

SAN DIEGO COUNTY
WATER AUTHORITY



TENTH ANNUAL REPORT
1956

SAN DIEGO COUNTY WATER AUTHORITY

TENTH
ANNUAL REPORT
of Authority Operations

For

Fiscal Year Ending June 30, 1956

Richard S. Holmgren
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA
1956

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Members of
the
BOARD OF DIRECTORS
1955-56



Vice-Chairman
D. Maitland Bakewell
Sante Fe
Irrigation District
12-48 to 6-56



Chairman
Fred A. Heilbron
San Diego
7-44 to 6-56



Secretary
Mercel J. Shelton
La Mesa, Lemon Grove
and Spring Valley
Irrigation District
2-48 to 6-56



Paul Beermann
San Diego
2-53 to 6-56



Baylor Brooks
San Diego
5-54 to 6-56



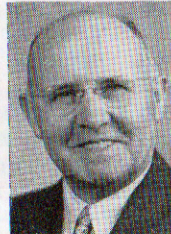
Donald Burnham
San Diego
5-54 to 6-56



Maurice Carrigan
National City
7-53 to 6-56



W. Ray Coyle
South Bay
Irrigation District
6-53 to 6-56



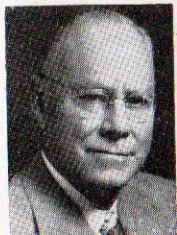
Charles A. Crytser
Rincon del Diablo
Municipal Water District
6-54 to 6-56



William B. Dennis
Rainbow Municipal
Water District
5-55 to 6-56



Hans H. Doe
Bueno Colorado
Municipal Water District
6-54 to 6-56



J. William Fisher
San Diego
3-50 to 9-55



Garland L. Gray
Escondido
11-55 to 6-56



Joseph P. Haley
Valley Center Municipal
Water District
4-56 to 6-56



Tom Harrington
San Dieguito
Irrigation District
1-54 to 6-56

Members of
the
BOARD OF DIRECTORS
1955-56
(Continued)



Otis P. Heald
Fallbrook Public
Utility District
12-50 to 6-56



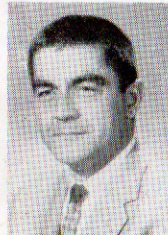
G. R. Henderson
San Diego
10-55 to 6-56



Clarence P. Kane
Valley Center
Municipal Water
District
5-55 to 4-56



George Kerrigan
San Diego
9-53 to 6-56



H. Fred Landgraf
San Diego
10-55 to 6-56



R. M. Levy
La Mesa, Lemon Grove
and Spring Valley
Irrigation District
5-53 to 6-56



Arthur H. Marston
San Diego
7-44 to 6-56



Jack E. McLean
Rio San Diego
Municipal
Water District
4-52 to 6-56



Carl M. Reed
Escondido
10-50 to 11-55



William W. Rogers
Carlsbad Municipal
Water District
6-54 to 6-56



T. Franklin Schneider
San Diego
11-54 to 6-56



David R. Shepardson
Poway Municipal Water
District
4-54 to 6-56



Fred W. Simpson
San Diego
7-44 to 6-56



Robert A. Weese
Oceanside
3-53 to 6-56



Arthur C. Wells
San Diego
2-53 to 6-56

SAN DIEGO COUNTY WATER AUTHORITY

MEMBER AGENCIES AS OF JUNE 30, 1956

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

COMMITTEES OF THE BOARD

June 30, 1956

ENGINEERING AND OPERATIONS

M. J. Shelton, Chairman
 Paul Beermann, Vice Chairman
 Baylor Brooks
 Charles A. Crytser
 Hans H. Doe
 Garland L. Gray
 Joseph P. Haley
 Tom Harrington
 George R. Henderson
 Arthur H. Marston
 Robert A. Weese

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 Donald C. Burnham
 Maurice Carrigan
 W. B. Dennis
 George Kerrigan
 H. Fred Landgraf
 R. M. Levy
 William W. Rogers
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 R. M. Levy
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 T. Franklin Schneider

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 D. M. Bakewell, Vice Chairman
 Baylor Brooks
 Maurice Carrigan
 W. Ray Coyle
 W. B. Dennis
 Tom Harrington
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 Jack E. McLean
 David R. Shepardson
 Robert A. Weese

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 M. J. Shelton, Secretary
 Donald C. Burnham
 Fred A. Heilbron
 George Kerrigan
 Arthur H. Marston
 Jack E. McLean
 Fred W. Simpson

EXECUTIVE OFFICERS AND OPERATING STAFF

General Manager and Chief Engineer.....	Richard S. Holmgren
General Counsel.....	W. H. Jennings
Assistant Chief Engineer.....	Allen H. Jones
Controller.....	Charles L. Royer
Treasurer.....	Harry L. Hall
Executive Secretary.....	Dorothy D. Miller
Superintendent, Maintenance and Operation.....	Rolf H. Prom



Entrance to Authority Building

LETTER OF TRANSMITTAL

2750 Fourth Avenue
San Diego 3, California
October 15, 1956

Board of Directors
San Diego County Water Authority
Gentlemen:

Transmitted herewith is the Tenth Annual Report covering operations of the San Diego County Water Authority for the fiscal year 1955-1956, as prepared by the General Manager and Chief Engineer in accordance with directions contained in Ordinance No. 2, adopted December 1, 1944 by the Board of Directors.

The area served by the Authority continues to rapidly expand in population and in industrial and agricultural activity, increasing the responsibility of the Authority to continue its efforts to secure additional water to meet the demands of member agencies for supplemental water.

In behalf of the members of the staff, may I extend our appreciation to the Board of Directors for the new Authority building which was practically completed by the end of the fiscal year. We are confident that the improved facilities will permit the Authority to operate more efficiently and to serve the citizens of San Diego County more effectively.

Very truly yours,

Richard S. Holmgren

General Manager and Chief Engineer

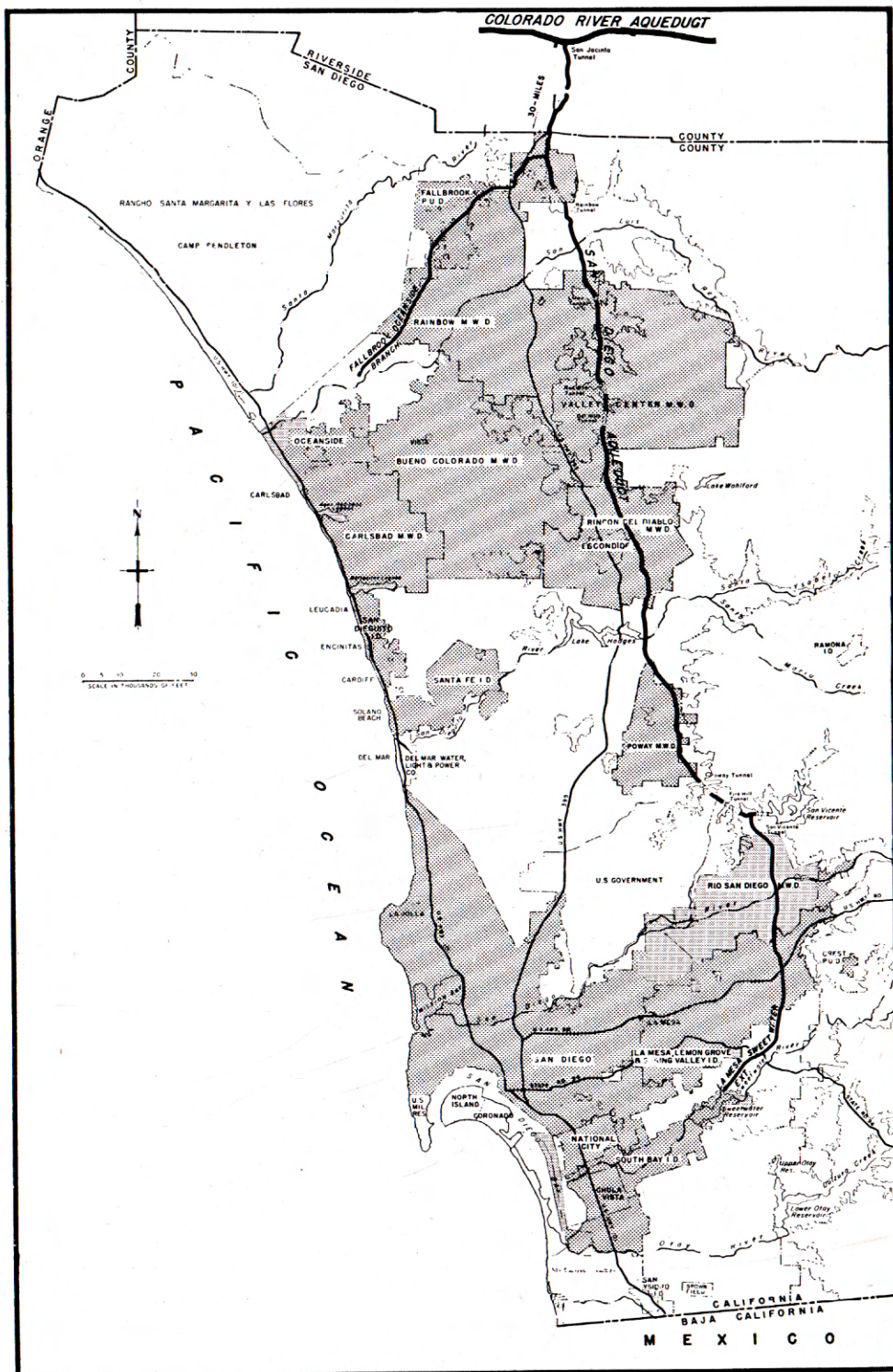


Figure A. Authority area within San Diego County.

