

SAN DIEGO COUNTY  
WATER AUTHORITY



SIXTEENTH ANNUAL REPORT  
1962

SAN DIEGO COUNTY WATER AUTHORITY

SIXTEENTH  
ANNUAL REPORT  
*of Authority Operations*

*For*

*Fiscal Year Ending June 30, 1962*

Richard S. Holmgren  
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA  
1962

*Cover: San Vicente Reservoir—Terminus of First San Diego Aqueduct.*

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SAN DIEGO COUNTY WATER AUTHORITY

Member Agencies, Date of Entry and  
Representatives on Board of Directors on June 30, 1962

Cities

Escondido . . . . Oct. 9, 1950 . . Lloyd M. Mitchell  
 National City . . . June 9, 1944 . . Charles G. Kerch  
 Oceanside . . . . June 9, 1944 . . Robert A. Weese  
 San Diego . . . . June 9, 1944 . . Paul Beermann  
                     Baylor Brooks  
                     Fred A. Heilbron  
                     George R. Henderson  
                     George Kerrigan  
                     H. Fred Landgraf  
                     Fred W. Simpson  
                     Arthur C. Wells

Irrigation Districts

Helix . . . . . June 9, 1944 . . Harry Griffen  
                     Wm. G. Sloan  
 San Dieguito . . . Dec. 13, 1948 . . Charles W. Hales  
 Santa Fe . . . . . Dec. 13, 1948 . . R. E. Badger  
 South Bay . . . . . Nov. 3, 1952 . . Lloyd L. Lee  
 (Includes City of Chula Vista, an independent  
 member agency, from June 9, 1944 to Nov. 3, 1952)

Municipal Water Districts

Bueno Colorado . . June 11, 1954 . . Hans H. Doe  
 Carlsbad . . . . . June 16, 1954 . . Mac Carnohan  
 Olivenhain . . . . . July 25, 1960 . . Howard G. Golem  
 Otay . . . . . Oct. 26, 1956 . . Lawrence C. Kuebler  
 Poway . . . . . April 21, 1954 . . David R. Shepardson  
 Rainbow . . . . . April 10, 1954 . . Guy C. Earl, Jr.  
 Ramona . . . . . August 27, 1957 . . John E. Langan  
 Rincon del Diablo . June 14, 1954 . . Charles A. Crytser  
 Río San Diego . . . June 7, 1956 . . Charles C. Price  
 (Includes Lakeside I.D., an independent member  
 agency from June 9, 1944 to June 7, 1956)  
 Valley Center . . . May 9, 1955 . . C. P. Kane

Public Utility District

Fallbrook . . . . . June 9, 1944 . . Franz R. Sachse

OFFICERS OF BOARD OF DIRECTORS  
1961-62



Chairman  
Fred A. Heilbron  
San Diego  
7-44 to 6-62



Secretary  
Hans H. Doe  
Bueno Colorado  
Municipal Water District  
6-54 to 6-62



Vice Chairman  
R. E. Badger  
Santa Fe  
Irrigation District  
9-57 to 6-62



Treasurer  
Harry Griffen  
Helix  
Irrigation District  
7-56 to 6-62

EXECUTIVE OFFICERS



Richard S. Holmgren  
General Manager and  
Chief Engineer



W. H. Jennings  
General Counsel

BOARD OF DIRECTORS

1961-62

For Officers, see Page 5



Paul Beermann  
San Diego  
2-53 to 6-62



Baylor Brooks  
San Diego  
5-54 to 10-60  
4-62 to 6-62



Mac Carnohan  
Carlsbad Municipal  
Water District  
12-59 to 6-62



Morton J. Cohn  
San Diego  
3-61 to 12-61



Charles A. Crytser  
Rincon del Diablo  
Municipal Water District  
6-54 to 6-62



John A. Donnelley  
San Diego  
4-61 to 12-61



Guy C. Earl, Jr.  
Rainbow Municipal  
Water District  
12-58 to 6-62



Howard G. Golem  
Olivenhain Municipal  
Water District  
1-62 to 6-62



Charles W. Hales  
San Dieguito  
Irrigation District  
6-58 to 6-62



G. R. Henderson  
San Diego  
10-55 to 6-62



C. Hap Holliday  
San Diego  
6-59 to 4-62



Wm. C. Jordan  
Valley Center  
Municipal Water  
District  
3-61 to 8-61



C. P. Kane  
Valley Center  
Municipal Water  
District  
2-59 to 3-61  
8-61 to 6-62



Charles G. Kerch  
National City  
5-57 to 6-62

BOARD OF DIRECTORS

1961-62

(Continued)



George Kerrigan  
San Diego  
9-53 to 6-62



Lawrence C. Kuebler  
Otay Municipal  
Water District  
2-61 to 6-62



H. Fred Landgraf  
San Diego  
10-55 to 6-62



John E. Langan  
Ramona Municipal  
Water District  
4-61 to 6-62



Lloyd L. Lee  
South Bay  
Irrigation District  
4-61 to 6-62



Lloyd M. Mitchell  
Escondido  
12-56 to 6-62



Charles C. Price  
Rio San Diego  
Municipal  
Water District  
7-58 to 6-62



Franz R. Sachse  
Fallbrook Public  
Utility District  
10-56 to 6-62



David R. Shepardson  
Poway Municipal  
Water District  
4-54 to 6-62



Fred W. Simpson  
San Diego  
7-44 to 6-62



Wm. G. Sloan  
Helix  
Irrigation District  
11-59 to 6-62



Clarke R. Thomas  
Olivenhain  
Municipal Water  
District  
8-60 to 1-62



Robert A. Weese  
Oceanside  
3-53 to 6-62



Arthur C. Wells  
San Diego  
2-53 to 6-62

COMMITTEES OF THE BOARD

June 30, 1962

ENGINEERING AND OPERATIONS

Paul Beermann, Chairman  
 Robert A. Weese, Vice Chairman  
 R. E. Badger  
 Baylor Brooks  
 Mac Carnohan  
 Hans H. Doe  
 Howard G. Golem  
 Charles W. Hales  
 George R. Henderson  
 Lawrence C. Kuebler  
 Lloyd L. Lee  
 Wm. G. Sloan

ORGANIZATION, PERSONNEL  
 AND PUBLIC RELATIONS

Fred W. Simpson, Chairman  
 David R. Shepardson, Vice Chairman  
 Guy C. Earl, Jr.  
 Howard G. Golem  
 Charles W. Hales  
 Charles G. Kerch  
 Lawrence C. Kuebler  
 John E. Langan  
 Charles C. Price  
 Wm. G. Sloan  
 Robert A. Weese

LEGAL AND CLAIMS

Franz R. Sachse, Chairman  
 David R. Shepardson,  
 Vice Chairman  
 Mac Carnohan  
 Guy C. Earl, Jr.  
 Charles G. Kerch  
 George Kerrigan  
 H. Fred Landgraf  
 Arthur C. Wells

FINANCE AND INSURANCE

Arthur C. Wells, Chairman  
 Harry Griffen, Vice Chairman  
 Charles A. Crytser  
 George Kerrigan  
 H. Fred Landgraf  
 John E. Langan  
 Lloyd M. Mitchell  
 Charles C. Price

WATER PROBLEMS AND POLICY

Hans H. Doe, Chairman  
 Geo. R. Henderson, Vice Chairman  
 R. E. Badger  
 Paul Beermann  
 Baylor Brooks  
 Charles A. Crytser  
 Harry Griffen  
 Fred A. Heilbron  
 Lloyd L. Lee  
 Lloyd M. Mitchell  
 Franz R. Sachse  
 Fred W. Simpson

EXECUTIVE OFFICERS AND OPERATING STAFF

General Manager and Chief Engineer . . . . . Richard S. Holmgren  
 General Counsel . . . . . William H. Jennings  
 Assistant Chief Engineer . . . . . Allen H. Jones  
 Chief Accounting Officer . . . . . Charles L. Royer  
 Treasurer . . . . . Harry Griffen  
 Executive Secretary and Asst. Treasurer . . . . . Maxine M. McKinley  
 Superintendent, Maintenance and Operation . . . . . Joseph E. Lester

AUTHORITY HIGHLIGHTS  
 IN BRIEF

	1961-62	1960-61	Percent Change
<b>GROWTH OF AREA</b>			
Number of Agencies . . . . .	19	19	
Total Area - Acres . . . . .	672,018	650,943	+3.2
Population . . . . .	1,085,000	1,015,500	+6.8
Assessed Valuation . . . . .	\$1,567,210,470	\$1,443,958,940	+8.5
<b>OPERATIONS</b>			
Water Imported by Authority - ac.ft.	184,858	198,257	-6.8
Water Production of Agencies - ac.ft.	192,554	205,540	-6.3
Local Water Used - ac.ft. . . . .	20,602	22,940	-10.2
Authority Water Used - ac.ft. . . . .	171,952	182,600	-5.8
Miles of Pipe Line . . . . .	161	161	-0-
Miles of Patrol Roads Maintained . . . . .	50	49	+2.0
Number of Service Connections . . . . .	39	32	+21.9
Number of Employees . . . . .	23	26	-11.5
<b>FINANCIAL</b>			
Revenues:			
Water Revenue . . . . . \$	3,351,839	\$ 3,209,224	+4.4
Other Revenue . . . . .	724,978	791,869	-8.4
Taxes . . . . .	1,736,953	1,590,959	+9.2
Expenditures:			
Operation and Maintenance . . . \$	200,810	\$ 173,170	+16.0
Purchase of Water . . . . .	3,058,504	2,960,274	+3.3
New Construction . . . . .	94,886	316,892	-70.1
Payments on Outstanding Debt . . . . .	1,149,208	1,089,208	+5.5
Total Investment in Plant:			
Total Fixed Assets . . . . . \$	93,262,248	\$ 90,142,643	+3.5
Long-Term Debt . . . . .	62,516,542	64,235,028	-2.7



Board of Directors  
San Diego County Water Authority  
Building

Gentlemen:

Transmitted herewith is the Sixteenth Annual Report of the Authority, as required under Section 3.1 of the Administrative Code. This report covers activities of the Authority for fiscal year July 1, 1961 to June 30, 1962.

In spite of a continuation of the present drought, the Authority has successfully met all demands for water by its member agencies. This has been accomplished with sufficient capacity remaining in the aqueducts to meet an expansion of growth for the next few years. How rapidly the growth occurs, will determine when the Second Barrel of the Second Aqueduct should be constructed.

My sincere appreciation is extended to members of the Board of Directors for their devoted leadership and to all Authority personnel for their excellent cooperation in carrying forward the activities of the Authority. Working in unison, we have had another very satisfactory year.

Respectfully,

Richard S. Holmgren  
General Manager and Chief Engineer

October 31, 1962

*Emergency Blowoff—Second Aqueduct  
at San Dieguito River*

**SAN DIEGO COUNTY WATER AUTHORITY  
REPORT OF ACTIVITIES  
FISCAL YEAR 1961-62**

**ADMINISTRATION  
Board of Directors**

The activities of the Authority continue to be administered by a Board of Directors, consisting of twenty-eight members, each of whom has been appointed by the member agency which he represents. Each member agency is entitled to one representative on the Authority Board of Directors and an additional Director for each \$90 million of assessed valuation, as determined by the Assessor of San Diego County. Two agencies are represented on the Board by more than one Director at this time. The Helix Irrigation District is represented by two members, and the City of San Diego is represented by nine members.

The three officers of the Authority Board are elected biennially in July of even years by members of the Board of Directors. Director Fred A. Heilbron has been Chairman of the Board for the past eighteen years--since formation of the Authority in 1944. Director Ray E. Badger has filled the office of Vice Chairman since April 13, 1961. Director Hans H. Doe continues to serve as Secretary of the Board, having officiated in this capacity for the past six years.

Five permanent committees, consisting of Authority Board members, are maintained by the Board. The primary function of each committee is to consider problems coming within the scope of its action, as outlined in Section 2.2 of the Administrative Code, and recommend solution thereof to the Board. The committees are Engineering and Operations, Finance and Insurance, Legal and Claims, Organization and Personnel, and Water Problems and Policy, the designations indicating in general the extent of committee action. Committee memberships are shown on page 8 of this report.

Whenever necessary, special temporary committees are established by the Board to consider non-recurring matters. As related in the Fifteenth Annual Report, such a committee was established to

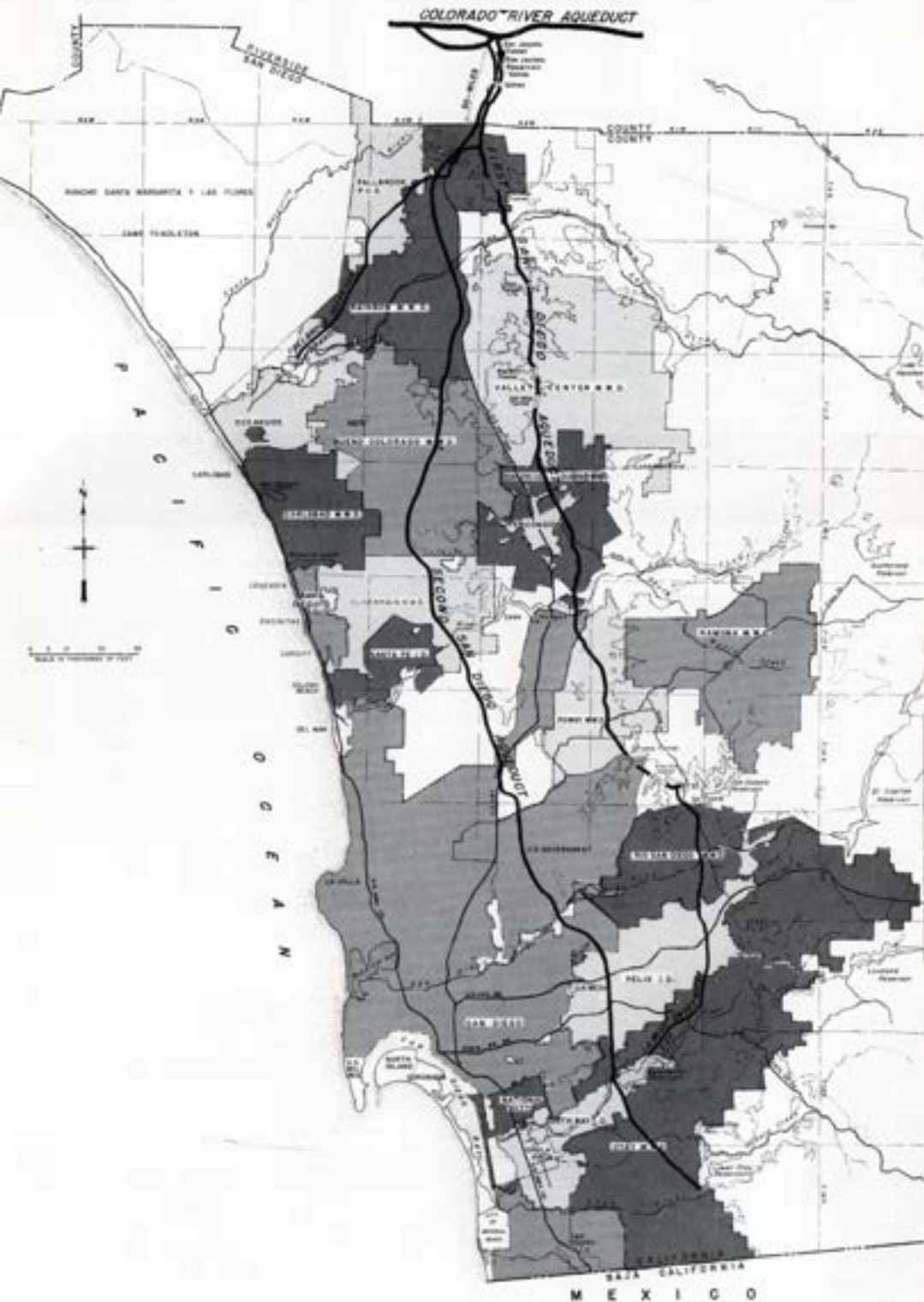


Figure A. Authority area within San Diego County

consider a study of the Authority's administrative setup, made by Griffenhagen-Kroger, Inc. in July of 1961. On the basis of this report, the committee prepared a draft of an Administrative Code and presented it to the Board with recommendation that it be adopted. At the August 10, 1961 Board meeting the Code was adopted, concurrently with the repeal of all conflicting administrative ordinances. Director Lloyd C. Mitchell was Chairman of this committee, and upon acceptance of its recommendation to the Board the committee was dissolved. No special committees were established during this fiscal year.

A number of changes occurred in the membership of the Board of Directors during this fiscal year. Directors John A. Donnelley, Morton J. Cohn and C. Hap Holliday, representing the City of San Diego, resigned because of personal business obligations. Professor Baylor Brooks, a former member of the Authority Board from 1954 to 1960, representing the City of San Diego, was reappointed April 12, 1962. Director William C. Jordan, representing the Valley Center Municipal Water District, resigned from the Authority Board in August of 1961. Director C. P. Kane, who formerly represented the District from February 1959 to March 1961, was reappointed to fill the vacancy created by the resignation of Director Jordan. In January of 1962, Director Clarke R. Thomas resigned from the Board as representative of the Olivenhain Municipal Water District. He was succeeded by Director Howard G. Golem in January of 1962.

### **Administrative Staff**

One major change in the administrative staff occurred during the fiscal year. Mrs. Dorothy D. Miller retired July 31, 1961 as Executive Secretary of the Board. She was succeeded by Mrs. Maxine M. McKinley, who joined the Authority staff in June of 1961 as Secretary to the General Manager and Chief Engineer.

### **Employee Relations**

As of June 30, 1962 the Authority had a total working force of 23 persons, all of whom were engaged primarily in maintenance activities and operation of the Authority system, since no major construction program was in effect during the fiscal year. All construction

work required on service connection projects was performed by Authority maintenance crews.

The Authority continues to provide a contract with California Physicians Service, under which employees receive medical and hospital benefits. The full expense of this service is carried by the Authority. Coverage may be extended by an employee to a member of his family, but such coverage is at the expense of the employee. The Authority also has in effect a retirement contract with the State of California, under which the employees become members of the State of California Retirement System, with the employee contributing the major cost of this program by monthly deductions from his salary. The State Retirement System is combined with the Federal Social Security System, so that contributions include payments to the Federal Government as well. Retirement under the State System is mandatory at age seventy.

Authority employees receive eleven holidays annually, with twelve working days' vacation and one day of sick leave per month--the latter being accumulative. The Board at its July 1962 meeting increased the annual vacation period from twelve to fifteen days for those employees having five or more years' service.

### **Public Relations**

In the past few years public relation activities have been more or less centered on bond issues, for construction of Authority facilities to transport and deliver water to member agencies. With completion of the Second San Diego Aqueduct in December of 1960, however, ample aqueduct capacity is available to meet the demands of member agencies, and another drive is not anticipated for at least the next five years.

Many requests for information concerning the Authority and the availability of water throughout the county have been received and answered. At the request of a number of service and civic clubs, Board and Staff members have given talks concerning the Authority system and its operation. Also, excellent newspaper and television coverage of the affairs of the Authority has been sustained throughout the year.

## SAN DIEGO COUNTY WATER AUTHORITY

The Authority, by its representation on the Metropolitan Water District Board of Directors, sponsored two inspection tours over the District's Colorado River Aqueduct for its Directors and interested persons in the waterworks field. Important features of the two San Diego Aqueducts were also visited during the tours, including the Rainbow Chlorination Plant and Metropolitan's diversion facilities located at San Jacinto, from which water is diverted from the Colorado River Aqueduct into the First and Second San Diego Aqueducts.

The Authority is represented on the Colorado River Board by Director Fred W. Simpson, who resigned as Chairman of the Board of Directors early in 1962, but continues to serve as a member of the Board of Directors. Financial contributions are made to the Board and to the Six Agency Committee, which assists the Board in protecting the rights of California in Colorado River water.

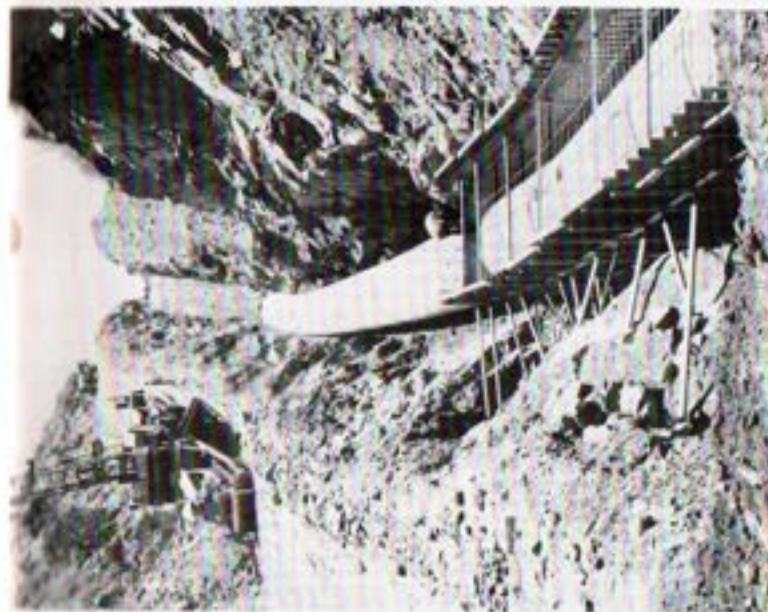
### GROWTH OF AUTHORITY

#### Area

The boundaries of the Authority were increased by 21,151 acres during the fiscal year, bringing the total acreage within the Authority, as of June 30, 1962, to 672,018 acres. The annexations resulting in the greatest increase to a member agency's area were made by the City of San Diego, totaling 11,195 acres, lying between its northern boundary and Hodges Reservoir property; the Ramona District with 9,200 acres, designated as its No. 2 Annexation; and the Rincon District with 803 acres, designated as its No. 2 Annexation. Smaller annexations occurred in all but six member agencies. The area within the boundaries of the Authority now represents 24.7 percent of the County of San Diego, and 74 percent of that portion lying substantially between the Cleveland National Forest and the Pacific Ocean, as shown on Figure A.

