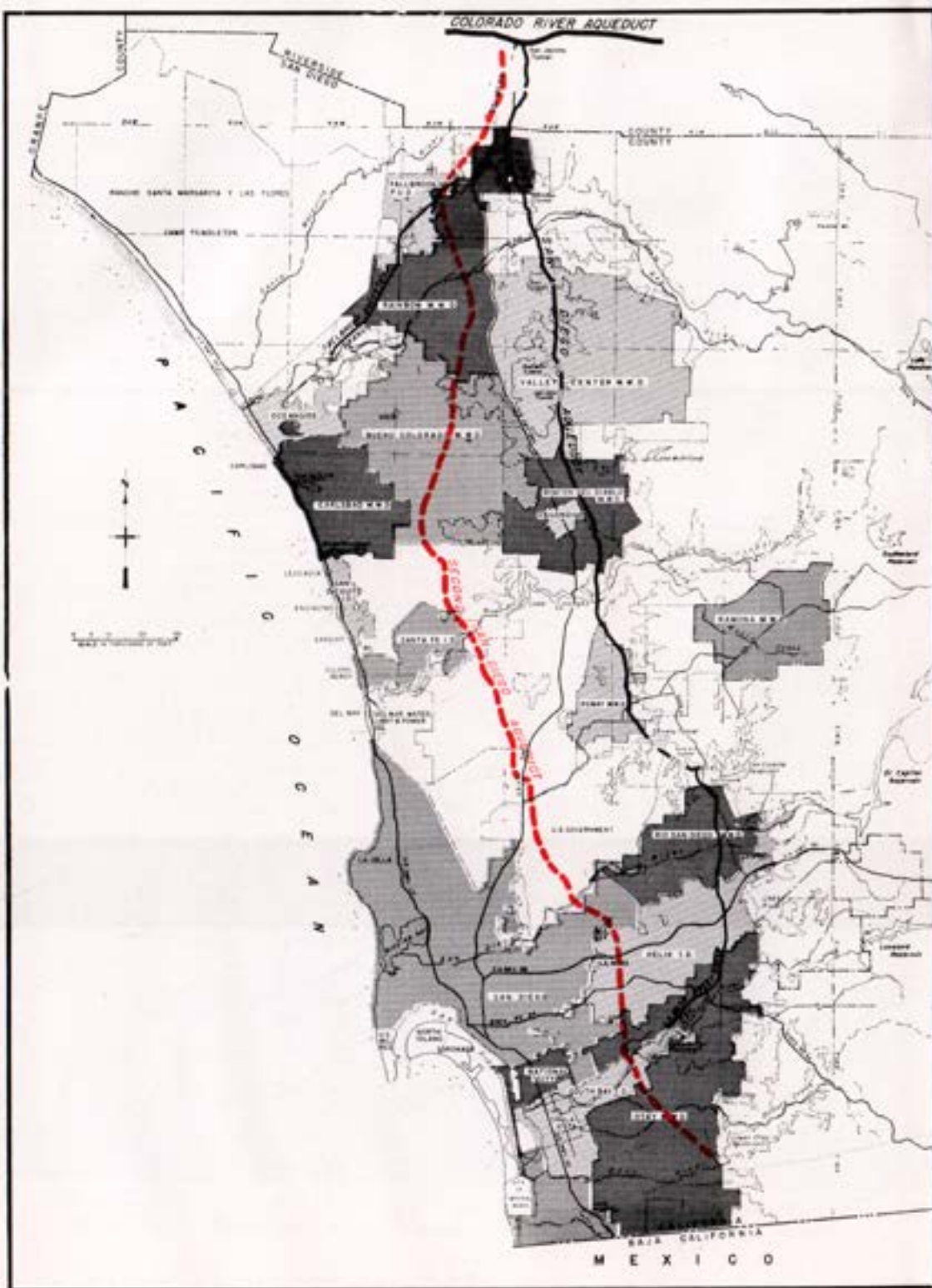


Figure A. Authority area within San Diego County

## REPORT OF THE AUTHORITY AND ITS OPERATIONS

For Fiscal Year 1957-58

### GROWTH OF AUTHORITY

#### Area

The largest single increase in area within the boundaries of the Authority in 1957-58 automatically occurred when the City of San Diego annexed an area totaling 13,760 acres (21.5 sq. mi.), lying southerly of the South Bay Irrigation District, between the Otay Municipal Water District and the Pacific Ocean and extending to the Mexican border. The area is contiguous to the City of San Diego through a corridor within the harbor area, lying west of Chula Vista and National City. This annexation, together with other smaller annexations made during the year, increased the area of the City of San Diego by 14,361 acres to 98,993 acres, equal to 21.27 percent of the area lying within the boundaries of the Authority. In addition to the annexations to the City of San Diego, there were also small areas, previously not within the Authority, annexed to the Cities of Ocean-side and National City which automatically became annexed to the Authority.



Richard S. Holmgren  
General Manager and  
Chief Engineer

The Ramona Municipal Water District, an area of 20,600 acres organized in 1957 to supply supplemental water to the community of Ramona and adjacent areas, annexed to the Authority as a member agency August 27, 1957, becoming the eighteenth member agency of the Authority.

As of June 30, 1958, the boundaries of the Authority include 465,322 acres, or 17 percent of the entire 2,725,100 acres lying within San Diego County, or 52 percent of the estimated 900,000 acres lying between the Cleveland National Forest and other national and state lands in the Mt. Laguna area and the Pacific Ocean, which may some time in the future be included within the ultimate boundaries of the Authority.

A tabulation showing the areas lying within the boundaries of Authority member agencies as of June 30, 1958 and the changes which occurred during the 1957-58 fiscal year is shown on Table 1.



## Population

As of June 30, 1958 a total of 943,000 persons is estimated to be residing within San Diego County, an increase of about 43,000 persons during the 1957-58 fiscal year, or 386,192 persons above the U. S. Census figure for 1950, when a population of 556,808 persons was listed as residing within the county. As of June 30, 1958 an estimated 89 percent, or 842,600 persons of the 943,000 residing in the county, is estimated to be residing within the boundaries of the Authority.

A tabulation showing the U. S. Census population figures within the Authority's area and the County of San Diego by decades, from 1910 to 1950, together with the estimated population figures for 1956, 1957, and 1958 is shown on Table 2.

A breakdown showing the 1940 and 1950 U. S. Census of population residing within the area of the Authority, where available, and the estimated 1958 population for each agency is shown on Table 3. The figures show an increase in population from 257,634 in 1940 to 462,886 in 1950, an increase of 80 percent, and a continuing annual increase averaging 10 percent in the eight years since 1950.

The highest average annual per-

### *Office Activities*

## GROWTH OF AUTHORITY

centage increase during the 8-year period (1950-1958) occurred in Helix Irrigation District, where the population increased from 44,162 to 102,400, an average annual increase of 16 percent. Within the Helix District, population in the City of El Cajon increased from 5,600 to 30,000, an average annual increase of 54 percent during the period.

As shown on Table 3, the average density of population within the area of the Authority in 1958 is 1,159 persons per square mile. National City has the highest density of any member agency, with a density of 4,471 persons per square mile, or 6.99 persons per acre. The Otay Municipal Water District, with only 1,150 persons in an area of 50,657 acres, has the lowest population density of any Authority member agency, with an average of only 0.02 persons per acre, or 15 persons to the square mile.

## Assessed Valuation

The assessed valuation of taxable property lying within the area of the Authority continued to climb rapidly during the 1957-58 fiscal year. The assessed valuation of all taxable secured and unsecured property, within Authority area, as determined for the fiscal year 1957-58, totaled \$1,005,122,640, an increase of \$112,220,570, or 12.6 percent over the assessed valuation of 1956-57.

A breakdown showing the total assessed valuation of taxable property within each Authority member agency in 1956-57 and 1957-58 is shown on Table 4. The table shows that eleven of the Authority's eighteen member agencies had percentage increases in assessed valuation greater than the average of 12.6 percent for the Authority. The Rincon del Diablo Municipal Water District shows the largest increase, totaling 39.9 percent for the year. The smallest percentage increase, not including the Ramona Municipal Water District which annexed to the Authority during the 1957-58 fiscal year, was made in National City where an increase of only 2.1 percent occurred in assessed valuation.

The 1957-58 average assessed valuation per acre within the area of the Authority was \$2,160 per acre, an increase of \$115 over the equivalent valuation in the previous fiscal year. The highest average assessed valuation per acre within any Authority agency exists in the City of San Diego, with a valuation of \$6,550 per acre, closely followed by the City of Escondido with a valuation of \$6,533 per acre. The lowest assessed valuation per acre occurred in the Otay and Valley

Center Districts, with values of \$69 and \$70 per acre. Both of these agencies, however, experienced substantial increases in assessed valuation in 1957-58 over the previous year of 19.0 percent and 22.3 percent, respectively.

In order to provide a basis for determining the assessed valuation of area within the Authority's boundaries, a Certificate of Change of Boundaries is prepared annually by the Authority and submitted to The Metropolitan Water District of Southern California, the County Assessor, and the State Board of Equalization. All changes which occurred in the boundaries of Authority member agencies for the fiscal year 1957-58 were recorded in this statement.

Prior to publication of this report, the assessed valuation of taxable property for the 1958-59 fiscal year was made available to the Authority by the County Assessor. Therefore, figures for the 1958-59 fiscal year for each Authority member agency have been included on Table 4 for convenience of reference. An increase of \$116,737,870 in assessed valuation is indicated for the 1958-59 fiscal year, equal to 11.6 percent over the 1957-58 fiscal year. Except for the 1955-56 fiscal year, an annual increase greater than 10 percent has occurred on all taxable property lying within the boundaries of the Authority since the 1951-52 fiscal year.

## WATER SUPPLY AND CONSUMPTION

The only water supply of the Authority is that available to it as a constituent member agency of The Metropolitan Water District of Southern California. Water is brought by the District from the Colorado River by way of the District's Colorado River Aqueduct a distance of 242 miles, from Lake Havasu on the Colorado River to Lake Mathews, an artificial reservoir in Riverside County constructed by the District as a terminal reservoir for the aqueduct. Initial construction of the aqueduct was completed to one-half capacity in 1939, and it is now being enlarged to full capacity with completion set for 1960.

Water for the Authority is diverted into the First San Diego Aqueduct from the Colorado River Aqueduct at the West Portal of San Jacinto Tunnel, at the point where the Colorado River Aqueduct enters the Southern California coastal plains. From this point, water is distributed by gravity to all member agencies of the Authority, from the



Allen H. Jones  
Assistant  
Chief Engineer

Rainbow District in the north to the Otay District in the south. The Ramona District, after receiving water by gravity from the Authority, pumps its entire supply to serve the high areas lying within the District.

With the exception of two short periods, the First San Diego Aqueduct was operated at capacity flow throughout the year. In mid-October heavy rains resulted in a large immediate reduction of water demands from member agencies. Only a slight reduction in water from the Metropolitan Water District was necessary to safely handle the sudden change in demand. By the end of October, normal demands were restored and the full flow of the aqueduct was resumed.

From January 23 to 26, 1958, the Colorado River Aqueduct was shut down for construction purposes. During this period flow in the First San Diego Aqueduct was reduced to about 144 c.f.s., coming primarily from water previously stored in San Jacinto Reservoir. Following the shut down, water in the reservoir was replaced and the flow in the aqueduct was again slowly increased to capacity volume. During much of the 1957-58 rainy season member agencies' requirements for Authority water were light. However, flow in the aqueduct was maintained at maximum capacity, and the surplus flow was carried full length of the aqueduct and stored in the San Vicente Reservoir for future use.

The total quantity of water received from the Metropolitan Water District during the 1957-58 fiscal year totaled 142,253 acre feet, an average of 196.5 c.f.s., or 127.0 m.g.d. Since the capacity of the aqueduct is 196 c.f.s., the average delivery of 196.5 c.f.s. indicates that flows in excess of capacity occurred during most of the year (see Table 5). The month of June, 1958 marked the sixty-fourth consecutive month in which the Authority received water from the Metropolitan Water District by request to deliver all water possible through the aqueduct.

Under contract between the Metropolitan Water District and the State of California, the Authority delivered water to the State's Forestry Camp at Rainbow. Also, under contract between the District and Convair, Division of General Dynamics Corporation, the Authority delivered water to Poway Municipal Water District for delivery to Convair for testing of federal missile equipment at Sycamore Canyon on Camp Elliott, just north of Poway. Of the total amount of water received in 1957-58, only 95 acre feet was water transported by the Authority for delivery outside of Authority area.

### Water Deliveries

Water requirements of all member agencies, above that available from the agencies' local sources, were met during the year with water supplied directly from the aqueduct, or from water previously stored by the Authority in San Vicente Reservoir to the accounts of its member agencies. A slight deficiency in water available from the Authority, totaling 5,893 acre feet, required by Rainbow, Fallbrook, Poway and Rincon Districts to meet the needs of their consumers, was obtained by the purchase of stored water in San Vicente Reservoir, from the City of San Diego. The Authority delivered this water without cost to the agencies by substituting water from the aqueduct in lieu of delivery from San Vicente Reservoir and replacing such diverted water with that in storage to the accounts of the agencies.

A tabulation showing Authority deliveries by months, July, 1957 to June, 1958, inclusive, is shown on Table 5.

The total quantity of water delivered to member agencies and others during 1957-58 totaled 139,698.7 acre feet. This was 5,732 acre feet less than the equivalent amount delivered in 1956-57. Water was delivered to all member agencies during some part of the year. The first delivery of water to the Otay Municipal Water District, annexed to the Authority in 1956, occurred in August of 1957.

The largest quantity of water delivered to member agencies of the Authority in any one month occurred in August of 1957, when 13,835.7 acre feet was delivered. The minimum monthly quantity delivered occurred in February of 1958, when 9,470 acre feet was sold to the agencies.

A breakdown of Colorado River water deliveries to member agencies by years for the past decade is shown on Table 6.

A decrease in water sales occurred in 1957-58 from that of the previous year to all agencies except the City of San Diego, Carlsbad, Otay and Ramona Districts. This was due primarily to above-normal rains during the late winter months, making available a larger supply of local water within the agencies.

### Water Production of Member Agencies

The term "water production" is used to designate the quantity of water which an agency diverts or produces from all of its sources of water supply and includes all water required to meet the demands of its consumers, losses sustained in transmission lines and in the distribu-

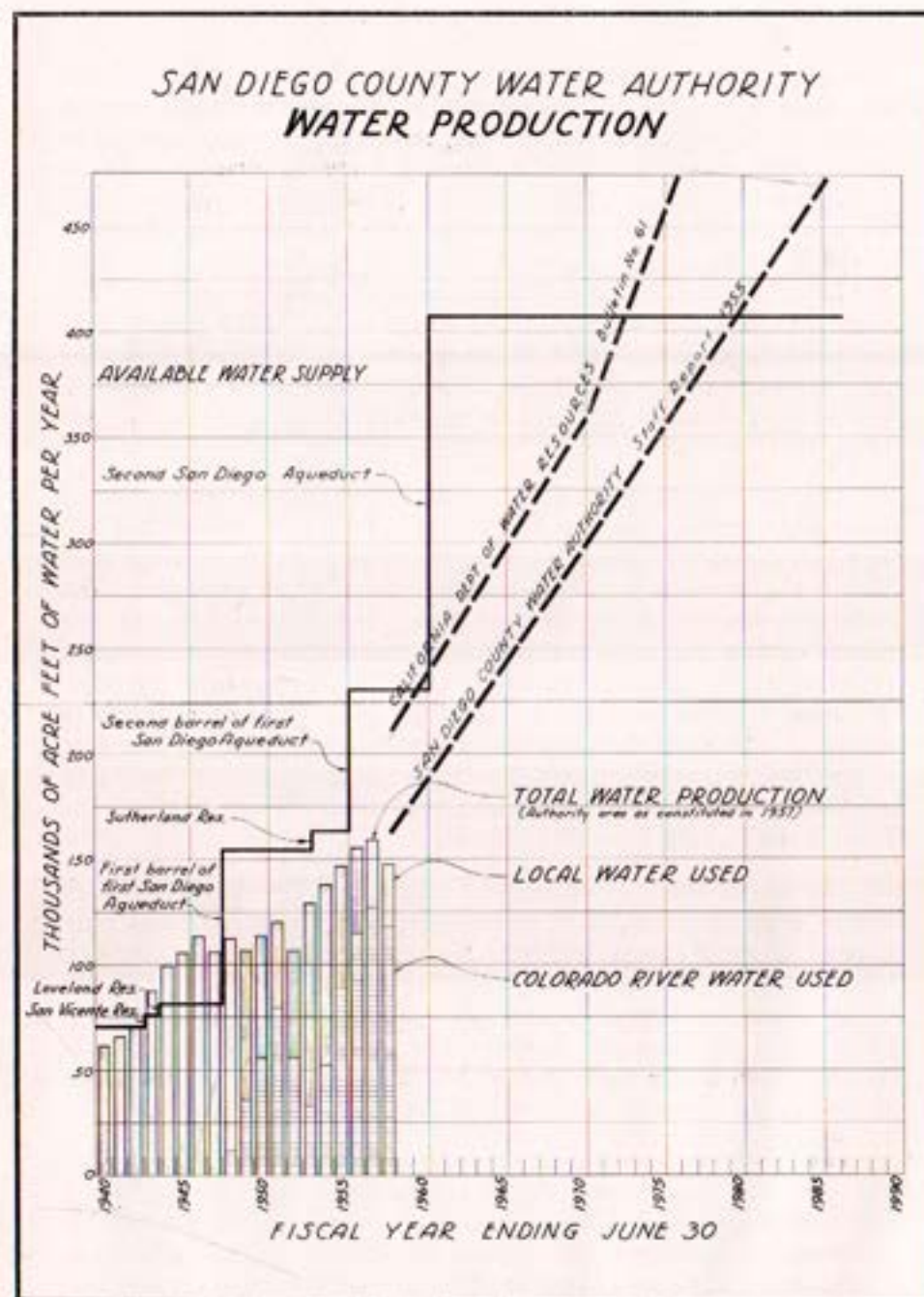


Figure B. Water Production of Authority Member Agencies.

tion system, and evaporation and seepage losses occurring in reservoirs and tanks within the distribution system. Runoff from local streams, stored for future use in impounding reservoirs, is not considered as water production until such impounded water is diverted into an agency's system to meet current needs. Losses from evaporation and seepage occurring during the storage period are not considered as water production, since they are considered in determining the safe yield from such reservoirs and their contributory water-shed area. The water production of an agency includes only that water produced by the public agency or one of its subagencies and delivered through a distribution system to consumers. Water obtained from private wells, located on a property and used by the owner thereon, is not included as part of an agency's water production.