REPORT OF THE AUTHORITY AND ITS OPERATIONS

for Fiscal Year 1955-1956

Introduction

The prevailing drought condition in San Diego County which began in 1945-1946 and has continued with only one interruption for the past eleven years reached its low point in the fiscal year 1955-1956, with a rainfall of only 4.52 inches or 42 per cent of normal at San Diego. Somewhat heavier precipitation has occurred in the areas back from the Coast, with the heaviest fall in the Laguna Mountain area. However, the rainfall throughout this area has been consistently less than normal.

A chart showing the recorded amount of rainfall which has occurred at San Diego annually for the past one-hundred years is included in Figure B.

Practically no flow occurred in the streams of the County of San Diego during the fiscal year, with the result that surface and underground storage reservoirs received no water to replenish the rapidly dwindling reserves. Fortunately for the water users of the County, the San Diego Aqueduct was operated at full capacity almost continuously throughout the year. The Metropolitan Water District of Southern California delivered to the Authority at its delivery point in San Diego County, through its portion of the Aqueduct, a total of 138,000 acre feet of water in 1955-1956, the largest quantity of supplemental water ever brought into San Diego County in any one year.

Water production by member agencies of the Authority during the fiscal year was 155,300 acre feet, or 17,300 acre feet more than the quantity of Colorado River water imported. This water was obtained from local sources estimated to have an annual safe yield of 90,000 acre feet. Use of these local waters, however, resulted in further depletion of the water reserves of the area, the supply stored in surface reservoirs falling from 103,100 to 95,200 acre feet during the year.

The economy of the County continues to expand in all its phases. Population in 1956 is estimated to be 819,300 persons, an increase of 47 per cent over the 556,800 actually reported by the 1950 U. S. Census Bureau.

Employment in major industrial organizations increased by an

estimated 17,900 persons during the year to a total of 240,000. Of this number, 53,800 workers were engaged in manufacturing with an annual payroll of \$244,000,000, producing goods valued at \$743,000,000.

The U. S. Navy continues to be an important factor in the economy of the area with a total personnel of 41,100 persons, including military personnel stationed in the area, receiving a payroll of \$178,100,000.

Increased activity in manufacturing plants, the Navy, and in many other phases of the County's economy, including recreation and agriculture, has caused a tremendous influx of persons to this area, which in turn has stimulated the construction of many new homes. Large subdivisions have been made throughout the County, particularly in the San Diego metropolitan area.

All of these activities have completely utilized all of the County's available water supply, including that imported by the Authority. This stresses the need for immediate development of means by which added water may be obtained. Studies to this end have continued during the year.

GROWTH OF AUTHORITY

Area

The only major change which occurred within the boundaries of the Authority during the fiscal year resulted from the annexation of the Rio San Diego Municipal Water District, having an area of 18,700 acres, including Lakeside Irrigation District. Concurrent with this annexation, the Lakeside Irrigation District, consisting of 1,860 acres, withdrew from the Authority as an independent agency to become part of the Rio District. Other minor changes occurred within the Authority from time to time, with small areas being annexed to all but five of the member agencies. There was a total increase of 25,507 acres, making a total area of 378,639 acres within the boundaries of the Authority as of June 30, 1956, which represents about 14 per cent of the entire area lying within San Diego County.

A tabulation showing the area within each member agency as of June 30, 1956 and the changes in area which occurred during the fiscal year is shown in Table 1. The only land included within the boundaries of a member agency but not included within the Authority's boundaries is 25 acres lying within San Dieguito Irrigation District, which acreage has been annexed to the District for local purposes

Population

The population within the Authority area continues to increase at a rapid pace with an increase during the year estimated at 49,200 persons, making a total population of 751,500 as of the spring of 1956. This total represents 92 per cent of the 819,300 persons residing within San Diego County.

A tabulation showing the population within the Authority area and the entire San Diego County, as determined by the U. S. Census Bureau during the period from 1910-1956, is shown in Table 2.

A breakdown of the total population within the Authority boundaries, showing the estimated present-day population within each member agency, is shown in Table 3. Also shown in this table are the population figures, as determined by the U. S. Census Bureau for 1940 and 1950, and the percentage increase in the period from 1950-1956. The tabulation shows that the largest population percentage increases in the period occurred within the City of Oceanside and the South Bay Irrigation District, with an annual increase of 13 per cent. The density of population within each agency in 1956 is also given in Table 3, which shows that the City of San Diego continues to have the highest density of population, with 3,734 people per square mile or 5.8 persons per acre. Valley Center Municipal Water District continues to have the lowest density, with an average of only 19 persons per square mile of area. On the average, there are 1,270 persons per square mile, or 1.98 persons per acre of land within the entire Authority area, compared with an average of 205 persons per square mile or 0.32 persons per acre within the entire County.

Assessed Valuation

Assessed valuation of taxable property within Authority area shows a substantial increase of \$57,948,466 in the year 1955-1956 to a new high of \$797,100,700, equivalent to an average valuation of \$2,105 per acre and an increase of 7.8 per cent over the previous year.

A breakdown of the total assessed valuation to reflect the assessed valuation of taxable property within each member agency is given in Table 4.

The assessed valuation of taxable property within each member agency of the Authority for the fiscal year 1956-1957, prepared by the County Auditor, was received prior to publication of this report; these figures have been included in Table 4 for convenience of reference.



Albert Fidell, Assistant Engineer, and Cassie M. Petry of Engineering Staff

ceived for the State Forestry at Rainbow for camp use and for the Poway Municipal Water District, for delivery to the Convair Division of General Dynamics Corporation, to be used for experimental purposes on a defense project. Both facilities lie outside Authority area and receive Colorado River water only by individual contracts with the District and through contracts with the Authority for transporting water from the District system to the point of delivery.

Water Deliveries

The Authority sold a total of 132,958 acre feet of Colorado River water to its member agencies during the 1955-1956 fiscal year. This quantity represents an increase of 33,990 acre feet or 34 per cent over the previous year, when a total of 98,968 acre feet was sold. Water sales for distribution to consumers were made to all member agencies except Valley Center District. This agency was only recently annexed to the Authority and did not have its distribution system completed at the end of the fiscal year. Small temporary meters were installed at Lilac and Reidy Canyons for the purpose of delivering small amounts of water to Valley Center Municipal Water District for use in construction of its system.

The Rio San Diego Municipal Water District became a member agency of the Authority June 7, 1956. Work was immediately begun to permit the delivery of water to the Rio District, for delivery to the Lakeview Farms and the Riverview Farms Mutual Water companies, private agencies within the District. These agencies have distribution systems and have obtained ample water for many years from wells in the San Diego River sands, but with the prolonged drought condition and no streamflow in the San Diego River to replenish the underground basin, the supplies became inadequate to meet the demand.

Lakeside Irrigation District, which withdrew as a member agency during the year but remains within the Authority as part of the Rio District, continues to receive its water from the meter at Lakeside Station, through which it has received water since the beginning of

WATER SUPPLY AND CONSUMPTION

deliveries by the Authority, and also through its No. 2 Service Connection in Eucalyptus hills.

The maximum water delivery during any one month in the year occurred in October, 1955 when 12,197 acre feet, equal to a continuous flow of 198.4 c.f.s. or 128.2 m.g.d., was delivered by the Authority to its member agencies.

Total water sales and sales to each member agency by months are shown in Table 5, together with the total monthly deliveries from the Aqueduct. The total quantity of water delivered each year by the Authority to each of its member agencies, since November, 1947 when the Authority began delivery, is shown in Table 6.

Water Production of Authority Agencies

The term "water production" is used to designate the quantity of water which an agency produces from its sources of water supply to meet not only the demands of its consumers but also the losses sustained in transmission lines, through which water is brought from the source of supply to the distribution system, and in the distribution system itself, including evaporation and seepage losses from distributing reservoirs. Evaporation and seepage losses from local waters which are stored in impounding reservoirs are not considered part of an agency's water production, since such losses are accounted for in determining the safe yield possible from such reservoirs when properly operated.

The total quantity of water produced by each agency in the fiscal year ending June 30, 1956 is shown in Table 8 in which is also tabulated the amount and percentage of water obtained from local sources and from the Authority.

The combined total of water produced by all agencies during the fiscal year was 155,313 acre feet, an increase of 8,890 acre feet or 6.1 per cent over the previous year's use. Of the total water production within the Authority area, 115,094 acre feet or 74 per cent was Colorado River water supplied by the Authority. The annual water production within each agency in the 13-year period, July, 1943 to June, 1956, inclusive, is shown in Table 7.