Some progress has been made toward eliminating existing overlapping areas within certain districts. An overlapping area is land lying within the boundaries of two member agencies, having been originally annexed by one agency and subsequently annexed by the other, because of its ability to better serve the area with water. Only three acres are now overlapping within the Helix Irrigation

*Construction of the Second Aqueduct made possible the development of additional area for homes and agricultural activities.*



District and the City of San Diego. The major remaining overlapping areas are primarily due to the expansion of cities into areas already lying in the boundaries of the Authority as land within a member municipal water district; such as the City of Escondido expanding into the Rincon District; the City of Oceanside into the Bueno Colorado District; and the City of San Diego into the Otay District. There are other minor overlapping areas within the boundaries of several member agencies. At the present time there is a total of 11,186 acres of overlapping area within the boundaries of the Authority. This is a slight increase from that of last year, occurring primarily in the northern part of the county. The Authority Act contains provisions whereby an area can be excluded from one agency and annexed to another by mutual consent without the area being excluded from the Authority or the Metropolitan Water District, provided permission to do so is first obtained from the Authority.

The area of each member agency, the changes which occurred therein during the past year, and the percentage of each agency's area to that of the Authority are shown in Table 1.

During the year annexations to the City of Escondido, heretofore the smallest in acreage of the Authority member agencies, were such that the San Dieguito Irrigation District is now the smallest, having a total of 4,930 acres, or 73/100 of one percent, of the Authority area. The City of San Diego continues to be the largest member agency, having 165,065 acres, or 24.56 percent, of the Authority area. This percentage is a slight increase from that of last year.

The proposed Yuima Municipal Water District, which was to have been organized in the upper San Luis Rey valley area for the purpose of annexation to the Authority, failed in its election to form a water district. Therefore, the area is no longer considered as an active prospective member agency.

As of June 30, 1961, four proposed annexations to the Authority are pending, three of which have been informally approved. They are: The Rincon No. 3 Annexation, consisting of 906 acres, lying easterly and southerly of the present district boundaries and extending to the City of San Diego's Hodges Reservoir property; the Rainbow No. 3 Annexation, consisting of 10,960 acres, lying generally

easterly of the present district boundaries, directly south of the Riverside County line; and the Olivenhain No. 1 Annexation, consisting of five parcels, totaling 2,980 acres, lying contiguous to present district boundaries. Informal approval to these annexations has been given by the Authority Board, but informal approval of the Metropolitan Water District is being withheld until the District's Board of Directors adopts a revised annexation policy, now under study. The revised policy, if adopted, would result in annexation charges for undeveloped areas being considerably higher than they would be if they were computed by the so-called historical method, which has heretofore been used by the District for computing annexation charges.

The fourth pending annexation to the Authority is that of the City of Del Mar as a constituent member agency. This annexation has been informally approved by the Boards of Directors of the Authority and the Metropolitan Water District. The City is now in the process of formalizing its boundaries, with a view toward obtaining formal terms and conditions for its annexation. It is probable that the City of Del Mar will hold an election in October of 1962. If successful, the annexation can be completed by December 15, 1962--thus becoming the twentieth member agency of the Authority.

In addition to the Olivenhain No. 1 Annexation, the District proposes to annex an area consisting of 18 acres, designated No. 2 Annexation. This area was formerly within the boundaries of the San Dieguito Irrigation District, but because the District failed to act concurrently with the Olivenhain District and the Authority, the area was automatically excluded from the Authority and the Metropolitan Water District at the time of its exclusion from San Dieguito. It now becomes necessary for the Olivenhain Municipal Water District to proceed with this annexation as though the area had never been within the boundaries of the Authority.

The Authority's 1961 Statement of Change of Boundaries, under state law required to be filed by the Secretary of the Board of Directors prior to February 1, 1962, was filed with the State Board of Equalization January 29, 1962; the County of San Diego January 29, 1962, and The Metropolitan Water District of Southern California January 29, 1962.

## GROWTH OF AUTHORITY

The annual statement enumerates forty-nine changes as having occurred in the past calendar year, either by annexation or exclusion, of which nine changed the boundaries of the Authority. The remaining forty were local changes. This certificate is the basis of Authority tax levies by the Assessor of San Diego County, after the annual tax levy is established by the Authority Board.

### Population

The population increase for 1961-62 is slightly greater than in the previous year, reflecting the continued migration of people into Southern California. The population census figures for each decade from 1910 to 1960, and the estimated population for 1950, 1960 and 1962 for each Authority member agency are shown in Tables 2 and 3.

The City of San Diego continues to account for the greatest population percentage, totaling 645,100 persons, or 59.5 percent, of the population residing within the boundaries of the Authority. The smallest population figure, 300 persons, occurs within the boundaries of the Olivenhain District. Prior to its annexation to the Authority, the area had no water supply except individual wells. Therefore, the area was restricted to dry farming and cattle raising.

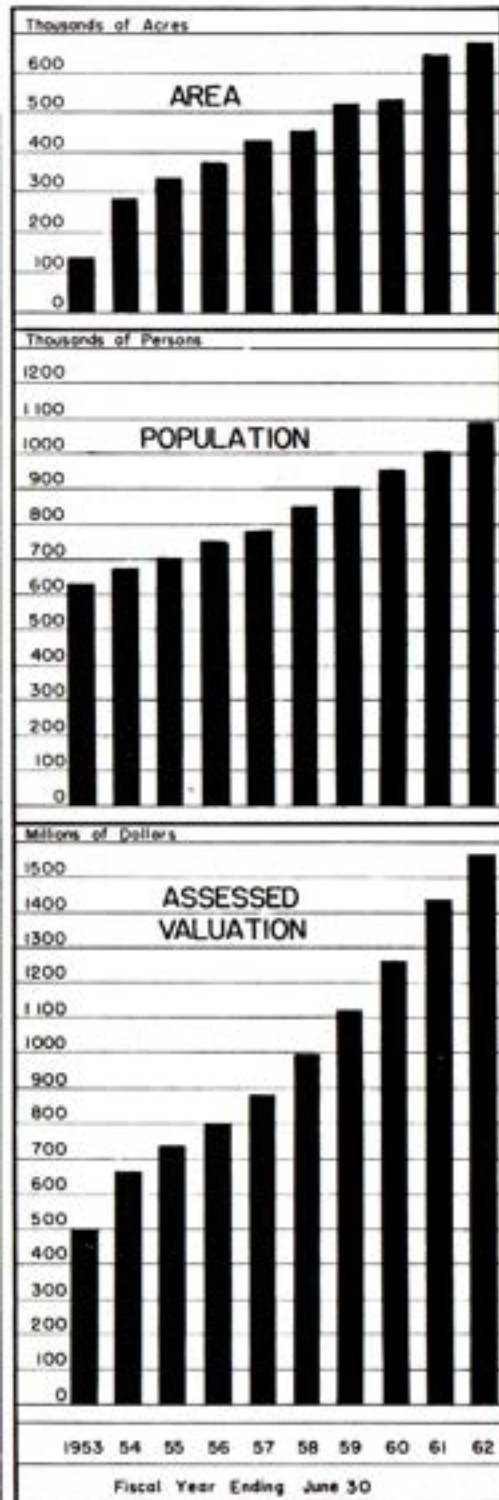
The highest density of population continues to be in the city of National City, with 4,313 persons per square mile, or 6.74 persons per acre. The Cities of La Mesa, El Cajon and Chula Vista also have population densities approaching that of National City. The average population density of the Authority increased during the year, in spite of a substantial increase in area--from 998 persons per square mile to 1,033--equal to 1.61 persons per acre.

### Assessed Valuation

The basis for Authority tax levies is the assessed valuation of taxable property lying within the boundaries of the Authority, as determined by the Assessor of the County of San Diego. The lands lying within each member agency subject to Authority taxes, on which the Assessor bases his figures, are those enumerated in the Authority's Statement of Change of Boundaries, filed annually with the Assessor.

On August 15, 1961, the County Auditor certified to the Authority that the assessed valuation of taxable property within the boundaries of the Authority, to be used as a basis for the 1961-62 tax levy, totaled \$1,567,210,470, an increase of about \$125 million, or 8.7 percent, above the 1960-61 figure. The assessed valuation of taxable property, as certified to by the County Auditor for each member agency of the Authority, is shown in Table 4. This table shows that the greatest percentage increase occurred in the Rainbow District, with an assessed valuation of \$9,973,230, representing an 85.3 percent increase above the previous year. A decrease occurred in the Rincon District, due to loss of area annexed to the City of Escondido. The average assessed valuation per acre for the Authority as a whole increased from \$2,216 to \$2,332 per acre.

The assessed valuation of Authority member agencies for 1962-63, certified to by the County Auditor and delivered to the Authority August 14, 1962 prior to completion of this report, is included in Table 4 for convenience of those persons who use this report. The figures indicate that an increase of only \$61.5 million, or 3.9 percent, occurred during the year--less than one-half the percentage increase of the previous year.



## WATER SUPPLY AND CONSUMPTION

### Water Supply and System

With the exception of two shutdowns during the year, the Metropolitan Water District's Colorado River Aqueduct was operated at full capacity, delivering to Southern California close to a million acre feet of water. In November of 1961 the Colorado River Aqueduct was completely shut down for four days. This was necessary to permit removal of accumulated alga growth on the walls in certain sections of the canal, as the deposits prevented the canal from carrying its maximum flow. A second shutdown occurred in mid-December of 1961 for a period of six days. This shutdown was necessary to remove calcium deposits which had accumulated in the San Jacinto Tunnel. During these periods, the Authority's water supply was limited to a delivery of 50 c.f.s. This supply was obtained entirely from water previously stored in the San Jacinto Reservoir. With some local water available, augmented by the meager aqueduct flow from San Jacinto Reservoir, no difficulty was experienced in meeting the demands of Authority member agencies. Following the removal of the partial obstructions from the Metropolitan system, the Colorado River Aqueduct was able to carry full discharge from eight pumps, equal to a flow slightly greater than 1,600 c.f.s.

The Authority receives its entire water supply from the Metropolitan Water District, and as a constituent member it has a preferential right of about 8 percent of the District's Colorado River supply. Since the District was able to supply more than the current demands of its member agencies for domestic and municipal water during the year, no limitation was placed on deliveries requested by the Authority for the year. All surplus flow above that currently delivered to member agencies was placed in storage in Lake Mathews for delivery to agencies during peak demands, or to member agencies in Los Angeles and Orange Counties for replenishment of underground storage basins. Water for the Authority is diverted from the Colorado River Aqueduct at San Jacinto, and the Authority receives its water from the termini of Metropolitan's sections of the two San Diego Aqueducts--a point six miles south of the county line.

The Authority's First Aqueduct has a maximum capacity of 196 c.f.s. This flow was maintained during most of the summer months. The Second Aqueduct has a design capacity of 250 c.f.s., but to date its full capacity has not been utilized. The largest flow to date was carried in this aqueduct in June of 1962, equaling 200 c.f.s. The maximum combined flow of both aqueducts occurred in July of 1961, with an average of 366 c.f.s. for the month, equal to 81 percent of the estimated maximum capacity of 446 c.f.s. With the aqueducts flowing continually at maximum capacity, but allowing for normal outage, a quantity of 320,000 acre feet could be delivered to the Authority, or about 135,000 acre feet more than the 184,858 acre feet delivered in 1961-62. The minimum average flow occurred in March of 1962, with a flow of only 84 c.f.s. in both aqueducts, of which 14.5 c.f.s. was stored in San Vicente Reservoir.

The monthly quantities of water sold to Authority member agencies are shown in Table 5. The table shows that 87,480 acre feet, equal to a continual flow of 120.84 c.f.s., or practically one-half of total sales, was made to the City of San Diego.

### Water Deliveries and Rates

As shown in Table 5, water was delivered monthly to all member agencies. Maximum sales occurred in July of 1961, with 23,659 acre feet having been delivered, or 17 percent more than the maximum of 20,243 acre feet delivered in July of 1960. The minimum sales occurred in March of 1962, equal to 4,395 acre feet, which is 69 percent less than the 14,289 acre feet delivered in March of 1961. The maximum sales, equal to a flow of 385 c.f.s., were well within the capacity of the two aqueducts. However, a total of 1,344 acre feet of water was taken from San Vicente Reservoir storage during this month to help meet this peak demand. In a few years the average monthly demand during summer periods will exceed the capacity of the aqueducts, and increasingly larger quantities of water must be stored during the low-flow months, so that water from storage will be available to meet these peak demands. Water will be available for some years for storage purposes during the low-demand months of January through March, at which time excess capacity will be available in the aqueducts for storage to the accounts of member agencies, to be delivered during the peak-demand periods.

Deliveries of water for the eight-year period from 1954-55 to 1961-62 are shown in Table 6, together with total sales since delivery to the agency began. The table also shows that a total of 1,567,796 acre feet of water has been sold by the Authority since it began delivering water in 1947. Sales in the 1961-62 fiscal year dropped below the previous year, because of a somewhat wetter winter and a cooler spring, and possibly because of the decline in business activities in this area.

The Authority continues to deliver water by contract to two governmental agencies for the Metropolitan Water District. These agencies are the State Forestry Camp, located east of Rainbow within the proposed Rainbow No. 3 Annexation, and the Convair Missile Testing Facility, located in Sycamore Canyon on the Camp Elliott Reservation. The quantity of water delivered to each agency was very small, totaling only 105 acre feet for the year.

The rate charged member agencies for Authority water during the period from January 1, 1961 to December 31, 1961 was \$19 per acre foot, and from January 1, 1962 to December 31, 1962, \$21. The Metropolitan Water District has established a new water rate to become effective January 1, 1963, and in accordance with Authority ordinance, the increase will result in a rate to Authority member agencies of \$23 per acre foot.

All water delivered to the Authority by Metropolitan Water District was paid for at the above domestic rates when delivery took place. Later, after certification by the Authority as to the quantities used for agricultural purposes, the District made the following rebates to the Authority: Water stored prior to December 31, 1960, \$3.00 per acre foot; water stored and/or used from January 1, 1961, to December 31, 1961, \$4.25 per acre foot; water stored and/or used from January 1 to December 31, 1962, \$5.50 per acre foot. The Authority in turn paid these amounts to the agencies which had previously certified to the Authority the quantity of water used for agricultural purposes. These certificates were the basis for the Authority's certification which resulted in the District's rebates.

### Water Production of Member Agencies

The term "water production of a member agency" is used to designate the quantity of water which an agency produces from all of its sources of supply, to meet not only the current demands of its consumers but also the losses which occur between the source of supply and the consumer, including leakage, losses from breaks, evaporation from distribution reservoirs, or wastage resulting from normal operations. Sources of supply may include impounding reservoirs, wells, or the Authority system.

The water production of the Authority's nineteen member agencies for each year during the past decade is shown in Table 7. During 1961-62 a total of 192,554 acre feet was produced, a decrease of 12,986 from the quantity produced during the previous year. Slight increases were produced by the City of Escondido and the Olivenhain, Otay, Ramona and Valley Center Districts. All other agencies had decreases.

The maximum monthly production of member agencies of the Authority occurred in July of 1961, when 24,285 acre feet of water was produced, or 2.7 percent more than was produced in July of 1960. The minimum production occurred in February of 1962, when only 7,320 acre feet was produced. This represents a decrease of 38 percent below production of February, 1960.

The source of water produced by a member agency is shown in Table 8. Of the total 192,554 acre feet produced, 171,952 acre feet, or 89.3 percent, was obtained from the Authority system. The balance, totaling 20,602 acre feet, was obtained from local sources. This low yield from local supplies, estimated to be capable of a safe yield of about 90,000 acre feet per year, indicates the extent to which the agencies have depleted their supplies by overdraft, mostly during the early years of the present drought period before ample water was available from the Authority.

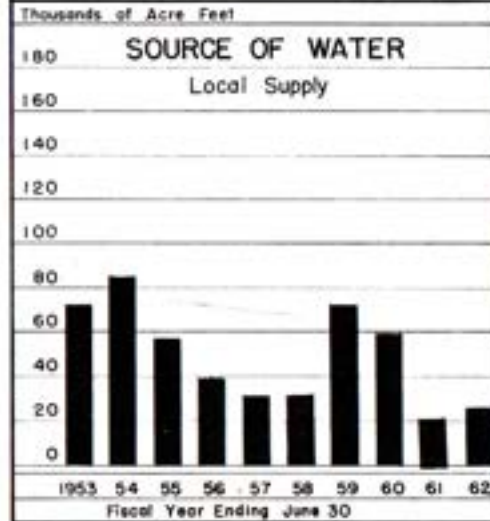
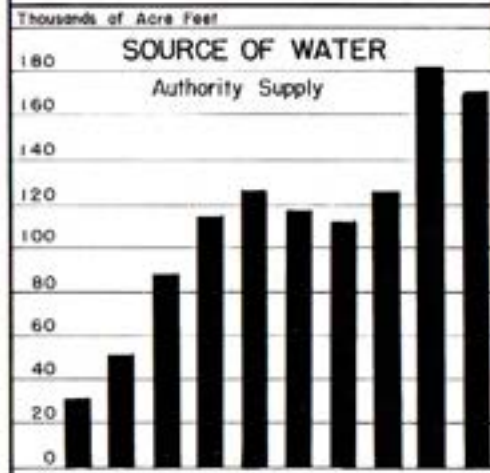
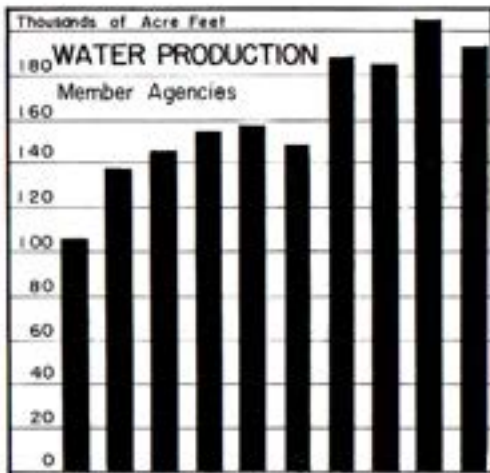


Table 8 also shows that six of the nineteen Authority member agencies, Olivenhain, Otay, Poway and Valley Center Municipal Water Districts, and the San Dieguito and Santa Fe Irrigation Districts, obtained no water from local sources. They were entirely dependent on the Authority system for their water supply. The Rincon District obtained the largest percentage of water from local sources, equal to 37.4 percent. This water came from Lake Henshaw and Lake Wohlford.

An attempt has been made to determine the gross area served from an agency's distribution system. On the basis of estimates submitted by the agencies, as shown in Table 9, it would appear that 269,960 acres, or 40 percent, of the Authority area now has water easily available. Only Santa Fe Irrigation District, the City of Escondido and the City of National City have water available practically throughout the entire areas within their boundaries.

Water production on a per-acre-served basis averages 0.69 of an acre foot per acre per year over the gross service area of the Authority. The quantities vary from a high of 1.25 acre feet per acre of area served in the Fallbrook District, where agricultural use predominates, to a minimum of 0.13 in the Ramona District, where use is predominantly

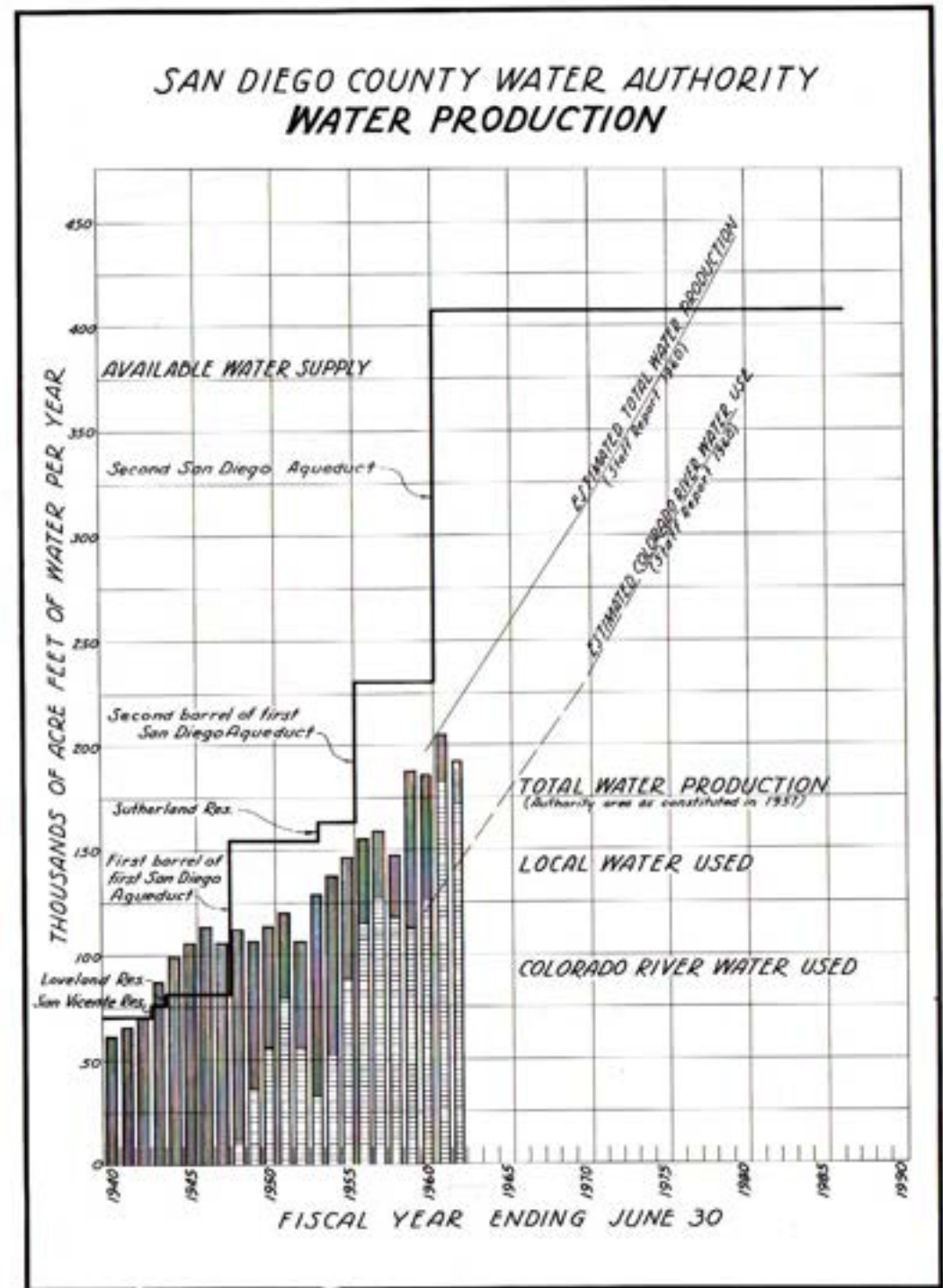


Figure B. Water Production of Authority Member Agencies

domestic and a community of scattered residents. In this comparison the Olivenhain and Otay Districts have been excluded, since they are still in the process of installing major distribution systems.