The total quantity of water produced within the boundaries of Authority member agencies for the 1957-58 fiscal year is 148,579 acre feet (as shown on Table 7), or 9,893 less than the previous year. This is the lowest water production since the 1954-55 fiscal year. The reduction resulted mainly from an above-normal rainfall in the late winter months and from the activity of the county-wide conservation program which was in effect during the first six months of the year. A similar decrease occurred in the water production of all member agencies. However, Authority water accounted for 118,380 acre feet of the total water production of member agencies, or 79.7 percent of all water produced. This compares with 80.1 percent of Colorado River water for the 1956-57 fiscal year.

The percentage of Authority water in the total production of each agency is shown on Table 8. It varies from 16.3 percent of total production in the Ramona District (due primarily to receiving its first water near the end of the year) to 100 percent in the Otay and Valley Center Districts. Two agencies, Poway and City of San Diego, obtained in excess of 90 percent of their water production from the Authority. In eleven of the eighteen agencies, Authority water accounted for an amount in excess of 75 percent of the total water produced.

The unit water production of each member agency is shown on Table 9. The area served is the gross area, including roads, parks and vacant land lying within the boundaries of an area, assumed as capable of receiving water from the existing system. Water production per acre averages 0.74 acre feet per acre—a reduction of 0.11 acre feet per acre from that of the previous year. The highest water production per acre occurred in the South Bay District, where 1.15 acre feet of

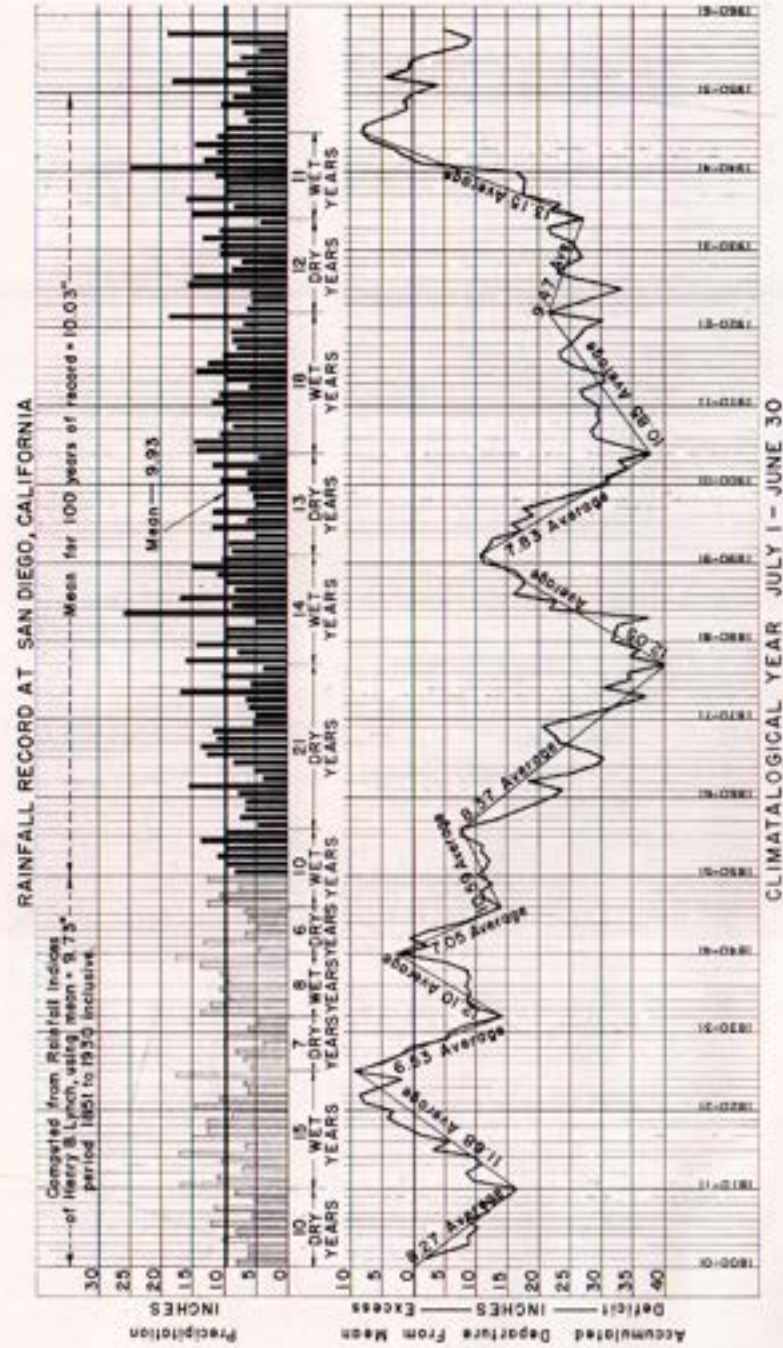


Figure C. Rainfall record at San Diego, California



water was produced per acre of area served. A close second was the City of San Diego, with a production of 1.09 acre feet per acre of gross area served. The lowest water production served per acre was in the Valley Center District, where only 0.11 acre feet was produced for a total gross area of 6,800 acres served in a total of 53,160 acres within the District.

Average water use per capita within the area of the Authority, as shown on Table 9, averaged 0.17 acre feet per capita per year, equal to 152 gallons per capita per day, a decrease of 27 gallons per capita per day from the previous year. The maximum water production per capita continues to be in the Rainbow District, where 1.17 acre feet per capita was produced during the year, resulting from an almost complete use of water for agricultural purposes. However, this is substantially lower than the 1.95 acre feet per capita produced in this District in the previous year, indicating the tendency for the breakdown of large holdings into smaller units. It is interesting to note that the City of San Diego has the lowest per capita production—only 0.13 acre feet per capita per year—equal to 116 gallons per capita per day. This is the result of an almost total use of water for do-

*Installation of  
Ramona Service Connection*

## WATER SUPPLY AND CONSUMPTION

mestic and industrial use within the City, with practically no water being used for agriculture.

### Storage Facilities

By agreement with the City of San Diego, the Authority has the right to utilize storage capacity in the San Vicente Reservoir up to a maximum of 20,000 acre feet, provided the capacity is available. The reservoir is located at the terminus of the First San Diego Aqueduct, and water is stored in this reservoir by the Authority to the accounts of its member agencies upon receipt of a written request from the agency. The agency, when requesting water placed in storage to its account, guarantees to ultimately take delivery of such water and to pay for evaporation losses on water while in storage and all storage charges when the water is delivered.

The Authority-City of San Diego agreement provides that any water lost over the spillway, due to runoff from the reservoir watershed area, shall be first considered as Authority water in storage. For the use of this storage space, the Authority pays the City a sum of \$2.20 per acre foot on the maximum quantity of water held in storage during the storage year. The agency is then charged \$2.90 per acre foot for water when it is delivered by the Authority. The surcharge of 70 cents above the storage charge paid to the City is used by the Authority to replace water lost by evaporation. Total evaporation losses in San Vicente Reservoir for each month are proportionately divided between the agencies having water in storage. Ordinance No. 66, adopted June 12, 1958 changes the method of charging for evaporation losses by making them chargeable monthly to the agency at the prevailing rate at the time water lost by evaporation was placed in storage.

Stored water is delivered to member agencies by delivering directly from the aqueduct in-lieu-therefor water from the current flow of the aqueduct ordered by the City of San Diego. Simultaneously, delivery is made to the City of San Diego from Authority-stored water in San Vicente Reservoir to compensate for the in-lieu-therefor water diverted, in order to deliver to the City the amount on order. At times of high demand the City must pump water from the reservoir to meet its demands. Since the City of San Diego is not required to pump water which it receives from the Authority at the terminus of the aqueduct, a charge is made when the City is required to accept stored water in lieu thereof from water in storage at lower reservoir level. This charge

is \$1.00 per acre foot for one-half of the water delivered to compensate the City for the pumping cost.

The quantities of water stored in San Vicente Reservoir to the accounts of Authority member agencies at the beginning and ending of the 1957-58 year are shown on Table 10. Ten of the eighteen Authority member agencies had water stored to their accounts at the end of the year. Of the eight remaining agencies, Fallbrook, Rainbow and Poway Districts stored water to their accounts whenever available during the year, but in order to meet their current demands these agencies had withdrawn all water stored to their accounts prior to June 30, 1958. The 1957-58 fiscal year ended with the Authority having 11,846 acre feet in storage in the San Vicente Reservoir to the accounts of its member agencies, an increase of 1,977 acre feet over the amount in storage in June of 1957.

### Water Quality

The chemical characteristics of natural Colorado River water, as delivered into the First San Diego Aqueduct at the West Portal of San Jacinto Tunnel, are shown on Table 11 by months. Analyses of aqueduct water are made by the Metropolitan Water District at its laboratory in the La Verne Treatment Plant from samples taken monthly at the West Portal of San Jacinto Tunnel. The total hardness varied from a high of 366 p.p.m. (CaCO<sub>2</sub>) in July of 1957 to a minimum of 314 p.p.m. in June of 1958.

The analyses show a steady decrease in hardness during the year, due to heavy runoff into Lake Mead from the upper watershed areas of the Colorado River. Other characteristics show a similar variation. A high water temperature of 78° F. was noted in July of 1957, and a low of 49° F. was noted in January of 1958.

### Allocation of Water Among Member Agencies

The Act under which the Authority is organized states that each agency shall have the right to purchase water in proportion to the amounts paid to the Authority in taxes, et cetera, but not including payments for water. The current flow of the aqueduct continued to be divided among member agencies in accordance with an agreed-upon allocation of rights to purchase Authority water, based on the preferential right as stated in the Act, but including the obligation of annexation charges assumed by an agency at time of annexation as part of the total amount paid.

The amounts of annexation charges paid and to be paid, the resulting allocation percentages, and the equivalent flow in the First San Diego Aqueduct, assuming a capacity flow of 196 c.f.s., are shown on Table 12. The equivalent flows shown on this table are increased or decreased proportionately if and whenever the actual flow in the aqueduct varies from the assumed capacity of 196 c.f.s. The tabulation shows that as of June 30, 1958 the City of San Diego, with 21.27 percent of the Authority area, has a right to purchase 68.28 percent of the total Authority water supply, if needed to meet the demands of consumers within its area. This is equal to 133.83 c.f.s. of the aqueduct flow if operated at assumed capacity. The next largest right to purchase aqueduct water equals 9.44 percent of the aqueduct capacity, held by the Helix Irrigation District, with 6.56 percent of the Authority area. Eight of the eighteen member agencies have rights equal to less than 1.0 percent of the Authority supply.

### OPERATION AND MAINTENANCE

The Authority maintains its field headquarters at Escondido, California, where maintenance and operation activities of the Authority's system are centered. A force of nine men performs duties pertinent to maintenance and operation of the First San Diego Aqueduct and the two branch lines, totaling 66 miles of pipe line, varying from 14 inches to 72 inches in diameter. There are eighteen metering stations, through which delivery of water from the First Aqueduct to member agencies is controlled and metered, and 295 miscellaneous structures, in which blowoff valves, air valves, vent structures and manholes are housed. The buildings and grounds at the headquarters, some of which are occupied by Authority engineering and design personnel engaged on construction of the Second San Diego Aqueduct, and all vehicles used by maintenance, engineering and design personnel are serviced by the regular maintenance force.



Joseph E. Lester  
Superintendent

### Patrolling and Inspection

The aqueduct was patrolled daily, with the patrolmen inspecting the sections north and south of Escondido on alternate days. Water levels in all open structures were checked and readings were recorded. All metering stations were visited at least twice weekly to inspect and check the meters, and charts showing continuous quantities of flow were changed weekly. Whenever changes in delivery were requested



by the agencies, this was brought about by the regular patrolmen while on scheduled trips.

At intervals the entire length of the aqueduct was inspected for possible leaks. Some indications of possible leaks were found, but in most instances proved to be leaks from other water systems. A small leak was discovered just north of the entrance to Poway Tunnel, which will be repaired as soon as the barrel from which the leak appears to come can be shut down.

### Maintenance

There are 295 concrete structures, which house air valves, blowoffs and manholes, varying in depths from 5 to 30 feet. These structures were inspected frequently for ground-water seepage, which creates moisture, resulting in corrosive action on the exposed steel. Frequent dewatering of the structures and cleaning were required to keep them in good condition. An annual application of rust-resistant paint has proved effective in reducing the corrosive action of the moisture.

Heavy rains in the early spring months badly damaged some sections of the patrol road and destroyed a number of the culverts, requiring replacement by large pipes and resurfacing of the patrol roads.

*Maintenance Activities*

### OPERATION AND MAINTENANCE

The metering stations, of which there are 18, were kept in good operating condition by painting and minor maintenance at frequent intervals. Meters were checked periodically, and the regulating valves and venturi rings were cleaned and greased when necessary.

To eliminate the muddy condition which existed at the Escondido yards during wet weather, decomposed granite was spread over parts of the yard. A change in the layout of office space, including the construction of a soils laboratory, was made to permit more efficient use of the available space.

The maintenance crew repaired and serviced all Authority mechanical equipment during the fiscal year, including 45 vehicles; such as passenger cars, jeeps, pickup and heavy-duty trucks, and numerous units of mobile equipment.

### Water Temperature and Chlorination

Temperature of the aqueduct flow exceeded 70° F. during the summer, with a maximum high of 82° F. in the months of July and August. During the warm summer months, chlorination of the flow at Lilac Station consisted of massive doses, approximately 200 pounds of chlorine injected for a short period twice a week. In October, the temperatures dropped below 70° F. and chlorination was reduced to only one dose a week, continuing until mid-March when chlorination was eliminated for two weeks for repair of the chlorinator. In April and as temperatures began to climb, chlorine dosage was gradually increased to a maximum dose of 250 pounds per week in June of 1958.

### PUBLIC RELATIONS

Activities of the Don't Waste Water Committee, organized in 1957 to promote conservation of water, because of a threatened water shortage, was discontinued on March 30, 1958. While the committee was in effect, the Authority participated actively in the program. During the spring months the heavy rains replenished local supplies to such an extent that a continuation of the water conservation program did not seem warranted. Mr. Frank E. Smith, Executive Secretary of the Committee, successfully directed the committee until its activities ceased. The committee was then placed on an inactive basis, with its records being filed in the office of the City Clerk.

The Authority cooperated with the City and County of San Diego and the City School System in preparing a booklet, entitled "Some



**Ground-breaking Ceremonies of Second Aqueduct**

*From left back row: Richard S. Hulmgren, Authority General Manager and Chief Engineer; A. B. Polley, Manager of Young & Anderson Co.; John D. McCoy, Project Construction Engineer of Second San Diego Aqueduct; J. E. Young, Young & Anderson Co.; Fred A. Heilbron, Chairman of Authority Board of Directors; H. W. Anderson, Young & Anderson Co.; Homer A. Barnes, Plant Manager of Fabricating Division of Kaiser Steel Corporation.*

**PUBLIC RELATIONS**

Facts About Your Tax Dollar." The booklet sets forth the source of revenue for each governmental agency and the services for which the money is spent.

Ground-breaking ceremonies were held on January 10, 1958, at which the first section of pipe of the Second San Diego Aqueduct was laid. The public was invited to attend the ceremony.

Numerous articles and pictures were supplied to newspapers and periodicals in Southern California throughout the fiscal year, particularly those within the area of the Authority.

**SECOND SAN DIEGO AQUEDUCT**

The Second San Diego Aqueduct, extending from the Metropolitan Water District Colorado River Aqueduct near Hemet in Riverside County to the Lower Otay Reservoir in San Diego County a total distance of 97 miles, was the major construction project during the 1957-58 fiscal year.

The Metropolitan Water District, of which the Authority is a constituent member, assumes responsibility for the construction of the northerly 38 miles of the aqueduct to a major delivery point to the Authority, located in the Rainbow Municipal Water District area, about 6 miles south of the Riverside-San Diego County line. As of June, 1958 a substantial portion of the District's section was under contract, with a completion date set for March 31, 1960. The Authority's portion of the aqueduct will extend 59 miles in a generally north-south direction across San Diego County, paralleling the First San Diego Aqueduct an average distance of about 6 miles westerly.

The Fairchild Aerial Surveys, Inc., which had been awarded a contract to provide aerial photographs and detailed topographic maps of the proposed alignment of the Second Aqueduct in March of 1957, completed its work in August of 1957. The aerial stereoscopic photographs furnished by the company were used, together with field reconnaissance in fixing the approximate location of the Second San Diego Aqueduct. Later, the detailed topographic maps (Scale 1" = 200' with 5-foot contour intervals) were furnished by the company and used for fixing the final location of the line. They also provided



**John D. McCoy**  
Project  
Construction  
Engineer



**James P. Larney**  
Project Design  
Engineer



the basis for construction drawings. The total amount paid the Fairchild Company was \$42,360, equal to about \$700 per mile of aqueduct.

In addition to the construction and design offices at Escondido field headquarters, a branch construction office was established in La Mesa, California, in July of 1957 to provide more efficient expedition of surveys for the aqueduct and rights of way, which will later be used for layout surveys and inspection during construction of the southerly portion of the aqueduct. Mr. Robert H. Wilken, formerly an engineer with the Helix Irrigation District, was employed as Division Engineer to head the branch office.