Unit water production of each agency on gross acreage actually served with water and unit consumer use per capita residing within the agency and served thereby are shown in Table 9. Average use throughout the Authority is 0.96 acre feet per acre per year, with a maximum

SAN DIEGO COUNTY WATER AUTHORITY

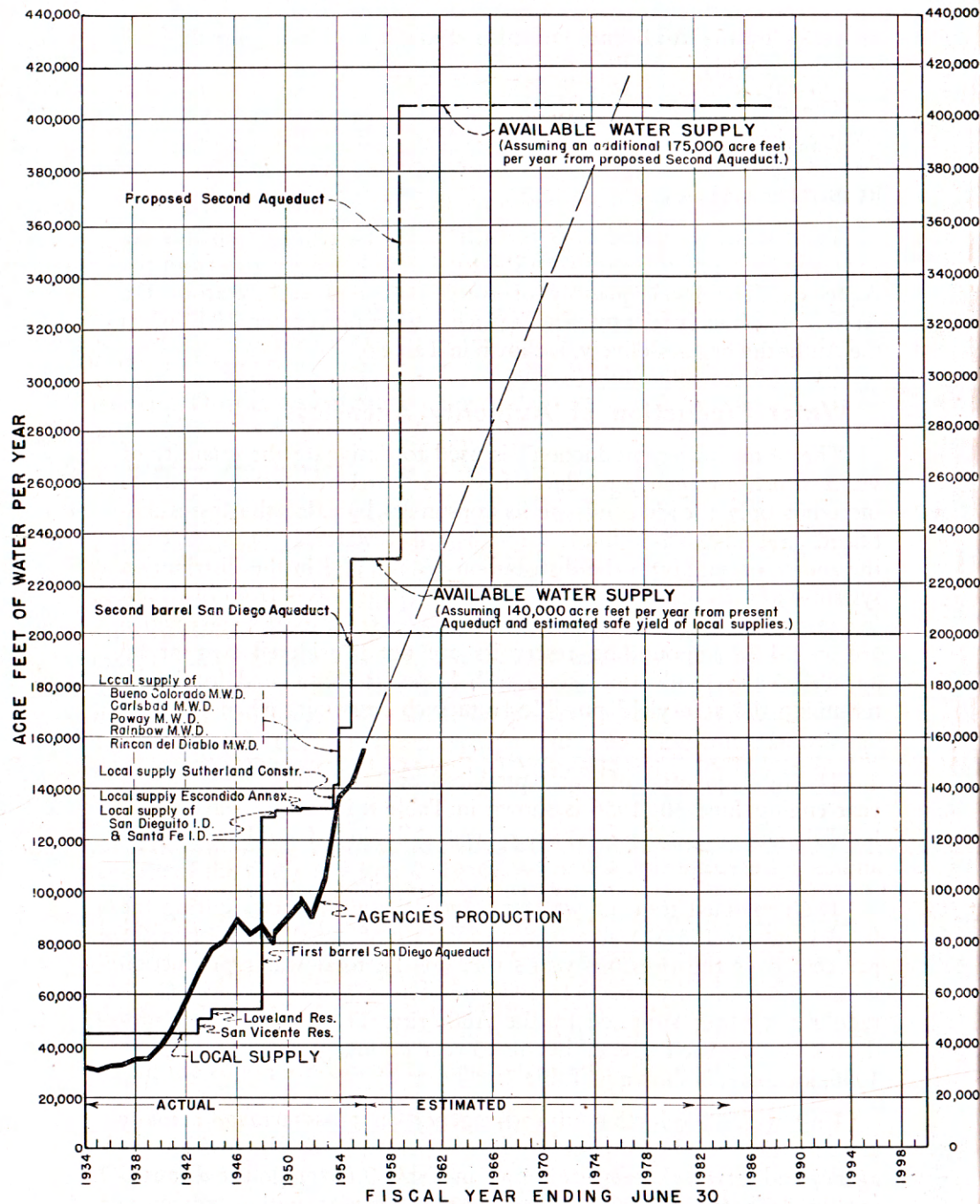


Figure C. Water production and supply in Authority area.

WATER SUPPLY AND CONSUMPTION

of 1.37 acre feet in the South Bay District. A minimum of 0.22 acre feet was used in the Poway District.

Storage

The Authority continues to store water in the City's San Vicente Reservoir, where the Authority has a right to a capacity of 20,000 acre feet under its 5-year agreement with the City of San Diego negotiated in 1955. Under this agreement, the Authority stores water to an agency's account whenever that agency has water available to it above its current need and requests that such water be stored.

It is physically impossible to deliver water stored in San Vicente Reservoir to an agency other than the City of San Diego and the La Mesa, Lemon Grove and Spring Valley Irrigation District. Delivery of stored water is effected by substituting water from the current flow of the Aqueduct in lieu of stored water and delivering such in lieu water to the agency when delivery of stored water is required. To date, all stored water has been transferred to the City of San Diego to replace such in lieu water diverted from the Aqueduct.

Under this agreement, the City's charge for storage of water in the reservoir is \$2.20 per acre foot for the maximum quantity of water in storage during any one storage year (November 1 to October 31) plus "additional power cost for pumping actually incurred by the City by reason of such delivery from the reservoir" whenever stored water is transferred to the City. Difficulties were encountered in determining the actual cost of pumping whenever stored water was transferred to the City. After considerable discussion, it was agreed that a charge of \$1.00 per acre foot on one-half the amount of stored water transferred to the City would be easier to determine and would be equitable to all agencies having water stored in the San Vicente Reservoir.

The Authority's charge to a member agency for water stored in San Vicente Reservoir is \$2.90 per acre foot per storage year or fraction thereof. The surcharge of \$0.70 above the \$2.20 paid the City is required to pay for water placed in storage to replace evaporation losses which the Authority must assume in proportion to its percentage of water in storage. Storage of water by the Authority, except for a small quantity needed for operational purposes to meet evaporation losses, is limited to water ordered stored by member agencies to their accounts. Member agencies assume full responsibility for stored water and agree to ultimately take delivery of the water on terms fixed by Authority ordinance.

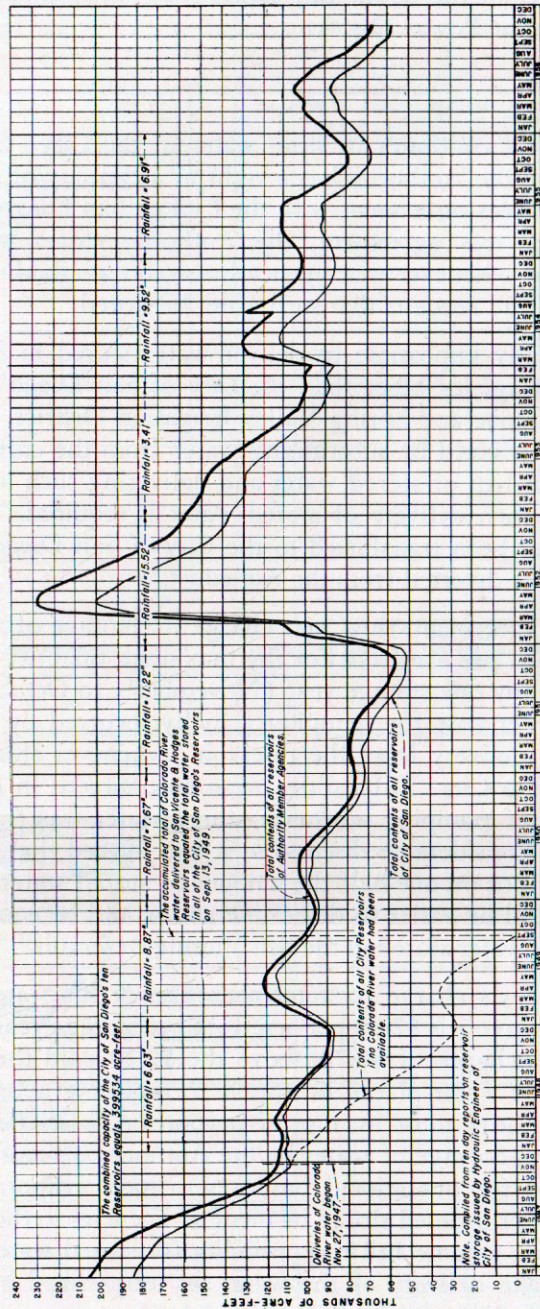


Figure D. Amount of water in storage in reservoirs of Authority Member Agencies.

The Authority pays the Metropolitan Water District for all water delivered into the Authority system, whether for storage or direct delivery to an agency. The Authority does not bill the agency for water stored to its account until it is delivered.

On June 30, 1956, there was a total of 11,653 acre feet of Authority water in storage in San Vicente Reservoir for its member agencies, an increase of 7,076 acre feet above that of a year ago.

A chart showing the amounts of water stored in member agencies' reservoirs each month since the Authority first began operation in 1947 is shown in Figure D.

During the year the total quantity of water in storage by all member agencies, included Authority storage, decreased from 103,105 acre feet to 95,193 acre feet, a loss of 7,912 acre feet. The amount of runoff impounded in these reservoirs was negligible. As of June 30, 1956 only 14 per cent of available reservoir capacity was filled with water.

Water Quality

The Metropolitan Water District continues to take monthly samples of Colorado River water at San Jacinto, where water is diverted into the San Diego Aqueduct. The samples are analyzed for mineral content at the District's testing laboratory, located at La Verne, California. Copies of the results are forwarded to the Authority.

Mineral content of the analyses of the samples, by months during the fiscal year, is shown in Table 11.

Preferential Water Rights of Member Agencies

All requests for Colorado River water from member agencies are filled without question of water rights, provided there is capacity within Metropolitan's San Diego County Feeder and the Authority system sufficient to supply such requests. If the combined flow of water requested by all of the agencies or any group thereof exceeds the capacity of the pipelines, through which such agencies are supplied, the total of requested flows must be reduced to the capacity of the pipeline. This reduction can be accomplished by those agencies having other available supplies voluntarily reducing amounts requested until the total of such revised amounts equals available capacity, and this has occurred at times in the past. If the necessary reduction in the amount of water requested cannot be obtained by voluntary means, the available flow is divided among those agencies requesting water in accord-

ance with their preferential rights to purchase water, as specifically set forth in Section 5 (11) of the County Water act.