The production of water per capita, a figure useful in estimating probable future requirements, shows an average use throughout the Authority area of 0.17 of an acre foot per capita per year. This amount varies from a high of 2.67 acre feet per capita per year in the Rainbow District, a highly developed orchard area with few residents, to a low of 0.10 in the City of National City, where water is used practically entirely for domestic and municipal use.

The Metropolitan Water District has authorized a lower price for surplus water used for agricultural purposes, and this has made possible a reliable determination of the quantity of water used for this purpose. Water used for agricultural purposes during the fiscal year, as certified to by Authority member agencies, totaled 54,234 acre feet, or 28.2 percent, of the total water production of all member agencies. Of this amount, 47,005, or 86.7 percent, was supplied from the Authority system. A breakdown of water used by each agency for agricultural purposes is given in Table 10. Only two agencies, the City of Oceanside and the City of Escondido, show no use of water for agricultural purposes.

The annual production of water within the agencies of the Authority is shown on Figure B, ranging from 1940 to fiscal year 1961-62. The columns representing annual production have been further shaded to reflect the quantity obtained from the Authority system since delivery began in 1947.

### Authority Facilities

The Authority system consists of the following facilities: Those portions of the two San Diego Aqueducts lying southerly of Metropolitan's delivery points, six miles south of the county line; the Fallbrook-Oceanside Branch Line, extending from the aqueducts at Rainbow to the Oceanside well field in the Mission Basin of the San Luis Rey River valley; the La Mesa-Sweetwater Branch Line, extending from the First Aqueduct at Slaughterhouse Canyon through Lakeside to a terminal point at the Sweetwater Reservoir; and the Chlorination

Station in Rainbow Pass, where flows in both aqueducts can be chlorinated.

The Authority has no storage facilities of its own. It does, however, have the right to store up to 20,000 acre feet of water in San Vicente Reservoir. This privilege results from an agreement with the City of San Diego which expires October 31, 1964. Under this agreement, the City receives \$2.20 per acre foot for the maximum amount of water in storage each year, plus fifty cents per acre foot for any water transferred to the City from storage to cover pumping charges. The storage capacity is not firm, since any water discharged over the spillway would first include water stored to the Authority's account. During the year, a total of 7,472 acre feet of water was placed in storage, and 3,093 acre feet were withdrawn. Table 11 indicates the changes which occurred in stored water in San Vicente Reservoir during the year. A total of 796 acre feet was lost by evaporation, or approximately 7 percent of the total water in storage at the beginning of the year.

Early in the year it became apparent, although ample storage was available to meet the combined agencies' needs during the summer months, that one or two agencies might be in short supply. This resulted from a stipulation in the storage agreement with the City of San Diego, that water will only be stored when requested by a member agency which guarantees to take the stored water.

One agency miscalculated its needs and failed to order sufficient storage to carry it through. In order to meet this need, an Emergency Account was established, into which excess water in San Vicente Reservoir to the accounts of Poway and Rio Districts was transferred, and then delivered to the deficient agency. Upon delivery, the deficient agency repaid the releasing agencies all costs accrued to date of delivery. The only agency which required water from the Emergency Account was the Rainbow Municipal Water District.

The Authority also has an agreement with the City of San Diego which permits the Authority to store up to 2,500 acre feet of water in the City's Otay Reservoir, the terminus of the Second Aqueduct. This storage is for operational purposes only, and is transferred to the City when the City requests water at Otay. Storage capacity of member agencies, such as is available in San Vicente Reservoir, is not

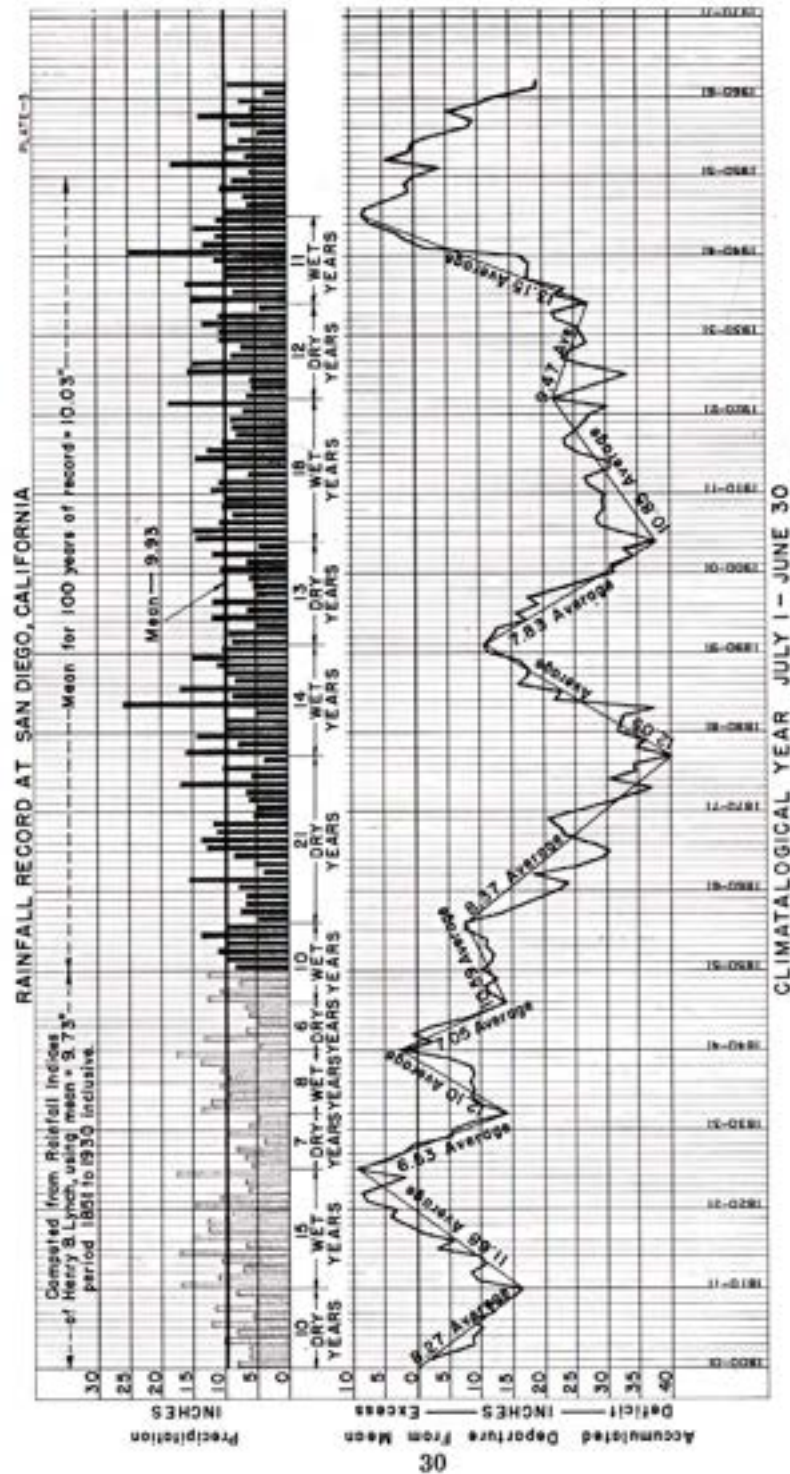


Figure C. Rainfall Record at San Diego, California

provided. An annual charge is made by the City of \$1.00 per acre foot for the maximum amount in storage in any 12-month period, or part thereof, with a minimum annual charge of \$1,000 for use of the reservoir, plus any pumping charges, varying from \$2.25 to \$1.50--depending on the elevation of the water. The first delivery of water to this reservoir, and thus to the City, was made through a temporary service connection in the summer of 1961. Due to fluctuating flows in the aqueduct, resulting from operational changes, water was spilled into Otay Reservoir during the year. A maximum of 51 acre feet of water was in storage during 1961-62.

### Water Quality

The chemical constituents of solids in the aqueduct flow are shown in Tables 12 and 27. This breakdown is based on analyses of water delivered to the aqueduct at San Jacinto, made in the chemical laboratory of the Metropolitan Water District at La Verne, California.

The total hardness of the water, expressed as p.p.m. of Ca CO<sub>3</sub>, varied from a low of 324 in September of 1961 to a high of 346 in June of 1962, averaging 333 p.p.m. for the year. Monthly temperature fluctuations of water when delivered, also shown in this table, varied from a high of 80° in August of 1961 to a low of 53° in February of 1962.

### Chlorination

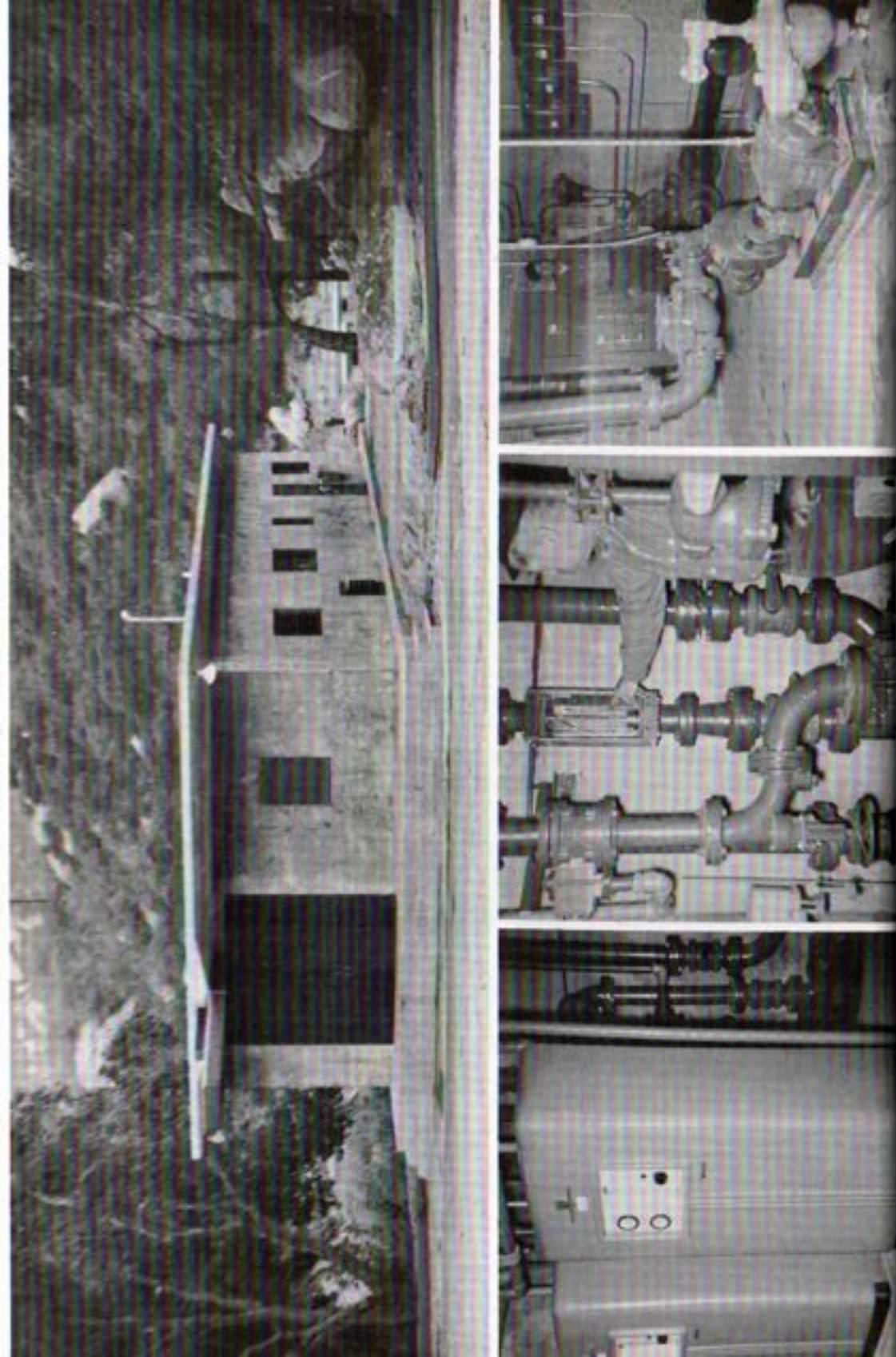
If untreated water is carried in the aqueducts, deposits of bacterial slime form on the interior of the pipes. Periodically, the Authority injects chlorine into the aqueduct flow in order to prevent the growth of slime, thereby keeping the aqueduct lines clean and the capacity up. No attempt is made to produce potable water suitable for domestic use. As a result of extensive research by the Authority and the Metropolitan Water District, the best and most economical procedure for elimination of slime is accomplished by heavy doses of chlorine injected twice weekly for four-hour periods. This practice has been more or less followed since the beginning of chlorination in 1948.

## WATER SUPPLY AND CONSUMPTION

The State Board of Health recently ruled that Colorado River water when used for domestic purposes must be filtered in addition to chlorination by the distributing agency as soon as filtration is economically feasible for the agency. Several Authority member agencies have substantial agricultural demands on their systems, which preclude installation of expensive filtering plants at this time. The State has agreed that in such cases installation of filtration facilities can be delayed but only if the water is treated by dual chlorination, with a time interval of at least one-half hour between the two points of application. This has created a difficult situation, as most agencies now have several service connections, which makes dual chlorination expensive. Also, in some instances, deliveries are made directly into the distribution system, where delayed dual chlorination is impossible.

At the request of several member agencies and by direction of the Authority Board, a study is being made of the cost to the Authority should it assume the initial chlorination required by dual injections. This could be done by changing to continuous chlorination of the aqueduct flow at the Authority's Rainbow Chlorination Station. By the Authority assuming this responsibility, the member agencies not having treatment plants would then be required to assume only the second stage of chlorination before delivery of water into their systems, which will be necessary even after filtration facilities are available.

The Board approved a request of the General Manager and Chief Engineer that an advisory committee be set up to assist in the study of continuous chlorination. The primary concern of the committee would be to determine the effects of continuous chlorination on the systems of several member agencies. The results obtained would be used as a basis for determination of the advisability of the Authority assuming this responsibility. Members of the committee are: L. R. Burzell, Vista Irrigation District; Loy L. Flor, Helix Irrigation District; Morris E. Ford, Jr., Escondido Mutual Water Company; Donald Hoffman, City of San Diego; Henry Meyers, California Water and Telephone Company; and Harold Pearson, Metropolitan Water District.



Accurate determination of residual chlorine under varying operating conditions was required to determine the effectiveness of Authority test doses. For testing purposes, two Wallace & Tiernan chlorine residual analysers were purchased. They were installed temporarily at different locations on the aqueduct system to determine the results of chlorine injections at Rainbow Chlorination Station.

The committee has met with the General Manager and Chief Engineer approximately once a month to establish the next testing procedure. Since the most critical effects of chlorination are more evident during the summer months, a six-month extension of continuous chlorination, extending through the calendar year, has been approved by the Board of Directors. A committee report and recommendation will be submitted to the Board by the end of the calendar year.

### **Allocation of Water Among Member Agencies**

The Authority Act (Sec. 5-11) provides for establishment of a preferential right of member agencies to purchase a portion of the Authority's water supply. The proportionate right of each agency in the Authority's water supply is equivalent to the proportion of taxes and allied payments paid to the Authority by taxpayers of the agency, to the total of taxes and applied payments paid by all taxpayers within the Authority area. Payments for water delivered to a member agency or to its account for storage are not included in determination of a preferential right.

In determining allocation of water among member agencies, whenever demand for water by the agencies exceeds the ability of the Authority system to deliver, it has been the practice of the Authority to include outstanding annexation charges for which an agency has obligated itself as though payment for such obligation had been received. As of June 30, 1962, the percentage allocation of each member agency, as determined on this basis, together with the corresponding flow, based on the total capacity of the two aqueducts, are given in Table 13.

Delivery of water by allocation is invoked only when demand exceeds the ability of the Authority system, or any part thereof, to deliver demands made upon it. Whenever the Authority can supply the combined demands of all member agencies no allocation of flow is made, and deliveries are made on the basis of an agency's needs.

### **Future Supplies**

The chart in Figure B shows the annual production of water within the Authority area from 1940 to 1962. It also shows the estimated safe yields of locally developed water supplies and the capacity of the aqueducts from which water is obtained.

The safe yields of locally developed supplies were determined from stream runoff during the 1896 to 1904 drought, the most destructive drought ever experienced in this area until the present one. The current drought appears to be longer and more severe, and it is probable that the safe yields of many of our local supplies are substantially lower than shown on Figure B.

The latest determination of water production, required to meet the estimated future needs of member agencies, is shown in staff report dated February 18, 1960. Water production thus determined is plotted on Figure B, and shows that deliveries from the present Authority aqueducts if operated continually throughout the year, together with the estimated safe yields of local supplies, will meet the needs of the Authority until about 1977. It is doubtful if local supplies will yield the quantities previously computed, and certainly not until the reservoirs have been fully replenished by a period of above-average runoff. Continuous operation of the aqueducts would assume sufficient reservoir capacity to store all water during the winter months in excess of current need for use during the following summer. It would appear unlikely that adequate storage will be available at that time for full utilization of the aqueduct system. It is, therefore, wise to schedule construction of the second barrel of the Second Aqueduct for the early 1970's.

The Metropolitan Water District, from which the Authority receives all of its water, in Report No. 802, dated March, 1962, by

Robert A. Skinner, General Manager and Chief Engineer, has estimated that the Colorado River supply will be ample to meet all demands upon the District until 1972. At that time, it is expected that northern water from the State Water Project will be delivered to Southern California. Additional water will be developed in the future in Northern California by the State and transported to Southern California to meet the growing needs of this area. Good progress on the State Project has been made during the year. Clearing of the Oroville Reservoir area by rerouting the railroads and highways has been practically completed. Contracts were let for the river diversion works at the site of Oroville Dam, and requests for bids are out for the main embankment of the dam structure.

## OPERATION AND MAINTENANCE

### Maintenance Headquarters

The center of maintenance and operational activity of the Authority is located at 660 West Fifth Avenue, Escondido, California. From this location, the maintenance crews daily inspect all parts of the system, performing such work as is found necessary to keep the aqueducts operating efficiently. The maintenance superintendent of the Authority system resides at this location, and should an emergency arise he can quickly form an emergency crew. At present there are twelve employees assigned to work out of the Escondido office.

### Patrol and Inspection of Aqueducts

Periodic patrol of the aqueducts rights of way and inspection of the open structures are maintained throughout the year. All sections of the system were inspected at least twice weekly. It is becoming increasingly necessary that frequent patrol of the aqueducts and rights of way be made, since rapid development of subdivisions is springing up practically everywhere, thereby increasing the possibility of encroachment on the rights of way.

Whenever possible, public roads are used for access to the aqueduct rights of way. Much of the system is remote from public roads, and a system of patrol roads, totaling 50 miles, has been constructed and maintained by the Authority. Improvement of these roads is continually being made by installation of culverts and reduction of grade by relocation and regrading. All patrol road surfaces were bladed during the winter and spring months. The roads were placed in good condition for the summer months.

### Maintenance of System

A careful inspection of all aqueduct structures is made periodically, and any repairs and painting required to maintain the facilities in prime condition are promptly carried out. Maintenance of the aqueduct was restrained somewhat during the early part of the year, due to installation of several service connections. However, this work is about complete and regular routine has more or less returned to normalcy. The Authority maintains a sizeable fleet of motor vehicles and construction equipment, all of which are kept in first-class condition at the Escondido mechanical shop.



*Maintenance and  
Operation Equipment*

## CROSSCONNECTION PROJECT

The possibility of improving flexibility in the operation of the Authority system and better utilization of the First Aqueduct capacity have been under discussion by the Authority Board and Staff members since completion of the Second San Diego Aqueduct in 1960.

Late in 1961 the Authority Board directed the General Manager and Chief Engineer to make a study of a possible crossconnection between the Second and First Aqueducts and report back to the Board what benefits would result, and if found feasible determine the most economical location.

A progress report was submitted to the Board February 2, 1962, augmented by a second progress report March 30, 1962, which reports showed that with increasing quantities of water being diverted from the First Aqueduct north of Escondido, there will be an increasingly greater aqueduct capacity in the line south of Escondido which will become excess and incapable of being used due to lack of water. This condition results from the fact that the First Aqueduct was constructed with the same capacity from Rainbow to San Vicente Reservoir. The Board, following discussion of the March 30, report, directed the General Manager to proceed with engineering required for the acquisition of rights of way, and preparation of preliminary drawings for construction of a crossconnection of approximately 120 c.f.s. capacity at the Twin Oaks-Escondido location, scheduling the work for completion by the end of 1963.

As of June 30, 1962, considerable work has been accomplished on a paper location of the route and the location of properties affected. Good topographic sheets, prepared by the County of San Diego from aerial surveys, were available to supplement the U.S.G.S. Topographic Sheets, and no field work by the Authority was necessary.

The report also indicated that, after study of all feasible routes, the route extending from the vent structure on the Second Aqueduct at Twin Oaks to a point on the First Aqueduct north of Escondido appeared to offer the most advantages with minimum expenditures.

An amount of \$115,000 was appropriated for field surveys and engineering design during the 1962-63 fiscal year. Additional personnel will be added as needed to augment the present engineering staff in carrying forward this work.

## SERVICE CONNECTIONS

A total of eight permanent service connections, two on the First Aqueduct and six on the Second Aqueduct, was installed during the fiscal year, ranging from 2.6 to 100 c.f.s. capacity. One of the connections on the First Aqueduct replaced a temporary installation. There are thirty-nine service connections on the aqueduct system, ranging in capacities from 2 to 180 c.f.s., all except one of which have Venturi type tubes, with a Builder's Type M totalizing-indicating-recording instrument.

The following is a brief description of the installations completed during the fiscal year:

*Authority Crew  
Constructing  
Service Connections*



### Bueno No. 4 Service Connection

This service connection is located on the Second Aqueduct at the north end of Twin Oaks valley, its purpose being to deliver water to the Bueno Colorado District for use in the San Marcos County Water District, a subagency of the Bueno District. Water from this connection flows into a reservoir nearby and then into the distribution system of the San Marcos District.

This is a Builder's Type M meter, having a capacity of 15 c.f.s., activated by an 18" x 10.1" Venturi tube, controlled by an 18" Butterfly valve. Since the service connection discharges water directly into the reservoir, no automatic equipment to maintain a constant rate of flow was required.