The aqueduct will require the acquisition of rights of way over 287 parcels of land in San Diego County. In general, 100-foot rights of way will be obtained north of the San Diego River, where sufficient space is being provided for a future second barrel, when additional aqueduct capacity is needed to meet the ultimate needs of the Authority. In rugged terrain, a wider strip is being taken to facilitate construction activities. South of San Diego River, the width of the right of way has been reduced to

*Construction Activities of  
Second Aqueduct*

## SECOND SAN DIEGO AQUEDUCT

25 feet, since the aqueduct will be constructed to its full capacity in this section.

The Union Title Insurance Company of San Diego was engaged in August of 1957 to prepare title reports on all parcels over which rights of way will be required. Maps and title descriptions, prepared by the Authority engineering staff, form the basis on which the title reports will be made.

The American Right of Way Appraisal Contractors of Los Angeles, California, was engaged in August of 1957 to make appraisals of all rights of way required for the Authority's section of the aqueduct and for the Metropolitan Water District section lying within San Diego County. As of June 30, 1958, appraisals had been completed and title reports were submitted for all rights of way north of the aqueduct crossing of El Cajon Boulevard in La Mesa, totaling some 208 parcels.

The Second Aqueduct right of way is being acquired by Messrs: James J. Bordignon and Alfred May, Authority Right of Way Agents, using the appraised value as the amount offered land owners for their properties. As of June 30, 1958, rights of way had been acquired over 140 parcels of the 287 parcels of the aqueduct right of way.

In order to provide "right of entry" on parcels which the Authority has been unable to obtain, condemnation proceedings were instituted by the Authority at such times as "right of entry" was needed to proceed with construction of the aqueduct. Details of such proceedings are given by the General Counsel under the legal section of this report.

Plans and specifications, designated 201, for the first Authority section of the aqueduct were completed on October 21, 1957, and bids for the work were requested from contractors. The work included under Specification 201 covers a total distance of 10.6 miles, extending from the Metropolitan Water District major delivery point 5.9 miles inside San Diego County to a point designated Twin Oaks Vent, located on the divide between San Luis Rey and the San Dieguito Rivers, some 5 miles north of the community of San Marcos. This section is being constructed of 72 and 75-inch diameter steel pipe. Where heads exceed 600 feet, plans and specifications require steel pipe construction with cement mortar lining and coating. Alternate bids, using standard lock joint concrete pipe, were permitted for all other heads.

SAN DIEGO COUNTY WATER AUTHORITY

On November 18, 1957 bids were received from the following contractors:

<i>Contractor</i>	<i>Amount Bid</i>
Young and Anderson Co. _____(1)	\$6,366,304.
Macco Corporation — Travares Construction Co., Inc., a joint venture____(1)	6,817,579.
Ukropina-Polich-Kral Constr. Co.____(2)	7,342,108.
Vido Artukovich and Son____(1)	7,461,229.
S. A. Healy Construction Company____(1)	7,699,983.
Wattson-Rounds Construction Co.____(2)	7,738,597.
Engineers Limited Pipeline Co.____(1)	7,883,737.
Morrison-Knudsen Co., Inc. and F. E. Young Constr. Co., a joint venture____(1)	8,076,743.
ABC Construction Company and W. C. Baker Co., a joint venture (bid on 2 schedules only) _____(2)	4,538,010.

- (1) Using steel pipe with welded joints.
- (2) Using concrete pipe alternate.

On November 21, 1957 the contract was awarded to the low bidder, Young and Anderson Co. of Brea, California, using all steel pipe, and executed by the General Manager and Chief Engineer December 10, 1957. The pipe is being fabricated by Kaiser Steel Company of Fontana, California, and the cement mortar coating and lining of the pipe is being done by the American Pipe and Construction Company at its Southgate plant.

The contract calls for a construction period of 500 days, and the completion date of the first section of the aqueduct is set for April 23, 1959. As of June 30, 1958, about 3.5 miles of pipe, or 32 percent of the total for this section had been laid.

Plans and specifications, designated 202, for the second section of the aqueduct were completed March 7, 1958, when bids from contractors were requested. This section of the aqueduct extends from Twin Oaks Vent to a point designated Black Mountain Vent, about 3.5 miles north of the aqueduct's crossing of Highway 395 near Miramar, a distance of 18.2 miles. The pipe for this section includes 66, 69, 72 and 75-inch diameter pipe. Alternate proposals were permitted for prestressed concrete pipe and for steel pipe with rubber gasket joints.

SECOND SAN DIEGO AQUEDUCT

On April 11, 1958 bids were received from the following contractors:

<i>Contractor</i>	<i>Amount Bid</i>
Young and Anderson Co. _____(1)	\$8,766,694
Vido Artukovich and H. C. Smith, a joint venture____(1)	8,859,214
Morrison-Knudsen Co., Macco Corp. and F. E. Young Construction Co., a joint venture____(1)	8,949,739
Ukropina-Polich-Kral Constr. Co.____(1)	9,132,121
American Pipe and Constr. Co.____(2)	9,500,479
ABC Constr. Co. and W. C. Baker, a joint venture _____(1)	9,636,173
Engineers Limited Pipeline Co., Stolte Constr. Co. and Fred J. Early, Jr. Co. Inc., a joint venture____(1)	9,974,221
Foster Marsch and Einer Brothers, a joint venture _____(1)	11,273,051

- (1) Using steel pipe with rubber gasket joints.
- (2) Using prestressed concrete pipe alternate.

On April 17, 1958 the contract was awarded by the Board of Directors to the low bidder, again Young and Anderson Co. of Brea, California. Steel pipe is being fabricated by the Consolidated Western Steel Company of Los Angeles and the Kaiser Steel Company of Fontana, California. The pipe is being cement mortar coated and lined by the American Pipe and Construction Company at its Southgate plant. Under the specifications work will be completed by June 30, 1959 to San Marcos Vent, located on the hill directly south of San Marcos Creek crossing, and the remainder of this section will be completed by December 31, 1959.

Plans and specifications for the next two sections of the aqueduct, designated 203 and 204, respectively, are now in preparation. The third section will extend from Black Mountain Vent a distance of 16.5 miles to the south side of El Cajon Boulevard in the City of La Mesa, and it is expected to be under contract by November, 1958, with completion date set for June 30, 1960. The fourth and last section will extend from the south side of El Cajon Boulevard to the terminus of the Second San Diego Aqueduct in Lower Otay Reservoir, a distance



**Metropolitan Water District Section of Second Aqueduct**

*Metropolitan Water District: General Counsel Charles C. Cooper, Jr.; General Manager and Chief Engineer Robert B. Diemer; Director Richard S. Holmgren; Director Fred A. Hailbrow; Director Hanson W. Chase.*

## SECOND SAN DIEGO AQUEDUCT

of 13.7 miles. This section will be under contract in the spring of 1959, with the completion date set for late 1960.

The Metropolitan Water District is installing two cross connections between the First and Second Aqueducts where they closely parallel in Rainbow Gap to permit delivery of water from either aqueduct to the other in case of emergency. It is expected that these connections and the District section of the aqueduct south thereof will be completed by June 30, 1959. Water can then be transferred from the First Aqueduct to the Second Aqueduct through the cross connections for delivery to member agencies north of San Marcos. This arrangement will not make possible the delivery of water in excess of the First Aqueduct capacity, but it will help to alleviate inadequate capacity of transmission lines for delivery of water to some of the agencies from the First Aqueduct.

On June 30, 1958 no service connections for member agencies had been installed on the Second Aqueduct. However, after consultations with the agencies to be served, nozzles have been installed at strategic points along the aqueduct line, where service connections will be later installed to serve Authority member agencies.

## LEGAL AND LEGISLATIVE

The Authority's legal department had a particularly active year, due primarily to the proceedings for the authorization, sale and issuance of the Second Aqueduct bonds (Waterworks Bonds, Election 1957), the letting of the construction contracts and the acquisition of rights of way. Continuing activity was required in the supervision of the legal proceedings for both direct annexation to the Authority and concurrent annexation of area added to existing member agencies. While progress on construction of the needed facilities for importation of Northern California water pursuant to the California Water Plan remained blocked by the legislative stalemate, the problem of ways and means for its ultimate accomplishment continued to require participation by the General Counsel in the many lay and legislative committees active throughout the State in their attempts to provide an acceptable formula for state water development.



**W. H. Jennings**  
General Counsel

### **Second Aqueduct Bonds (Waterworks Bonds, Election 1957)**

Just prior to the close of the fiscal year the Authority's Board of Directors had authorized a \$35,000,000 bond election to finance the construction of the proposed Second San Diego Aqueduct. The General Counsel was directed to arrange for the appointment of special bond counsel to supervise the proceedings and write the opinion as to the legality of the issue required by the purchasers of municipal and district bonds. The arrangements were made with the firm of O'Melveny & Myers, of Los Angeles, one of the outstanding municipal bond experts on the Pacific Coast, and the firm which had acted in a similar capacity for prior Authority issues.

The Authority had contracted with the County of San Diego to conduct the election through the facilities of the office of Registrar of Voters. As the Water Authority Act makes special provisions for the conduct of authority bond elections, this necessitated the appointment of the Registrar as a deputy Authority secretary and required a very careful supervision of the coordination of proceedings by the officials in the Registrar's office with those conducted by the Authority staff.

The election was successfully held and overwhelmingly carried on July 9, 1957, and the Board of Directors canvassed the results the following week in the office of the Registrar of Voters. The vote was 91,465 for to 6,647 against.

The first series of bonds was sold January 13, 1958, Gloré, Forgan & Co. and Associates being the successful bidders. Very detailed and exact legal preparation is required in connection with a sale of this type. An official statement (bond prospectus) was prepared by the financial adviser and carefully reviewed by the Controller and Counsel. Serious penalties are incurred for erroneous or improper allegations in this statement, and all members of the Authority's staff, with the help of its financial adviser and bond counsel, collaborated in its preparation. The order calling for bids and the advertisement for bids must also be carefully prepared in that the technical features of the bonds, their maturity schedule, method of payment, etc. are here set forth for the first time in the proceedings. After the sale of the bonds, the next step is their printing, signing and delivery. The bonds were printed by the Jeffries Banknote Company in Los Angeles, and arrangements were made for their delivery direct from the printers in Los Angeles on February 10, 1958. The bonds must be proofed very

carefully, as they constitute a contract between the Authority and purchaser which has many years to run. Each bond must be signed manually by the Controller, and the Authority seal affixed. They are checked out by the counsel, the Controller and the Treasurer, and delivered to the purchaser after receipt of the purchase price carefully adjusted to accrued interest and bond premium. The responsibility for the legality of the entire transaction is that of the General Counsel and requires the utmost attention to detail from the call of the election to the receipt of the proceeds of sale.

### **Bidding and Construction Contracts**

Concurrently with the preparation for the sale, printing and delivery of the bonds goes the preparation for contracting the construction. The detailed plans, specifications, profiles and location of the construction are the responsibility of Engineering, but the contract itself, the bidding documents and advertisement, the proper execution by and qualification of the successful bidder are all supervised by the General Counsel and result in the creation of a legal relationship of extreme importance to the Authority. The contractor's performance, labor and material bonds must be carefully checked as to legality and the Authority must be protected from liability by the proper insurance coverage.

### **Acquisition of Easements — Condemnation**

The acquisition of easements, rights of way and, in some instances, fee ownership for the location of the facilities to be constructed is all accomplished with the participation of the General Counsel. After the locations are determined, title reports are secured on each parcel and an appraisal is made of each interest to be acquired. The appraisal becomes official when reviewed and approved by the Lands and Rights of Way Committee. This is the only board committee with executive power. All other committees are advisory only, making their recommendations to the Board for its final action. The Lands and Rights of Way Committee was established by an ordinance of the Board at the time of the Authority's first construction project in 1948. It is given executive authority to negotiate the acquisition of property when the consideration does not exceed \$10,000. Having arrived at the price to be offered for each parcel required, the right-of-way agents are then authorized to negotiate for their acquisition under forms of contract, conveyances and grants of easement prepared by the General Counsel. In such negotiations many legal problems arise—

some by reason of the death of the record owners or their incapacity to execute the documents, and others from objections raised by the owners to the terms which the Authority's representatives are permitted to offer. Some adjustments have been approved by the Lands and Rights of Way Committee, but only where the appraisal has been reviewed and adjusted by the official appraiser.

Most easements have been acquired by peaceful negotiation—an indication that the appraisals have been generally fair and equitable—but in each section of the line there have been a few individuals with whom negotiations have been unsuccessful. When the point is reached where the contractor requires possession of the right of way, the descriptions, title policies and all material relative to the unsecured parcels are turned over to the General Counsel and a condemnation action is filed. The firm of Jennings, Engstrand, and Henrikson has been retained to assist in the condemnation proceedings. The Authority, as a state agency, has the power of eminent domain, and the acquisition of rights of way is one of the instances in which the taking of immediate possession is permissible under constitutional provisions. The suit is filed against all owners who have not granted the easement, and an order authorizing taking of possession is issued by the Court upon the deposit in cash of the estimated damages (the appraisal value of the easements or fee taken). The order authorizing possession must be served at least three days before the contractor enters upon the property, so the timing of the proceedings must be keyed to the contract and the start of construction.

After possession is taken, the only issue left to litigate is the value of the property and whether or not the deposit is sufficient. If, after trial, a larger amount is awarded the property owner, it must be paid by the Authority with interest at seven per cent per annum from the date of taking possession to the date of payment. It has been the practice of the Authority to continue negotiations with the property owners even after the taking of possession and many parcels have been acquired in that way. Where settlement is effected the owner is paid direct, after which the suit is dismissed as to the owner and the deposit is withdrawn from the Court. A few owners, however, remain in each section of right of way with whom the issue will apparently not be settled short of complete litigation and final judgment.

### **Annexations**

Only one direct annexation of a new agency to the Authority took place during the year. The Ramona Municipal Water District, in-

cluding within its boundaries one of the original charter members of the Authority, the Ramona Irrigation District, was successfully annexed in August 1957. As the Irrigation District had withdrawn from the Authority some years ago, its concurrent withdrawal as a part of the annexation of the Municipal District was unnecessary.

Most other annexations occurring during the year were to city members, with whom the Authority is not concerned. With the start of construction of the Second Aqueduct, ending the lack of carrying capacity which had deterred members' expansion, many agencies notified the Authority of their intent to consider substantial annexations. Notable among these were the Fallbrook Public Utility District, the Rainbow, Ramona, Valley Center and Poway Municipal Water Districts, and the Helix and San Dieguito Irrigation Districts. The technical details of these proposals had not passed the preliminary stages at year's end.

### **State Water Development**

While the legislative deadlock remained unbroken, discouraging the Governor from calling a special water session in the early part of 1958, activity on planning for a state water development program continued.

Numerous legislative committees undertook studies of particular features of the problem, and the Water Authority was called on to make appearances before many of them. Statements were prepared, presented and filed and the Authority continued in the forefront of those agencies pressing for a fair and equitable solution which would permit construction to get under way. In addition, its representatives continued to participate in the work of unofficial groups seeking the answer to this all-important problem.

Most active of these was probably the Southern California Water Coordinating Conference, a group including representatives of Ventura, Los Angeles, San Bernardino, Riverside, Orange and San Diego Counties, which held meetings throughout the year to consider all proposals which might have some chance of acceptance on a statewide basis. It was believed that from the efforts of such groups meeting throughout the State some progress would be made in preparation for the 1959 legislative session.

## FINANCIAL

The Authority's financial position at June 30, 1958, and the results of its fiscal operations for the year then ended, are summarized in the statements contained in Tables 14 to 21, inclusive. Continuing the long-range policy of the Board of Directors as adopted in 1949 and described in detail in previous reports, operating requirements have been met primarily from revenues from the sale of water to member agencies. Requirements for contractual payments to the Federal Government, and for service and retirement of bonded debt have been provided from tax levies. Funds for construction of the Second Aqueduct have been provided from the sale of \$7,500,000 in general obligation bonds, representing the first series of \$35,000,000 authorized by the electorate July 9, 1957. Prior to availability of these funds, requirements for preliminary engineering, acquisition of rights of way, and for minor construction were financed from general funds which required supplementary tax levies for those purposes.

During 1957-58, operating income amounted to \$1,976,959, while operating costs amounted to \$1,870,400. Non-operating income totalled \$412,336 and depreciation amounted to \$187,619, resulting in \$130,594 net income from utility operations, compared with \$149,357 for the preceding year.

Cash and marketable securities at June 30, 1958 amounted to \$8,252,455.51, compared with \$1,661,437.40 at June 30, 1957, the increase resulting principally from the sale of bonds previously referred to. Included in the total were \$7,766,565.00 in securities of the United States Government, earning an average interest rate of 1.33%. During 1957-58 current assets decreased \$108,338.65 while current liabilities increased \$104,480.88. Special fund assets increased \$33,762,802.25, due primarily to authorization of the \$35,000,000 bond issue, while special fund liabilities increased \$614,247.79, representing unpaid earnings under contracts for construction of the Second Aqueduct. Fixed assets were increased \$4,050,420.08, while long-term obligations increased \$6,254,006.39, again primarily re-



Charles L. Royer  
Controller



Harry L. Hall  
Treasurer

flecting the issuance of \$7,500,000 in bonds. Reserves for debt redemption decreased \$409,435.62, principally due to reduction of the amount due from the Metropolitan Water District through its payments to the Authority on the First Aqueduct. Appropriated surplus increased \$19,904,081.68, again reflecting bond authorization, while unappropriated surplus decreased \$208,383.25, primarily as a result of heavy appropriations for engineering, rights of way, etc., previously referred to. The net overall result was an increase of \$30,732,148.62 in the Authority's net reserves and equities.

In summary, the Authority's financial situation remains sound and strong. Provision for operations, as well as for the orderly retirement of present and projected debt has been established by the Board's long-range policy previously referred to, and by the use of special purpose funds. The Authority's position is further strengthened by the maintenance of necessary and adequate reserves, thus obviating sudden and heavy requirements upon its taxpayers, keeping well within its legal debt limit.