Summarized briefly, the preferential right of an agency to purchase water is a right to purchase at any time that portion of the Authority's then available water supply which bears the same proportion to such total water supply as accumulated taxes and related sums paid by the agency (excluding payments for water) bear to the total of similar amounts paid by all agencies. Each agency also has a similar right in any water which may become available for redistribution whenever any other agency does not take the full quantity of water to which it has a right.

The basic preferential right of each agency to purchase water as of June 30, 1956, on the basis of the maximum continuous flow which Metropolitan can at present deliver to the Authority, assumed at 196 c.f.s., is shown in Table 12. Whenever the Aqueduct flow available to the Authority is reduced or increased by the Metropolitan Water District from 196 c.f.s., the flow available to each agency as its right is proportionally changed.

In determining the proportionate right of each agency to purchase water, any unpaid balance of the annexation charge which the agency has contracted to pay the Authority has been included with the amounts actually paid in taxes and related sums.

OPERATION AND MAINTENANCE

Operation and maintenance of the Authority system continue to be carried on by maintenance personnel stationed at the Escondido maintenance headquarters.

An increase in the number of service connections, through which water is delivered to member agencies, has substantially increased the work required for operation of the system. At the end of the fiscal year, the number of service outlets totaled 24, an increase of 5 connections during the year, ranging in size from 1 c.f.s. to 30 c.f.s. capacity. The meters at these service connections are checked for operation and general accuracy about twice a week, and the charts recording variations in flow are removed and replaced once a week. These charts are used to determine variations in agencies storage during the week. Reading of meters to provide information for billing the agencies for water delivered are made monthly.

General operating procedures are outlined in Ordinance No. 33,

as amended, and among other things require, except under unusual circumstances, that agencies take delivery at a fairly uniform rate of flow and that an 18-hour notice must be given of any change in rate of delivery to the agency. In general, the agencies have complied with these requirements. However, with the introduction of pumping units within many of the agencies' systems to supply higher areas within their service areas, it is rapidly becoming more and more difficult with these fluctuating demands to maintain constant deliveries from the Aqueduct. This can be remedied by the installation of additional storage capacity in the vicinity of the larger pumps by which pumping demands can be equalized. It is expected that such storage will be provided as funds become available to the agencies.

Patrolling of the Aqueduct, particularly to observe water levels in open structures to maintain a safe operating level and to watch for leaks, was continued throughout the year.

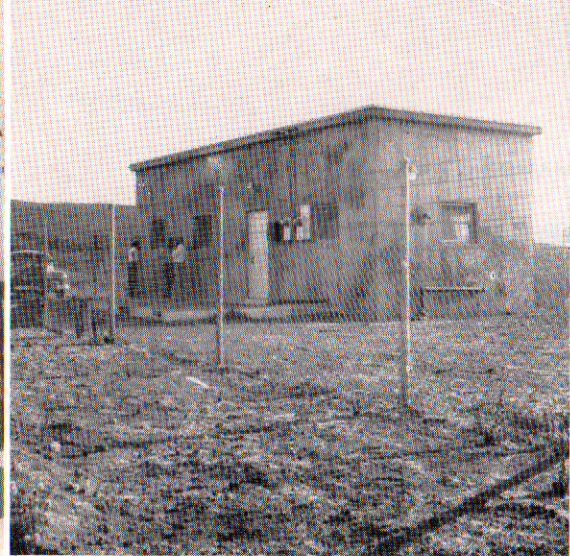
Maintenance

To keep the Aqueduct system operating smoothly, it was necessary for the maintenance crew to constantly keep structures and equipment in perfect condition. The work included painting of steel and wood-work in the structures; greasing and repairing operating plug valves; cleaning the many air valves along the pipeline; and maintaining the meters in good operating condition. It was also necessary that the crew drag many miles of access roads and clean the culverts wherever necessary. Patrol roads were surfaced with tunnel muck where difficult winter conditions were encountered in the past. In addition to routine maintenance work outlined, the crew constructed all new permanent outlets installed during the year as described in this report under "Construction."

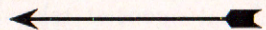
Chlorination

Chlorination of the Aqueduct at the Authority Lilac Chlorination Station is done primarily to maintain carrying capacity of the Aqueduct by preventing the growth of bacterial organisms on the interior of the pipe during hot summer weather. In the past, a method of chlorination designated as superchlorination, consisting of heavy doses or slugs of chlorine injected into the pipe flow twice a week for periods from two to six hours in duration, was used. This method appeared to be successful in preventing growth and maintaining capacity of the Aqueduct.

However, in June of this year, at the beginning of the present



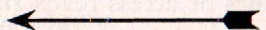
Lilac Chlorination Station



chlorinating period, it was suggested that there might possibly be a build-up of bacterial growth within the Metropolitan San Diego County Feeder (the San Diego Aqueduct from San Jacinto to point of delivery to the Authority) which was preventing delivery of full Aqueduct flow. A period of continuous chlorination by the District at the San Jacinto Reservoir intake was suggested, to which the District agreed. At the end of the fiscal year, no increase in flow was noted which could be attributed to the use of continuous chlorination.

A 3-month period of continuous chlorination was also begun

Rolf H. Prom, Maintenance Superintendent, checking chlorine consumption.



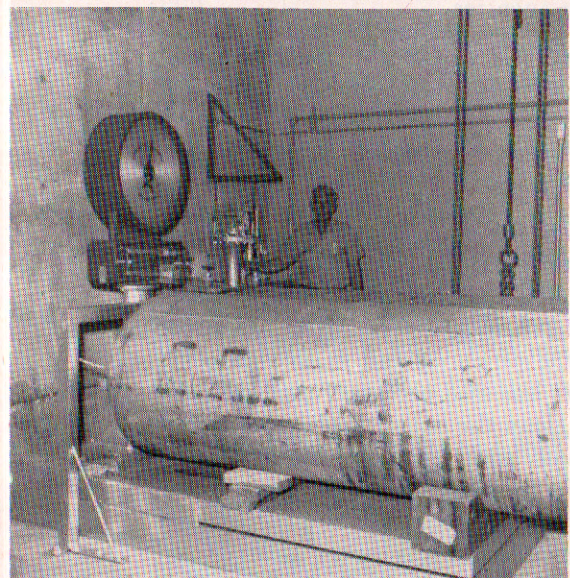
by the Authority on June 19, 1956, while studies of its affect on taste and odor were being carried out by a committee of engineers from the City of San Diego and the La Mesa, Lemon Grove and Spring Valley Irrigation District.

Public Relations

The Authority continued to cooperate with local and County newspapers, with technical and service organizations, and with



Chlorinator



OPERATION AND MAINTENANCE

various civic-minded organizations, conscientiously endeavoring to enlighten the public about the overall water situation in Southern California. Upon request, numerous public appearances were made by members of the Board of Directors and the Authority staff, at which problems of the Authority were presented and discussed.

CONSTRUCTION PROGRAM

Construction work during the fiscal year consisted primarily of the installation of new service connections to supply the needs of newly annexed agencies or the enlargement of existing connections, required by the agencies to meet the ever-increasing demands for water from their consumers.

Construction drawings for these projects were prepared by the Authority's engineering staff, and the construction was executed entirely by the maintenance crew under the direction of the Authority's maintenance superintendent.

The work accomplished on each project during the fiscal year is outlined below:

Enlargement of Rainbow No. 1 Service Connection

Rainbow's No. 1 Service Connection with a capacity of 6 c.f.s. was installed by the Authority in 1955 at Rainbow Station. This connection soon proved to be inadequate to meet the demands of the District. Installation of a larger connection with a capacity of 22 c.f.s. was authorized by the Authority Board in December, 1955, with the stipulation that Rainbow advance funds required to meet the entire cost of construction — estimated to be \$20,500.

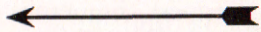
The original No. 1 Service Connection was supplied from an outlet on a cross-connection between pipelines serving Fallbrook and the Fallbrook-Oceanside Branch. This outlet proved inadequate to meet the increased capacity needed, and it was necessary to remove a portion of the 16-inch diameter pipe of Fallbrook-Oceanside Branch and sub-

Rufus Fee of Metropolitan Water District conferring with Allen H. Jones, Assistant Chief Engineer





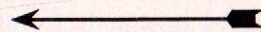
Replacing pipe on Fallbrook-Oceanside branch



stitute therefor a section of 25-inch pipe, through which both the branch line and the new connection would be served.

The work included, in addition to the removal of the original installation, the laying of 110 feet of 20 and 25-inch pipe; the installation of a B.I.F. 20" x 10" venturi tube and Type MDUAX meter instrument with a capacity of 22 c.f.s.; a Nordstrom plug valve to control deliveries; and the necessary connecting piping. The tube and valves are enclosed in concrete structures which also house the meter for the Fallbrook No. 3 Service Connection.

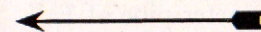
Valve chamber at Rainbow



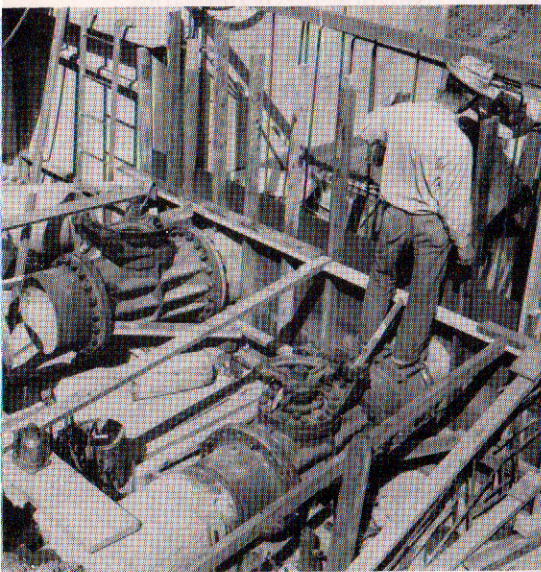
The superstructure in which the Type MDUAX meter instrument and valve operator are housed is of fireproof construction with concrete block walls and concrete slab roof. At the end of the year, all construction work was completed except for final cleanup.