### Olivenhain No. 1 Service Connection

This service connection is located on the Second Aqueduct about 1-1/4 miles north of Escondido Creek. It is the first connection of Olivenhain Municipal Water District, which agency annexed to the Authority July 25, 1960.

The policy of the Authority is to provide at its expense the first connection of a new member agency, of a size determined by a procedure adopted many years ago, based on the assessed valuation of the agency at the time of annexation. Since the District requested a connection somewhat larger than the one to which it is entitled at Authority expense, a portion of the cost was paid by the Authority and the balance, equal to the increased cost of the larger meter, was assumed by the District.

Delivery of water to the District is measured by a Builder's Type M meter, activated by an 18" x 10.1" Venturi tube, with flow controlled by an 18" motor-operated Nordstrom plug valve, operated by automatic equipment, which permits delivery of water as requested by the District at a constant rate. The capacity of this connection is 22 c.f.s.

### Otay No. 2 Service Connection

The location of this installation is on the Second Aqueduct about 0.3 of a mile south of Telegraph Canyon Road. Its function is to deliver water to the Otay District for use in its No. 5 (Otay-Ranch) and No. 6 (Bonita Road) Improvement Districts.

The installation consists of a Builder's Type M meter, having a capacity of 6 c.f.s., activated by a 12" x 5.4" Venturi tube. The flow through the connection is controlled by a 12" motor-operated plug valve, operated by automatic equipment, which maintains deliveries to the District at a constant flow. A 30" nozzle and plug valve were provided on the aqueduct connection, with a larger than required structure, so that future enlargement of the capacity of the connection can be easily made as growth occurs.

### Otay No. 3 Service Connection

This service connection is located on the Second Aqueduct near its southern terminus within the County's Otay Park, and delivers water to the Otay District for use in its No. 7 Improvement District -- (Otay Mesa).

Delivery of water to the District is measured by a Builder's Type M meter, activated by a 24" x 13.5" Venturi tube, with flows controlled by a 24" motor-operated Butterfly valve, operated by automatic equipment to maintain delivery at a constant flow.

### Poway No. 2 Service Connection

This connection replaces a small temporary connection

*Installing 30" Nozzle*



which was installed in 1954. It is located on the Second Barrel of the First Aqueduct near the southerly boundary of the Poway District. A 20" valve for this connection was installed in a structure with a blow-off at the time the Second Barrel of the First Aqueduct was constructed.

The installation consists of a Builder's Type M meter, having a capacity of 10 c.f.s., activated by a 12" x 6.8" Venturi tube. The flow is controlled by a 12" motor-operated plug valve operated by automatic control, which makes it possible to deliver water at a constant flow.

#### Rainbow No. 4 Service Connection

The location of this service connection is about two miles south of the Riverside-San Diego County line on Metropolitan's portion of the Second Aqueduct. This connection, together with the Fallbrook No. 5 Service Connection and the Fallbrook-Oceanside Branch Line connection to the Second Aqueduct, are all located in the same structure. Provision was made for future installation of the Rainbow connection when construction occurred in 1961-62 for other service connections, as

*Bringing Large Diameter Steel Pipe into Meter Structure—Otay No. 3*

reported in the Fifteenth Annual Report. The piping, valves, and meter used in the installation were obtained from the Rainbow No. 2 Service Connection on the First Aqueduct, at which point delivery to the Rainbow District had been discontinued, following sale of its connecting line to Valley Center Municipal Water District.

The installation consists of a Builder's Type M meter, with a capacity of 12 c.f.s., activated by a 16" x 7.8" Venturi tube, with flow controlled by a 16" motor-operated plug valve. Automatic equipment has been installed to permit delivery of flow at a constant rate.

#### Rincon No. 2 Temporary Service Connection

This temporary service connection is located on the First Aqueduct about 1.5 miles north of Lake Hodges. It has been installed as a temporary connection, until such time as lands lying southerly between the Rincon District and Lake Hodges are annexed to the District. At that time it is proposed to move the metering equipment to a permanent

*Service Connections Under Construction*



location further south. The connection is supplied from an existing blowoff which was altered to permit the installation and still continue to perform its designed function.

The meter is a Builder's Type M, having a capacity of 2.6 c. f. s., activated by an 8" x 4.1" plastic insert Dahl flow tube. The flow is controlled by an 8" motor-operated plug valve, controlled by automatic equipment to insure delivery of water at a constant flow.

### San Diego No. 5 Service Connection

The location of this connection on the Second Aqueduct is near the City of San Diego's Miramar Reservoir and Treatment Plant. It will supply water directly into the plant or into the reservoir as desired by the City. At the time the Second Aqueduct was constructed the valve structure was built and a 30" plug valve was placed on the nozzle for this connection. An additional 30" nozzle has been provided within the valve structure for a future connection.

Delivery of water to the City is measured by a Builder's Type M meter, with a capacity of 100 c. f. s., activated by a 30" x 20.6" Venturi tube. No automatic equipment was necessary as a constant rate is maintained by delivery into the open overflow structure, with no intervening services from which water is diverted to the treatment plant, with surplus water, if any, flowing to the reservoir. When additional water above Authority deliveries is required, water will be pumped from the reservoir.

## LEGAL ACTIVITIES

For the year ending June 30, 1962, the activities of the General Counsel from the strictly legal viewpoint were confined to the more or less routine affairs of the Authority. The preparation of board resolutions and ordinances, property leases, contracts, easement grants and acquisitions, supervision of annexation proceedings, staff, committee and board conferences are time consuming and require care and application, but during the year these continuing and routine labors had to do with the ordinary operations and housekeeping of the organization, and their detailed chronicling would be of little interest. The Authority remained free of litigation in which it was directly

involved, but counsel keeps in close touch with State and Federal litigation, the outcome of which could have serious effect upon its water resources and future activities. These include both the State Supreme Court proceedings on the validation of the Metropolitan Water District -- Department of Water Resources contract and the United States Supreme Court decision in the Arizona-California suit. At year's end both of these proceedings were still pending.

### Participation with Other Groups

A major and exceedingly important function in which the General Counsel participates is the interpretation and definition of the policies adopted by the Authority's Board of Directors in relation to the activities of the Metropolitan Water District and for the guidance and assistance of its representatives on that organization's Board of Directors. The Authority is the agent and spokesman for its membership as the sole San Diego County member unit of Metropolitan. The policies adopted by the larger agency, particularly as to water pricing, annexation of new area, delivery of water from the California Water Facilities now under construction, and in many other matters, seriously and directly affect the San Diego County water consumers and the member water distributing agencies of the Authority.

Keeping not only the Authority directors but the people of San Diego County fully informed regarding these matters, so that intelligent policy decisions can be formulated, requires constant alertness on the part of the board officials and staff of the Authority. We are fortunate in that our Metropolitan delegation includes the able Chairman and Secretary of the Authority Board and its General Manager and Chief Engineer. To be effective in the protection of this area's interest, however, these representatives must have the wholehearted support of both the Authority board and the community itself. Such support in turn depends upon local understanding of the problems involved and the effect locally of the decisions taken by Metropolitan.

To maintain a knowledgeable and influential position in these matters, it is essential that Authority representatives take an active part in the work of local and state-wide organizations dealing with these problems, including the State Department of Water Resources, the California Irrigation Districts Association, the Natural Resources

Committee of the State Chamber of Commerce, the Southern California Water Coordinating Conference, the Association of San Diego County Water Agencies, the Water Committee of the San Diego Chamber of Commerce, and others.

The San Diego County Water Authority has from its formation established and maintained a position of leadership as one of the major water organizations of the State. Its board has expected its staff, including its General Counsel, to assist in maintaining that position through active and competent participation in the work of these organizations.

### Proceedings Relating to Overlapping Territory

In the development of the area and facilities of the member agencies of the Authority, it was inevitable that certain sections found themselves in a position where local interest made desirable the annexation of such section to a member agency other than the one by which the section was originally annexed to the Authority. As there was no legal inconsistency in a specific area being within the boundaries of two or more member units, sections of one unit member frequently annexed to another creating so called overlap areas of the Authority lying within two separate units. Although legally permissible, operative and administrative problems resulted, particularly in regard to the crediting of tax revenue from the overlapped area to the preferential right to purchase water, the collection and crediting of the regular and special (annexation) tax levies, the proper billing for the water used, etc.

To legally clarify the problem two amendments to the County Water Authority Act were adopted, the first of which provided for the accrediting of tax revenue from the overlapped area to the preferential right of the agency from which the area was supplied with water and the second of which provided for the transfer of the area by inclusion in one member agency and exclusion from the other without exclusion from the Authority and Metropolitan.

As apparently some confusion still exists among members as to the effect of each proceeding and to the procedures to be followed the following detailed review seems desirable:

- (1) Water Service Declaration (Section 11.1, County Water Authority Act, added by Stats. 1951, Chapter 997, Section 2, page 2631)

Territory within a County Water Authority which lies within two or more member agencies shall for all Authority purposes (as distinguished from local purposes of such member agencies) be considered to be a part only of that public agency supplying water to the overlapped territory. The determination as to which public agency is in fact supplying the water shall be made as follows:

On or before October 1st of any year the governing body of each member agency in which overlapped territory exists shall file with the Board of Directors of the Authority a legal description and map of that portion of the overlapped territory which will be served with water by that member agency during the next fiscal year.

On or before November 1st of such year the Board of Directors of the Authority shall make a finding as to which member of the Authority is to furnish water to the overlapped area and shall adopt a resolution describing the area to be served.

Copies of such resolution shall be filed by the Authority with the County Assessor, the State Board of Equalization and the Board of Directors of the Metropolitan Water District. Thereafter, except for the levying of special taxes for the collection of the original annexation fees for the overlapped territory, such territory shall be considered for all Authority and Metropolitan purposes to be a part of the agency which the Authority has so determined is serving the area with water.

The determination so made shall continue thereafter until changed by new proceedings initiated under the section.

If for any reason no declaration is made to the Authority pursuant to the section, or if the declarations filed with the Authority conflict or for any other reason are inadequate as a basis for the determination by the Authority, the overlapped territory shall continue to be considered for all Authority purposes to be a part only of the member agency by which such territory was originally included within the Authority.

SAN DIEGO COUNTY WATER AUTHORITY

(2) Inclusion and Exclusion of Territory (Section 11 as amended Stats. 1957, Chapter 1356, Section 3, page 2685)

Prior to the adoption of this amendment, exclusion of territory by a member unit automatically and arbitrarily excluded such territory from both the Authority and Metropolitan. It should be emphasized that unless the provisions of the section as amended are strictly complied with this is still the result. To avoid such automatic exclusion it is necessary:

- 1) That either prior to or concurrent with such exclusion the territory shall have been annexed or will be annexed to another member unit of the Authority, and
- 2) Formal consent to such exclusion has been granted by resolution of the Authority board.

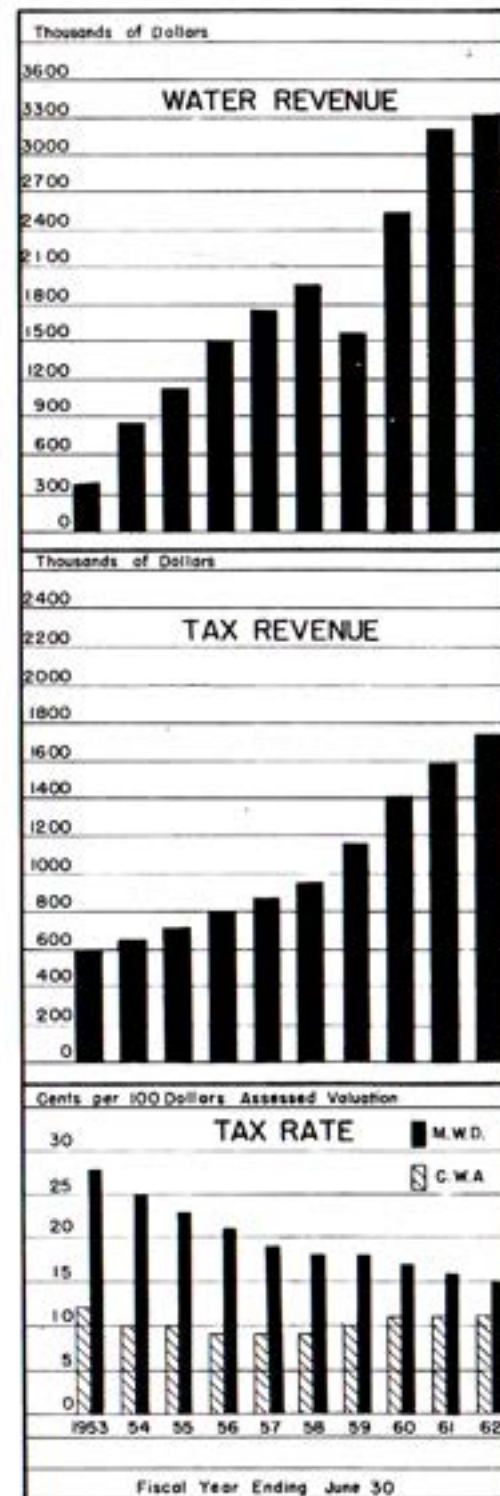
Forms for either of these proceedings are available at the Authority's offices for member agencies desiring to avail themselves of these provisions.

**FINANCIAL**

During 1961-62 operating revenues amounted to \$3,355,344, while operating costs totaled \$3,184,065, leaving a net income of \$171,278 before depreciation and debt service expense. This represents a decrease of \$53,066 (23.65%) from the 1960-61 amount for the same item.

Depreciation and debt service expense during 1961-62 amounted to \$696,810; the increase of \$44,280 again being primarily attributable to additional depreciation on completed construction. Non-operating income was \$173,128, or \$3,606 less than the preceding year. This decrease resulted primarily from lower debt service requirements because of maturities, partially offset by a decrease in the final payment of tax refunds on government-owned personal property, under a negotiated settlement. The net result in utility operations for the year was a deficit of \$352,403, including, however, an allowance of \$522,843 for depreciation which involved no expenditure or reduction of funds.

Cash and marketable securities at June 30, 1962 amounted to \$2,594,480, compared with \$2,745,057 at June 30, 1961. During 1961-62 General Fund current assets decreased \$230,183, while current liabilities decreased \$15,303. Special Fund assets decreased \$331,738, principally on account of expenditures for debt service and redemption. Fixed assets increased \$3,119,604, while long-term debt was decreased \$1,718,485. These changes in fixed assets and long-term debt resulted in an increase of \$4,838,090 in the Authority's equity in fixed assets. Reserves for encumbrances increased \$9,947, principally through commitments for additional equipment. Reserves for debt redemption decreased \$603,000, through (1) reduction in the amount due from the Metropolitan Water District by its payments to the Authority on the First Aqueduct, and (2) through application of reserves to budgetary debt requirements in order to minimize tax levies. Appropriated surplus increased \$271,484, primarily as a result of an increase in the Reserve Fund by transfer from the General Fund, as authorized by the Board of Directors, while unappropriated surplus decreased \$224,927,



SAN DIEGO COUNTY WATER AUTHORITY

largely as a result of the same transfer. The net over-all result for the year was an increase of \$4,291,595 in the Authority's net reserves and equities.

In comparing this report with those of prior years, attention should be directed to changes in two fund titles authorized by the Board during the year. The General Reserve Fund was changed to Reserve Fund, and the Special Tax Fund to Capital Improvement Fund. In both cases the original fund purpose remains unchanged; the only difference being in the new designations which appear throughout the report.

The Authority's financial position continues sound and strong. Continuing the Board of Directors' policy, operating requirements are financed from operating revenues, with requirements for debt being provided primarily by taxes levied on member agencies. Provision for the orderly retirement of debt has been established by the Board's long-range policy and by the use of special funds. Decreases in reserves and balances of various special funds, therefore, continue to represent principally reduction of long-term obligations, and expenditures ultimately reflected as increases in fixed assets.

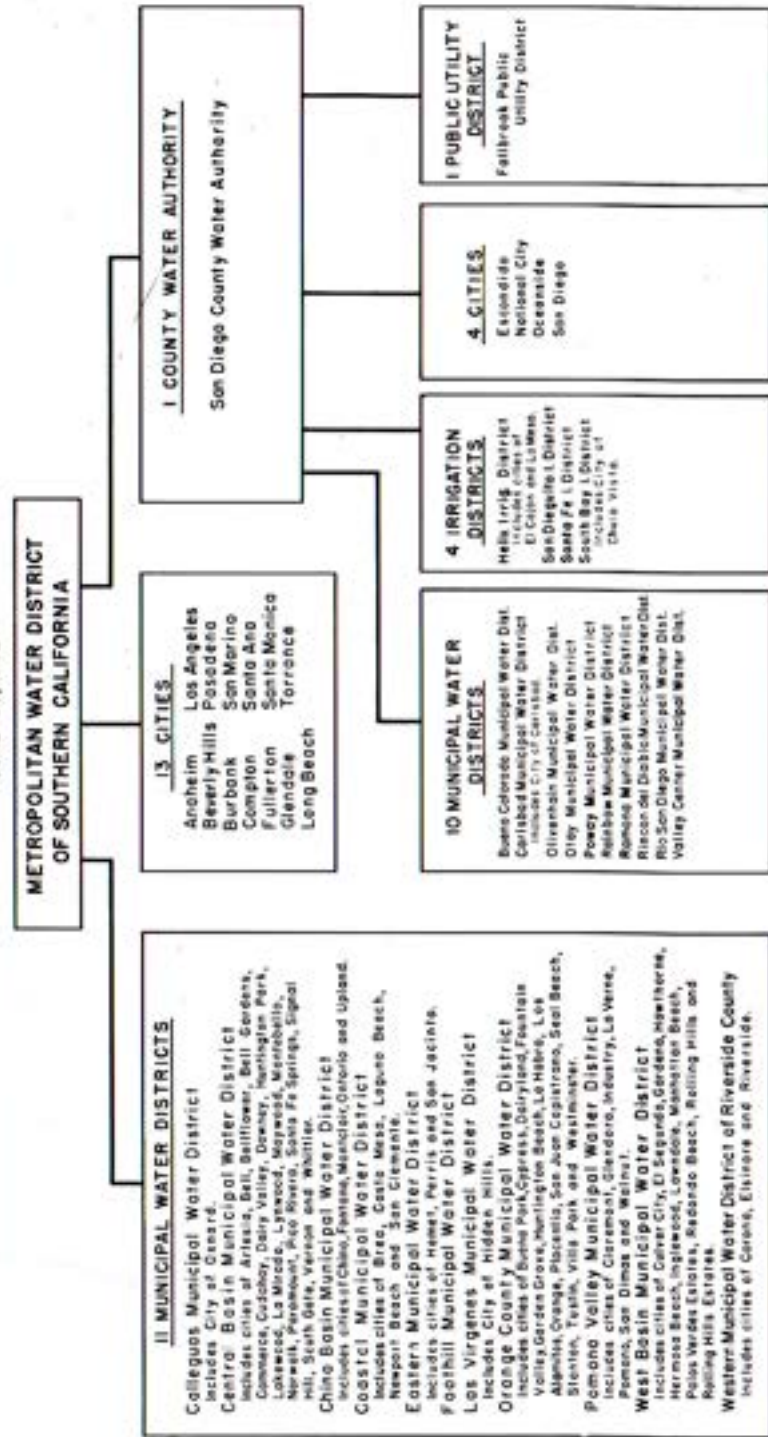
The Authority's accounting system conforms to the basic principles of municipal budgetary fund accounting, modified to the extent necessary to reflect the many conditions peculiar to the Authority. Accounts are maintained on the modified accrual basis; that is, revenues are recorded when earned, and expenditures and/or encumbrances are recorded when incurred, except accrued interest on outstanding indebtedness, which is payable from appropriations of the following year. All accounts have been regularly audited by the firm of Peat, Marwick, Mitchell & Co., Certified Public Accountants.

MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Since the Authority receives its water from The Metropolitan Water District of Southern California and its activities are closely related with those of the District, it appears appropriate to include in this report a short resume of the activities of the District during

MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT

COMPOSITION OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA  
JUNE 30, 1962



METROPOLITAN WATER DISTRICT SUMMARY

- 1- County Water Authority (including 8-cities)
- 11- Municipal Water Districts (including 75-cities)
- 13- Cities
- 25- Constituent Agencies

SAN DIEGO COUNTY WATER AUTHORITY SUMMARY

- 10- Municipal Water Districts (including 1-city)
- 4- Irrigation Districts (including 3-cities)
- 1- Public Utility District
- 4- Cities
- 19- Member Agencies

## SAN DIEGO COUNTY WATER AUTHORITY

the past year, particularly as they affect the Authority and its operation.

### Government

The District was organized in 1928 under a newly-enacted Metropolitan District Act. This Act is practically identical with the County Water Authority Act, adopted in 1944, except that in the Authority Act, water districts are included, whereas the original Metropolitan District Act was confined to an agency composed of cities. Since the original enactment of the Metropolitan Act, it has been amended to include water districts in addition to cities. In most respects, therefore, the Metropolitan and Authority Acts are now very similar.

The District is governed by a Board of Directors, members of which represent all of its member agencies. Each of the twenty-five constituent member agencies has at least one director serving on the Board, who has been appointed by the executive officer of the agency and confirmed by its legislative body. An additional director is permitted when the assessed valuation of taxable property lying within the boundaries of a member agency reaches \$500 million, and an additional Director may then be appointed for each additional \$500 million of assessed valuation. As shown on Figure D, the District is comprised of twenty-five member agencies. Within these agencies, there is a total of ninety-six incorporated cities.

Authority representation on the District Board consists of three Directors. Mr. Fred A. Heilbron, Chairman of the Authority Board of Directors, is senior member of the Authority representation, having served since 1946, when the Authority annexed to the District. Mr. Heilbron is Secretary of the Board, a member of the Water Problems and Policy Committee, the Finance and Insurance Committee and the Executive Committee. Mr. Richard S. Holmgren, General Manager and Chief Engineer of the Water Authority, is the second representative, having served on the Board for the past nine years. Mr. Holmgren is Chairman of the Engineering and Operations Committee, and a member of the Organization, Personnel and Public Relations Committee. Mr. Hans H. Doe, Secretary of the Authority Board, is the third representative, having served on the District Board for the past three years. Mr. Doe is a member of the Finance

## MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT

and Insurance Committee, and the Lands and Rights of Way Committee.