The Authority's accounting system, now in its twelfth year, conforms to the basic principles of fund and budgetary accounting normally employed in municipalities, modified to the extent necessary to reflect conditions peculiar to the Authority. Accounts are maintained on the accrual basis; that is, revenues are recorded when earned, and expenditures and/or encumbrances are recorded when incurred. All accounts

*Signing of 1957 Water Works Bonds, Series A, and Delivery of Check by Representative of Glore, Forgan & Co. and Associates.*



SAN DIEGO COUNTY WATER AUTHORITY

have been regularly audited by the firm of Everts and Esenoff, Certified Public Accountants, whose certificate is included herein. In this report, as always, every effort has been made to effect a clear and comprehensive presentation of the Authority's financial position, the results of its fiscal operations, and our continued conformity to the highest principles of accounting and reporting as promulgated by the Municipal Finance Officers Association and the National Committee on Governmental Accounting.

J. J. EVERTS, C. P. A. 1946  
CARL W. ESENOFF, C. P. A.  
ALBERT W. HUGHSON, C. P. A.  
JOHN T. IRWIN, C. P. A.  
HAROLD NOODY, C. P. A.  
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OTHER OFFICES  
EL CAJON, CALIFORNIA  
OCEANSIDE, CALIFORNIA

September 26, 1958

Board of Directors  
San Diego County Water Authority  
San Diego 3, California

Gentlemen:

We have examined the statement of financial position of the San Diego County Water Authority as of June 30, 1958, and the related statements of income and surplus 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 statement of financial position, <sup>Table 14</sup> ~~Exhibit A~~ and the related statements of income and surplus, <sup>Table 15</sup> ~~Exhibit B~~, present fairly the financial position of the San Diego County Water Authority as of June 30, 1958, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of prior years.

Yours very truly,

*Charles W. Erenoff*  
For Everts and Esenoff  
Certified Public Accountants

## MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

In as much as the Authority is a constituent member agency of the Metropolitan Water District and receives all of its water from that agency, it appears appropriate to include in this report a brief account of the District.

The Metropolitan Water District was organized in 1928 under the Metropolitan Water District Act, passed by the California legislature. The Act permits noncontiguous political agencies to unite for the purpose of bringing additional water into an area. The immediate objective of the Metropolitan Water District when organized was to bring in water from the Colorado River to supplement local supplies. The District is governed by a Board of Directors, and each constituent member is entitled to at least one representative and an additional representative for each additional \$500,000,000 of assessed valuation. Regardless of the number of directors, each agency has one vote for each \$10,000,000 of assessed valuation. As of June 30, 1958, the Authority had 100 votes on the Board of Directors of a total 1124 votes, or 8.91 percent of the total vote of the District board. Under the Act, no agency can have more than 50 percent of the votes.

During the year the Authority was represented on the Board of Directors by Chairman Fred A. Heilbron, who has served for a period of 11 years, or since 1947, and General Manager and Chief Engineer Richard S. Holmgren, who has served for the last five years. Mr. Heilbron is Secretary of the Metropolitan Board of Directors.

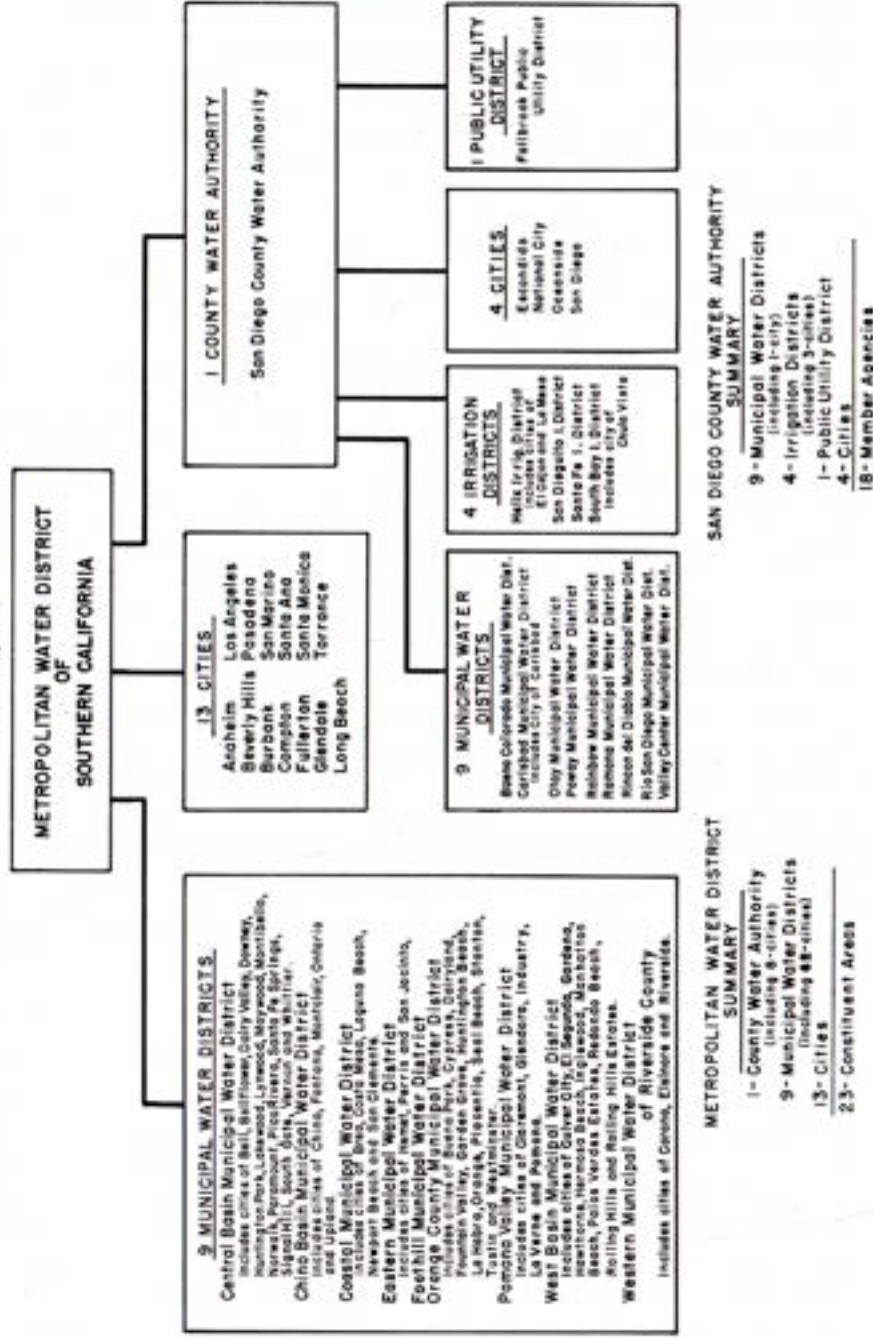
On December 17, 1946 the Authority annexed to the District as the 15th Constituent member. As shown on Figure D, the District now has 23 constituent areas, consisting of 13 cities, one county water authority, and 9 municipal water districts.

### Area

As of June 30, 1958, the total area within the boundaries of the San Diego County Water Authority, totaling 465,322 acres, or 727 square miles, represented 22.7 percent of the total area within the Metropolitan Water District, which is 3,197 square miles. There were no new constituent members annexed to the District during the fiscal year. However, the area within the boundaries of the District was increased 178 square miles by concurrent annexations made to its existing constituent member agencies. Annexations to the Authority during

COMPOSITION OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

JUNE 30, 1958



MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT

the year totaled 30,329 acres (47.4 sq. mi), or 26.6 percent of the total area increase of the District.

Assessed Valuation

The assessed valuation of taxable property lying within the boundaries of the District in the 1957-58 fiscal year was \$11,235,906,510, an increase of \$1,561,905,950, or 16.1 percent over the previous year. The assessed valuation of taxable property lying within the boundaries of the Authority in the 1957-58 fiscal year is \$1,001,006,270 (not including Ramona District, which is \$4,116,370), or 8.9 percent of the District's total valuation. The Authority's increase in 1957-58 over the previous fiscal year totaled \$112,177,690, equal to 7.2 percent of the increased assessed valuation of the District. This would indicate a somewhat smaller increase in assessed valuation within the area of the Authority than in the District as a whole.

Water Supply

The District obtains its entire water supply from the Colorado River by a contractual right to Colorado River water of 1,212,000 acre feet per year. It also has contractual storage rights in Lake Mead, where excess water is stored and from which water is released into the river channel at Hoover Dam for use of the District. Water is taken from the Colorado River at Lake Havasu, a reservoir on the Colorado River, created by Parker Dam. Water diverted from Lake Havasu is carried to the District system through the Colorado River Aqueduct, in the course of which it is pumped by five pumping stations to a height of 1,357 feet above water level at Lake Havasu. The highest point on the aqueduct is at Hayfield pumping station (elevation 1,807), 126 miles from the river intake station and about 50 miles east of Indio, California. From this point, water flows by gravity to each of the 23 constituent areas. The District aqueduct has a total length of 242 miles and terminates at Lake Mathews, an artificial reservoir with a capacity of 103,680 acre feet. At present, the aqueduct is capable of delivering slightly less than 1,000 c.f.s., but the District expansion program now in progress will complete the aqueduct to its full design capacity of 1,605 c.f.s. by 1960, making possible the importation of the full water rights of the District. It is believed that the aqueduct will actually have a maximum delivery somewhat greater than its design capacity.

The Authority receives water from the District through the First

SAN DIEGO COUNTY WATER AUTHORITY

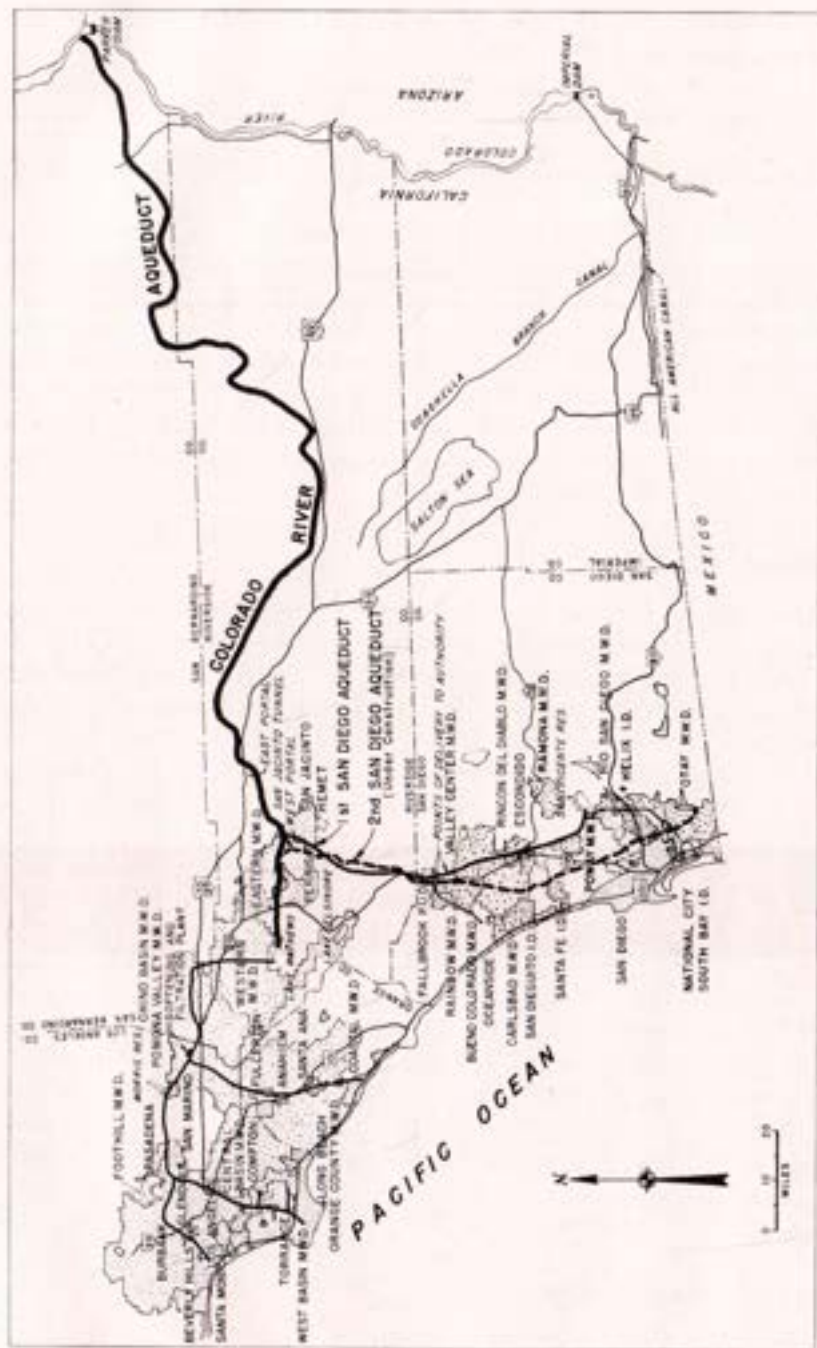


Figure E. Water Systems of Metropolitan Water District and San Diego County Water Authority.

San Diego Aqueduct, which is diverted from the Metropolitan main aqueduct at San Jacinto and delivered to the Authority system at two points. The main point is located 5.9 miles south of the San Diego-Riverside County line, and the second point, the Fallbrook-Oceanside Branch, is located near the Rainbow Pass. The District's portion of the Aqueduct consists of two parallel pipe lines with a combined capacity of 196 c.f.s. A slightly higher flow has been maintained for short periods of time.

The District has under construction the upper 38 miles of the Second San Diego Aqueduct, consisting of a canal section of 1,000 c.f.s. capacity, which will extend 20 miles to Auld Valley and discharge into a pipe line with a capacity of 250 c.f.s. The District section will extend 5.9 miles inside of San Diego County (same distance as the District's portion of the First San Diego Aqueduct), and the Authority will construct the aqueduct from this point southerly to Lower Otay Reservoir, a distance of 59 miles. When the 250 c.f.s. capacity aqueduct is completed, the total capacity of the First and Second Aqueducts of 446 c.f.s. will be capable of delivering 320,000 acre feet of water per year if operated continuously.

Metropolitan Expansion Program Activities



**Water Sales**

A total of 144,015 acre feet of Colorado River water was delivered to the Authority during the 1957-58 fiscal year, or 26.7 percent of the total 539,732 acre feet delivered by the District during the same period (See Table 25).

**District Tax**

The District regular tax rate for the fiscal year 1957-58 was 18 cents, a decrease of one cent from the previous year (see Table 26). This reduction was brought about in spite of the heavy spending required by the expansion program.

A special tax is levied against those areas which have been annexed to the District since its original organization. These charges are determined at the time of the annexation on the basis of the amount of taxes which would have been paid had the area annexing been a part of the District from the date of its formation, and are generally paid in substantially equal installments over a period of 30 years. The balance of annexation charges to be levied as of June 30, 1958 is \$159,917,793, of which outstanding payments to be made by Authority member agencies total \$12,988,389. The original amount of annexation charges for areas within the Authority and the balance remaining to be paid are shown on Table 23. The total District tax levy for the fiscal year was \$26,604,353, of which \$2,420,494, or 9.1 percent was levied on taxable property lying within the area of the Authority.

**Water Rates**

On July 1, 1957 the base rate for untreated water delivered to a constituent area was increased from \$10.00 to \$12.00 per acre foot. The surcharge for treated water remained at \$10.00 per acre foot, resulting in a total price for treated water of \$22. Since the Authority uses only untreated water, the District received \$12.00 per acre foot for all water delivered to the Authority. The total amount received by the District from water sales during the fiscal year was \$8,522,324, of which \$1,994,880 was received for softening and filtering. Of the balance, \$6,527,444, representing income from the basic water rate before any treatment, the Authority paid \$1,728,002, or 26.5 percent.

Under a new water rate schedule, effective July 1, 1958, the base water rate of the District will be increased to \$15.00 per acre foot for untreated water and \$25.00 for treated water, with the existing price of \$12.00 and \$22.00, respectively, remaining in effect for untreated and treated water, used for agricultural purposes or placed in underground storage.

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SAN DIEGO COUNTY WATER AUTHORITY

TABLE 1  
AREA—AUTHORITY MEMBER AGENCIES

Member Agencies	Area Within Authority			Percent of total Authority area 6/30/58
	As of 6/30/57	Changes during year	As of 6/30/58	
	acres	acres	acres	
Buena Colorado M.W.D. ....	51,600	(1) -1,060	(3) 50,540	10.86
Carlsbad M.W.D. ....	20,834	(1) - 23	(4) 20,811	4.47
In City of Carlsbad .....(2)	(4,740)	(+ 40)	(4,780)	(1.03)
Escondido, City of .....	2,014	+ 238	2,252	0.48
Fallbrook Public Utility Dist. ...	8,192	0	8,192	1.76
Helix Irrigation District .....	30,510	(1) - 2	(6) 30,508	6.56
In City of El Cajon .....	(5,420)	(+ 105)	(5,525)	(1.19)
In City of La Mesa .....	(4,010)	(+ 90)	(4,100)	(0.88)
National City, City of .....	4,664	+ 60	4,724	1.02
Oceanside, City of .....	8,623	+ 1,257	9,880	2.12
Otay M.W.D. ....	55,500	(1) -4,843	(7) 50,657	10.89
Poway M.W.D. ....	10,800	0	10,800	2.32
Rainbow M.W.D. ....	33,900	0	33,900	7.29
Ramona M.W.D. ....	0	+ 20,600	20,600	4.43
Rincon del Diablo M.W.D. ....	22,318	(1) - 238	(5) 22,080	4.74
Rio San Diego M.W.D. ....	18,700	0	18,700	4.02
San Diego, City of .....(2)	84,632	+ 14,361	98,993	21.27
San Dieguito Irrigation Dist. ...	3,996	0	3,996	0.86
Santa Fe Irrigation District (2)	10,103	- 21	(8) 10,082	2.17
South Bay Irrigation District ..	15,447	0	15,447	3.32
In City of Chula Vista .....	(4,187)	(+ 93)	(4,280)	(0.92)
Valley Center M.W.D. ....	53,160	0	53,160	11.42
Total Authority Area (2)	434,993	+ 30,329	465,322	100.00
San Diego County .....			2,725,100	

- (1) Annexed by an adjacent city member agency but still in District, being an overlapping area and considered here as being a part of the city.
- (2) Revised to conform with data received from agency.
- (3) Does not include 1,360 acres overlapping in City of Oceanside.
- (4) Does not include 27 acres overlapping in City of Oceanside.
- (5) Does not include 320 acres overlapping in City of Escondido.
- (6) Does not include 170 acres overlapping in City of San Diego.
- (7) Does not include 4,843 acres overlapping in City of San Diego.
- (8) Does not include 3 acres overlapping in City of San Diego.