Rainbow No. 2 Service Connection

To efficiently serve the District area lying south of the San Luis Rey River, a second service con-



Special connection



CONSTRUCTION PROGRAM

nection of 12 c.f.s. was requested by the Rainbow District at a location in Keys Canyon on the Lilac Ranch. The connection was authorized on December 15, 1955, and has been designated as Rainbow No. 2 Service Connection. The estimated cost of the project is \$19,000, and is to be paid for entirely with funds advanced by the District.

The Rainbow No. 2 and Valley Center No. 1 Service Connections are supplied from the same nozzle which was installed during construction of the Second Barrel. The Rainbow service connection consists of a B.I.F. 16" x 7.75" venturi tube and Type MDUAX meter instrument with a capacity of 12 c.f.s. As of June 30, 1956, the manifold with valves to supply water to both Districts had been installed and enclosed in concrete anchor blocks and the concrete substructure was completed. The Rainbow meter, control valve, and connecting piping were also in place but not in operation.

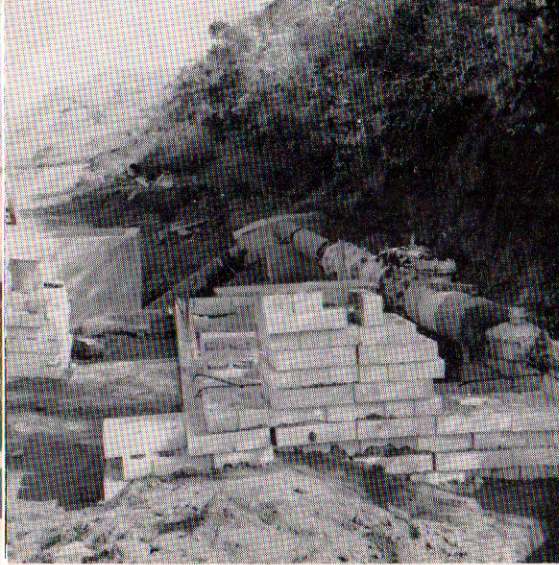
Valley Center No. 1 Service Connection

Valley Center No. 1 Service Connection was authorized by the Board in November, 1955 with a capacity of 20 c.f.s. The estimated cost of the project is \$22,000, of which the Authority will pay as its share the cost of a 6 c.f.s. service connection, this being the size of the first connection to which the District is entitled at Authority expense. Inasmuch as the District desired a 20 c.f.s. service connection, the additional cost will be met by funds advanced by the agency. This connection will be housed in the Lilac Station with the Rainbow No. 2 Service Connection, the cost of work being allocated between the two Districts and the Authority.

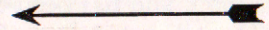
The connection will consist of a B.I.F. 20" x 9.7" venturi tube and Type MDUAX meter instrument with a capacity of 20 c.f.s., and a Nordstrom plug valve for control of deliveries. The tube and meter were received on June 25, 1956, and will be installed early in August. As of June 30, 1956, all piping is in place and the concrete superstructure, for housing meter instrument and control valve, is under construction.

Valley Center No. 2 Service Connection

In order to serve that portion of Valley Center District lying south of Oat Hills Mountain, a second service connection of 6 c.f.s. was requested by the Valley Center District. This connection was authorized in November, 1955 at an estimated cost of \$13,000, to be paid for entirely with funds advanced by the District. No provision was made in



Piping installed at Reidy Canyon for Valley Center No. 2 Service Connection



the First or Second Barrel of the San Diego Aqueduct for a service connection at this location; therefore it was necessary to install a 12-inch nozzle on the Second Barrel. This was accomplished under contract with the American Pipe and Construction Company. The connection included a 10" x 5.3" B.I.F. venturi tube and Type MDUAX meter instrument with a capacity of 6 c.f.s., installed in a concrete block building with concrete roof slab and floor. The rate of flow is controlled by a Nordstrom plug valve.

Lilac Station, Manifold prior to pouring anchor block

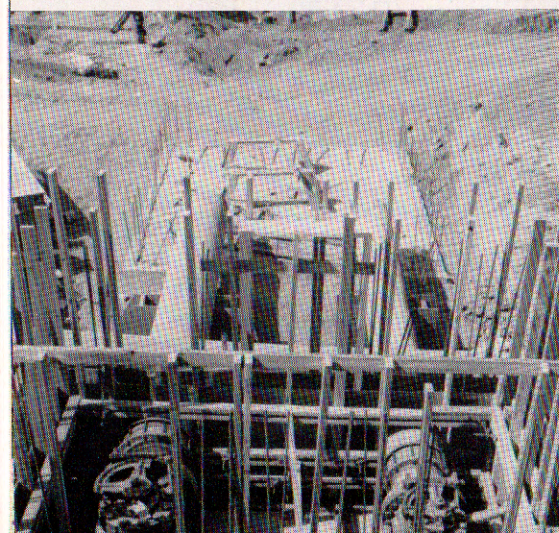
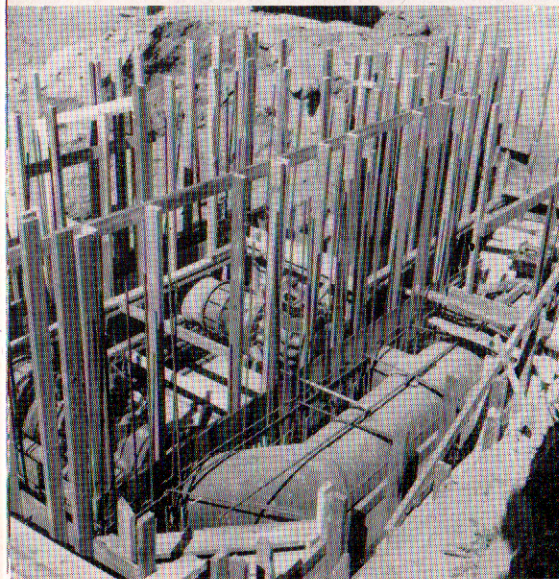
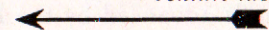


The meter, valve, and piping were purchased by the District from the Rainbow Municipal Water District and adapted to this site. The equipment was previously in use by the Rainbow District at its No. 1 Service Connection, and was removed when that Service connection was increased in capacity.

Bueno Colorado No. 2 Service Connection

This service connection was authorized on March 8, 1956 so

Lilac Station, valves and piping installed, awaiting delivery of venturi tubes



CONSTRUCTION PROGRAM

that Bueno Colorado District could supply water to the newly formed San Marcos County Water District, which is located within the boundaries of the municipal water district. The cost of the project, estimated at \$14,900, will be paid by the Bueno Colorado District. Excavation was completed by the end of the fiscal year but no pipe or meter was installed.

The connection will consist of a B.I.F. 14" x 7.5" venturi tube and Type MDUAX meter instrument with a capacity of 12 c.f.s. and a Nordstrom plug valve to regulate and control deliveries to the District.

In view of the immediate need for water in the area, a temporary service connection was installed from a nearby blowoff structure which will supply water for this area until the permanent installation is completed.

Rincon del Diablo No. 1 Service Connection

This connection was placed in service in January, 1955 with a maximum capacity of 21 c.f.s. Because of the rapidly increasing demand for water within the District, the Authority was requested to increase the capacity of the meter to 30 c.f.s., which request was granted on May 17, 1956. The increase in capacity will be accomplished by inserting an 11.7" throat section in place of the 10.0" throat section in the existing 18" x 10.0" venturi tube at an estimated cost of \$2900. As of June 30, 1956, orders had been placed for a new tube and instrument, but no work had been accomplished on the project.

La Mesa No. 2 Service Connection

In recent years the La Mesa District has increased its area to the point where the present service connection of 30 c.f.s. at Lakeside is insufficient to meet the increased demand for water. Therefore, the District requested a second service connection of 66 c.f.s., to be located at the Aqueduct diversion structure in Slaughterhouse Canyon, where provision had been made for such a connection during construction of the First Barrel. On May 17, 1956, the Authority Board approved installation of a service connection at this location, to be constructed by the Authority at District expense, estimated to cost \$26,000.

The connection will consist of a B.I.F. 36" x 20" venturi tube with a butterfly valve inserted in the downstream cone section of the venturi tube and will permit flows to the District up to 66 c.f.s. As of June 30, 1956, no work has been done on this project.

Rio San Diego No. 3 Service Connection

The Rio San Diego Municipal Water District was annexed to the Authority on June 7, 1956. In accordance with adopted policy of the Authority, the District is entitled at Authority expense to a service connection having a capacity of 12 c.f.s. in addition to the 1 c.f.s. service connection already provided at Authority expense during the original construction of the La Mesa-Sweetwater Branch to the Lakeside Irrigation District—now part of the Rio District. A service connection was authorized by the Board on June 14, 1956, to be installed on the La Mesa-Sweetwater Branch at a point directly north of the San Diego River crossing. The District requested that only a 6 c.f.s. service connection be installed at this location, since this capacity appeared sufficient to meet the District's need in this area for sometime to come.