As of June 30, 1962, the Authority had a total of 157 votes out of a combined representative total of 1,482, or 10.59 percent of the total. When actions are taken by the Board, the votes of an agency are cast as a unit; that is, in accordance with the majority vote of the agency's representation.

### Constituent Member Agencies and Area

As shown on Figure D, the District is comprised of twenty-five member agencies, consisting of 13 original cities, one county water authority, and 11 municipal water districts. The area of Metropolitan now includes portions of Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.

No additional agencies were annexed to the District during the year. However, a total of 102,054 acres was annexed to the District, of which 21,151 acres, or 20.7 percent, represents area annexed concurrently to the Authority. As of June 30, 1962, the District area equaled 4,136 square miles (2,647,014 acres), of which 1,050 square miles (672,018 acres), or 25.4 percent, lie within the boundaries of the Water Authority. This represents a slight drop in area from the 25.6 percent lying within the boundaries of the Authority at the beginning of the fiscal year.

### Assessed Valuation

The assessed valuation of taxable property lying within the boundaries of the District, as determined by assessors of the several counties, for use in levying taxes for fiscal year 1961-62, is \$14,803,202,587, an increase of \$1,065,230,662, or 7.75 percent, over the assessed valuation of \$13,737,971,925 for the 1960-61 fiscal year. An amount of \$124,895,530, or 11.7 percent, of the increase occurred within the boundaries of the Authority. The percentage increase in assessed valuation of taxable property for 1961-62 of the Authority is 8.7 percent, or slightly more than the 7.75 percent increase within the Metropolitan Water District as a whole.

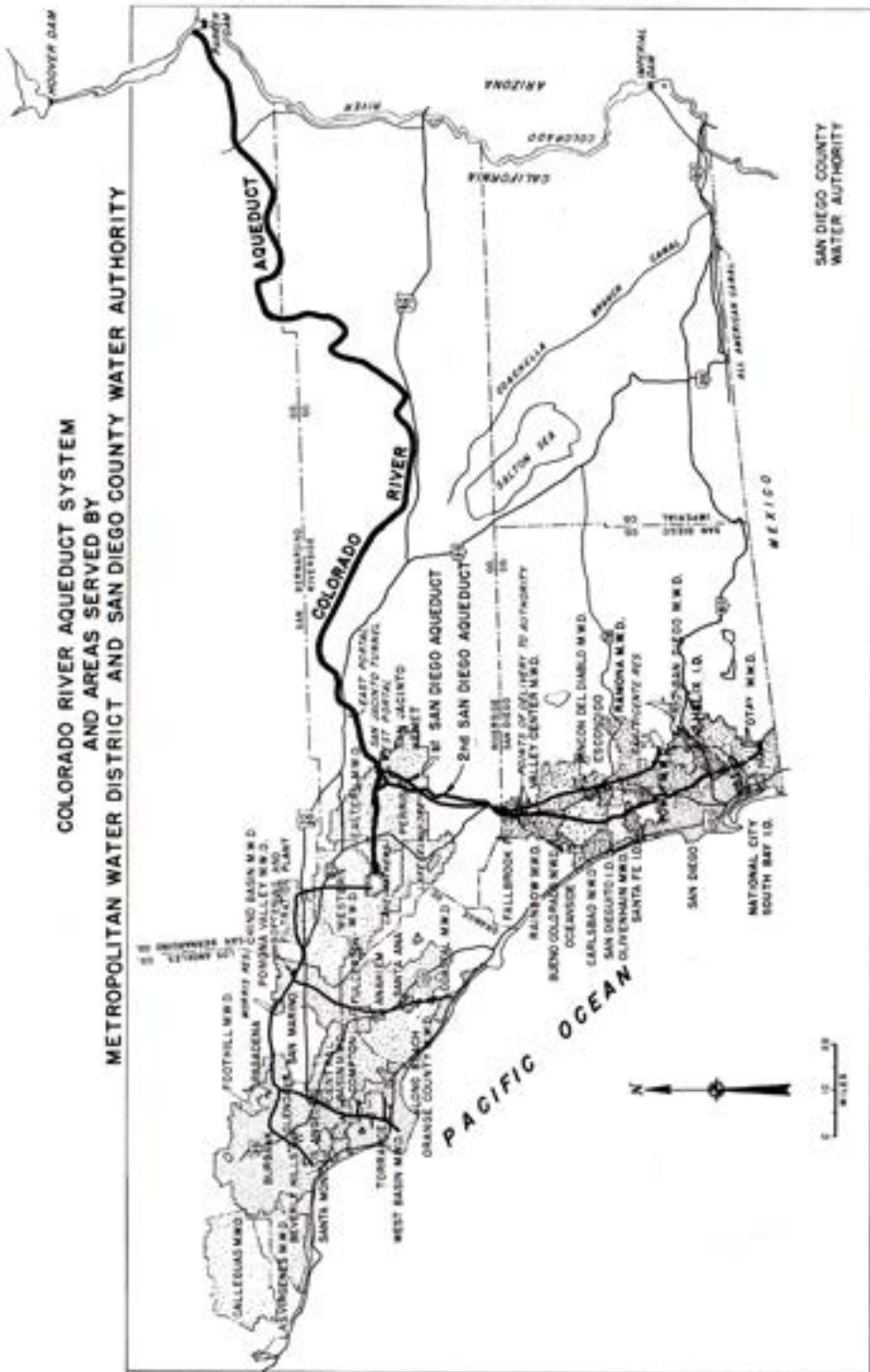


Figure E. Water Systems of Metropolitan Water District and San Diego County Water Authority

Prior to the completion of this report the 1962-63 assessed valuation figures have become available, and are included in Table 28 for convenience of the readers. These figures show that the 1962-63 assessed valuation of taxable property in Metropolitan District is \$15,699,681,030, an increase of 6 percent over the 1961-62 fiscal year.

**Water Supply**

At present the entire water supply of the District is obtained from the Colorado River, in which it has diversion rights equal to 1,212,000 acre feet per year. This right is the result of merging its original right of 1,100,000 acre feet with the right of 112,000 acre feet of the Water Authority, originally held in the name of the City and/or County of San Diego. Merging the rights of San Diego with those of the District was one of the terms imposed upon the Authority in 1946, when it annexed to the District.

The District's Colorado River Aqueduct continued to be operated at full capacity during most of the year, bringing into the area of the District a total of 932,000 acre feet of water.

During the year much attention has been given to problems arising from the District's contract with the State of California, entered into in 1960 for delivery of 1,500,000 acre feet of water from the State's aqueduct facility, to be constructed under a \$1-3/4 billion bond issue, authorized by the voters of California to bring northern water to deficient areas, principally in San Joaquin Valley and Southern California. The District is engaged in a validation suit to test the legality of the contract. A staff report was issued in March of 1962, giving the results of economic studies to determine the quantities required by Metropolitan and points of delivery on the East and West Branches. This report is now under study by the District Board and a final decision in this matter must be made and the State notified not later than June 30, 1963.

The report considers seven possible combinations of the East and West Branches, capacities and dates of initial deliveries. The study indicates that the most economical combination includes the West Branch at two-thirds total capacity, completed so as to deliver

## SAN DIEGO COUNTY WATER AUTHORITY

water to the District in 1972, and construction of the East Branch with one-third capacity delayed so that deliveries would not be made until 1981. The report suggests that for operational purposes some excess capacity should be available, and that the East Branch should be built to one-half capacity. It also concludes that final decision regarding delivery capability and timing of the East Branch will require further analysis.

The Authority and its representatives on the District Board have strenuously indicated that the East Branch should be built concurrently with the West Branch. This would provide the softer water needed in the Authority area, and would give greater security to the water supply of the area with its more than one million population. Completion of the East Branch will give the Authority the protection of two sources of supply, as well as the additional storage capacity in Cedar Springs and Perris Reservoirs, which will be required to properly serve this area.

The Authority is vigorously opposed to any proposal that would postpone or possibly defeat it from receiving Northern California water. Reliance, either temporarily or permanently, upon the quantity and quality of the District's Colorado River supplies is an unacceptable alternative.

### Water Sales

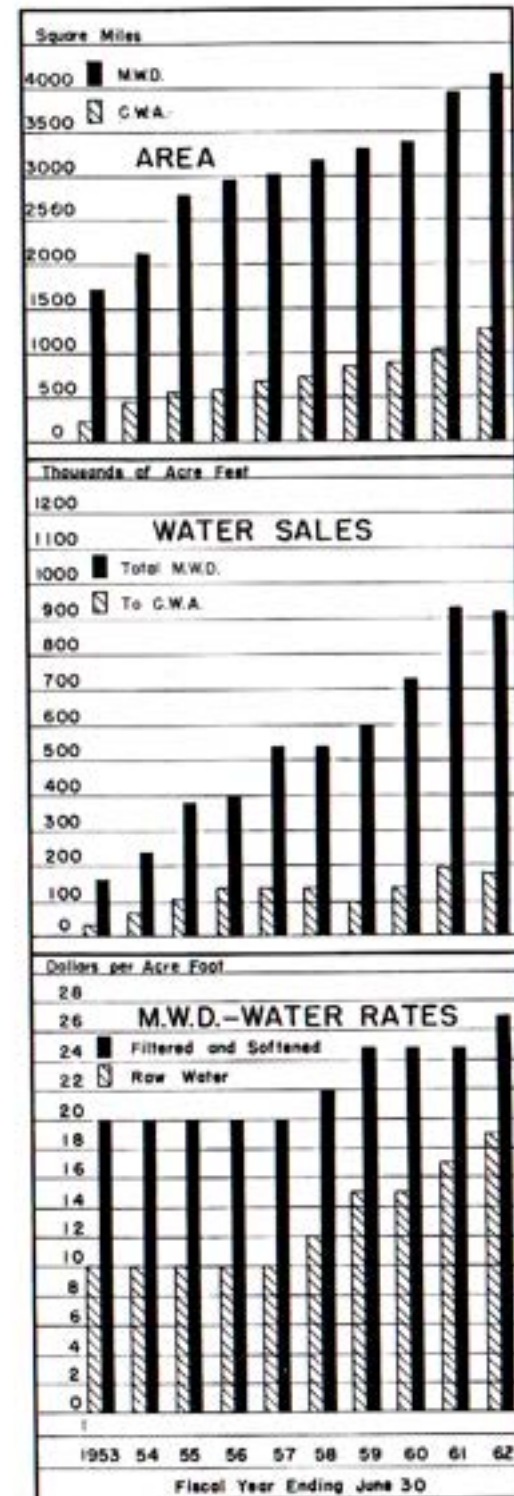
A total of 925,464 acre feet of water was delivered by the District to its member agencies during fiscal year 1961-62. Of this amount, a total of 184,364 acre feet, or 20 percent, was delivered to the Authority. All water delivered to the Authority was untreated Colorado River water. The District operates a filtering and softening plant at La Verne, California, with a capacity of 400 million gallons per day. It is also constructing a new facility on the Lower Feeder of the aqueduct north of Yorba Linda in Orange County, having a capacity of 200 m.g.d., with provision to double its size in the future. The Authority cannot be served from either of these plants.

For a breakdown of District deliveries of water to its member agencies see Table 26.

### District Tax Rate

The District continued its policy of recent years and reduced its tax rate to 15¢/\$100 of assessed valuation for 1961-62, 1¢ below that of the previous year. In 1946, when the Authority annexed to the District, the tax rate was 50¢/\$100. During the past sixteen years there has been a progressive reduction of 35¢ in taxes levied upon its member agencies.

The tax rate for each year of operation is shown in Table 28. The total District tax levy, including regular and special taxes in 1961-62, was approximately \$29.0 million, of which about \$2.9 million, or 10 percent, was levied against taxable property within the boundaries of the Authority. Special taxes are levied for collection of annexation charges, agreed upon at the time an area annexes, payable in substantially equal annual payments over a period of thirty years. As of June 30, 1962, member agencies of the Authority had assumed payment for annexation charges totaling \$19,414,409, of which a total of \$8,036,957 was paid prior to June 30, 1962.



**Expansion Program**

The expansion program, as outlined in the Authority's Fifteenth Annual Report, is practically completed. The La Verne Treatment Plant enlargement is now complete, except for the installation of additional softening units. The Robert Diemer Plant on the Lower Feeder is well along, with partial completion anticipated in 1963-64, and completion to full capacity with the softening units by 1965-66. Engineering work is proceeding on the East Orange County Feeder, with completion anticipated in 1963-64.

In addition to these projects, there remains the construction of the Long Beach Feeder, included in the original expansion program for completion in 1963-64.

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Table 1

AREA - AUTHORITY MEMBER AGENCIES

Member Agencies	Area Within Authority			Percent of Total Authority Area 6/30/62
	As of 6/30/61	Changes During Year	As of 6/30/62	
	acres	acres	acres	
Buena Colorado M. W. D. . . . .	50,310	(2) - 118 (3)	50,192	7.47
Carlsbad M. W. D. . . . .	20,659	0 (4)	20,659	3.08
In City of Carlsbad . . . . .	(5,248)	( 0)	(5,248)	(0.78)
Escondido, City of . . . . .	4,340	+ 654	4,994	0.74
Fallbrook Public Utility District . . . . .	15,469	0	15,469	2.30
Helix Irrigation District . . . . .	30,984	+ 200 (5)	31,184	4.64
In City of El Cajon . . . . .	(6,281)	(+ 36)	(6,317)	(0.94)
In City of La Mesa . . . . .	(4,809)	(+ 3)	(4,812)	(0.72)
National City, City of . . . . . (1)	4,969	+ 76	5,045	0.75
Oceanside, City of . . . . . (1)	19,473	+ 36	19,509	2.90
Olivenhain M. W. D. . . . .	24,260	0	24,260	3.61
Otay M. W. D. . . . .	65,811	(2) - 74 (6)	65,737	9.78
Poway M. W. D. . . . .	22,980	0	22,980	3.42
Rainbow M. W. D. . . . .	40,040	+ 53 (7)	40,093	5.97
Ramona M. W. D. . . . .	29,900	+ 9,200	39,100	5.82
Rincon del Diablo M. W. D. . . . .	23,002	+ 178 (8)	23,180	3.45
Rio San Diego M. W. D. . . . .	54,305	- 200	54,105	8.05
San Diego, City of . . . . .	153,870	+11,195	165,065	24.56
San Dieguito I. D. . . . .	4,948	- 18	4,930	0.73
Santa Fe I. D. . . . .	10,132	0 (9)	10,132	1.51
South Bay I. D. . . . .	15,995	- 31 (10)	15,874	2.36
In City of Chula Vista . . . . . (1)	(7,420)	(+ 929)	(8,349)	(1.24)
Valley Center M. W. D. . . . .	59,510	0	59,510	8.86
Total Authority Area . . . . .	650,867	+21,151	672,018	100.00
San Diego County . . . . .			2,725,100	

- (1) Revised to conform with data received from agency.
- (2) Includes area 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.
- (3) Does not include 1,626 acres overlapping in City of Oceanside, and 48 acres overlapping in City of Escondido.
- (4) Does not include 179 acres overlapping in City of Oceanside.
- (5) Does not include 3 acres overlapping in City of San Diego.
- (6) Does not include 5,663 acres overlapping in City of San Diego.
- (7) Does not include 160 acres overlapping in City of Oceanside.
- (8) Does not include 3,014 acres overlapping in City of Escondido.
- (9) Does not include 3 acres overlapping in City of San Diego.
- (10) Does not include 217 acres overlapping in City of San Diego, and 273 acres overlapping in City of National City.

TABLES

Table 2

POPULATION GROWTH - COUNTY AND AUTHORITY AREA

1910 to 1962

(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	Average Annual Growth	
1910 . . . . .	61,665				
		5,058			
1920 . . . . .	112,248				
		9,741			
1930 . . . . .	209,659				
		7,969			
1940 . . . . .	289,348				
1946 (3) . . . . .	502,804	26,746	(3) 440,659		88
				2,807	
1950 . . . . .	556,808		(2) 451,886		81
		44,671		50,451	
1960 . . . . .	1,003,520		(2) 956,400		95
		108,080		59,100	
1961 . . . . . (4) 1,111,690			(5) 1,015,500		91
		56,100		69,500	
1962 . . . . . (4) 1,167,700			(5) 1,085,000		93

- (1) County population from U. S. Census Bureau Reports.
- (2) Authority population based on U. S. Census Bureau Reports.
- (3) Based on Special Census, U. S. Census Bureau, exclusive of emergency military personnel due to World War II.
- (4) Estimated by San Diego Chamber of Commerce.
- (5) Estimated by Authority member agencies.

Table 3  
POPULATION - AUTHORITY MEMBER AGENCIES AND COUNTY  
(Includes Resident Military Personnel)

Member Agencies	Population - U. S. Census						Density of Population 1962		
	Area		1960		Decade Increase 1950-60			Annual Increase 1960-62	
	6/30/62	Acres	(1)	(1)	Percent	Estimate		Percent	Per Sq. Acres Mile
Bueno Colorado M. W. D.		50,192	---	31,500	---	34,700	5	0.69	442
Carlsbad M. W. D.		29,659	---	10,000	---	10,300	2	0.50	319
In City of Carlsbad		(5,245)	---	(9,400)	---	(10,000)	3	1.91	1,220
Esccondido, City of		4,994	6,608	18,500	---	21,300	8	4.27	2,730
Fallbrook Public Utility District		15,469	5,500	10,000	82	10,000	0	0.65	414
Helix Irrigation District		31,184	44,160	122,100	176	132,000	4	4.23	2,709
In City of El Cajon		(6,317)	(5,600)	(37,300)	566	(40,000)	4	6.43	4,113
In City of La Mesa		(4,812)	(10,946)	(29,900)	173	(31,000)	2	6.44	4,123
National City, City of		5,045	21,200	32,300	52	34,000	3	6.74	4,313
Oceanside, City of		19,509	12,880	24,700	92	28,800	8	1.48	945
Olivenhain M. W. D.		24,260	---	200	---	300	25	0.01	8
Otay M. W. D.		65,737	---	5,400	---	6,900	14	0.10	67
Poway M. W. D.		22,980	---	4,800	---	6,900	21	0.30	189
Rainbow M. W. D.		40,093	---	2,800	---	3,200	7	0.08	51
Ramona M. W. D.		39,100	---	5,600	---	5,500	2	0.15	95
Rincon del Diablo M. W. D.		23,180	---	14,000	---	14,600	2	0.63	403
Rio San Diego M. W. D.		54,105	---	25,500	---	31,600	12	0.58	374
San Diego, City of		165,065	334,387	557,200	67	645,100	8	3.91	2,501
San Dieguito Irrigation District		4,930	6,223	15,000	141	17,600	9	3.57	2,285
Santa Fe Irrigation District		10,132	3,000	7,700	157	7,900	1	0.78	499
South Bay Irrigation District		15,874	28,930	64,300	122	65,000	3	4.26	2,742
In City of Chula Vista		(8,349)	(15,930)	(42,400)	166	(46,900)	5	5.62	3,595
Valley Center M. W. D.		59,510	---	5,000	---	6,100	11	0.10	66
Total Authority		672,018	462,888	936,660	107	1,083,000	7	1.61	1,033
San Diego County		2,725,100	556,810	1,093,520	80	1,167,700	8	0.43	274

(1) Population in agencies other than cities was furnished by agencies.

(2) Estimated by agencies.

Table 4

ASSESSED VALUATIONS - AUTHORITY MEMBER AGENCIES AND COUNTY

Member Agencies	Area 6/30/62	Assessed Valuation - Secured and Unsecured				Assessed Valuation 1962-63
		1960-61		1961-62		
		Total	Per Acre	Total	Per Acre	
Bueno Colorado M. W. D.	50,192	\$ 39,545,620	\$ 969	\$ 43,629,860	10.3	\$ 45,841,850
Carlsbad M. W. D.	20,659	35,085,710	1,746	36,060,310	2.8	36,113,360
Esccondido, City of	4,994	24,167,080	5,865	29,287,550	21.2	31,012,470
Fallbrook Public Utility District	15,469	9,983,810	874	13,526,740	35.5	13,939,910
Helix Irrigation District	31,184	178,637,550	6,181	192,740,210	7.9	204,119,880
National City, City of	5,045	35,833,670	7,522	37,950,580	5.9	40,176,750
Oceanside, City of	19,509	34,591,680	1,955	38,148,040	10.3	41,026,180
Olivenhain M. W. D.	24,260	* (1,644,000)	81	1,961,760	19.3	2,036,420
Otay M. W. D.	65,737	15,511,560	359	23,579,340	52.0	25,988,200
Poway M. W. D.	22,980	10,081,050	585	13,466,700	33.4	14,312,060
Rainbow M. W. D.	40,093	5,381,860	249	9,973,230	85.3	10,328,800
Ramona M. W. D.	39,100	5,717,260	165	6,443,230	12.7	6,865,130
Rincon del Diablo M. W. D.	23,180	20,412,930	875	20,276,650	- 0.7	20,867,390
Rio San Diego M. W. D.	54,105	27,124,280	653	35,627,070	31.3	37,258,400
San Diego, City of	165,065	972,350,810	5,566	918,822,920	5.3	941,336,990
San Dieguito Irrigation District	4,930	20,029,840	4,526	22,315,240	11.4	23,285,340
Santa Fe Irrigation District	10,132	17,636,190	1,834	18,580,180	5.4	19,466,740
South Bay Irrigation District	15,874	85,457,410	6,233	98,945,440	15.8	106,700,890
Valley Center M. W. D.	59,510	4,763,560	99	5,595,400	23.6	8,040,350
Total Authority	672,018	\$1,442,314,940	2,332	\$1,567,210,470	8.7	\$1,628,736,170
San Diego County	(1) 1,250,000	\$1,542,586,670	1,331	\$1,663,495,210	7.8	\$1,727,607,070

(1) Excluding 1,475,100 acres of tax-exempt lands in San Diego County.

\* Estimated, not on Authority tax roll.