TABLES

TABLE 2  
POPULATION GROWTH—COUNTY AND AUTHORITY AREA  
1910 to 1958  
(Includes Resident Military Personnel)

Year (as of April 1)	COUNTY		AUTHORITY		Percent of County Population in Authority
	Total Population (1)	Average Annual Growth	Total Population (2)	Average Annual Growth	
1910 .....	61,665		46,000		74
1920 .....	112,248	5,058	87,000	4,100	78
1930 .....	209,659	9,741	173,000	8,600	82
1940 .....	289,348	7,969	248,274	7,600	86
1946 (3) .....	502,804	26,746	(3) 440,659	20,361	88
1950 .....	556,808				
1956 .....	819,300	43,749	751,500	49,936	92
1957 .....	900,000	80,700	783,550	32,050	86
1958 .....	943,000	43,000	842,600	59,050	89

- (1) County population from U.S. Census Bureau Reports.
- (2) Authority population based on U.S. Census Bureau Reports. Population in years prior to Authority organization in 1944 is for Authority area as of 1944. Population in later years is for Authority as then constituted.
- (3) Based on Special Census, U.S. Census Bureau, exclusive of emergency military personnel due to World War II.

TABLE 3  
POPULATION—AUTHORITY MEMBER AGENCIES AND COUNTY  
(Includes Resident Military Personnel)

Member Agencies	Population—U. S. Census				1958 Estimate (4)	Annual Increase 1950-1958 Percent	Density of Population 1958 Per Sq. Mile
	Area 6/30/58		Decade Increase				
	Acres	1940 (1)	1950 (2)	Percent			
Bueno Colorado M.W.D.	50,540	—	—	—	26,000	—	0.51
Carlsbad M.W.D.	20,811	—	—	—	9,000	—	0.43
In City of Carlsbad	(4,780)	—	—	—	(8,500)	—	1.78
Escondido, City of	2,252	4,560	6,608	45	11,500	9	5.11
Fallbrook Public Utility District	8,192	2,300	5,500	139	9,500	9	1.16
Helix Irrigation District	30,508	17,100	44,162	158	102,400	16	3.36
In City of El Cajon	(5,325)	(1,471)	(5,600)	281	(30,000)	54	5.43
In City of La Mesa	(4,100)	(3,925)	(10,946)	178	(25,000)	16	6.10
National City, City of	4,724	10,344	21,199	105	33,000	7	6.99
Oceanside, City of	9,880	4,651	12,880	177	21,500	8	2.18
Otay M.W.D.	50,657	—	—	—	1,150	—	0.02
Poway M.W.D.	10,800	—	—	—	1,850	—	0.17
Rainbow M.W.D.	33,900	—	—	—	3,450	—	0.10
Ramona M.W.D.	20,600	—	—	—	4,400	—	0.21
Rincon del Diablo M.W.D.	22,080	—	—	—	12,500	—	0.57
Rio San Diego M.W.D.	18,700	—	—	—	10,000	—	0.53
San Diego, City of	98,993	203,341	334,387	64	519,900	7	5.25
San Diego, City of	3,996	(3) 2,400	6,223	159	12,650	13	3.17
San Dieguito Irrigation District	10,082	(3) 2,000	3,000	50	6,500	15	0.64
Santa Fe Irrigation District	15,447	10,938	28,927	164	55,200	11	3.57
South Bay Irrigation District	(4,280)	(5,138)	(15,927)	210	(35,560)	15	8.31
In City of Chula Vista	53,160	—	—	—	2,100	—	0.04
Valley Center M.W.D.	—	—	—	—	—	—	—
Total Authority Area	465,322	257,634	462,886	80	842,600	10	1.81
San Diego County	2,725,100	289,348	556,808	92	943,000	9	0.35

(1) Population in agencies other than cities was estimated from population of judicial townships.  
 (2) Population in agencies other than cities was estimated from population of judicial townships.  
 (3) Estimated.  
 (4) Estimated by agencies.

TABLE 4  
ASSESSED VALUATIONS—AUTHORITY MEMBER AGENCIES AND COUNTY

Member Agencies	Area 6/30/58 Acres	Assessed Valuation—Secured and Unsecured				Assessed Valuation 1958-59 Total
		1956-57		1957-58		
		Total	Per Acre	Total	Percent	
Bueno Colorado M.W.D.	50,540	\$ 20,337,060	\$ 480	\$ 24,241,330	19.2	\$ 31,811,980
Carlsbad M.W.D.	20,811	19,316,400	1,105	22,995,130	19.0	25,721,020
Escondido, City of	2,252	12,118,300	6,533	14,711,500	21.4	16,176,310
Fallbrook Public Utility District	8,192	7,063,420	948	7,762,150	9.9	8,348,090
Helix Irrigation District	30,508	95,720,610	3,637	110,951,360	15.9	123,873,810
National City, City of	4,724	26,505,140	5,729	27,063,240	2.1	29,746,300
Oceanside, City of	9,880	22,051,940	2,352	23,234,310	5.4	24,295,260
Otay M.W.D.	50,657	2,947,250*	69	3,507,390	19.0	3,821,170
Poway M.W.D.	10,800	2,050,580	213	2,295,230	11.9	2,771,840
Rainbow M.W.D.	33,900	3,567,590	119	4,049,060	13.5	4,397,740
Ramona M.W.D.	20,600	4,073,490*	200	4,116,370	1.1	4,312,550
Rincon del Diablo M.W.D.	22,080	11,854,670	751	16,580,520	39.9	17,803,600
Rio San Diego M.W.D.	18,700	7,791,580*	556	10,397,300	33.4	11,738,470
San Diego, City of	98,993	588,687,250	6,550	648,427,780	10.1	720,367,360
San Dieguito Irrigation Dist. (2)	3,996	9,587,860	2,684	10,724,020	11.8	12,003,200
Santa Fe Irrigation District	10,082	8,135,540	930	9,374,930	15.2	12,777,780
South Bay Irrigation District	15,447	48,065,420	3,948	60,988,380	26.9	67,920,390
Valley Center M.W.D.	53,160	3,027,970	70	3,702,640	22.3	3,973,640
Total Authority	465,322	\$892,902,070	\$2,160	\$1,005,122,640	12.6	\$1,121,860,510
San Diego County	(1) 2,725,100	\$978,087,650	\$ 402	\$1,096,640,460	12.1	\$1,214,275,720

(1) Excluding 1,475,182 acres of tax-exempt lands in San Diego County as of 1955.  
 (2) Includes area excluded from Agency but not from Authority.  
 \* Estimated, not on Authority tax roll.

TABLES

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 5  
SALES OF COLORADO RIVER WATER—FISCAL YEAR 1957-58  
(All Figures in Acre Feet)

Member Agencies	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 Months
Bueno Colorado M.W.D. ....	357.2	368.9	355.5	466.8	180.2	224.8	1,953.4
Carlsbad M.W.D. ....	61.6	170.1	197.7	180.6	124.2	118.6	852.8
Escondido, City of .....	286.2	162.5	143.9	103.3	84.1	86.8	866.8
Fallbrook P.U.D. ....	1,037.5	954.9	961.9	418.8	154.8	116.9	3,644.8
Helix I.D. ....	2,128.6	2,134.5	1,793.1	924.0	601.3	612.9	8,194.4
National City & South Bay I.D. ....	855.2	920.4	882.2	912.4	874.3	909.5	5,354.0
Oceanside, City of .....	313.9	332.7	345.9	280.6	214.6	214.1	1,701.8
Otay M.W.D. ....	0	2.0	0	0	0	0	2.0
Poway M.W.D. ....	134.1	123.5	84.2	31.4	15.6	18.3	407.1
Rainbow M.W.D. ....	543.1	619.6	515.4	214.6	101.6	65.1	2,059.4
Ramona M.W.D. ....	0	0	0	0	0	0	0
Rincon del Diablo M.W.D. ....	333.7	509.3	684.6	183.2	7.6	14.6	1,733.0
Rio San Diego M.W.D. ....	97.3	141.9	120.4	61.0	21.9	19.8	462.3
San Diego, City of .....	6,570.0	6,926.2	6,238.7	7,855.0	7,862.8	8,099.7	43,552.4
San Dieguito I.D. ....	126.8	131.9	126.9	130.3	126.4	129.6	771.9
Santa Fe I.D. ....	107.9	112.5	108.2	110.9	107.7	110.5	657.7
Valley Center M.W.D. ....	249.6	224.8	79.9	50.4	10.7	7.1	622.5
Total Sales to Agencies .....	13,202.7	13,835.7	12,618.5	11,923.3	10,487.8	10,748.3	72,816.3
Total Sales to Others .....	4.1	5.4	5.0	3.6	9.8	7.4	35.3
Total Sales to Agencies and Others .....	13,206.8	13,841.1	12,623.5	11,926.9	10,497.6	10,755.7	72,851.6
Total to Authority Storage .....	+ 215.4	+ 124.3	+ 91.5	+ 792.7	+1,296.5	+1,289.2	+3,809.6
Total from Authority Storage .....	-1,642.3	-1,662.9	- 921.7	- 617.1	- 66.5	- 4.4	-4,914.9
Total from Aqueduct .....	11,779.9	12,302.5	11,793.3	12,102.5	11,727.6	12,040.5	71,746.3
Rate of Flow:							
c.f.s. to Agencies and Others .....	222.0	225.1	212.2	194.0	176.4	174.9	200.7
c.f.s. to Authority Storage .....	+ 3.6	+ 2.0	+ 1.5	+12.9	+21.8	+21.0	+10.5
c.f.s. from Authority Storage .....	-27.6	-27.0	-15.5	-10.0	- 1.1	- 0.1	-13.5
Total from Aqueduct .....	198.0	200.1	198.2	196.9	197.1	195.8	197.7

The Metropolitan Water District delivered into San Diego Aqueduct at San Jacinto Reservoir a total of 144,155.1 acre feet, or 1,882.3 acre feet more than the total Authority deliveries from aqueduct.  
\*Includes 9.5 acre feet delivered to contractors for Second Aqueduct construction.

TABLES

TABLE 5 (Continued)

Jan.	Feb.	March	April	May	June	Total 6 Months	Yearly Total	Yearly Average c.f.s.
267.8	139.8	160.0	36.5	48.1	79.7	731.9	2,665.3	3.68
126.9	79.0	74.0	123.7	283.3	448.8	1,135.7	1,988.5	2.75
99.6	73.4	81.0	102.6	165.6	163.5	685.7	1,552.5	2.14
215.4	48.8	79.7	135.7	385.9	936.2	1,801.7	5,446.5	7.52
1,003.0	539.6	586.9	936.1	1,648.0	1,151.8	5,865.4	14,059.8	19.42
901.6	819.0	905.7	874.8	909.4	915.7	5,326.2	10,680.2	14.75
235.9	177.8	184.1	178.4	206.5	256.8	1,239.5	2,941.3	4.06
0	0	0	0	0	0	0	0	0
51.0	2.7	11.9	18.1	74.2	115.8	273.7	680.8	0.94
196.5	14.1	21.1	93.1	391.2	552.2	1,268.2	3,327.6	4.60
0	0	0	0	0	29.0	29.0	29.0	0.04
20.8	3.9	11.6	281.5	486.1	66.1	870.0	2,603.0	3.60
27.0	15.3	22.5	58.7	105.9	127.3	356.5	818.8	1.13
7,703.4	7,332.2	8,119.0	7,821.2	8,284.0	7,057.7	46,517.5	89,869.9	124.14
125.8	116.0	128.5	29.1	0	0	399.4	1,171.3	1.62
107.2	98.9	109.4	24.8	0	0	340.3	998.0	1.38
17.2	9.5	1.8	21.7	27.6	68.7	146.5	769.0	1.06
11,099.1	9,470.0	10,497.0	10,736.0	13,015.8	11,969.3	66,787.2	139,603.5	192.83
4.7	10.4	12.8	7.0	12.3	12.7	59.9	95.2	0.13
11,103.8	9,480.4	10,509.8	10,743.0	13,028.1	11,982.0	66,847.1	139,698.7	192.96
+768.2	+1,347.1	+1,525.2	+1,273.0	+ 836.1	+892.6	+6,642.2	+10,451.8	+14.44
-169.9	- 0.0	- 0.5	- 439.8	-1,604.3	-768.3	-2,982.8	- 7,897.7	-10.91
11,702.1	10,827.5	12,034.5	11,576.2	12,259.9	12,106.3	70,506.5	142,252.8*	196.49
180.6	170.7	170.9	180.5	211.9	195.9	185.2	193.0	
+12.5	+24.3	+24.8	+21.4	+13.6	+14.5	+18.4	+14.4	
- 2.8	- 0.0	- 0.0	- 7.4	-26.1	-12.5	- 8.5	-10.9	
190.3	195.0	195.7	194.5	199.4	197.9	195.3	196.5	

TABLE 6  
SALES OF COLORADO RIVER WATER—1948 to 1958  
(All figures in acre-feet)

Member Agencies	(1) 1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
Bueno Colorado M.W.D.	—	—	—	—	—	0	3,627.3	5,433.5	7,315.4	2,665.3
Carlsbad M.W.D.	—	—	—	—	382.8	34.0	1,599.7	1,416.8	973.5	1,988.5
Escobedo, City of	—	—	117.1	540.0	—	738.9	928.9	1,381.4	1,843.8	1,552.5
Fallbrook Public Utility District	2,125.4	3,004.0	3,979.2	2,209.7	3,566.1	5,720.4	7,030.7	6,566.5	7,228.5	5,446.5
Helix Irrigation District	8,080.1	4,792.6	8,282.5	5,514.8	5,100.5	5,311.4	11,609.5	13,552.8	14,967.9	10,039.8
National City and South Bay I.D.	10,510.7	10,973.2	12,964.7	6,649.0	0	4,895.5	5,706.2	12,275.9	10,823.0	14,680.2
Oceanside, City of	1.5	127.8	558.5	513.4	604.1	1,469.5	2,064.0	2,864.2	3,508.0	2,941.3
Otay M.W.D.	—	—	—	—	—	—	—	—	0	2.0
Poway M.W.D.	—	—	—	—	—	—	—	1,108.6	915.0	680.8
Rainbow M.W.D.	—	—	—	—	—	137.1	1,416.2	2,061.2	3,984.9	3,327.6
Ramona M.W.D.	—	—	—	—	—	—	—	—	—	29.0
Rincon del Diablo M.W.D.	—	—	—	—	—	—	2,905.3	4,682.8	5,600.8	2,603.0
Rio San Diego M.W.D. (2)	3.5	30.4	27.2	20.8	80.2	99.2	226.5	512.5	894.0	818.8
San Diego, City of	50,126.8	35,371.2	51,453.9	43,745.3	20,684.9	51,176.3	60,059.1	80,088.2	83,550.6	89,869.9
San Diegoño Irrigation District	451.3	1,655.0	1,043.8	691.0	0	32.8	913.3	598.0	2,012.5	1,171.3
Santa Fe Irrigation District	270.8	2,657.9	832.1	146.8	0	—	358.4	416.4	1,149.9	998.0
Valley Center M.W.D.	—	—	—	—	—	—	0	1.2	791.2	769.0
Total Sales to Agencies	71,570.1	58,612.1	79,259.0	60,050.8	30,418.6	69,655.1	98,968.8	132,957.8	145,361.0	139,603.5
Total Sales to Others	0	0	0	0	49.4	13.7	3.4	19.7	69.5	95.2
Total to Authority Storage	0	+10,652.0	+821.4	+5,763.2	+1,612.8	+1,722.2	+6,217.3	+10,608.6	+6,655.0	+10,451.8
Total from Authority Storage	0	0	-6,265.5	-3,176.0	-5,314.5	-4,113.6	-2,975.7	-5,601.2	-7,710.3	-7,897.7
Total from Aqueduct	71,570.1	69,264.1	73,814.9	62,618.0	28,566.3	67,257.4	102,213.8	137,984.9	144,375.2	*142,252.8
Rate of Flow:										
c.f.s. to Agencies and Others	98.9	81.0	109.5	82.7	42.1	96.2	136.7	185.2	200.5	193.0
c.f.s. to Authority Storage	0	+14.7	+1.1	+7.9	+2.2	+2.4	+8.6	+14.6	+9.2	+14.4
c.f.s. from Authority Storage	0	0	-8.6	-4.4	-4.8	-3.7	-4.1	-7.7	-10.6	-10.9
c.f.s. total from Aqueduct	98.9	95.7	102.0	86.2	39.5	92.9	141.2	190.1	198.9	196.5

(1) The operation of the First Aqueduct was formally initiated on November 27, 1947, for sales in intervening years see previous reports.

(2) Rio San Diego M.W.D., encompassing Lakeside I.D., was annexed to Authority June 7, 1956; figures prior to that date are for Lakeside I.D. only.

\* Includes 9.5 acre-feet delivered to contractors for Second Aqueduct construction.