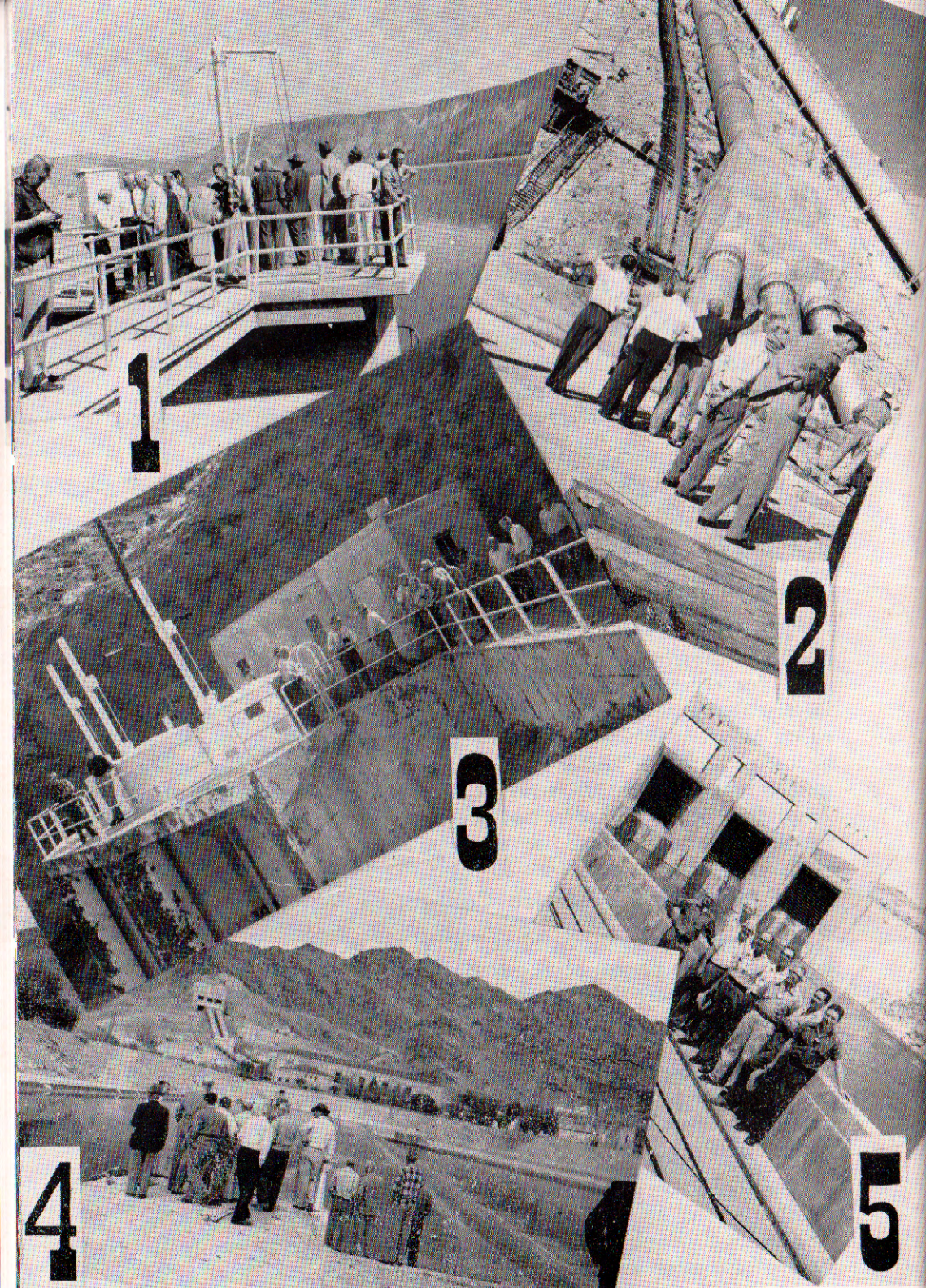
The connection will consist of a B.I.F. 10" x 5.25" venturi tube with a capacity of 6 c.f.s. and a Type MDUAX meter instrument. The rate of flow will be controlled by a Nordstrom plug valve. As of June 30, 1956, no work had been done on the project.

PLANNING FOR THE FUTURE

Second San Diego Aqueduct

The Board of Consulting Engineers, engaged in March of 1954 to review the Authority staff report, entitled "THE PROBABLE EXTENT OF AUTHORITY AREA, THE AMOUNT AND SOURCE OF ADDITIONAL WATER SUPPLY REQUIRED, AND THE SYSTEM REQUIRED TO EFFICIENTLY DELIVER AUTHORITY WATER TO THE AGENCIES COMPRISING THAT AREA," dated June, 1955, submitted its findings September 12, 1955 in a report entitled "WATER SUPPLY FOR PROBABLE FUTURE DEVELOPMENTS IN THE SAN DIEGO COUNTY WATER AUTHORITY."

The consulting board was comprised of Messrs. Raymond A. Hill of Los Angeles, John S. Longwell of Oakland, and Carl R. Rankin of Pasadena. In general, the board agreed with the conclusions of the staff report. However, emphasis was placed on the fact that only a limited supply of water was definitely available to the Authority area



Inspection of M.W.D. Expansion Program

1—San Jacinto Reservoir - beginning of San Diego Aqueduct. 2—Force mains from intake pumping station. 3—Tunnel intake at Copper Basin Reservoir. 4—Iron Mountain pumping station. 5—Parker Dam.

SAN DIEGO COUNTY WATER AUTHORITY

and that certain hazards existed which make the status of future water supplies from the North somewhat uncertain. Recommendation was made that no further annexations should be effected to the Authority until a more thorough analysis of water supply problems has been made and that an assurance of additional supplies will be available. The board of engineers concluded that the water requirements of the area for the period 1955 to 1980, as given in the staff report, are somewhat higher than might be expected and that a new supply must be available to the Authority not later than 1964 rather than by 1958, as given in the staff report.

The report concludes with a statement that the location of the proposed Second San Diego Aqueduct, as proposed in the staff report, is well chosen and recommends that the Authority proceed with preparation of preliminary plans for a Second Aqueduct with a capacity of 200 c.f.s. and related facilities along the proposed route.

On the basis of this recommendation, the Authority Board on Feb. 9, 1956 directed the General Manager and Chief Engineer to proceed with preliminary plans and to determine the estimated cost of such an Aqueduct, including rights of way. To cover the cost of the proposed work, a total of \$96,000 in additional funds was authorized by the Board, of which \$25,000 was appropriated.

The State Legislature in the 1956 session appropriated \$200,000 for a study to determine the most practical route by which Feather River water might be brought into San Diego County and delivered to the Authority.

Since Feather River water will probably not be available in Southern California for some time and since the Authority will require additional water as soon as it can be made available, the studies under this appropriation were directed toward the Second San Diego Aqueduct as proposed by the Authority, since this Aqueduct could be used to carry surplus Colorado River water to meet the present emergency until Feather River water is made available to Southern California. Profiles and computations, prepared in the Authority's study of a Second San Diego Aqueduct, were loaned to the office of the Department of Water Resources to assist the State in carrying forward its study as rapidly as possible.

At the end of the fiscal year good progress had been made by the

Signing of contract for Authority building—General Manager Richard S. Holmgren and Contractor John Godwin and Assistant



State in preparation for its study of a Second San Diego Aqueduct, funds for which became available on July 1, 1956. Since the objective of the State in its study corresponds with that authorized by the Authority, the work of the Authority on this project will be carried on in a manner to obtain maximum benefits to both the State and the Authority.

Feather River Project

The Authority continues to maintain its interest in this project, proposed as the first unit of

Building Committee breaking ground for new Building



the State Water Plan, which at this time appears to be the only feasible source of future additional water for the Authority. A report on the Feather River Project by the State Engineer, released February 19, 1955, was reviewed during the year by the Bechtol Company of San Francisco.

This report was submitted to the 1956 California State Legislature, and, in general, the proposed project was approved as set forth in the State Engineer's report. However, suggestions were

Authority Building



made for further study, particularly methods by which Feather River water might be brought into Southern California. The State Legislature appropriated \$500,000 in the 1956 session for further study of an alternate Coastal route.

In 1956 the State Legislature established an independent department within the State Government, to be called Department of Water Resources, under a Director appointed by the Government, and having an advisory board. In view of the importance of water to the economy of the State, such a department has long been advocated by water-minded people and water agencies throughout California. Future work on the Feather River Project will be carried on by this department.

Authority Building

In view of the anticipated Second San Diego Aqueduct and the insufficient operating space for members of the Board and staff in the Authority offices at 235 Broadway, the Building Committee, appointed by the Board November 5, 1953 to study future needs of the Authority, came to the conclusion that the needed space could best be obtained by the construction of a new building.

After consideration of a number of available sites, the Board agreed that the property at 2750 Fourth Avenue, extending through to Third Avenue, was the most practical location for the building in that it afforded ample space for the present and future needs of the growing Authority. The land was purchased November 22, 1955.

The architectural firm of Frank Hope & Associates was retained to prepare plans and specifications for construction of the building. After receiving a number of bids from construction firms, a contract in the amount of \$101,837 was awarded to John Godwin Construction Company—the low bidder. It is expected that the Authority will move into the new building the first week in July 1956.