SAN DIEGO COUNTY WATER AUTHORITY

Table 5

SALES OF COLORADO RIVER WATER - FISCAL YEAR 1961-62

(All Figures in Acre Feet)

Member Agencies	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 Months
Bueno Colorado M.W.D.	1,489.4	1,432.1	1,163.7	1,102.8	657.3	142.7	5,988.0
Carlsbad M.W.D.	767.6	841.0	844.8	724.7	482.2	58.4	3,718.7
Escondido, City of	360.4	342.1	294.0	259.7	197.5	144.9	1,598.6
Fallbrook, P.U.D.	1,374.1	1,360.8	1,216.3	1,032.2	790.9	169.8	5,935.1
Helix I.D.	2,954.0	2,728.1	2,444.7	1,983.6	1,616.2	903.4	12,630.0
National City & South Bay I.D.	1,562.4	1,546.8	1,145.2	654.0	536.2	287.5	5,732.1
Oceanside, City of	375.3	374.7	360.8	364.7	324.2	221.3	2,021.0
Olivenshain M.W.D.	1.5	13.6	10.1	13.3	37.4	26.0	101.9
Otay M.W.D.	174.2	189.8	185.3	158.6	133.8	55.4	888.1
Poway M.W.D.	299.8	300.0	264.4	229.5	141.6	59.9	1,295.2
Rainbow M.W.D.	1,073.7	1,102.3	1,031.8	913.2	573.2	166.3	4,860.5
Ramona M.W.D.	83.8	70.8	59.8	55.5	27.6	21.5	319.0
Rincon del Diablo M.W.D.	1,197.5	672.0	1,040.1	895.8	228.8	21.0	4,055.2
Rio San Diego M.W.D.	357.2	398.6	355.3	240.3	199.7	120.2	1,701.3
San Diego, City of	10,613.6	10,018.4	10,396.7	8,370.8	10,509.2	8,791.5	58,700.2
San Dieguito I.D.	301.3	301.3	291.6	301.3	225.6	103.7	1,524.8
Santa Fe I.D.	276.7	276.7	267.8	276.7	204.3	92.3	1,394.5
Valley Center M.W.D.	359.7	389.4	293.2	244.5	107.3	34.6	1,428.7
<b>Total Sales to Agencies</b>	<b>23,652.2</b>	<b>22,349.5</b>	<b>21,665.6</b>	<b>17,821.2</b>	<b>16,993.0</b>	<b>11,411.4</b>	<b>113,892.9</b>
<b>Total Sales to Others</b>	<b>6.8</b>	<b>12.2</b>	<b>13.4</b>	<b>10.0</b>	<b>8.0</b>	<b>5.7</b>	<b>56.1</b>
<b>Total Sales to Agencies and Others</b>	<b>23,659.0</b>	<b>22,361.7</b>	<b>21,679.0</b>	<b>17,831.2</b>	<b>17,001.0</b>	<b>11,417.1</b>	<b>113,949.0</b>
<b>Total to Authority Storage</b>	<b>+ 190.1</b>	<b>+ 91.8</b>	<b>+ 86.2</b>	<b>+ 2,149.9</b>	<b>+ 951.7</b>	<b>+ 21.2</b>	<b>+ 3,490.9</b>
<b>Total from Authority Storage</b>	<b>-1,344.4</b>	<b>- 503.9</b>	<b>- 429.8</b>	<b>- 46.1</b>	<b>- 198.2</b>	<b>- 37.4</b>	<b>- 2,559.8</b>
<b>Total Deliveries from Authority System</b>	<b>22,504.7</b>	<b>21,949.6</b>	<b>21,335.4</b>	<b>19,935.0</b>	<b>17,754.5</b>	<b>11,400.9</b>	<b>114,880.1</b>
<b>Rate of Flow:</b>							
<b>c.f.s. to Agencies and Others</b>	<b>384.8</b>	<b>363.7</b>	<b>364.3</b>	<b>290.0</b>	<b>285.7</b>	<b>185.7</b>	<b>312.2</b>
<b>c.f.s. to Authority Storage</b>	<b>+ 3.1</b>	<b>+ 1.5</b>	<b>+ 1.5</b>	<b>+ 35.0</b>	<b>+ 16.0</b>	<b>+ 0.3</b>	<b>+ 9.6</b>
<b>c.f.s. from Authority Storage</b>	<b>- 21.9</b>	<b>- 8.2</b>	<b>- 7.2</b>	<b>- 0.8</b>	<b>- 3.3</b>	<b>- 0.6</b>	<b>- 7.0</b>
<b>c.f.s. Deliveries from Authority System</b>	<b>366.0</b>	<b>357.0</b>	<b>358.6</b>	<b>324.2</b>	<b>298.4</b>	<b>185.4</b>	<b>314.8</b>

TABLES

Table 5 (Continued)

Jan.	Feb.	March	April	May	June	Total 6 Months	Yearly Total	Yearly Average c.f.s.
439.0	190.9	237.1	515.8	911.7	1,051.5	3,346.0	9,334.0	12.89
168.6	105.9	122.1	383.5	551.8	641.4	1,973.3	5,692.0	7.86
165.9	130.4	82.3	35.1	184.6	239.4	837.7	2,436.3	3.37
402.4	23.6	223.6	635.3	792.3	864.2	2,941.4	8,876.5	12.26
1,631.0	848.0	916.5	1,896.6	2,028.7	2,373.1	9,693.9	22,323.9	30.84
643.0	539.0	661.1	1,122.2	1,472.1	1,748.0	6,185.4	11,917.5	16.46
276.7	209.7	237.9	327.4	362.8	352.2	1,766.7	3,737.7	5.23
15.3	2.7	6.8	15.4	39.5	38.0	117.7	219.6	0.30
79.2	78.8	82.0	203.5	292.5	215.3	861.3	1,749.4	2.42
92.2	39.2	37.8	148.6	168.4	227.6	713.8	2,009.0	2.78
319.0	70.2	46.3	588.1	719.3	854.7	2,597.6	7,458.1	10.30
22.3	15.2	17.8	43.6	45.0	53.9	197.8	516.8	0.71
296.0	75.4	126.9	759.9	792.6	141.1	2,101.9	6,157.1	8.50
130.3	107.8	122.0	235.9	260.4	332.4	1,197.8	2,899.1	4.00
4,652.7	1,634.2	1,450.8	4,507.2	7,837.0	8,698.5	28,780.4	87,480.6	120.84
116.0	288.8	0	257.9	319.7	309.4	1,291.8	2,816.6	3.89
102.8	255.5	0	228.1	282.8	273.7	1,142.9	2,537.4	3.51
66.0	19.4	16.7	142.8	212.5	283.6	741.0	2,169.7	3.00
<b>9,537.4</b>	<b>4,634.7</b>	<b>4,387.7</b>	<b>12,046.9</b>	<b>17,183.7</b>	<b>18,698.0</b>	<b>66,488.4</b>	<b>180,381.3</b>	<b>249.16</b>
<b>6.5</b>	<b>5.9</b>	<b>7.4</b>	<b>10.3</b>	<b>13.1</b>	<b>6.1</b>	<b>49.3</b>	<b>105.4</b>	<b>0.14</b>
<b>9,543.9</b>	<b>4,640.6</b>	<b>4,395.1</b>	<b>12,057.2</b>	<b>17,196.8</b>	<b>18,704.1</b>	<b>66,537.7</b>	<b>180,486.7</b>	<b>249.30</b>
<b>+ 1,832.4</b>	<b>+ 1,266.1</b>	<b>+ 892.8</b>	<b>+ 314.6</b>	<b>+ 100.0</b>	<b>+ 75.1</b>	<b>+ 4,481.0</b>	<b>+ 7,971.9</b>	<b>+ 11.01</b>
<b>0</b>	<b>0</b>	<b>- 122.0</b>	<b>- 277.0</b>	<b>- 309.5</b>	<b>- 332.4</b>	<b>- 1,040.9</b>	<b>- 3,600.7</b>	<b>- 4.97</b>
<b>11,376.3</b>	<b>5,906.7</b>	<b>5,165.9</b>	<b>12,094.8</b>	<b>16,987.3</b>	<b>18,446.8</b>	<b>69,977.8</b>	<b>184,857.9</b>	<b>255.34</b>
<b>155.2</b>	<b>83.6</b>	<b>71.5</b>	<b>202.6</b>	<b>279.7</b>	<b>314.3</b>	<b>185.3</b>	<b>249.3</b>	
<b>+ 29.8</b>	<b>+ 22.8</b>	<b>+ 14.5</b>	<b>+ 5.3</b>	<b>+ 1.6</b>	<b>+ 1.3</b>	<b>+ 12.5</b>	<b>+ 11.0</b>	
<b>0</b>	<b>0</b>	<b>- 2.0</b>	<b>- 4.6</b>	<b>- 5.0</b>	<b>- 5.6</b>	<b>- 2.9</b>	<b>- 5.0</b>	
<b>185.0</b>	<b>106.4</b>	<b>84.0</b>	<b>203.3</b>	<b>276.3</b>	<b>310.0</b>	<b>194.9</b>	<b>255.3</b>	

SAN DIEGO COUNTY WATER AUTHORITY

Table 6  
WATER SALES - 1947 TO 1962  
(All figures in acre feet)

Member Agencies	1947-54(1)	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62	Totals
Bueno Colorado M. W. D.	0	3,627	5,434	7,315	2,665	2,677	3,735	10,143	9,334	44,930
Carlsbad M. W. D.	54	1,600	1,417	975	1,969	3,111	3,598	5,421	5,692	23,847
Escondido, City of	1,779	929	1,391	1,844	1,533	2,003	2,142	2,757	2,436	16,824
Fallbrook Public Utility District	21,295	7,031	6,567	7,228	5,446	9,032	8,106	10,352	8,576	83,933
Helix Irrigation District	41,338	11,610	13,553	14,968	14,060	14,399	14,176	23,754	22,324	170,182
National City and South Bay I. D.	49,630	5,766	12,274	10,823	10,650	5,309	10,656	12,619	11,917	129,814
Oceanside, City of	3,275	2,064	2,864	3,308	2,941	3,665	3,328	3,923	3,758	29,356
Olivenhain M. W. D.	-	-	-	-	-	-	-	12	220	232
Oray M. W. D.	-	-	-	0	2	199	639	1,120	1,749	3,709
Poway M. W. D.	0	524	1,109	915	681	1,311	1,567	2,205	2,009	10,321
Rainbow M. W. D.	137	1,416	2,061	3,955	3,328	6,094	5,662	7,615	7,458	37,756
Ranoma M. W. D.	-	-	-	-	29	169	322	469	517	1,506
Rincon del Diablo M. W. D.	0	2,905	4,683	5,601	2,603	3,045	2,244	7,968	6,157	35,206
Rio San Diego M. W. D.	(2)	227	512	894	819	1,235	2,138	2,935	2,899	11,920
San Diego, City of	285,019	60,059	90,088	83,551	89,870	41,364	93,892	88,323	87,451	909,647
San Dieguito Irrigation District	3,874	913	598	2,013	1,171	0	1,488	3,548	2,817	16,422
Santa Fe Irrigation District	3,908	355	416	1,150	998	0	1,340	3,258	2,537	13,971
Valley Center M. W. D.	-	0	1	791	769	176	1,358	2,124	2,170	7,989
Total Sales to Agencies	410,570	93,969	132,958	145,361	139,604	94,589	156,937	188,346	160,351	1,547,565
Total Sales to Others	63	3	20	69	95	275	271	115	106	1,017
Total to Authority Storage	-20,572	-6,217	-10,608	-6,655	-10,452	+17,671	-4,968	+10,565	+7,972	+95,683
Total from Authority Storage	-17,070	-2,975	-5,601	-7,710	-7,895	-11,037	-19,585	-972	-3,601	-76,469
Total Deliveries from Authority System	414,133	102,214	137,985	144,375	142,253	101,478	142,241	198,257	184,838	1,567,796

Rate of Flow:  
 c. f. s. to Agencies and Others 86.0  
 c. f. s. to Authority Storage -4.3  
 c. f. s. from Authority Storage -3.6  
 c. f. s. Deliveries from Authority System 86.7

(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.

Table 7

WATER PRODUCTION WITHIN AUTHORITY AGENCIES - FISCAL YEARS 1951-52 TO 1961-62  
(All Figures in Acre Feet)

Member Agencies	From Local and Authority Supplies									
	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60	1960-61	1961-62
Bueno Colorado M. W. D.	11,171	11,671	*12,707	13,043	13,058	11,098	15,000	13,116	14,066	11,937
Carlsbad M. W. D.	2,565	*2,961	2,445	2,972	2,891	2,607	3,923	4,980	7,091	6,711
Escondido, City of	1,238	1,398	1,712	1,741	1,816	1,730	2,213	2,694	3,126	3,211
Fallbrook Public Utility District	6,335	7,006	8,001	8,394	8,093	6,709	10,013	9,130	10,724	8,999
Helix Irrigation District	113,324	15,510	15,557	15,998	16,541	15,848	21,595	21,689	24,029	21,936
National City and South Bay I. D.	111,308	12,076	12,840	13,795	12,578	12,316	14,597	13,290	14,348	13,529
Oceanside, City of	3,533	3,954	4,099	4,653	4,369	4,204	5,107	5,081	5,374	5,030
Olivenhain M. W. D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	12	145
Oray M. W. D.	(a)	(a)	(a)	(a)	(a)	* 2	146	470	967	1,460
Poway M. W. D.	(a)	(a)	* 534	1,120	917	753	1,210	1,567	2,205	2,009
Rainbow M. W. D.	1,657	*1,697	2,530	3,535	4,534	4,032	6,976	6,745	8,771	8,533
Ranoma M. W. D.	196	212	215	192	152	*17.5	351	520	541	643
Rincon del Diablo M. W. D.	7,710	8,401	*10,023	9,804	9,451	7,881	11,753	10,359	11,502	9,832
Rio San Diego M. W. D.	292	292	355	1,501	1,457	1,435	2,311	2,886	3,826	3,329
San Diego, City of:										
Inside City	109,552	63,255	66,000	68,715	71,250	70,052	90,060	80,796	84,345	81,156
Outside City (not in Authority)	2,896	2,373	2,610	3,001	2,856	2,609	3,598	4,175	4,840	5,007
San Dieguito Irrigation District	3,139	3,440	3,329	3,379	3,607	3,524	4,247	3,757	4,212	3,568
Santa Fe Irrigation District	3,358	3,255	3,361	3,663	3,509	2,807	3,563	3,487	3,927	3,349
Valley Center M. W. D.	(a)	(a)	(a)	* (a)	791	769	776	1,358	2,124	2,170
Total	129,264	138,113	146,638	155,503	158,472	148,579	187,839	186,115	205,540	192,554

† Delivery of water began prior to this year. See previous annual reports.

\* Delivery of Colorado River Water began this year.

(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 1961-62

Member Agencies	TOTAL WATER PRODUCTION						SOURCE OF WATER		
	as m.g.d.	as c. f. s.	as ac. ft./yr.	Amount ac. ft.	Percent	Authority Supply Amount ac. ft.	Percent	Authority Supply Percent	
	Bueno Colorado M. W. D.	10.66	16.49	11,936.6	2,692.3	21.8	9,334.3	78.2	
Carlsbad M. W. D.	5.99	9.27	6,711.4	1,019.4	15.2	5,692.0	84.8		
Esccondido, City of	2.87	4.43	3,211.4	768.4	23.9	2,443.0	76.1		
Fallbrook Public Utility District	5.03	12.43	8,998.9	122.4	1.4	8,876.5	98.6		
Helix Irrigation District	19.58	30.30	21,938.0	66.0	0.3	21,872.0	99.7		
National City and South Bay I. D.	12.08	18.69	13,529.0	1,459.0	10.8	12,070.0	89.2		
Oceanside, City of	4.49	6.95	5,029.8	1,242.1	24.7	3,787.7	75.3		
Olivehain M. W. D.	0.13	0.20	144.7	0	0	144.7	100.0		
Otay M. W. D.	1.30	2.02	1,460.0	0	0	1,460.0	100.0		
Poway M. W. D.	1.79	2.77	2,009.0	0	0	2,009.0	100.0		
Rainbow M. W. D.	7.62	11.78	8,532.9	989.0	11.6	7,543.9	88.4		
Ramona M. W. D.	0.57	0.89	642.8	126.0	19.6	516.8	80.4		
Rincon del Diablo M. W. D.	8.78	13.58	9,832.0	3,675.0	37.4	6,157.0	62.6		
Rio San Diego M. W. D.	2.97	4.60	3,329.5	490.0	12.9	2,839.5	87.1		
San Diego, City of:									
Inside City	72.45	112.10	81,153.8	3,095.2	3.8	78,058.6	96.2		
Outside City (Not in Authority)	4.47	6.91	5,006.9	5,006.9	100.0	0	0		
San Dieguito Irrigation District	3.19	4.93	3,568.1	0	0	3,568.1	100.0		
Santa Fe Irrigation District	2.99	4.63	3,349.5	0	0	3,349.5	100.0		
Valley Center M. W. D.	1.94	3.00	2,169.7	0	0	2,169.7	100.0		
<b>Total</b>	<b>171.90</b>	<b>265.97</b>	<b>192,554.0</b>	<b>20,602.1</b>	<b>10.7</b>	<b>171,951.9</b>	<b>89.3</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 1961-62

Member Agencies	Gross Area (2) acres	Total Production of Water ac. ft.	Estimated Area Served by Water System acres	Water Production Per Acre Served ac. ft./acre/yr.	Water Production Per Capita ac. ft./cap./yr.
Bueno Colorado M. W. D.	59,192	11,936.6	16,320	0.73	34,700
Carlsbad M. W. D.	29,659	6,711.4	15,000	0.45	10,300
Esccondido, City of	4,994	3,211.4	4,890	0.66	21,300
Fallbrook Public Utility District	15,469	8,998.9	7,200	1.25	10,000
Helix Irrigation District	31,184	21,938.0	28,270	0.78	132,000
National City, City of	5,045	3,458.0	4,970	0.70	34,000
Oceanside, City of	19,509	5,029.8	8,450	0.60	28,800
Olivehain M. W. D.	24,260	144.7	4,500	0.03	300
Otay M. W. D.	65,737	1,460.0	21,520	0.07	6,900
Poway M. W. D.	22,980	2,009.0	6,500	0.31	6,800
Rainbow M. W. D.	40,093	8,532.9	24,970	0.34	3,200
Ramona M. W. D.	39,100	642.8	5,100	0.13	5,800
Rincon del Diablo M. W. D.	23,180	9,832.0	10,520	0.91	14,600
Rio San Diego M. W. D.	54,105	3,329.5	7,510	0.44	31,600
San Diego, City of	165,065	(1) 81,155.8	70,000	1.16	645,100
San Dieguito Irrigation District	4,930	3,568.1	4,150	0.86	17,600
Santa Fe Irrigation District	10,132	3,349.5	10,130	0.33	7,900
South Bay Irrigation District	15,874	10,071.0	8,940	1.13	68,000
Valley Center M. W. D.	59,510	2,169.7	10,720	0.20	6,100
<b>Total and Average</b>	<b>672,018</b>	<b>187,547.1</b>	<b>269,960</b>	<b>0.69</b>	<b>1,095,000</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.

Table 10  
AGRICULTURAL USE OF WATER

Member Agencies	WATER USED FOR AGRICULTURAL PURPOSES						Percent of Agricultural Water to Total Production
	Total Water Production (ac. ft.)	From Local Supply (%)	From Authority (ac. ft.)	From Authority (%)	Total (ac. ft.)	Percent of Agricultural Water to Total Production	
	(a)	(b)	(c)	(d)			
Bueno Colorado M. W. D.	11,936.6	21.7	6,005.8	75.3	8,437.8	70.7	
Carlsbad M. W. D.	6,711.4	15.2	4,469.7	84.8	5,272.8	78.6	
Escondido, City of	3,211.4	(a)	(a)	(a)	(a)	(a)	
Fallbrook Public Utility District	8,998.9	1.3	7,902.3	98.7	6,010.0	99.0	
Helix Irrigation District	21,930.0	0.3	5,676.6	99.7	5,691.9	25.9	
National City & South Bay I. D.	13,529.0	5.2	1,711.0	91.8	1,864.7	13.8	
Oceanside, City of	5,029.8	(a)	(a)	(a)	(a)	(a)	
Olivenhain M. W. D.	144.7	0	80.9	100.0	80.9	55.9	
Otay M. W. D.	1,460.0	0	479.4	100.0	479.4	32.8	
Poway, M. W. D.	2,009.0	0	1,176.7	100.0	1,176.7	58.6	
Rainbow M. W. D.	8,532.9	974.4	7,315.8	88.2	8,290.2	97.2	
Ranoma M. W. D.	642.8	71.0	200.2	80.3	361.2	56.2	
Rincon del Diablo M. W. D.	9,832.0	3,186.1	5,374.4	62.8	8,562.5	87.1	
Rio San Diego M. W. D.	3,329.5	31.5	248.4	88.7	279.9	8.4	
San Diego, City of	86,162.7	51.9	3,769.9	98.6	3,821.8	4.1	
San Dieguito Irrigation District	3,568.1	(b)	(b)	(b)	(b)	(b)	
Santa Fe Irrigation District	3,349.5	(b)	(b)	(b)	(b)	(b)	
Valley Center M. W. D.	2,169.7	0	1,903.9	100.0	1,903.9	97.7	
Total	192,554.0	7,228.7	47,005.0	96.7	54,233.7	28.2	

(a) No report was received from agency, assumed no agricultural use.

(b) Included in City of San Diego.