TABLE 7  
WATER PRODUCTION WITHIN AUTHORITY AGENCIES—FISCAL YEARS 1945-46 to 1957-58  
(All Figures in Acre Feet)

Member Agencies	From Local Sources					From Local and Authority Supplies							
	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
Bueno Colorado M.W.D.	13,200	12,335	13,407	11,344	11,977	13,484	7,572	11,171	11,671	*12,707	13,043	13,058	11,098
Carlsbad M.W.D.	2,444	2,582	2,856	2,613	2,499	2,033	2,074	2,565	*2,961	2,445	2,972	2,891	2,607
Escobedo, City of	707	855	954	801	858	*1,034	1,033	1,238	1,598	1,712	1,741	1,816	1,750
Fallbrook Public Utility District	2,120	2,596	*3,470	3,613	3,379	5,777	5,803	6,655	7,606	8,001	8,394	8,095	6,709
Helix Irrigation District	8,920	9,790	*10,290	9,325	10,304	11,412	9,838	13,324	15,319	15,557	15,998	16,541	15,848
National City and South Bay I.D.	10,799	10,519	*10,265	*11,293	*12,709	11,750	10,491	11,308	12,076	12,840	13,795	12,878	12,316
Oceanside, City of	2,304	2,519	*2,787	2,641	2,977	3,035	2,955	3,533	3,954	4,099	4,653	4,369	4,204
Otay M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	2
Poway M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	*554	1,120	917
Rainbow M.W.D.	107	179	385	699	892	1,336	1,120	1,657	*1,697	2,830	3,535	4,834	4,052
Ramona M.W.D.	257	305	155	138	131	132	118	186	212	215	192	152	*178
Rincon del Diablo M.W.D.	8,710	8,799	9,259	7,572	7,668	6,905	5,577	7,710	8,401	*10,023	9,804	9,451	7,881
Rio San Diego M.W.D. (b)	69	90	*103	110	161	183	197	292	292	355	1,501	1,457	1,458
San Diego, City of:													
Inside City	56,266	49,431	*51,078	49,693	51,410	54,935	53,784	60,552	63,258	66,000	68,715	71,250	70,052
Outside City (not in Authority)	1,147	1,038	1,329	1,946	1,049	2,051	1,406	2,596	2,573	2,610	3,001	2,856	2,609
San Diegoño Irrigation District	2,966	3,369	3,034	*2,303	2,899	3,039	2,326	3,139	3,440	3,329	3,378	3,607	3,324
Santa Fe Irrigation District	3,539	3,512	3,491	*2,878	3,372	3,515	2,539	3,358	3,255	3,361	3,663	3,509	2,807
Valley Center M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	791
Total	113,555	107,899	112,863	106,769	114,185	120,621	106,853	129,264	138,113	146,638	155,505	158,472	148,579

\* Delivery of Colorado River Water began in this year.

† Includes evaporation losses of Colorado River Water in Sweetwater Reservoir.

(a) Not available.

(b) Figures shown for Rio San Diego M.W.D. prior to 1955-56 are for Lakeside I.D. only.

TABLE 8  
WATER PRODUCTION OF AUTHORITY AGENCIES—FISCAL YEAR 1957-58

Member Agencies	TOTAL WATER PRODUCTION				SOURCE OF WATER		
	LOCAL SUPPLY		AUTHORITY SUPPLY		Per- cent	Amount ac. ft.	Per- cent
	as m.g.d.	as c.f.s.	as ac. ft./yr.	Amount ac. ft.			
Bueno Colorado M.W.D.	9.91	15.33	11,097.6	8,433.3	76.0	2,664.3	24.0
Carlsbad M.W.D.	2.33	3.60	2,607.0	643.0	24.7	1,964.0	75.3
Escondido, City of	1.54	2.39	1,729.5	177.0	10.2	1,552.5	89.8
Fallbrook Public Utility District	5.99	9.27	6,709.0	1,082.0	16.1	5,627.0	83.9
Helix Irrigation District	14.15	21.89	15,848.0	1,786.0	11.3	14,062.0	88.7
National City and South Bay I.D.	10.99	17.01	12,316.0	1,636.0	13.3	10,680.0	86.7
Oceanside, City of	3.75	5.81	4,204.0	1,262.7	30.0	2,941.3	70.0
Otay M.W.D.	0	0	2.0	0	0	2.0	100.0
Poway M.W.D.	0.67	1.04	755.3	45.6	6.0	709.7	94.0
Rainbow M.W.D.	3.62	5.60	4,031.6	715.3	17.7	3,336.3	82.3
Ramona M.W.D.	0.16	0.25	178.4	149.4	83.7	29.0	16.3
Rincon del Diablo M.W.D.	7.04	10.88	7,881.2	5,158.2	65.4	2,723.0	34.6
Rio San Diego M.W.D.	1.28	1.99	1,438.1	671.5	46.7	766.6	53.3
San Diego, City of:							
Inside City	62.53	96.76	70,052.3	4,244.8	6.1	65,807.5	93.9
Outside City (Not in Authority)	2.33	3.60	2,609.0	2,609.0	100.0	0	0
San Diego Irrigation District	3.15	4.87	3,524.1	905.3	25.7	2,618.8	74.3
Santa Fe Irrigation District	2.51	3.88	2,807.3	680.0	24.2	2,127.3	75.8
Valley Center M.W.D.	0.69	1.06	769.0	0	0	769.0	100.0
<b>Total</b>	<b>132.64</b>	<b>205.23</b>	<b>148,579.4</b>	<b>30,199.1</b>	<b>20.3</b>	<b>118,380.3</b>	<b>79.7</b>

Note: This table is a compilation of data furnished by member agencies. Figures include losses in transmission and distribution systems but not in conservation reservoirs.

TABLE 9  
UNIT WATER PRODUCTION—PER ACRE AND PER CAPITA 1957-58

Member Agencies	Gross Area (2) acres	Total Production of Water ac. ft.	Estimated Area Served by Water System acres	Water Production per Acre ac. ft./acre/yr.	Estimated Population	Water Production per Capita ac. ft./cap./yr.
Bueno Colorado M.W.D.	50,540	11,097.6	19,050	0.58	26,000	0.43
Carlsbad M.W.D.	20,811	2,607.0	12,000	0.22	9,000	0.29
Escondido, City of	2,252	1,729.5	2,252	0.77	11,500	0.15
Fallbrook Public Utility District	8,192	6,709.0	8,192	0.82	9,500	0.71
Helix Irrigation District	30,508	15,848.0	19,000	0.83	102,400	0.15
National City, City of	4,724	2,995.0	3,361	0.89	33,000	0.09
Oceanside, City of	9,880	4,204.0	8,002	0.53	21,500	0.20
Otay M.W.D.	50,657	2.0	0	0	1,150	0
Poway M.W.D.	10,800	755.3	5,150	0.15	1,850	0.41
Rainbow M.W.D.	33,900	4,051.6	10,500	0.39	3,450	1.17
Ramona M.W.D.	20,600	178.4	600	0.30	4,400	0.04
Rincon del Diablo M.W.D.	22,080	7,881.2	10,413	0.76	12,500	0.63
Rio San Diego M.W.D.	18,700	1,438.1	4,544	0.32	10,000	0.14
San Diego, City of	98,993	(1)70,052.3	64,390	1.09	519,900	0.13
San Diego Irrigation District	3,996	3,524.1	3,996	0.88	12,650	0.28
Santa Fe Irrigation District	10,082	2,807.3	10,106	0.28	6,500	0.43
South Bay Irrigation District	15,447	9,321.0	8,083	1.15	55,200	0.17
Valley Center M.W.D.	53,160	769.0	6,800	0.11	2,100	0.37
<b>Total and Average</b>	<b>465,322</b>	<b>145,970.4</b>	<b>196,439</b>	<b>0.74</b>	<b>842,600</b>	<b>0.17</b>

(1) Does not include production by City of San Diego for areas outside City (not in Authority).  
(2) Does not include overlapping area as shown in Table 1.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 10  
AUTHORITY STORAGE IN SAN VICENTE RESERVOIR  
(Fiscal Year 1957-58)

Member Agencies	Total Quantity in Storage (7/1/57) (acre feet)	Placed into Storage during Fiscal Year (acre feet)	Withdrawn during Fiscal Year (acre feet)	Total Quantity in Storage 6/30/58 (acre feet)
Bucno Colorado M.W.D. ....	440.3	1,368.4	428.3	1,380.4
Carlsbad M.W.D. ....	1,563.0	535.0	460.5	1,637.5
Escondido, City of ....	171.7	451.5	175.2	448.0
Fallbrook Public Utility District ..	0	724.4	724.4	0
Helix Irrigation District .....	4,352.3	2,858.3	3,636.0	3,574.6
National City & South Bay I.D. ..	0	0	0	0
Oceanside, City of .....	647.1	499.9	201.3	945.7
Otay M.W.D. ....	366.6	414.4	0	781.0
Poway M.W.D. ....	0	152.5	152.5	0
Rainbow M.W.D. ....	0	552.4	552.4	0
Ramona M.W.D.* .....	0	537.4	10.4	527.0
Rincon del Diablo M.W.D. ....	464.1	1,284.9	1,023.8	725.2
Rio San Diego M.W.D. ....	571.1	526.0	77.5	1,019.6
San Diego, City of .....	0	0	0	0
San Dieguito Irrigation District ....	365.5	-365.5**	0	0
Santa Fe Irrigation District .....	0	0	0	0
Valley Center M.W.D. ....	612.7	276.7	455.4	434.0
Authority (for evaporation) .....	314.1	635.5	576.9	372.7
<b>Total .....</b>	<b>9,868.5</b>	<b>10,451.8</b>	<b>8,474.6</b>	<b>11,845.7</b>

\*Ramona Municipal Water District was annexed to the Authority on August 27, 1957.  
\*\*This water released by San Dieguito Irrigation District and reallocated as per Authority Board action 10/10/57.

TABLES

TABLE 11  
CHEMICAL CHARACTER OF NATURAL COLORADO RIVER  
WATER AT WEST PORTAL OF SAN JACINTO TUNNEL  
Year Ending June 30, 1958  
Samples taken at entrance to San Diego Aqueduct by M.W.D.  
and analyzed at District Laboratory

Month	Total Hardness as P.P.M. CaCO <sub>3</sub>	Non Carbonate Hardness as P.P.M. CaCO <sub>3</sub>	Alkalinity as P.P.M. CaCO <sub>3</sub>		Magnesium as P.P.M. of Mg.	Hydrogen Ion Concentration	Temperature when sampled F*
			Total	Phenolphthalein			
July	366	238	128	0	32.0	8.1	78
August	361	236	125	1	31.5	8.2	—
September	352	234	118	2	31.0	8.3	76
October	357	238	119	3	31.0	8.3	71
November	358	237	121	1	30.5	8.4	64
December	360	232	128	4	30.5	8.3	50
January	355	228	127	3	31.0	8.3	49
February	348	217	131	2	30.0	8.4	50
March	336	208	128	2	27.0	8.4	—
April	316	192	124	0	27.0	8.2	59
May	324	198	126	2	26.5	8.2	—
June	314	194	120	2	26.5	8.5	70
Average	346	221	125	2	29.5	8.3	63
Maximum	366	238	131	4	32.0	8.5	78
Minimum	314	192	118	0	26.5	8.1	49

TABLE 12  
ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER  
As of June 30, 1958

Member Agencies	Total Amount Paid by Each Member Agency to 6/30/58	Amount Remaining to be Paid under Terms of Annexation	Total Contributions Paid and Contracted for	Percentage of Authority Supply	Equivalent Flow c.f.s.
Buena Colorado M.W.D.	\$ 132,832.05	\$ 47,037.69	\$ 179,869.74	2.44	4.78
Carlsbad M.W.D.	110,491.50	0	110,491.50	1.50	2.94
Escobedo, City of	87,963.84	7,318.16	95,282.00	1.29	2.53
Fallbrook P.U.D.	55,039.84	0	55,039.84	0.75	1.47
Helix Irrigation District	680,773.16	16,115.41	696,888.57	9.44	18.50
National City, City of	190,660.48	0	190,660.48	2.58	5.06
Oceanside, City of	169,325.92	0	169,325.92	2.29	4.49
Otay M.W.D.	8,066.02	19,989.65	28,055.67	0.38	0.74
Poway M.W.D.	11,708.67	4,060.03	15,768.70	0.21	0.41
Rainbow M.W.D.	27,413.61	0	27,413.61	0.37	0.73
Ramona M.W.D.	166.71	41,900.00	42,066.71	0.57	1.12
Rincon del Diablo M.W.D.	119,207.58	0	119,207.58	1.61	3.16
Rio San Diego M.W.D.	28,784.40	36,862.93	65,647.33	0.89	1.74
San Diego, City of	5,040,345.36	0	5,040,345.36	68.28	133.83
San Diego, City of	78,665.06	672.80	79,337.86	1.07	2.10
San Diego, City of	68,398.10	236.22	68,634.32	0.93	1.82
Santa Fe I.D.	368,977.80	0	368,977.80	5.00	9.80
South Bay I.D.	15,378.03	13,911.57	29,289.60	0.40	0.78
Valley Center M.W.D.					
Total Authority	\$7,194,198.13	\$188,104.46	\$7,382,302.59	100.00	196.00

TABLE 13  
STATEMENT OF ASSESSED VALUATIONS AND TAX RATES TO JUNE 30, 1958

Fiscal Year	Secured		Public Utilities	Unsecured		Total (3)	Tax Rate per \$100	
	Real	Personal		Personal	Unsecured		Secured	Unsecured
1945-1946	\$212,082,975		\$ 28,253,700	\$ 29,960,130	\$ 270,296,805	\$0.04	\$	
1946-1947	208,715,150(1)		29,433,450	30,665,910	268,814,510	0.04	0.04	
1947-1948	233,579,990		32,740,680	40,977,850	307,298,520(2)	0.14	0.04	
1948-1949	254,227,570		37,482,020	47,177,300	338,886,890	0.14	0.14	
1949-1950	290,351,875		42,429,140	45,743,200	378,524,215	0.10	0.14	
1950-1951	306,104,930		43,595,730	44,717,740	394,418,400	0.10	0.10	
1951-1952	344,620,030		48,452,940	50,904,035	443,977,005	0.10	0.10	
1952-1953	382,948,860		53,208,220	63,996,330	500,153,410	0.12	0.10	
1953-1954	490,709,350		63,092,050	69,147,150	622,948,550	0.10	0.12	
1954-1955	546,272,880		69,243,550	79,629,790	695,146,220	0.10	0.10	
1955-1956	627,062,960		87,485,390	79,936,450	794,484,800	0.09	0.10	
1956-1957	680,824,400		101,224,260	97,950,800	879,999,460	0.09	0.09	
1957-1958	761,088,330		111,151,890	128,785,440	1,001,025,660	0.09	0.09	
1958-1959*	865,283,080		128,479,290	128,124,720	1,121,887,090	0.10	0.09	

Debt limit 15 percent of last equalized assessed valuation of property.

Basis of assessment approximately 40 per cent of appraised value.

(1) City of Coronado secured assessed valuation not included in this or subsequent tax levies by the Authority, having withdrawn from the Authority prior to 1946-47.

(2) City of Coronado not included in this or subsequent total valuation.

(3) Includes areas excluded from Authority.

\* Data for 1958-1959 were available before completion of report and are included for convenience of reader.

TABLE 14  
STATEMENT OF FINANCIAL POSITION  
June 30, 1958

ASSETS		
<b>CURRENT ASSETS—GENERAL FUND:</b>		
Cash with treasurer .....	\$	54,503.33
Petty cash .....		100.00
Accounts receivable .....		174,195.12
Inventory of water in storage .....		134,853.60
Investments .....		140,000.00
Delinquent taxes receivable .....	\$	4,753.76
Less allowance for delinquency .....		4,753.76
Total current assets .....		503,652.05
<b>SPECIAL FUND ASSETS:</b>		
General Reserve Fund:		
Cash with treasurer .....		112,339.67
Investments .....		263,420.94
Waterworks Bonds, 1947, Interest and Sinking Fund:		
Cash with treasurer .....		22,931.34
Cash with fiscal agent for payment of bond interest .....		16,050.00
Investments .....		534,799.75
Delinquent taxes receivable .....	\$	3,059.11
Less allowance for delinquency .....		3,059.11
U. S. Government Contract Fund:		
Cash with treasurer .....		62,802.78
Due from Metropolitan Water District .....		12,540,868.39
Delinquent taxes receivable .....	18,448.40	
Less allowance for delinquency .....	18,448.40	
Special Tax Fund:		
Cash with treasurer .....		36,292.02
Investments .....		329,686.14
Annexation charges receivable— not due .....		188,104.46
Delinquent taxes receivable .....	1,928.48	
Less allowance for delinquency .....	1,928.48	
Waterworks Bonds, 1957, Improvement Fund:		
Cash with treasurer .....		138,477.21
Investments .....		6,498,658.19
Bond authorized—unissued .....		27,500,000.00
Waterworks Bonds, 1957, Interest and Redemption Fund:		
Cash with treasurer .....		58,544.14
Total special fund assets .....		48,302,975.03
<b>FIXED ASSETS:</b>		
Participation rights in Metropolitan Water District .....		34,278,365.25
Plant .....	18,006,721.96	
Less allowance for depreciation .....	1,264,634.54	
Work in progress .....	16,742,087.42	
	2,261,388.83	19,003,476.25
Total fixed assets .....		53,281,841.50
		\$102,088,468.58

TABLE 14 (Continued)  
STATEMENT OF FINANCIAL POSITION  
June 30, 1958

LIABILITIES		
<b>CURRENT LIABILITIES—GENERAL FUND:</b>		
Accounts payable .....	\$	149,215.67
<b>CURRENT LIABILITIES—SPECIAL FUNDS:</b>		
Contracts payable .....		464,237.84
Retained percentage on contracts .....		150,009.95
Total current liabilities—special funds .....		614,247.79
<b>LONG-TERM OBLIGATIONS:</b>		
General obligation bonds payable— not due .....		9,100,000.00
Estimated balance on U.S. Government contract for repayment of First Aqueduct cost .....		23,810,925.38
Balance of annexation charges to Metropolitan Water District .....		12,988,389.62
Total long-term obligations .....		45,899,315.00
<b>SURPLUS AND RESERVES:</b>		
Invested in fixed assets .....		7,382,526.50
Reserves for encumbrances:		
General Fund .....	\$	17,023.68
Waterworks Bonds, 1957, Improvement Fund .....		13,632,448.44
Total reserves for encumbrances .....		13,649,472.12
Reserves for debt redemption:		
For retirement of general obligation bonds .....		632,325.23
For retirement of U.S. Government contract .....		12,603,671.17
Total reserves for debt redemption .....		13,235,996.40
Appropriated:		
For petty cash fund balance .....		100.00
For general reserve fund balance .....		375,760.61
For special tax fund balance .....		551,528.49
For Waterworks Bonds, 1957, Improvement Fund:		
Reserve for authorized expenditures .....		19,750,000.00
For incomplete projects (continuing appns.)		
General Fund .....	\$	36,510.09
Waterworks Bonds, 1957, Improvement Fund .....	142,993.30	179,503.39
Total appropriated .....		20,856,892.49
Unappropriated surplus .....		300,802.61
Total surplus and reserves .....		55,425,690.12
		\$102,088,468.58