LEGAL AND LEGISLATIVE

Annexations

During the year the Authority's General Counsel supervised the formation of the Rio San Diego Municipal Water District and the proceedings required for its annexation to the Authority. Because the new district included within its corporate area the Lakeside Irrigation District, one of the original members forming the Water Authority in

1944, the proceedings required the withdrawal of the Irrigation District as a separate unit member concurrently with the annexation of the larger district. The Water Authority Act had been amended in 1947 and 1953 to permit this type of combined annexation and withdrawal, and the Rio-Lakeside transaction was the second under the amendment. The annexation of the South Bay Irrigation District and concurrent withdrawal of the City of Chula Vista was the occasion for the original amendment. These proceedings are legally more technical and complicated than the ordinary annexations, as a dual election is required authorizing the two actions, the result of each election being conditioned upon the other. They were effectively completed on June 7, 1956.

The formation of the Otay Municipal Water District was also completed during the year, and proceedings for its annexation to the Authority were under way but not yet effective at its close.

Local Problems

Negotiations were completed on January 20, 1956, resulting in a rather complicated four-way contract relationship between the Authority, Metropolitan, Poway Municipal Water District and Convair to accomplish the sale of water by Metropolitan to Convair for use in one of its U. S. Government facilities outside the Authority's boundaries. The water is delivered by Metropolitan to the Authority, by the Authority to Poway, and by Poway to Convair, pursuant to the Metropolitan-Authority policy of cooperative assistance to the United States where water is needed for government installations.

The legal phases of the purchase of the Authority's new administrative office site, the removal of structures therefrom, and the contract for the construction of the new building, were given careful consideration, with the result that the transaction was carried through with a minimum of problems and with pleasant relations maintained throughout.

State Water Problems

The ultimate source of additional water for the Authority area when Metropolitan's Colorado River water is put to full use continues to be the most important problem before the Authority. The most practical solution appears to be by the development of Northern California surpluses through State projects constructed pursuant to the California Water Plan, the first of which might be the proposed

Feather River Project. Before such projects could be constructed, it appeared to the Authority that a strong, well organized State Water Department was necessary and that a solution of the troublesome County-of-Origin problem was desirable. As both of these results involved legal questions, the Authority's General Counsel has been instructed to participate in their solution.

State Department of Water Resources

Working in close cooperation with the Metropolitan Water District and the Irrigation Districts Association of California, as a member of both organizations, the Authority supported the creation of a state department headed by a director of governor's cabinet status, with a statewide advisory board and independent legal counsel. The Authority recommended that the administration of water rights be vested in a State Water Rights Board entirely independent of the Department as a construction agency, and insisted that the Colorado River Board be left independent and intact to perform its valuable functions. The Authority joined with others in recommending to the Governor that a special session of the Legislature be called for the purpose of creating the department.

On December 7, 1955, the Assembly Interim Committee on Governmental Organization, under the able chairmanship of Assemblyman Caspar W. Weinberger, held a hearing on the subject in San Diego, at which the views of the Authority were presented by its Chairman and General Counsel. A special legislative session was called by the Governor in March, 1956, at which a bill creating a Department of Water Resources substantially in accordance with the Authority's recommendation was adopted and approved by the Governor.

The Authority was proud of and gratified by the Governor's appointment of M. J. Shelton, its Secretary and a director representing the Helix Irrigation District, as the Chief Deputy Director of the new Department.

Feather River Project

Of equal importance was the progress made by the Legislature in providing for continued planning of the Feather River Project. Through the able and coordinated efforts of this County's legislative delegation, the Authority was able to secure the inclusion of \$200,000 in the State's budget to finance engineering studies for alternate routes

for the project into this county. It was hoped that these studies might permit the incorporation of the Authority's proposed Second Aqueduct as a part of the authorized project.

County of Origin Problem

The effect upon state water projects of the County-of-Origin laws was accentuated in 1954 by an opinion of the State's Attorney General holding that water to be exported by state projects could be recaptured by the counties in which the water originated if necessary to satisfy their ultimate needs. A serious question was thereby raised as to whether or not the substantial investment in these large projects was financially feasible without the assurance that the water to be provided by the expensive facilities would remain available. As the problem affected all parts of the State, it became immediately apparent that statewide cooperation was necessary for its solution.

The California State Chamber of Commerce appointed a statewide committee to recommend a solution, and the Attorney General appointed a similar committee of water lawyers. The Authority's General Counsel was included in the latter committee. The two committees have held many joint meetings and it is expected that from their efforts may result a solution acceptable to all sections of the State.

FINANCIAL

Under the long-range policy adopted by the Board of Directors in 1949, the Authority's operating requirements have been financed primarily from revenues from water sales, with requirements for payments to the Federal Government and for a sinking fund for the retirement of bonded debt provided by tax levies. During 1955-56, however, general fund operating revenues were supplemented by a tax levy of 1¢ per \$100 assessed valuation, in order to provide funds for preliminary studies and engineering to determine the probable ultimate extent of the Authority and possible additional facilities to meet future needs.

Water sales during fiscal year 1955-56 amounted to \$1,530,167.59, which was approximately \$413,800 over the preceding year. Non-operating income totaled \$520,833.20, or approximately \$258,400 more than in 1954-55. This increase was due principally to larger refunds from the Metropolitan Water District as its share of payments on the Second Barrel of the San Diego Aqueduct, which was declared completed February 28, 1955, and on which quarterly payments have since been made. Operating costs for the year were \$1,376,379.35, an in-

SAN DIEGO COUNTY WATER AUTHORITY

crease of approximately \$336,500 over 1954-55. Depreciation and debt service expense amounted to \$607,678.53, or \$341,000 more than the preceding year, leaving a net income for 1955-56 of \$66,992.91, compared with \$72,306 reported for 1954-55.

Again, addition of the Second Barrel is reflected in costs of operation, depreciation and debt service expense, offsetting the increases in income mentioned above.

Cash and marketable securities at June 30, 1956, amounted to \$1,526,799.25 as compared with \$1,378,299.74 at June 30, 1955. The total included \$1,233,272.50 in securities of the United States Government, earning an average interest rate of 2.48%. During the fiscal year, current assets increased \$107,807.82 while current liabilities increased \$37,594.54. Fixed assets were increased \$2,162,608.26 and long-term obligations were decreased \$1,111,909.52, leaving a net increase of \$3,274,517.78 in the investment in fixed assets. Reserves for debt redemption were decreased by \$481,016.00, principally due to reduction of the amount due from the Metropolitan Water District by its payments to the Authority on the San Diego Aqueduct. Appropriated surplus increased \$55,342.80 and unappropriated surplus increased \$66,677.43. The overall result for the year was an increase of \$2,915,522.01 in the Authority's net equities.

The Authority's accounting system, now in its tenth year, follows the basic principles of fund and budgetary accounting normally employed by governmental units, modified to the extent necessary to reflect conditions peculiar to the Authority. The accounts are maintained on the accrual basis, have been adapted to machine accounting, and have been regularly audited by the firm of Everts and Esenoff, Certified Public Accountants, whose certificate follows.

FINANCIAL

EVERTS AND ESENOFF
CERTIFIED PUBLIC ACCOUNTANTS
Suite 727, First National Building
San Diego 1, California

September 19, 1956

Board of Directors
San Diego County Water Authority
2750 Fourth Avenue
San Diego 3, California

We have examined the statement of financial position of the San Diego County Water Authority as of June 30, 1956, and the related statements of income and surplus for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying statement of financial position and the related statements of income and surplus present fairly the financial position of the San Diego County Water Authority as of June 30, 1956, and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of prior years.