Table 11  
AUTHORITY STORAGE IN SAN VICENTE RESERVOIR  
(Fiscal Year 1961-62)

Member Agencies	Total Quantity in Storage 7/1/61 (acre feet)	Placed into Storage during Fiscal Year (acre feet)	Emergency Account Released to - Withdrawn from + (acre feet)	Withdrawn during Fiscal Year		Total Quantity in Storage 6/30/62 (acre feet)
				By Delivery (acre feet)	By Evaporation (acre feet)	
				(a)	(b)	
Bueno Colorado M. W. D.	121.9	300.0	0	0	16.8	405.1
Carlsbad M. W. D.	0	0	0	0	0	0
Escondido, City of	243.3	0	0	0	15.6	227.7
Fallbrook Public Utility District	0	0	0	0	0	0
Helix Irrigation District	1,040.7	0	0	0	67.8	972.9
National City & South Bay I. D.	0	0	0	0	0	0
Oceanside, City of	0	0	0	0	0	0
Olivenhain M. W. D.	0	0	0	0	0	0
Otay M. W. D.	616.5	0	0	4.0	40.2	572.3
Poway M. W. D.	2,374.3	1,535.4	- 192.6	168.5	177.3	3,371.3
Rainbow M. W. D.	905.9	3,175.1	+ 385.1	1,419.3	85.8	2,961.0
Ranoma M. W. D.	32.1	0	0	0	2.2	29.9
Rincon del Diablo M. W. D.	421.4	920.0	0	329.4	37.8	974.2
Rio San Diego M. W. D.	4,818.7	0	- 192.5	950.7	297.2	3,378.3
San Diego, City of	0	0	0	0	0	0
San Dieguito Irrigation District	0	0	0	0	0	0
Santa Fe Irrigation District	0	0	0	0	0	0
Valley Center M. W. D.	409.5	1,500.0	0	180.0	55.8	1,673.7
Emergency Account	0	* 41.1	0	41.1	0	0
Total	10,984.3	7,471.6	--	3,093.0	796.5	14,566.4

\* Unallocated

Table 12  
CHEMICAL CHARACTER OF NATURAL COLORADO RIVER  
WATER AT WEST PORTAL OF SAN JACINTO TUNNEL

Year Ending June 30, 1962

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	329	207	122	1	28.5	8.3	79
August	329	210	119	1	29.0	8.3	80
September	324	208	116	1	28.5	8.3	79
October	324	210	114	2	29.5	8.2	75
November	330	212	116	0	28.0	8.1	64
December	334	216	118	1	29.5	8.2	57
January	334	211	123	2	28.5	8.5	55
February	337	213	124	3	29.0	8.4	53
March	337	213	124	1	28.0	8.4	54
April	334	212	122	3	28.5	8.4	65
May	341	220	121	0	29.5	8.3	71
June	346	222	124	2	29.5	8.4	72
Average	333	213	120	1	29.0	8.3	67
Maximum	346	222	124	3	29.5	8.5	80
Minimum	324	207	114	0	28.0	8.1	53

Table 13  
ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER  
As of June 30, 1962

Member Agencies	Total Amount Paid by Each Member Agency to 6/30/62	Amount Remaining to be Paid under Terms of Annexation	Total Contributions Paid and Contracted for	Allocation	
				Percentage of Authority Supply	Equivalent Flow c. f. s.
Bueno Colorado M. W. D.	\$ 342,781.32	\$ 0.00	\$ 342,781.32	2.59	11.65
Carlsbad M. W. D.	244,332.49	0.00	244,332.49	1.84	8.28
Escondido, City of	188,214.91	0.00	188,214.91	1.42	6.39
Fallbrook Public Utility District	101,394.56	5,888.26	107,282.82	0.81	3.64
Helix Irrigation District	1,385,091.16	9,119.04	1,394,210.22	10.52	47.34
National City, City of	335,409.76	0.00	335,409.76	2.53	11.39
Oceanside, City of	306,748.96	0.00	306,748.96	2.31	10.40
Oliverhain M. W. D.	3,494.93	12,103.71	15,598.64	0.12	0.54
Osay M. W. D.	82,760.79	15,067.90	97,828.69	0.74	3.33
Poway M. W. D.	50,891.62	3,138.78	54,020.40	0.41	1.85
Rainbow M. W. D.	53,915.10	2,748.12	56,663.22	0.43	1.93
Ramona M. W. D.	59,511.46	13,016.86	72,528.32	0.55	2.48
Rincon del Diablo M. W. D.	204,703.46	0.00	204,703.46	1.54	6.93
Rio San Diego M. W. D.	170,289.35	65,817.87	236,106.22	1.78	8.01
San Diego, City of	8,528,132.28	0.00	8,528,132.28	64.35	289.57
San Dieguito Irrigation District	153,552.35	6,676.72	160,229.07	1.21	5.45
Santa Fe Irrigation District	141,009.96	0.00	141,009.96	1.06	4.77
South Bay Irrigation District	712,855.92	0.00	712,855.92	5.38	24.21
Valley Center M. W. D.	50,774.04	3,467.75	54,241.79	0.41	1.84
Total Authority	\$ 13,115,863.44	\$ 137,035.01	\$ 13,252,898.45	100.00	450.00

SAN DIEGO COUNTY WATER AUTHORITY

Table 14  
BALANCE SHEET  
June 30, 1962

ASSETS			
<b>CURRENT ASSETS - GENERAL FUND:</b>			
Cash with treasurer	\$	172,009.15	
Petty cash		200.00	
Accounts receivable		396,102.65	
Inventory of water in storage		247,979.80	
Investments		264,308.00	\$ 1,080,599.60
<b>SPECIAL FUND ASSETS:</b>			
Reserve fund:			
Cash with treasurer		615,300.43	
Investments		19,420.94	634,721.37
Waterworks bonds, 1947, interest and sinking fund:			
Cash with treasurer		142,781.41	
Cash with bond paying agent		11,710.00	
Investments		325,000.00	
Delinquent taxes receivable	\$	3,412.62	
Less allowance for delinquency		3,412.62	---
			479,491.41
U. S. Government contract fund:			
Cash with treasurer		26,992.09	
Due from Metropolitan Water District		10,713,290.95	
Delinquent taxes receivable		20,547.15	
Less allowance for delinquency		20,547.15	---
			10,740,283.04
Capital improvement fund:			
Cash with treasurer		164,675.38	
Investments		368,436.00	
Annexation charges receivable - not due		137,035.01	
Delinquent taxes receivable		3,126.23	
Less allowance for delinquency		3,126.23	---
			670,146.39
Waterworks bonds, 1957, improvement fund:			
Cash with treasurer		228,103.24	
Investments		214,000.00	442,103.24
Waterworks bonds, 1957, interest and redemption fund:			
Cash with treasurer		53,454.26	
Cash with bond paying agent		5,957.50	
Delinquent taxes receivable		35,244.02	
Less allowance for delinquency		35,244.02	---
			59,411.76
<b>FIXED ASSETS:</b>			
Participation rights in Metropolitan Water District			
		43,902,510.84	
Plant			
		52,040,531.46	
Less allowance for depreciation		2,714,272.41	49,326,259.05
		93,228,769.89	
Work in progress		33,478.23	
			93,262,248.12
			<u>\$107,369,004.93</u>

TABLES

Table 14 (Continued)  
BALANCE SHEET  
June 30, 1962

LIABILITIES, RESERVES AND SURPLUS			
<b>CURRENT LIABILITIES - GENERAL FUND:</b>			
Accounts payable	\$	330,199.11	
Unapplied credits for irrigation water		19,362.75	
Advances by agencies for construction		15,498.28	
Deposits by agencies for annexation		2,500.00	\$ 367,560.14
<b>CURRENT LIABILITIES - SPECIAL FUNDS:</b>			
Accounts payable			48.13
<b>LONG-TERM DEBT:</b>			
General obligation bonds payable - not due		30,845,000.00	
Estimated balance on U. S. Government contract - First aqueduct cost		20,294,090.02	
Balance of annexation charges Metropolitan Water District		11,377,452.49	62,516,542.51
<b>SURPLUS AND RESERVES:</b>			
Net equity in fixed assets			30,745,705.61
Reserve for encumbrances:			
General fund		13,555.38	
Agencies' advances for construction		11,034.27	24,589.65
Reserves for debt redemption:			
Retirement of general obligation bonds		538,903.17	
Retirement of U. S. Government contract		10,740,283.04	11,279,186.21
Appropriated surplus:			
Petty cash fund balance		200.00	
Reserve fund balance		634,721.37	
Capital improvement fund balance		649,958.32	
Waterworks bonds, 1957, improvement fund - reserve for authorized expenditures		442,103.24	
Incomplete projects (continuing appropriations) - capital improvement fund		20,139.94	1,747,122.87
Unappropriated surplus			688,249.81

See Notes to Financial Statements - Page 77.

SAN DIEGO COUNTY WATER AUTHORITY

Table 15  
STATEMENT OF INCOME AND SURPLUS -  
UTILITY OPERATIONS  
For Fiscal Year Ended June 30, 1962

INCOME			
<b>WATER SALES:</b>			
Gross revenues from water sales		\$ 3,567,689.60	
Less credits to agencies for agricultural water use		215,849.95	
Net revenue from water sales			\$ 3,351,839.65
<b>COST OF WATER SOLD:</b>			
Inventory of water in storage, July 1, 1961		172,730.10	
Water purchased	\$ 3,274,354.60		
Less credits for agricultural water	215,849.95	3,058,504.65	
Storage and pumping charges		1,915.21	
			3,233,149.96
Less inventory of water in storage June 30, 1962		247,979.80	
Cost of water sold			2,985,170.16
Gross margin			366,669.49
<b>OTHER OPERATING INCOME:</b>			
Water transportation charges		1,599.00	
Rentals of Authority properties		1,906.00	3,505.00
Gross operating income			370,174.49
<b>OPERATING EXPENSES:</b>			
Net income before depreciation and debt service expense			198,895.69
			171,278.80
<b>DEPRECIATION AND DEBT SERVICE EXPENSE:</b>			
Depreciation		522,843.87	
Debt service expense	353,433.32		
Less receipts from Metropolitan Water District	179,466.72	173,966.60	696,810.47
Net operating income (deficit)			(525,531.67)
<b>NON-OPERATING INCOME:</b>			
Revenue from taxes (refunds)		(15,941.17)	
Earnings on investments		14,405.41	
Miscellaneous income		697.50	
Debt service expense provided by:			
Bond interest and sinking fund	24,500.00		
U. S. Government contract fund	149,466.60	173,966.60	
			173,128.34
Net income (deficit) for the year			\$ (352,403.33)

TABLES

Table 15 (Continued)  
STATEMENT OF INCOME AND SURPLUS -  
UTILITY OPERATIONS  
For Fiscal Year Ended June 30, 1962

SURPLUS			
<b>SURPLUS, JULY 1, 1961</b>			
			\$ 913,277.19
Net income (deficit) for the year	\$ (352,403.33)		
Refunds of prior year's expenditures	3,098.77		
Depreciation charged to income but entailing no expenditure of cash	522,843.87	173,539.31	
			1,086,816.50
Expenditures from general fund for furniture, fixtures and equipment	16,811.31		
Transfer to reserve fund	368,000.00	384,811.31	
<b>SURPLUS, JUNE 30, 1962</b>			
			\$ 702,005.19
<b>CONSISTING OF:</b>			
Appropriated surplus:			
Petty cash fund	200.00		
Reserve for encumbrances, general fund	13,555.38	13,755.38	
Unappropriated surplus:			
Invested in water in storage	247,979.80		
Available for appropriation	440,270.01		
			688,249.81
Total as above			\$ 702,005.19

NOTES TO FINANCIAL STATEMENTS

- (1) Interest on the 1957 Waterworks bonds for one year after completion of construction of the Second San Diego Aqueduct, totaling \$1,169,700.00, has been treated as a construction cost and capitalized. This treatment, although not in conformity with generally accepted accounting principles, is required by a provision of the County Water Authority Act.
- (2) The 1957 Waterworks bond improvement fund had \$5,000,000 of unissued bonds at June 30, 1962. These bonds may be sold at any time for purposes authorized by the special election held July 9, 1957.

SAN DIEGO COUNTY WATER AUTHORITY

Table 16

STATEMENT OF APPROPRIATIONS AND EXPENDITURES

Fiscal Year Ended June 30, 1962

E & A No.	Purpose	Prior Years' Appropriation Carried Over	Appropriations 1961-62
214	Access roads, Second Aqueduct . . . . .	\$ 5,871.33	\$
217	Service connection, San Diego, Sta. 3868+84 . . . . .	2,213.36	
218	Service connection, San Diego, Sta. 3355+25 . . . . .	17,391.52	
222	Temporary service connection, Rincon del Diablo . . . . .	2,596.40	
225	Service connection, Rio San Diego, Sta. 4249+95 . . . . .	5,093.93	
226	Service connection, Poway, Sta. 276+00 . . . . .	9,365.96	
227	Service connection, Olivenhain, Sta. 3178+91 . . . . .	7,807.80	
228	Service connection, Buco Colorado, Sta. 2636+49 . . . . .	19,264.32	
229	Budget fiscal year 1961-62:		
	General fund . . . . .		3,569,700.00
	U. S. Government contract fund . . . . .		1,208,145.00
	Waterworks Bonds, 1947, interest and sinking fund . . . . .		174,500.00
	Waterworks Bonds, 1957, interest and redemption fund . . . . .		1,289,700.00
230	Service connection, Rainbow, Sta. 1886+18 . . . . .		5,500.00
231	Service connection, Otay, Sta. 5037+00 . . . . .		27,300.00
232	Service connection, Otay, Sta. 5298+02 . . . . .		32,500.00
233	Aqueduct crossconnection study . . . . .		35,000.00
234	Service connection, Oceanside, Sta. 2502+50 . . . . .		22,000.00
235	Temporary service connection, San Diego, Sta. 3437+29 . . . . .		9,800.00
	Subtotal	69,604.62	6,374,145.00
	Less advances by agencies	46,331.63	97,100.00
	Total - Authority . . . . .	\$ 23,272.99	\$6,277,045.00
	<u>Distribution by Funds</u>		
	General Fund . . . . .	\$	\$3,569,700.00
	Waterworks Bonds, 1947, interest and sinking fund . . . . .		174,500.00
	U. S. Government contract fund . . . . .		1,208,145.00
	Waterworks Bonds, 1957, interest and redemption fund . . . . .		1,289,700.00
	Capital improvement fund . . . . .	23,272.99	35,000.00
		\$ 23,272.99	\$6,277,045.00

TABLES

Table 16 (Continued)

STATEMENT OF APPROPRIATIONS AND EXPENDITURES

Fiscal Year Ended June 30, 1962

Expenditures 1961-62	Cancelled Appropriations	Unexpended Appropriations June 30, 1962	Encumbrances	Unencumbered Balance
\$ 1,349.94	\$	\$ 4,521.39	\$	\$ 4,521.39
(367.96)	2,581.32			
1,772.97		15,618.55		15,618.55
2,283.23	313.17			
175.00	4,918.93			
6,916.43	2,449.53			
4,967.94	2,839.86			
11,924.23	7,340.09			
3,276,126.86	280,017.76	13,555.38	13,555.38	
1,208,142.16	2.84			
174,500.00				
1,289,700.00				
4,029.46	1,470.54			
25,663.08	1,636.92			
28,655.95	3,844.05			
2,248.35	32,751.65			
4,906.12		17,093.88	11,034.27	6,059.61
361.33		9,438.67		9,438.67
6,043,355.09	340,166.66	60,227.87	24,589.65	35,638.22
89,504.67	27,394.41	26,532.55	11,034.27	15,498.28
5,953,850.42	312,772.25	33,695.32	13,555.38	20,139.94
3,276,126.86	280,017.76	13,555.38	13,555.38	
174,500.00				
1,208,142.16	2.84			
1,289,700.00				
5,381.40	32,751.65	20,139.94		20,139.94
\$ 5,953,850.42	\$ 312,772.25	\$ 33,695.32	\$ 13,555.38	\$ 20,139.94

SAN DIEGO COUNTY WATER AUTHORITY

Table 17

STATEMENT OF REVENUES - ESTIMATED AND ACTUAL

Fiscal year ended June 30, 1962

Source	Estimated Revenues	Actual Revenues	Actual Over or (Under) Estimate
Taxes, secured, current levy . . . . .	\$ 1,528,100.00	\$ 1,547,561.85	\$ 19,461.85
Taxes, unsecured, current levy . . . . .	172,200.00	171,001.53	(1,198.47)
Taxes, secured, prior years' levies . . . . .	13,000.00	25,195.48	12,195.48
Taxes, unsecured, prior years' levies . . . . .	500.00	(9,662.85)	(10,162.85)
Penalties on delinquent taxes . . . . .	1,500.00	2,797.94	1,297.94
Miscellaneous tax on options . . . . .		.72	.72
Receipts in lieu of taxes . . . . .		2,624.69	2,624.69
Sale of water . . . . .	3,600,000.00	3,351,839.65	(248,160.35)
Miscellaneous tax sales . . . . .		58.82	58.82
Earnings on investments . . . . .	56,000.00	81,790.14	25,790.14
Rentals of Authority properties . . . . .	1,500.00	1,906.00	406.00
Water transportation charges . . . . .	1,200.00	1,599.00	399.00
Contract payments from Metropolitan Water District . . . . .	636,300.00	636,361.08	61.08
Miscellaneous . . . . .		697.50	697.50
	<u>\$ 6,010,300.00</u>	<u>\$ 5,813,771.55</u>	<u>\$(196,528.45)</u>
<b>Distribution by Funds:</b>			
General fund . . . . .	3,617,700.00	3,354,506.39	(263,193.61)
Reserve fund . . . . .	10,000.00	19,518.08	9,518.08
Waterworks Bonds, 1947, interest and sinking fund . . . . .	102,600.00	109,565.26	6,965.26
U. S. Government contract fund . . . . .	1,207,000.00	1,218,383.48	11,383.48
Waterworks Bonds, 1957, interest and redemption fund . . . . .	1,024,600.00	1,053,863.30	29,263.30
Capital improvement fund . . . . .	48,400.00	57,935.04	9,535.04
	<u>\$ 6,010,300.00</u>	<u>\$ 5,813,771.55</u>	<u>\$(196,528.45)</u>

TABLES

Table 18  
SUMMARY STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS  
Fiscal Year Ended June 30, 1962

	Cash Balance July 1, 1961	Cash		Inter-Fund Transfers		Cash Balance June 30, 1962
		Receipts	Disbursements	In	Out	
General fund . . . . .	\$ 223,609.36	\$ 3,569,382.90	\$ 3,447,139.95	\$ 54,615.51	\$ 218,458.67	\$ 172,009.15
Reserve fund . . . . .	5,795.96	485,242.37	69,740.90	660,000.00	466,000.00	615,300.43
Waterworks Bonds, 1947, interest and sinking fund . . . . .	243.36	410,111.44	268,155.99	53,582.60	53,000.00	142,781.41
U. S. Government contract fund . . . . .	12,973.06	1,201,526.19	1,208,142.16	164,635.00	144,000.00	26,992.09
Waterworks Bonds, 1957, improvement fund . . . . .	404,264.87	14,726.62	14,129.32	24,241.07	201,000.00	228,103.24
Waterworks Bonds, 1957, interest and redemption fund . . . . .	127,169.06	1,070,971.59	1,294,686.39	662,000.00	512,000.00	53,454.26
Capital improvement fund . . . . .	21,818.01	216,689.79	49,216.91	20,000.00	44,615.51	164,675.38
Total all funds . . . . .	\$ 795,876.68	\$ 6,958,650.90	\$ 6,351,211.62	\$ 1,639,074.18	\$ 1,639,074.18	\$ 1,403,315.96
<b>Demand deposits:</b>						
Bank of America National Trust & Savings Association . . . . .					\$ 17,367.50	
San Diego Trust & Savings Bank . . . . .					25,392.03	
First National Trust & Savings Bank . . . . .					248,501.42	\$ 291,260.95
Time deposits:						
Bank of America National Trust & Savings Association . . . . .					690,000.00	
San Diego Trust & Savings Bank . . . . .					115,000.00	
First National Trust & Savings Bank . . . . .					445,000.00	1,250,000.00
Deposits in transit . . . . .						23,147.82
						1,564,408.77
<b>Less:</b>						
Outstanding warrants . . . . .					143,725.31	
Special deposits for payment of bond interest . . . . .					\$ 17,067.50	
Less charges in transit . . . . .					300.00	
Treasury cash, June 30, 1962, as above . . . . .					17,367.50	161,092.81
						\$ 1,403,315.96

SAN DIEGO COUNTY WATER AUTHORITY

Table 19  
STATEMENT OF BONDS PAYABLE  
June 30, 1962

Description	Rate of Interest	Date of	
		Issue	Maturity
Waterworks bonds, 1947	2½-2 1/2%	1947	1971
Waterworks bonds, 1957	1½-6%	1957	1993

STATEMENT OF BONDED DEBT MATURITIES

Fiscal Year	Waterworks Bonds, 1947		
	Principal	Interest	Total
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			
	<u>\$1,150,000.00</u>	<u>\$ 93,500.00</u>	<u>\$1,243,500.00</u>

TABLES

Table 19 (Continued)  
STATEMENT OF BONDS PAYABLE  
June 30, 1962

Bonds			Sinking Fund		
Authorized	Issued	Outstanding	Required	Actual	Excess
\$ 2,000,000.00	\$ 2,000,000.00	\$ 1,150,000.00	\$454,475.00	\$467,781.41	\$13,306.41
35,000,000.00	30,000,000.00	29,695,000.00			
<u>\$37,000,000.00</u>	<u>\$32,000,000.00</u>	<u>\$31,845,000.00</u>			

STATEMENT OF BONDED DEBT MATURITIES

Waterworks Bonds, 1957			Total		
Principal	Interest	Total	Principal	Interest	Total
\$ 120,000.00	\$ 1,162,500.00	\$ 1,282,500.00	\$ 270,000.00	\$ 1,184,000.00	\$ 1,454,000.00
140,000.00	1,155,300.00	1,295,300.00	290,000.00	1,173,800.00	1,463,800.00
160,000.00	1,146,900.00	1,306,900.00	310,000.00	1,162,400.00	1,472,400.00
180,000.00	1,137,300.00	1,317,300.00	330,000.00	1,149,800.00	1,479,800.00
210,000.00	1,126,500.00	1,336,500.00	360,000.00	1,136,000.00	1,496,000.00
240,000.00	1,113,900.00	1,353,900.00	340,000.00	1,120,900.00	1,460,900.00
310,000.00	1,099,500.00	1,409,500.00	410,000.00	1,104,500.00	1,514,500.00
370,000.00	1,080,900.00	1,450,900.00	470,000.00	1,083,900.00	1,553,900.00
440,000.00	1,058,700.00	1,498,700.00	540,000.00	1,059,700.00	1,599,700.00
570,000.00	1,035,300.00	1,605,300.00	570,000.00	1,035,300.00	1,605,300.00
640,000.00	1,009,425.00	1,649,425.00	640,000.00	1,009,425.00	1,649,425.00
700,000.00	980,425.00	1,680,425.00	700,000.00	980,425.00	1,680,425.00
750,000.00	952,545.00	1,702,545.00	750,000.00	952,545.00	1,702,545.00
830,000.00	922,645.00	1,752,645.00	830,000.00	922,645.00	1,752,645.00
920,000.00	888,820.00	1,808,820.00	920,000.00	888,820.00	1,808,820.00
990,000.00	851,245.00	1,841,245.00	990,000.00	851,245.00	1,841,245.00
1,035,000.00	810,655.00	1,845,655.00	1,035,000.00	810,655.00	1,845,655.00
1,100,000.00	767,930.00	1,867,930.00	1,100,000.00	767,930.00	1,867,930.00
1,160,000.00	727,435.00	1,887,435.00	1,160,000.00	727,435.00	1,887,435.00
1,230,000.00	685,010.00	1,915,010.00	1,230,000.00	685,010.00	1,915,010.00
1,290,000.00	639,515.00	1,929,515.00	1,290,000.00	639,515.00	1,929,515.00
1,350,000.00	591,770.00	1,941,770.00	1,350,000.00	591,770.00	1,941,770.00
1,420,000.00	541,775.00	1,961,775.00	1,420,000.00	541,775.00	1,961,775.00
1,470,000.00	488,610.00	1,958,610.00	1,470,000.00	488,610.00	1,958,610.00
1,530,000.00	433,570.00	1,963,570.00	1,530,000.00	433,570.00	1,963,570.00
1,595,000.00	376,112.00	1,971,112.00	1,595,000.00	376,112.00	1,971,112.00
1,660,000.00	316,190.00	1,976,190.00	1,660,000.00	316,190.00	1,976,190.00
1,730,000.00	253,620.00	1,983,620.00	1,730,000.00	253,620.00	1,983,620.00
1,800,000.00	188,407.00	1,988,407.00	1,800,000.00	188,407.00	1,988,407.00
1,850,000.00	120,552.00	1,970,552.00	1,850,000.00	120,552.00	1,970,552.00
1,905,000.00	50,737.00	1,955,737.00	1,905,000.00	50,737.00	1,955,737.00
<u>\$29,695,000.00</u>	<u>\$23,713,793.00</u>	<u>\$53,408,793.00</u>	<u>\$30,845,000.00</u>	<u>\$23,607,293.00</u>	<u>\$54,452,293.00</u>