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 15  
STATEMENT OF INCOME AND SURPLUS—  
UTILITY OPERATIONS  
July 1, 1957 to June 30, 1958  
INCOME DIVISION

OPERATING INCOME:			
Water sales .....			\$1,976,959.25
DEDUCT OPERATING COSTS:			
Cost of water sold:			
Inventory of water in storage			
July 1, 1957 .....	\$ 90,777.40		
Water purchased .....	1,728,068.40		
Storage charges .....	25,612.77		
		1,842,458.57	
Less inventory of water in storage			
June 30, 1958 .....	154,853.60	\$1,707,604.97	
Direct operating expense .....		42,305.88	
General and administrative			
expense .....		120,489.19	
Total operating costs .....			1,870,400.04
Net income before depreciation			106,559.21
DEDUCT DEPRECIATION AND DEBT SERVICE EXPENSE:			
Depreciation .....		187,619.72	
Debt service expense .....	401,657.01		
Less receipts from Metropolitan			
Water District .....	200,975.84	200,681.17	388,300.89
Net operating income (deficit)			(281,741.68)
ADD NON-OPERATING INCOME:			
Revenue from taxes (net) .....	199,415.02		
Earnings on investments .....	8,515.43		
Miscellaneous income .....	3,724.99		
Debt service expense provided by			
Bond Interest and Sinking Fund		200,681.17	412,336.61
Net income for the year to			
surplus division .....			\$ 130,594.93

TABLES

TABLE 15 (Continued)  
STATEMENT OF INCOME AND SURPLUS—  
UTILITY OPERATIONS  
July 1, 1957 to June 30, 1958  
SURPLUS DIVISION

SURPLUS, JULY 1, 1957 .....			\$ 567,255.91
ADD:			
Net income for the year from			
income division .....	\$ 130,594.93		
Refunds of prior year's expenditures	16,431.68		
Depreciation charged to income,			
entailing no expenditure of			
current funds .....		187,619.72	354,646.33
			901,902.24
DEDUCT:			
Expenditures from General Fund for:			
Furniture, fixtures and equipment	9,296.61		
Construction work in progress ..	555,192.93		564,489.54
SURPLUS, JUNE 30, 1958 .....			\$ 337,412.70
Consisting of:			
Appropriated surplus:			
For incomplete projects			
(continuing appropriations) .....	\$ 36,510.09		
For petty cash .....	100.00		\$ 36,610.09
Unappropriated surplus—exhibit A:			
Invested in water in storage .....	154,853.60		
Available for appropriation .....	165,949.01		300,802.61
Total as above .....			\$ 337,412.70

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 16  
STATEMENT OF APPROPRIATIONS AND EXPENDITURES  
July 1, 1957 to June 30, 1958

E & A No.	Purpose	Prior Years' Appropriation Carried Over
161	Engineering and Construction, Second Aqueduct .....	\$
183	Water Conservation Program .....	2,700.77
185	Bond Issue for financing Second Aqueduct .....	66,350.47*
186	Water Reapportionment Committee .....	5,000.00
187	Purchase of water for resale	
188	Operation and maintenance	
189	Payment of Bond interest and principal	
190	Payments on Lease-Purchase of First Aqueduct	
191	Service Connection #1, Ramona M.W.D.	
192	Construction of Second Aqueduct, Spec. 201	
193	Construction of Second Aqueduct, Spec. 202	
	Subtotal .....	74,051.24
	Less advances by agencies	
	Total—Authority .....	\$74,051.24
Distribution by Funds:		
	General Fund .....	\$74,051.24
	Waterworks Bonds, 1947, Interest and Sinking Fund	
	U.S. Government Contract Fund	
	Waterworks Bonds, 1957, Improvement Fund	
	Special Tax Fund	
		\$74,051.24

\*Includes refund of \$16,081.19 from funds previously deposited with County of San Diego for cost of special election.

TABLES

TABLE 16 (Continued)  
STATEMENT OF APPROPRIATIONS AND EXPENDITURES  
July 1, 1957 to June 30, 1958

Appropriations 1957-58	Expenditures 1957-58	Cancelled Appropriations	Unexpended Appropriations June 30, 1958	Encumbrances	Unencumbered Balance
\$ 590,000.00	\$ 515,327.18	\$ 74,672.82	\$	\$	\$
\$ 5,500.00	7,920.79	279.98			
	29,840.38		36,510.09		36,510.09
	3,758.25	1,241.75			
1,764,200.00	1,751,681.17	12,518.83			
192,650.00	160,412.64	32,237.36			
133,000.00	133,000.00				
1,247,600.00	1,247,564.88	35.12			
20,000.00	13,404.30	6,595.70			
6,400,000.00	1,500,099.56	24,458.70	4,875,441.74	4,865,754.44	9,687.30
8,900,000.00			8,900,000.00	8,766,694.00	133,306.00
19,252,950.00	5,363,009.15	152,040.26	13,811,951.83	13,632,448.44	179,503.39
5,000.00	3,378.93	1,621.07			
\$19,247,950.00	\$5,359,630.22	\$150,419.19	\$13,811,951.83	\$13,632,448.44	\$179,503.39
\$ 2,517,350.00	\$2,478,965.78	\$ 75,925.37	\$ 36,510.09	\$	\$ 36,510.09
133,000.00	133,000.00				
1,247,600.00	1,247,564.88	35.12			
15,300,000.00	1,474,558.26	50,000.00	13,775,441.74	13,632,448.44	142,993.30
50,000.00	25,541.30	24,458.70			
\$19,247,950.00	\$5,359,630.22	\$150,419.19	\$13,811,951.83	\$13,632,448.44	\$179,503.39

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 17  
STATEMENT OF REVENUES—ESTIMATED AND ACTUAL  
July 1, 1957 to June 30, 1958

Source	Estimated Revenues	Actual Revenues	Actual Over or (Under) Estimate
Taxes, secured, current levy .....	\$ 847,600.00	\$ 823,861.80	\$(23,738.20)
Taxes, unsecured, current levy ....	118,900.00	122,504.08	3,604.08
Taxes, secured, prior year's levies	8,000.00	12,703.78	4,703.78
Taxes, unsecured, prior years' levies .....	1,000.00	47.91	(952.09)
Penalties on delinquent taxes ....	1,000.00	1,743.48	743.48
Miscellaneous tax on options .....		423.19	423.19
Receipts in lieu of taxes .....		11,648.67	11,648.67
Miscellaneous tax sales .....		105.19	105.19
Sale of water .....	1,980,000.00	1,976,959.25	(3,040.75)
Earnings on investments .....	32,000.00	81,109.80	49,109.80
Rentals .....	1,500.00	1,426.00	(74.00)
Contract payments from Metropolitan Water District .....	657,900.00	657,870.20	(29.80)
Use of Authority facilities .....	500.00	1,278.00	778.00
Miscellaneous .....		1,020.99	1,020.99
	<u>\$3,648,400.00</u>	<u>\$3,692,702.34</u>	<u>\$ 44,302.34</u>
<b>DISTRIBUTION BY FUNDS:</b>			
General Fund .....	\$2,190,100.00	\$2,189,154.01	\$ (945.99)
Waterworks Bonds, 1947, Interest and Sinking Fund.....	111,500.00	114,061.53	2,561.53
U.S. Government Contract Fund .....	1,266,400.00	1,258,768.70	(7,631.30)
General Reserve Fund .....	7,500.00	547.63	(6,952.37)
Waterworks Bonds, 1957, Interest and Redemption Fund .....		49,027.21	49,027.21
Special Tax Fund .....	72,900.00	81,143.26	8,243.26
	<u>\$3,648,400.00</u>	<u>\$3,692,702.34</u>	<u>\$ 44,302.34</u>

TABLES

TABLE 18  
SUMMARY STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS  
July 1, 1957 to June 30, 1958

	Cash Balance July 1, 1957	Cash Receipts	Cash Disbursements	Inter-Fund Transfers		Cash Balance June 30, 1958
				In	Out	
General Fund .....	\$ 23,681.34	\$ 2,337,054.01	\$ 2,455,530.74	\$175,000.00	\$ 23,701.28	\$ 54,503.33
Waterworks Bonds, 1947, Interest and Sinking Fund .....	2,216.53	492,360.20	396,645.39		75,000.00	22,931.34
U.S. Government Contract Fund .....	28,421.40	1,282,148.01	1,272,369.38	124,602.75	100,000.00	62,802.78
General Reserve Fund .....	105,167.34	201,366.08	194,193.75	100,000.00	100,000.00	112,339.67
Waterworks Bonds, 1957, Improvement Fund .....		13,332,981.36	13,094,504.15		100,000.00	138,477.21
Waterworks Bonds, 1957, Interest and Redemption Fund .....	4,030.85	57,445.61	593,417.38	1,098.53		58,544.14
Special Tax Fund .....		627,678.55				56,292.02
Total all funds .....	\$163,517.46	\$18,331,033.82	\$18,008,660.79	\$400,701.28	\$400,701.28	\$485,890.49

TREASURY CASH ON DEPOSIT—June 30, 1958

First National Trust and Savings Bank .....	\$565,680.76
Bank of America National Trust and Savings Association .....	41,050.00
San Diego Trust and Savings Bank .....	50,000.00
Total bank balances .....	656,730.76
Deduct:	
Outstanding warrants .....	\$154,790.27
Special deposit for payment of bond interest .....	16,050.00
Treasury cash, June 30, 1958 .....	170,840.27
	<u>\$485,890.49</u>

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 19  
STATEMENT OF BONDS PAYABLE  
June 30, 1958

Description	Rate of Interest	Date of	
		Issue	Maturity
Waterworks Bonds, 1947 .....	2%-2½%	1947	1971
Waterworks Bonds, 1957 .....	3.2%-6%	1957	1993

STATEMENT OF BONDED DEBT MATURITIES

Fiscal Year	Waterworks Bonds, 1947		
	Principal	Interest	Total
1958-59	\$ 100,000.00	\$ 31,000.00	\$ 131,000.00
1959-60	100,000.00	29,000.00	129,000.00
1960-61	100,000.00	27,000.00	127,000.00
1961-62	150,000.00	24,500.00	174,500.00
1962-63	150,000.00	21,500.00	171,500.00
1963-64	150,000.00	18,500.00	168,500.00
1964-65	150,000.00	15,500.00	165,500.00
1965-66	150,000.00	12,500.00	162,500.00
1966-67	150,000.00	9,500.00	159,500.00
1967-68	100,000.00	7,000.00	107,000.00
1968-69	100,000.00	5,000.00	105,000.00
1969-70	100,000.00	3,000.00	103,000.00
1970-71	100,000.00	1,000.00	101,000.00
1971-72			
1972-73			
1973-74			
1974-75			
1975-76			
1976-77			
1977-78			
1978-79			
1979-80			
1980-81			
1981-82			
1982-83			
1983-84			
1984-85			
1985-86			
1986-87			
1987-88			
1988-89			
1989-90			
1990-91			
1991-92			
1992-93			
	\$1,600,000.00	\$205,000.00	\$1,805,000.00

TABLES

TABLE 19 (Continued)  
STATEMENT OF BONDS PAYABLE  
June 30, 1958

Authorized	Bonds		Sinking Fund		
	Issued	Outstanding	Required	Actual	Excess
\$ 2,000,000.00	\$2,000,000.00	\$1,600,000.00	\$554,358.68	\$557,731.09	\$3,372.41
35,000,000.00	7,500,000.00	7,500,000.00			
\$37,000,000.00	\$9,500,000.00	\$9,100,000.00			

STATEMENT OF BONDED DEBT MATURITIES

Waterworks Bonds, 1957			Total		
Principal	Interest	Total	Principal	Interest	Total
\$ 25,000.00	\$ 255,575.00	\$ 280,575.00	\$ 125,000.00	\$ 286,575.00	\$ 411,575.00
25,000.00	254,075.00	279,075.00	125,000.00	283,075.00	408,075.00
25,000.00	252,575.00	277,575.00	125,000.00	279,575.00	404,575.00
30,000.00	251,075.00	281,075.00	180,000.00	251,078.00	431,078.00
30,000.00	249,275.00	279,275.00	180,000.00	270,775.00	450,775.00
30,000.00	247,475.00	277,475.00	180,000.00	265,975.00	445,975.00
40,000.00	245,675.00	285,675.00	190,000.00	261,175.00	451,175.00
40,000.00	243,275.00	283,275.00	190,000.00	255,775.00	445,775.00
50,000.00	240,875.00	290,875.00	200,000.00	250,375.00	450,375.00
50,000.00	237,875.00	287,875.00	150,000.00	307,875.00	457,875.00
75,000.00	234,875.00	309,875.00	175,000.00	239,875.00	414,875.00
90,000.00	230,375.00	320,375.00	190,000.00	233,375.00	423,375.00
100,000.00	224,975.00	324,975.00	200,000.00	225,975.00	425,975.00
150,000.00	221,975.00	371,975.00	150,000.00	221,975.00	371,975.00
175,000.00	217,475.00	392,475.00	175,000.00	217,475.00	392,475.00
190,000.00	211,875.00	401,875.00	190,000.00	211,875.00	401,875.00
200,000.00	205,795.00	405,795.00	200,000.00	205,795.00	405,795.00
225,000.00	199,395.00	424,395.00	225,000.00	199,395.00	424,395.00
250,000.00	192,195.00	442,195.00	250,000.00	192,195.00	442,195.00
270,000.00	184,195.00	454,195.00	270,000.00	184,195.00	454,195.00
275,000.00	175,555.00	450,555.00	275,000.00	175,555.00	450,555.00
290,000.00	166,755.00	456,755.00	290,000.00	166,755.00	456,755.00
300,000.00	157,475.00	457,475.00	300,000.00	157,475.00	457,475.00
315,000.00	147,875.00	462,875.00	315,000.00	147,875.00	462,875.00
325,000.00	137,795.00	462,795.00	325,000.00	137,795.00	462,795.00
335,000.00	127,395.00	462,395.00	335,000.00	127,395.00	462,395.00
350,000.00	116,675.00	466,675.00	350,000.00	116,675.00	466,675.00
360,000.00	105,300.00	465,300.00	360,000.00	105,300.00	465,300.00
375,000.00	93,600.00	468,600.00	375,000.00	93,600.00	468,600.00
385,000.00	81,412.50	466,412.50	385,000.00	81,412.50	466,412.50
400,000.00	68,900.00	468,900.00	400,000.00	68,900.00	468,900.00
415,000.00	55,900.00	470,900.00	415,000.00	55,900.00	470,900.00
430,000.00	42,412.50	472,412.50	430,000.00	42,412.50	472,412.50
430,000.00	28,437.50	458,437.50	430,000.00	28,437.50	458,437.50
445,000.00	14,462.50	459,462.50	445,000.00	14,462.50	459,462.50
\$7,500,000.00	\$6,120,830.00	\$13,620,830.00	\$9,100,000.00	\$6,364,333.00	\$15,464,333.00

TABLE 20  
STATEMENT OF TAX ASSESSMENTS AND COLLECTIONS  
July 1, 1957 to June 30, 1958

	Tax Assessments to Date	Adjustments to Tax Assessments	Tax Collections	Interest and Penalties	Tax on Options	Receipts in Lieu of Taxes	Miscellaneous Tax Sales	(Less) Refunds	Net Total Collections	Uncollected June 30, 1958
Fallbrook P.U.D.	\$ 51,664.70	\$ 9.05	\$ 51,406.69	\$ 214.98	\$ .41	\$ 3,420.09	\$ 5.44	\$ 7.77	\$ 55,039.84	\$ 267.06
Helix Irrigation District	681,498.33	(452.99)	677,743.56	1,662.15	89.08	1,060.00	427.83	209.46	680,773.16	3,401.78
City of National City	185,090.60	(219.98)	184,267.01	552.76	5.97	6,251.30	56.39	472.95	190,660.48	603.61
City of Oceanside	166,546.53	478.26	166,436.67	369.19	5.11	2,561.13	50.94	97.12	169,325.92	588.12
City of San Diego	4,881,312.39	15,911.91	4,883,716.00	8,354.26	39.61	151,046.31	1,762.85	4,273.67	5,040,345.36	13,708.50
Ramona M.W.D.	165,96	.07	166.03	.68					166.71	
Santa Fe I.D.	66,039.31	648.56	66,410.79	515.77	438.02		1,046.65	13.13	68,398.10	277.08
San Diegoito I.D.	78,719.36	145.25	78,489.79	270.74	3.88		97.93	197.28	78,665.06	374.80
City of Escondido	87,635.09	500.46	87,845.10	100.59			28.84	10.69	87,963.84	290.45
South Bay I.D.	355,867.21	692.76	355,404.92	624.11	.39	13,281.66	57.13	390.41	368,977.80	1,155.05
Rainbow M.W.D.	6,854.98	46.85	6,821.54	12.30		20,579.97			27,413.61	80.49
Poway M.W.D.	11,781.84	27.62	11,689.52	19.32				.37	11,708.67	119.94
Bueno Colorado M.W.D.	122,117.72	5,062.89	121,835.54	246.50	1.73	10,730.00	45.44	47.16	132,832.05	5,345.07
Rincon del Diablo M.W.D.	68,285.30	1,105.78	68,919.09	170.71		50,118.37		.59	119,207.58	471.99
Carlsbad M.W.D.	77,317.45	98.16	77,238.42	70.24		53,176.44	9.10	2.70	110,491.50	177.19
Valley Center M.W.D.	15,745.98	(16.24)	15,367.81	10.32				.30	15,378.03	361.93
Rio San Diego M.W.D.	29,657.21	55.60	28,657.83	70.14	.05	45.00	19.38	8.00	28,784.40	1,054.98
Obay M.W.D.	8,067.00	(.44)	8,066.25					.23	8,066.02	.31
Total member agencies	6,894,567.16	24,093.55	6,890,482.36	13,265.16	584.25	292,290.27	3,607.92	6,031.85	7,194,198.13	28,178.55
Withdrawn agencies	4,108.03	31.01	4,127.64	8.65	.15	186.64	2.49	1.70	4,323.87	11.40
Total	\$6,898,675.19	\$24,124.56	\$6,894,610.00	\$13,273.81	\$584.40	\$292,476.91	\$5,610.41	\$6,033.55	\$7,198,522.00	\$28,189.75