Table 20  
STATEMENT OF TAX ASSESSMENTS AND COLLECTIONS  
July 1, 1945 to June 30, 1962

	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, 1962	
	\$		\$		\$		\$		\$		\$		\$		\$		\$		\$	
Fallbrook P. U. D.	98,458.16		25.73		97,600.78		317.31		.82		3,420.09		7.42		11.50		101,394.56		833.17	
Helix Irrigation District	1,390,292.39	(1,083.38)	1,378,288.61	2,946.33	1,375,288.61	2,946.33	89.08		89.08		3,559.46		854.41		376.71		1,385,091.18		10,820.49	
City of National City	330,561.75	(43.22)	328,815.54	750.74	328,815.54	750.74	8.39		8.39		6,255.24		65.64		485.79		335,409.76		1,702.99	
City of Oceanside	304,784.54	417.43	303,874.43	570.27	303,874.43	570.27	5.11		5.11		2,561.54		89.24		451.63		306,748.96		1,227.54	
City of San Diego	8,419,749.12	8,073.08	8,403,894.19	11,593.46	8,403,894.19	11,593.46	42.29		42.29		151,201.57		1,897.31		40,628.74		8,528,132.26		24,398.01	
Rancho M. W. D.	58,616.78	221.12	57,692.33	119.48	57,692.33	119.48					1,800.00		.35		.35		59,511.46		1,245.97	
Santa Fe I. D.	135,820.35	1,419.47	136,597.48	911.09	136,597.48	911.09	821.19		821.19		2,392.60		1,050.99		733.39		141,009.86		712.34	
San Diegoito I. D.	153,436.55	(53.30)	152,115.04	419.10	152,115.04	419.10	3.89		3.89		1,123.14		107.21		216.02		153,552.35		1,268.21	
City of Escondido	189,091.81	451.47	187,976.09	239.41	187,976.09	239.41					28.84		23.43		23.43		188,214.91		1,573.19	
South Bay I. D.	716,763.85	(2,340.97)	710,569.13	1,086.98	710,569.13	1,086.98	.39		.39		13,251.66		59.69		12,441.93		712,855.92		3,553.75	
Rainbow M. W. D.	33,833.52	60.30	33,286.40	60.13	33,286.40	60.13					20,878.97				5.40		53,915.10		633.42	
Peway M. W. D.	53,011.34	(25.72)	52,809.37	94.31	52,809.37	94.31									12.06		50,891.62		2,173.25	
Bueno Colorado M. W. D.	333,545.77	1,018.58	331,349.70	763.89	331,349.70	763.89	1.73		1.73		10,752.01		45.44		122.45		342,781.32		3,223.65	
Rincon del Diablo M. W. D.	132,898.27	1,105.00	132,927.41	356.00	132,927.41	356.00					51,434.58		9.10		14.83		204,703.46		1,075.96	
Carlsbad M. W. D.	212,147.63	(247.85)	211,235.16	185.51	211,235.16	185.51					35,176.44		13.87		273.72		244,332.49		664.67	
Valley Center M. W. D.	51,029.33	167.80	50,602.69	163.41	50,602.69	163.41							37.99		168.34		170,288.35		4,566.80	
Rio San Diego M. W. D.	174,826.73	(466.02)	169,553.91	594.74	169,553.91	594.74	.05		.05		270.00		25.85		112.50		82,760.79		1,920.15	
Olney M. W. D.	84,229.00	354.56	82,693.41	154.03	82,693.41	154.03											3,494.93		58.71	
Olivehain M. W. D.	3,553.67	(.03)	3,494.93		3,494.93															
Total member agencies	12,896,341.63	9,661.05	12,843,675.54	21,328.19	12,843,675.54	21,328.19	972.63		972.63		301,808.80		4,163.20		56,084.92		13,115,863.44		62,327.14	
Withdrawn agencies	4,169.05	32.04	4,198.21	11.40	4,198.21	11.40					186.64		2.49		5.35		4,393.54		2.85	
Total	\$12,900,510.68	\$9,693.09	\$12,847,873.75	\$21,339.30	\$12,847,873.75	\$21,339.30	\$972.78		\$972.78		\$301,995.44		\$4,165.69		\$56,090.27		\$13,120,256.98		\$62,330.02	

Analysis of Uncollected Taxes by Funds

General fund	\$
Waterworks Bonds, 1947, interest and sinking fund	3,412.62
U. S. Government contract fund	20,547.15
Waterworks Bonds, 1957, interest and redemption fund	35,244.02
Capital improvement fund	3,126.23
	\$62,330.02

TABLES

Table 21

STATEMENT OF ASSESSED VALUATIONS AND TAX RATES TO JUNE 30, 1962

Fiscal Year	Secured Real Personal		Public Utilities	Unsecured Personal		Total(3)	Tax Rate per \$100	
							Secured	Unsecured
1945-1946	\$ 212,082,975	\$ 25,253,700	\$ 29,960,130	\$ 270,296,803	\$	\$ 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	0.14	
1948-1949	294,227,570	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	0.10	
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	0.12	
1953-1954	490,709,350	63,092,050	69,147,150	622,948,550		0.10	0.10	
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	0.09	
1956-1957	680,824,400	101,224,260	97,950,800	879,999,460		0.09	0.09	
1957-1958	761,088,330	111,161,890	128,785,440	1,001,025,660		0.09	0.09	
1958-1959	865,883,080	125,479,290	128,184,720	1,121,887,090		0.10	0.10	
1959-1960	979,491,050	145,317,290	134,846,730	1,259,655,070		0.11	0.10	
1960-1961	1,116,723,830	165,666,720	159,954,740	1,442,345,290		0.11	0.11	
1961-1962	1,220,810,650	191,276,650	155,149,890	1,567,237,190		0.11	0.11	
1962-1963*	1,272,506,330	201,245,370	154,989,440	1,628,741,140		0.11	0.11	

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 total valuation.
  - (2) City of Coronado not included in this or subsequent total valuation.
  - (3) Includes areas excluded from Authority.
- \* Data for 1962-1963 were available before completion of report and are included for convenience of reader.

SAN DIEGO COUNTY WATER AUTHORITY

Table 22  
TAX LEVIES AND TAX COLLECTIONS  
Fiscal Years 1945-46 to 1961-62

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 (3)
1945-46	\$ 96,131.33	\$ 94,656.51	98.47	\$	\$	\$ 94,656.51	98.47	\$ 1,474.82	1.53
1946-47	107,808.89	105,753.78	98.09		1,050.25	106,844.03	99.11	2,439.68	2.26
1947-48	389,591.57	381,563.14	97.94		1,882.72	383,445.86	98.42	8,585.39	2.20
1948-49	474,520.78	459,504.39	96.84		5,916.41	465,420.80	98.08	17,685.37	3.73
1949-50	401,112.07	392,732.15	97.91	329.58	13,342.55	406,074.70	101.15	13,052.32	3.25
1950-51	397,970.61	390,274.43	98.07	373.44	8,217.82	398,492.25	100.03	12,904.12	3.24
1951-52	450,405.19	441,242.12	97.97	978.87	7,699.55	448,941.67	99.46	15,346.51	3.40
1952-53	594,603.48	585,417.35	98.48	(1,140.34)	12,567.93	597,885.28	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	(2,089.58)	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	98.31	28,189.75	2.92
1958-59	1,178,885.91	1,157,265.98	98.17	(5,274.26)	13,347.45	1,170,613.43	99.30	36,462.23	3.09
1959-60	1,436,270.69	1,408,277.57	98.05	(8,720.61)	16,647.80	1,424,925.37	99.58	42,533.29	2.97
1960-61	1,624,733.20	1,586,155.14	97.63	(2,276.45)	21,501.88	1,607,671.99	99.48	50,974.49	3.15
1961-62	1,763,789.16	1,718,575.76	97.44		31,477.80	1,750,053.56	99.35	62,330.02	3.54

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

Table 23  
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 6/30/61	Fiscal Year 1961-62		Remaining Balance of Annexation Charges 6/30/62
			First Year	Last Year		Special Assessments	Tax Rate \$/100	
Annexation Charges Completed to June 30, 1961.		\$465,090.00			\$465,090.00	\$	0	\$ 0
Annexation Charges Outstanding as of June 30, 1961								
Fairbrook P. U. D.								
No. 2 Annexation of 1958	11-24-58	8,500.00	1959-60	1960-61	1,751.10	860.64	8¢	5,888.26
Helix I. D.								
Sunnyslope Heights Annexation	9-17-59	11,600.00	1960-61	1960-61	1,231.58	1,249.38	11¢	9,119.04
Olivenhain M. W. D.	7-25-60	13,600.00	1961-62	1970-71	0	1,496.29	8¢	12,103.71
Otay M. W. D.	10-26-56	24,900.00	1957-58	1961-62	21,304.31	3,595.69	2¢	0
No. 3 Annexation of 1960	10-20-60	16,800.00	1961-62	1970-71	0	1,732.10	9¢	15,067.90
Poway M. W. D.								
No. 1 Annexation of 1959	9-21-59	4,000.00	1960-61	1960-61	407.92	463.30	6¢	3,128.78
Rainbow M. W. D.								
No. 1 Annexation of 1959	5-12-59	3,500.00	1960-61	1960-61	367.21	384.67	7¢	2,745.12
Ramona M. W. D.	8-27-57	41,900.00	1958-59	1962-63	25,745.71	8,363.13	14¢	7,791.16
No. 1 Annexation of 1959	5-29-59	6,000.00	1960-61	1960-61	674.13	700.17	14¢	5,225.70
No. 2 Annexation of 1961	9-22-61	1,800.00	1961-62	1961-62	0	1,800.00	Cash	0
Rincon del Diablo M. W. D.								
No. 2 Annexation of 1961	9-29-61	700.00	1961-62	1961-62	0	700.00	Cash	0
Rio San Diego M. W. D.								
(Not including Lakeside I. D.)	6-7-56	46,100.00	1957-58	1961-62	37,670.81	8,429.19	4¢	0
No. 2 Annexation of 1959	11-6-59	18,300.00	1960-61	1960-61	1,792.55	1,959.96	8¢	14,547.49
No. 3 Annexation of 1960	10-17-60	57,100.00	1961-62	1970-71	0	5,829.62	13¢	51,270.38
San Dieguito I. D.								
No. 1 Annexation of 1959	9-15-59	8,400.00	1960-61	1960-61	869.86	833.42	10¢	6,676.72
Valley Center M. W. D.								
No. 1 Annexation of 1960	12-12-60	3,900.00	1961-62	1970-71	0	432.25	14¢	3,467.75
Total		\$732,780.00			\$556,895.18	\$38,849.81		\$137,035.01

TABLES

Table 25  
WATER SALES BY METROPOLITAN WATER DISTRICT  
Fiscal Years 1941-42 to 1961-62

Year	To Member Municipalities						
	Natural Water		Softened Water		Total to Agencies	To Others	Total
	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	7,829.7	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
1958-59...	244,354.2	46	282,248.1	54	526,602.3	74,107.1	600,709.4
1959-60...	425,019.0	58	304,874.8	42	729,893.8	3,523.2	733,417.0
1960-61...	594,521.1	64	335,207.2	36	929,728.3	4,099.4	933,827.7
1961-62...	610,399.7	66	315,064.1	34	925,463.8	6,330.9	931,794.7

Table 24  
METROPOLITAN WATER DISTRICT ANNEXATION CHARGES,  
ASSESSMENTS AND BALANCES ON AUTHORITY AREAS

Member Agencies Annexation Charges Completed to June 30, 1961 Outstanding as of June 30, 1961	Date of Annexation	Special Assessments to 6/30/51	Amount of Annexation Charge	Fiscal Year 1961-62		Remainder Balance 6/30/62
				Special Assessments to 6/30/61	Special Tax Rate	
Chula Vista, City of	1947-48	13,045,000	94,369.00	94,369.00	376,394.29	6,509,143.62
Fullerbrook P. U. D.	1955-56	1,072,230	216,234.64	216,234.64	34,566.24	821,699.12
Lakeside Irrigation District	1954-55	948,100	110,866.66	110,866.66	18,194.39	419,139.96
Helix Irrigation District	1951-52	246,000	129,176.27	14,118.14	7	242,705.28
National City, City of	1951-52	34,600	16,281.63	958.07	4	17,369.96
Oceanside, City of	1950-51	30,400	3,393.78	1,721.14	16	45,190.08
San Diego, City of	1950-51	10,500	4,210.43	422.72	4	5,866.85
Buena Colorado M. W. D.	1954-55	327,450	65,425.15	10,494.56	2	246,530.29
Carlsbad M. W. D.	1950-51	8,730	312.14	281.12	9	8,136.74
Escondido, City of	1950-51	38,250	1,343.94	1,350.29	11	35,536.18
Fullerbrook P. U. D.	1951-52	85,880	0	2,865.53	15	81,074.47
No. 1 Association of 1959	1957-58	273,000	37,383.46	8,120.05	3	227,491.48
No. 2 Association of 1958	1951-52	95,100	0	3,271.75	17	91,828.25
Helix Irrigation District	1954-55	27,150	18,715.97	3,862.24	3	69,291.67
Crest P. U. D. Association	1950-51	187,700	32,872.15	5,722.62	6	128,105.23
El Cajon Dry Island Association	1950-51	24,200	894.58	894.79	15	21,600.44
Helix-Watson Ranch Association	1950-51	339,000	34,329.24	11,336.07	19	293,314.69
Helix-Suzuyello Rts. Association	1950-51	42,330	1,444.56	1,400.49	28	39,484.35
Chivresbath M. W. D.	1950-51	757,200	131,873.83	26,945.09	9	579,256.98
Okay M. W. D.	1951-52	4,190	0	4,190.00	0	0
No. 3 Association of 1960	1957-58	373,980	50,914.59	12,484.72	5	316,571.19
Poway M. W. D.	1950-51	199,110	2,969.17	3,679.01	15	191,431.82
No. 1 Association of 1959	1951-52	289,890	0	9,865.30	22	289,024.70
Rainbow M. W. D.	1950-51	187,100	75,196.73	6,482.26	3	105,481.01
No. 1 Association of 1959	1950-51	71,650	2,493.26	2,349.26	28	67,021.91
San Diego Irrigation District	1950-51	187,000	67,313.52	5,321.47	3	94,165.01
South Bay Irrigation District	1953-54	448,370	131,389.65	13,454.61	4	314,124.74
(Not including Lakeside I. D.)	1950-51	295,680	34,411.19	7,270.64	13	263,999.15
Valley Center M. W. D.	1950-51	23,700	0	902.73	26	22,097.25
No. 1 Association of 1960	1951-52	57,440	57,440.00	588,947.61	0	511,377,452.49
Total						

WATER PRODUCTION - METROPOLITAN WATER DISTRICT CONSTITUENT AREAS

Figures Furnished by Metropolitan Water District

Constituent Area	Total Water Production				Source of Water Produced - 1961-62			
	1960-61		1961-62		M. W. D.		Other	
	Amount ac. ft.	Percent Increase or Decrease	Amount ac. ft.	Percent of Total	Amount ac. ft.	Percent of Total	Amount ac. ft.	Percent of Total
Anaheim . . . . .	20,688		21,148	2.2	9,584	45.3	11,564	54.7
Beverly Hills . . . . .	11,415		11,439	0.4	4,402	35.4	7,036	61.6
Burbank . . . . .	25,320		24,570	- 3.0	4,602	18.7	19,968	81.3
Calleguas M. W. D. . . . .	53,770		55,600	3.4	0	0	55,600	100.0
Central Basin M. W. D. . . . .	218,397		209,909	- 4.0	10,647 (a)	5.1	199,262	94.9
Chino Basin M. W. D. . . . .	135,635		166,970	23.1	6,416	3.8	160,554	96.2
Coastal M. W. D. . . . .	16,320		17,743	8.7	14,646	82.5	3,097	17.5
Compton . . . . .	7,900		7,845	- 0.7	338	4.3	7,507	95.7
Eastern M. W. D. . . . .	141,311		127,186	- 10.1	32,796	25.8	94,390 (b)	74.2
Foodhill M. W. D. . . . .	16,070		14,857	- 7.5	5,954	60.3	8,903	39.7
Fullerton . . . . .	16,365		15,624	- 4.5	5,029	51.4	7,595	48.6
Glendale . . . . .	24,013		22,271	- 7.3	2,664	11.5	19,707	89.5
Las Virgenes M. W. D. . . . .	700		265	- 62.1	0	0	265	100.0
Long Beach . . . . .	54,175		51,041	- 5.8	13,137	25.7	37,924	74.3
Los Angeles . . . . .	330,380		504,243	4.9	84,977	16.9	419,266	83.1
Orange County M. W. D. . . . .	223,662		190,470	- 14.5	36,170 (c)	20.0	152,300	80.0
Pasadena . . . . .	34,603		32,447	- 6.2	18,159	56.1	14,288	43.9
Pomona Valley M. W. D. . . . .	54,926		50,600	- 7.9	9,614	19.0	40,986	81.0
San Diego C. W. A. . . . .	220,315		204,866	- 7.0	184,364 (d)	89.9	20,502	10.1
San Marino . . . . .	5,600		5,404	- 3.5	0	0	5,404	100.0
Santa Ana . . . . .	17,100		17,163	0.4	8,366	49.7	8,797	51.3
Santa Monica . . . . .	14,413		13,978	- 3.0	10,790	77.2	3,186	22.5
Torrance . . . . .	16,791		17,458	4.0	14,942	85.6	2,516	14.4
West Basin M. W. D. . . . .	149,770		127,087	- 15.1	72,280 (e)	56.9	54,807	43.1
Western M. W. D. of Riverside County . . . . .	168,790		166,233	- 1.5	7,233	4.4	159,000	95.6
Totals . . . . .	2,178,809		2,076,536	- 4.7	565,050	27.2	1,511,500	72.8

(a) Does not include 179,150.9 acre feet of unsoftened water used to recharge the underground basin in Zone 1 and distributed as follows: 141,615.8 acre feet to Central Basin, 7,398.9 acre feet to Compton, 29,058.3 acre feet to Long Beach, and 1,074.9 acre feet to Los Angeles as reported by letter from Los Angeles County Flood Control District dated September 27, 1962.

(b) Includes 4,639 acre feet of tunnel seepage into San Jacinto Tunnel.

(c) Does not include 172,169 acre feet of unsoftened water used to recharge the underground basin in Orange County.

(d) Includes 12,412.3 acre feet of water delivered but placed in storage.

(e) Does not include 4,436.5 acre feet of softened water injected underground to form a fresh water barrier against salt water intrusion.

TABLES

Table 27  
ANALYSIS OF COLORADO RIVER AQUEDUCT WATER  
TAKEN AT WEST PORTAL OF SAN JACINTO TUNNEL  
For Year Ending June 30, 1962

Constituent	Symbol	ANALYSIS		Minimum
		Average	Maximum	
Silica . . . . .	SiO <sub>2</sub>	10.0	10.8	9.2
Iron . . . . .	Fe	--	--	--
Calcium . . . . .	Ca	86.0	90.0	81.0
Magnesium . . . . .	Mg	29.0	29.5	28.0
Sodium . . . . .	Na	97.0	100.0	95.0
Potassium . . . . .	K	5.0	6.0	4.0
Carbonate . . . . .	CO <sub>3</sub>	1.0	4.0	0
Bicarbonate . . . . .	HCO <sub>3</sub>	149.5	149.0	134.0
Sulfate . . . . .	SO <sub>4</sub>	292.0	301.0	288.0
Chloride . . . . .	Cl	88.5	93.0	85.0
Nitrate . . . . .	NO <sub>3</sub>	1.9	2.4	1.5
Fluoride . . . . .	F	0.4	0.4	0.4
Total Dissolved Solids . . . . .		683.0	704.0	671.0
Hardness as CaCO <sub>3</sub>				
Total . . . . .		333.0	346.0	324.0
Carbonate . . . . .		120.0	124.0	114.0
Noncarbonate . . . . .		213.0	222.0	207.0
Alkalinity - Phenolphthalein . . . . .		1.0	3.0	0.0
Alkalinity - Total . . . . .		120.0	124.0	114.0
Free Carbon Dioxide . . . . .	CO <sub>2</sub>	1.0	2.0	0.0
Hydrogen Ion Concentration . . . . .	pH	8.3	8.5	8.1
Electrical Conductivity . . . . .	ECx10 <sup>6</sup> at 25°C	1077.0	1115.0	1060.0

NOTE: For analyses of monthly samples see Table 12.

## SAN DIEGO COUNTY WATER AUTHORITY

Table 28

ASSESSSED VALUATIONS AND TAX RATES OF THE  
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Fiscal Year	Area (acres)	Assessed Valuation 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	1,900,099,934	.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	2,128,333	12,070,838,070	.18	.18
1959-60	2,171,290	12,714,205,470	.17	.18
1960-61	2,544,960	13,737,971,925	.16	.17
1961-62	2,647,014	14,803,202,587	.15	.16
1962-63 (3)		15,699,681,030	.14	.15

(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 1962-63 were available before completion of report and are included for convenience of reader.