ANALYSIS OF UNCOLLECTED TAXES BY FUNDS

General Fund	\$ 4,753.76
Waterworks Bonds, 1947, Interest and Sinking Fund	3,059.11
U. S. Government Contract Fund	18,448.40
Special Tax Fund	1,928.48
Total as above	\$28,189.75

TABLE 21  
TAX LEVIES AND TAX COLLECTIONS  
Fiscal Years 1945-46 to 1957-58

Fiscal Year	Tax Levy (1)	Collection of Current Year's Taxes During Fiscal Year	Percentage of Levy Collected During Fiscal Year	Adjustments to Prior Years' Levies	Collection of Prior Years' Taxes During Fiscal Year	Total Tax Collections	Ratio of Total Collections to Adjusted Tax Levy (2)	Accumulated Delinquent Taxes	Ratio of Accumulated Delinquent Taxes to Adjusted Tax Levy (2)
1945-46	\$ 96,131.33	\$ 94,656.51	98.47		\$ 1,090.25	\$ 94,656.51	98.47	\$ 1,474.82	1.53
1946-47	107,808.89	105,753.78	98.09		1,882.72	106,844.03	99.11	2,439.68	2.26
1947-48	389,591.57	381,563.14	97.94		5,916.41	383,445.86	98.42	8,585.39	2.20
1948-49	474,520.78	459,504.39	96.84		13,342.55	465,420.80	98.08	17,685.37	3.73
1949-50	401,112.07	392,732.15	97.91	\$ 329.58	8,217.82	406,074.70	101.15	13,052.32	3.25
1950-51	397,970.61	390,274.43	98.07	373.44	7,699.55	398,492.25	100.03	12,904.12	3.24
1951-52	450,405.19	441,242.12	97.97	978.87	12,567.93	448,941.67	99.46	15,346.51	3.40
1952-53	594,603.48	585,417.35	98.46	(1,140.34)	597,985.28	597,985.28	100.76	10,824.37	1.82
1953-54	652,335.08	640,239.42	98.15	4,213.42	9,942.33	650,181.75	99.03	17,191.12	2.62
1954-55	709,678.89	695,200.64	97.96	1,295.13	12,638.30	707,838.94	99.56	20,326.20	2.86
1955-56	803,375.25	788,734.26	97.41	(2,099.58)	12,140.64	800,874.90	99.95	20,726.97	2.59
1956-57	874,774.45	861,461.66	98.48	576.90	13,056.01	874,517.67	99.90	21,560.65	2.46
1957-58	965,006.57	946,445.55	98.08	958.17	12,890.09	959,335.64	99.31	28,189.75	2.92

(1) Including adjustments to current year's levy.  
(2) Including adjustments to current and prior years' levies.

TABLE 22  
SAN DIEGO COUNTY WATER AUTHORITY  
ANNEXATION CHARGES, ASSESSMENTS AND BALANCES

Area	Date of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments to 6/30/57	Fiscal Year 1957-58		Remaining Balance of Annexation Charges 6/30/58
			First Year	Last Year		Special Assessments	Tax Rate	
Bueno Colorado M.W.D.	6-11-54	\$122,400.00	1955-56	1959-60	\$ 50,409.91	{ \$14,952.40	.06	\$ 47,037.69
Annexation of 1956	6-11-56	750.00	1955-56	1955-56	750.00	-0-	-0-	-0-
Carlsbad M.W.D.	6-16-54	57,700.00	1955-56	1956-57	57,700.00	-0-	-0-	-0-
Escondido, City of	10- 9-50	27,500.00	1951-52	1960-61	17,239.54	2,942.30	.02	7,318.16
Fallbrook P.U.D.								
Annexation of 1950	8- 1-50	2,700.00	1950-51	1950-51	2,700.00	-0-	-0-	-0-
Helix I.D.								
Grest P.U.D.	12-13-48	861.00	1949-50	1949-50	861.00	-0-	-0-	-0-
San Diego Gas & Electric Co. Lands	5-14-52	1,060.00	1951-52	1951-52	1,060.00	-0-	-0-	-0-
El Cajon Dry Island Annexation	12-20-54	40,800.00	1955-56	1959-60	17,394.92	7,289.67	.04	16,115.41
Otay M.W.D.	10-26-56	24,900.00	1957-58	1961-62	-0-	4,910.55	.14	19,989.65
Poway M.W.D.	4-21-54	10,400.00	1955-56	1959-60	4,270.08	2,069.89	.09	4,060.03
Rainbow M.W.D.	4-10-54	18,000.00	1955-56	1955-56	18,000.00	-0-	-0-	-0-
Rainbow M.W.D.	8-27-57	41,900.00	1958-59	1962-63	-0-	-0-	-0-	41,900.00
Ramona M.W.D.	6-14-54	82,700.00	1955-56	1956-57	82,700.00	-0-	-0-	-0-
Rincon del Diablo M.W.D.								
Rio San Diego M.W.D.								
(not including Lakeside I.D.)	6- 7-56	46,100.00	1957-58	1961-62	-0-	9,237.07	.12	36,862.93
Lakeside I.D., Eucalyptus Co. Lands	7-18-52	45.00	1951-52	1951-52	45.00	-0-	-0-	-0-
San Diego I.D.	12-13-48	13,733.00	1949-50	1958-59	11,987.51	1,072.69	.01	672.80
Santa Fe I.D.	12-13-48	11,541.00	1949-50	1958-59	10,367.29	937.49	.01	236.22
South Bay I.D.								
(not including City of Chula Vista)	11- 3-52	39,900.00	1953-54	1957-58	32,815.22	7,084.78	.04	-0-
Sweetwater Reservoir Area	7-13-55	5,405.00	1955-56	1955-56	5,405.00	-0-	-0-	-0-
Sweetwater Delta Area	11- 7-56	5.00	1956-57	1956-57	5.00	-0-	-0-	-0-
Valley Center M.W.D.	5- 9-55	23,600.00	1956-57	1960-61	4,844.75	4,843.68	.13	13,911.57
Total		\$572,000.00			\$318,555.22	\$65,340.52		\$188,104.46

TABLE 23  
METROPOLITAN WATER DISTRICT ANNEXATION CHARGES,  
ASSESSMENTS AND BALANCES ON AUTHORITY AREAS

Member Agencies	Dates of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments to 6/30/57	Fiscal Year 1957-58		Remaining Balance of Annexation Fee 6/30/58
			First Year	Last Year		Special Assessments	Tax Rate per \$100	
Chula Vista, City of	12-17-46	\$13,045,000	1947-48	1976-77	\$4,386,975.91	\$433,075.69	\$ .05	\$ 8,224,948.40
Fallbrook Public Utility District								
Lakeside Irrigation District								
Helix Irrigation District								
National City, City of								
Oceanside, City of								
San Diego, City of								
Bueno Colorado M.W.D.— Original Area	6-11-54	1,072,230	1955-56	1984-85	71,732.82	56,216.85	.15	964,280.35
Annexation No. 1	6-11-56	5,100	1955-56	1955-56	5,100.00	0	0	0
Carlsbad M.W.D.	6-16-54	548,100	1955-56	1984-85	36,813.21	18,469.52	.18	492,817.27
Escondido, City of	10- 9-50	386,000	1951-52	1980-81	77,782.88	13,544.19	.09	294,672.93
Fallbrook Public Utility District								
1950 Annexation	8- 1-50	34,600	1951-52	1980-81	12,705.56	836.17	.06	21,068.27
Lakeside Irrigation District								
1951 Annexation	7-18-52	352	1951-52	1951-52	352.00	0	0	0
Helix Irrigation District								
Grest Public Utility District								
Annexation	12-13-48	10,500	1949-50	1978-79	2,826.38	358.56	.06	7,315.06
Annexation during 1951	5-14-52	9,875	1951-52	1951-52	9,875.00	0	0	0
El Cajon Dry Island Annexation	12-20-54	32,450	1955-56	1984-85	22,514.83	10,811.64	.06	294,123.53
Concurrent Islands	3-16-55	15	1954-55	1954-55	15.00	0	0	0
Otay M.W.D.	10-26-56	273,000	1957-58	1986-87	0	9,119.21	.26	263,880.79
Poway M.W.D.	4-21-54	91,800	1955-56	1984-85	6,145.72	5,217.51	.14	82,436.77
Rainbow M.W.D.	4-10-54	167,700	1955-56	1984-85	11,441.42	5,690.56	.14	150,568.02
Ramona M.W.D.	8-27-57	339,000	1958-59	1987-88	0	0	0	339,000.00
Rincon del Diablo M.W.D.	6-14-54	757,200	1955-56	1984-85	50,609.59	26,721.04	.16	679,869.37
Rio San Diego M.W.D.								
(not including Lakeside I.D.)	6- 7-56	373,980	1957-58	1986-87	0	13,085.85	.17	360,894.15
San Diego I.D.	12-13-48	187,100	1949-50	1978-79	50,194.75	6,436.18	.06	130,469.07
Santa Fe Irrigation District	12-13-48	167,000	1949-50	1978-79	44,863.00	5,661.25	.06	116,475.75
South Bay Irrigation District								
(not including City of Chula Vista)	11- 3-52	449,570	1953-54	1982-83	59,965.21	15,475.20	.08	373,929.59
Sweetwater Reservoir Annexation	7-13-55	45,525	1955-56	1955-56	45,525.00	0	0	0
Sweetwater Delta Area	11- 7-56	42	1956-57	1956-57	42.00	0	0	0
Valley Center M.W.D.	5- 9-55	205,680	1956-57	1985-86	6,964.53	7,075.35	.19	191,640.32
Total		\$18,496,619			\$4,902,444.61	\$605,784.77		\$12,988,389.62

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 24  
WATER SALES BY METROPOLITAN WATER DISTRICT  
Fiscal Years 1941-42 to 1957-58

Year	To Member Municipalities						Total Acre feet
	Natural Water		Softened Water		Total to Agencies	To Others	
	Acre feet	Per cent	Acre feet	Per cent	Acre feet	Acre feet	
1941-42	0	0	9,372.6	100	9,372.6	70.7	9,443.3
1942-43	0	0	14,457.8	100	14,457.8	2,626.4	17,084.2
1943-44	0	0	15,874.9	100	15,874.9	3,301.8	19,176.7
1944-45	0	0	30,591.3	100	30,591.3	1,715.7	32,307.0
1945-46	0	0	46,685.8	100	46,685.8	1,264.2	47,950.0
1946-47	0	0	59,861.8	100	59,861.8	524.0	60,385.8
1947-48	41,093.5	36	71,995.4	64	113,088.9	116.8	113,255.7
1948-49	71,642.6	49	73,237.1	51	144,879.7	128.4	145,008.1
1949-50	69,308.0	49	72,936.0	51	142,244.0	23,371.6	165,615.6
1950-51	75,000.9	54	63,493.1	46	138,494.0	26,978.6	165,472.6
1951-52	66,674.3	44	84,616.1	56	151,290.4	42,464.2	193,754.6
1952-53	30,845.3	24	99,589.6	76	130,434.9	31,682.4	162,117.3
1953-54	120,773.0	51	115,550.6	49	236,323.6	7,820.7	244,144.3
1954-55	192,544.7	59	134,923.3	41	327,468.0	58,184.5	385,652.5
1955-56	190,337.2	53	169,506.4	47	359,843.6	45,562.9	405,406.5
1956-57	286,059.1	60	191,110.7	40	477,169.8	66,074.1	543,243.9
1957-58	266,024.1	57	197,900.0	43	463,924.1	75,612.8	539,536.9

TABLES

TABLE 25  
WATER PRODUCTION—METROPOLITAN WATER DISTRICT CONSTITUENT AREAS  
Figures Furnished by Metropolitan Water District

Constituent Areas	Total Water Production			Source of Water Produced—1957-58			
	1956-57 Amount ac. ft.	1957-58 Amount ac. ft.	Per cent Increase or Decrease	M.W.D.		Other	
				Amount ac. ft.	Per cent of Total	Amount ac. ft.	Per cent of Total
Anaheim	11,168	12,711	13.8	5,219	41.1	7,492	58.9
Beverly Hills	11,183	11,375	1.7	2,027	17.8	9,348	82.2
Burbank	23,065	22,300	-3.3	3,383	15.2	18,917	84.8
Central Basin M.W.D.	181,327	173,131	-4.5	4,992	2.9	168,139	97.1
Chino Basin M.W.D.	156,506	143,852	-8.1	6,580	4.6	137,272	95.4
Coastal M.W.D.	12,164	12,120	-0.4	8,523	70.3	3,597	29.7
Compton	6,471	6,873	6.2	223	3.2	6,650	96.8
Eastern M.W.D.	148,741	138,107	-7.2	21,910	15.9	116,197	84.1
Foothill M.W.D.	13,471	13,423	-0.4	6,388	47.6	7,035	52.4
Fullerton	11,781	12,173	3.3	6,241	51.3	5,932	48.7
Glendale	25,668	22,667	-11.7	2,050	9.0	20,617	91.0
Long Beach	43,222	41,298	-4.5	15,250	36.9	26,048	63.1
Los Angeles	467,127	463,731	-0.7	37,729	8.1	426,002	91.9
Orange County M.W.D.	179,980	193,102	7.3	16,102	8.3	177,000	91.7
Pasadena	29,826	28,811	-3.4	11,773	40.9	17,038	59.1
Pomona Valley M.W.D.	45,436	42,506	-6.4	5,161	12.1	37,345	87.9
San Diego C.W.A.	175,927	174,214	-1.0	144,015	82.7	30,199	17.3
San Marino	4,740	4,417	-6.8	—	0	4,417	100.0
Santa Ana	11,891	11,999	0.9	5,858	48.8	6,141	51.2
Santa Monica	13,350	13,707	2.7	12,887	94.0	820	6.0
Torrance	13,968	14,661	5.0	13,080	89.2	1,581	10.8
West Basin M.W.D.	100,010	104,546	4.5	51,530	49.3	53,016	50.7
Western M.W.D.	147,851	155,058	4.9	5,858	3.8	149,200	96.2
Totals	1,834,873	1,816,782	-1.0	386,779	21.3	1,430,003	78.7

(a) Exclusive of 72,649.6 A.F. delivered to Los Angeles County Flood Control District for recharging underground basins.  
 (b) Exclusive of 77,145.0 A.F. delivered to Orange County for recharging underground basins, but including 16,102.3 A.F. delivered for irrigation and domestic use.  
 (c) Includes 3,339.3 A.F. of unsoftened water.  
 (d) Includes 25,634.9 A.F. held in storage.  
 (e) Includes 4,416.6 A.F. of softened water placed in underground basins.  
 (f) Includes 5,850.0 A.F. of seepage into San Jacinto Tunnel.

## SAN DIEGO COUNTY WATER AUTHORITY

TABLE 26  
 ASSESSED VALUATIONS AND TAX RATES OF THE  
 METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Fiscal Year	Area (acres)	Assessed Valuations Total (1)	Tax Rate	
			Per \$100 Secured	Per \$100 Unsecured
1929-30	—	\$ 2,439,836,920	\$0.04	\$0.00
1930-31	—	2,431,684,250	.03	.04
1931-32	—	2,382,184,445	.03	.03
1932-33	—	1,936,051,180	.04	.03
1933-34	—	1,654,403,890	.04	.04
1934-35	—	1,587,147,565	.10	.04
1935-36	—	1,783,531,020	.20	.10
1936-37	—	1,789,160,685	.37	.20
1937-38	—	1,827,765,725	.40	.37
1938-39	—	1,896,966,255	.40	.40
1939-40	—	1,910,152,190	.42	.40
1940-41	389,588	1,841,248,450	.49	.42
1941-42	399,875	1,900,599,934	.48	.49
1942-43	400,614	2,001,924,735	.48	.48
1943-44	401,190	2,005,496,430	.48	.48
1944-45	401,536	2,109,192,795	.48	.48
1945-46	402,779	2,159,731,425	.50	.48
1946-47	501,425	2,413,186,570	.48	.50
1947-48	546,573	3,443,212,822 (2)	.35	.48
1948-49	578,368	3,883,081,225	.34	.35
1949-50	585,184	4,181,812,855	.34	.34
1950-51	721,850	4,281,519,725	.31	.34
1951-52	995,130	4,674,664,040	.30	.31
1952-53	1,120,448	5,372,498,515	.28	.30
1953-54	1,368,038	6,015,691,980	.25	.28
1954-55	1,793,651	6,548,392,114	.23	.25
1955-56	1,876,256	8,514,868,335	.21	.23
1956-57	1,932,205	9,674,000,560	.19	.21
1957-58	2,046,189	11,235,906,510	.18	.19
1958-59 (3)		12,070,838,070	.18	.18

(1) Includes secured, unsecured, and public utility valuations.

(2) First year in which Authority assessed valuation was included in District's assessed valuation.

(3) Data for 1958-59 were available before completion of report and are included for convenience of reader.