Yours very truly,

Chas. C. Porter
For Everts and Esenoff
Certified Public Accountants

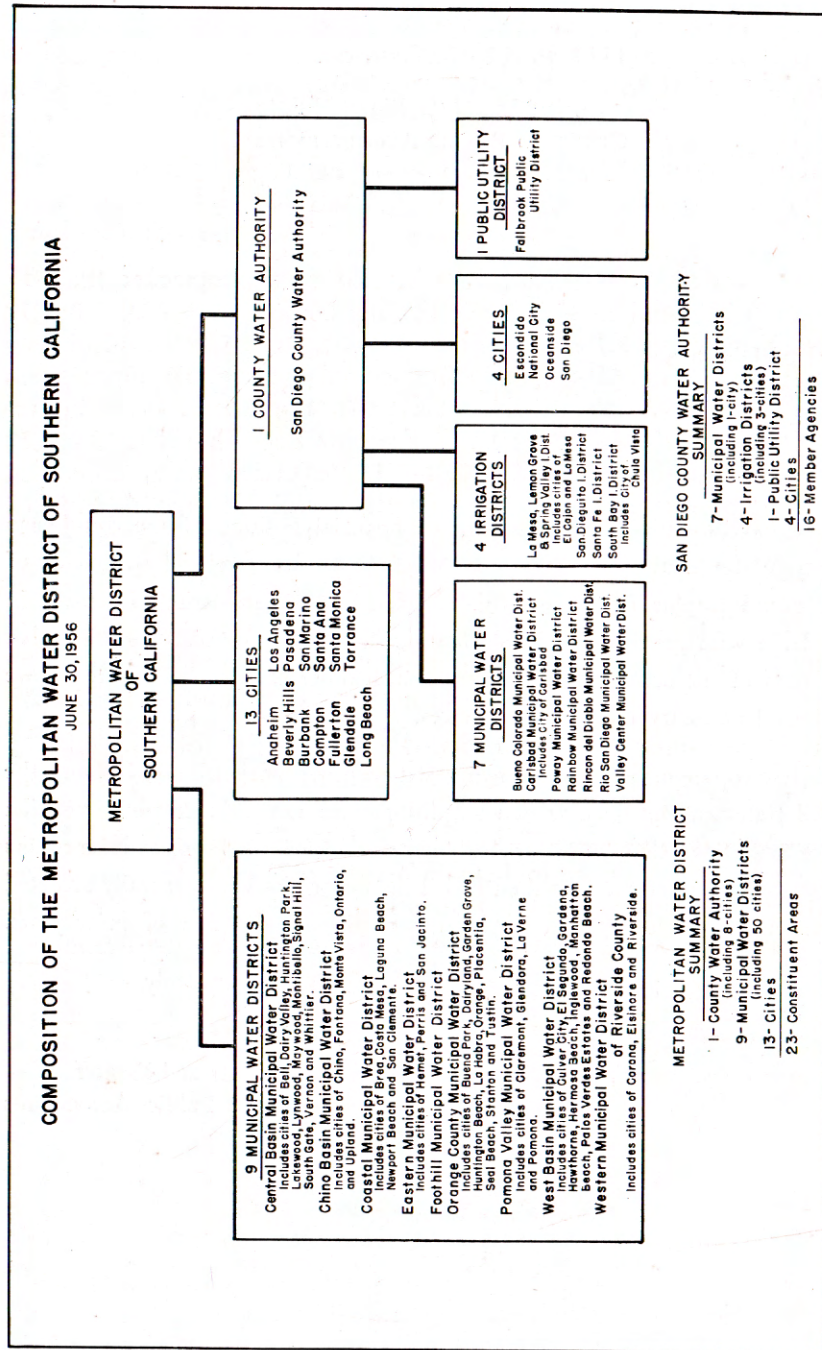


Figure E. Composition of the Metropolitan Water District of Southern California.

MEMBERSHIP IN THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

The Authority became a constituent member of the Metropolitan District on December 17, 1946, and receives water from the District because of its membership therein. A schematic diagram, shown in Fig. E, gives the constituent areas making up the District as of June 30, 1956. There are now 23 member agencies in the District. Inasmuch as the Authority at present represents slightly under 10 per cent of the District and obtains its entire water supply from the District, it seems appropriate that a brief statement of some facts on that organization and their effect on the Authority should be included in this report.

The Authority continues to be represented on the District Board of Directors by Fred A. Heilbron, Chairman of the Authority Board of Directors, who has served in this capacity since January 18, 1947, and Richard S. Holmgren, General Manager and Chief Engineer of the Authority, who has served on the District Board since April 12, 1955. Mr. Heilbron serves as Secretary of the District Board. As of June 30, 1956, the District Board has a membership of 37 Directors, with a total of 966 votes, of which the Authority has 88 votes. Only two other Districts are represented with larger votes than the Authority—the City of Los Angeles with 350 and the Central Basin Municipal Water District with 145 votes.

Area

There is included within the boundaries of the District, as of June 30, 1956, a total of 1,876,256 acres, of which the Authority area represents a total of 378,639 acres, or about 20 per cent of the area of the entire District.

Assessed Valuation

The total assessed valuation of taxable property lying within the District is \$8,514,868,335 for the fiscal year 1955-1956, an increase of about 30 per cent over the previous year. The assessed valuation of Authority area for the fiscal year totals \$797,100,700, or about 9.4 per cent of the District's total assessed valuation, including the Authority. The average assessed valuation within the entire District equals \$4,500 per acre within the boundaries of the District, compared with a valuation of \$2,100 per acre for the Authority.

The assessed valuation of all taxable property within the District,

by years since the District's first tax levy in 1929, is included in Table 26.

Water Supply and Sales

The District's water supply consists of a right to Colorado River water totaling 1,212,000 acre feet annually. The original right to 112,000 acre feet of Colorado River water annually to the City of San Diego is included in this figure, which was transferred to the District and merged with its right upon annexation of the Authority to the District.

Runoff from the Colorado River water shed is stored for the Metropolitan Water District behind Hoover Dam and released to the river as required by the District. Water released from Hoover Dam flows down the river channel to Parker Dam, where it is diverted by the District into its Colorado River Aqueduct, which extends from the Colorado River a distance of 240 miles to Lake Mathews—the terminal reservoir of the Aqueduct. Here a capacity of 100,000 acre feet is used to store and regulate water with which the metropolitan Los Angeles area is served. Water for San Diego is diverted from the Colorado River Aqueduct at the west portal of San Jacinto Tunnel near San Jacinto where the Aqueduct enters the Southern California Coastal plains and transported through the San Diego County Feeder (District's portion of the San Diego Aqueduct) to a point in San Diego County where delivery is made by the District to the Authority.

The designed capacity of the Colorado River Aqueduct is 1650 c.f.s., but only three of the ultimate nine pumps, with a total capacity of 600 c.f.s. were installed at each of the five pumping stations during original construction. During the fiscal year two additional pumping units were installed in each of the five stations, increasing their capacity to 1,000. c.f.s. However, pumping capacity in excess of 800 c.f.s. cannot be utilized until paralleling pipelines have been constructed on portions of the Aqueduct which were built to only one-half capacity in the original construction.

Work is now underway in the preparation of plans and specifications for the construction of additional parallel pipelines east of San Jacinto Tunnel, needed to complete this section of the Aqueduct to its full capacity. The District's expansion program includes the installation of all pumps on the Colorado River Aqueduct and the completion of the entire Aqueduct to its full capacity by 1960.

A total of 359,843 acre feet of water was delivered to constituent

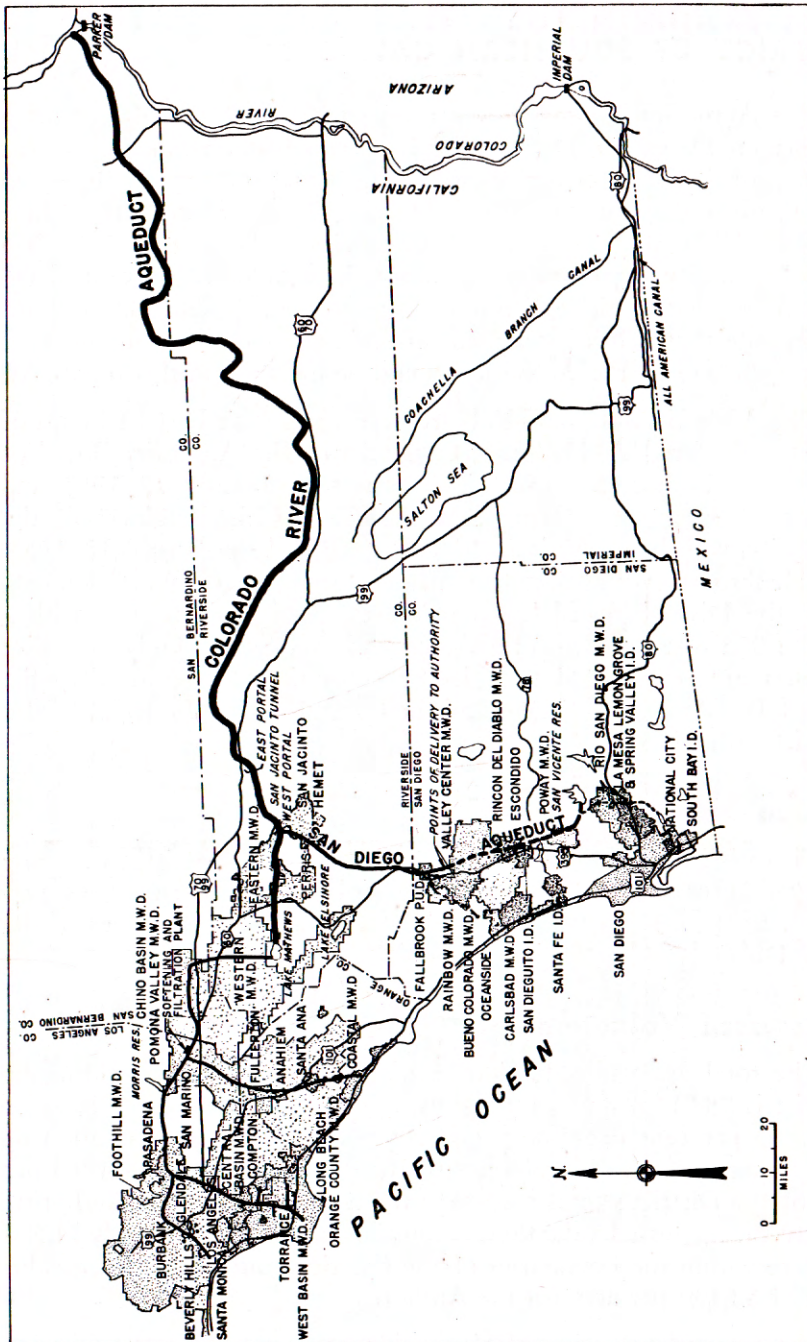


Figure F. Water Systems of Metropolitan Water District and San Diego County Water Authority.

member agencies of the District in the 1955-1956 fiscal year, of which the Authority received 138,009 acre feet, or about 38 per cent of all water delivered by the District to its agencies. Cost to the Authority for this water was \$1,307,674.

District Tax Rate

The regular tax rate of 21¢/\$100, resulting from the tax levy adopted for the fiscal year 1955-1956, continues the downward trend in the District's tax rate, which trend has occurred yearly since the Authority's annexation to the District in 1946. The total regular tax levied by the District upon the Authority in 1955-1956 totals \$1,684,250. A tabulation showing the regular tax rate on all taxable property throughout the District for each year since the first levy in 1929-1930 is included as part of Table 26.

In addition to the regular tax levy, a special tax is levied on those areas still paying annexation charges. Upon annexation of a new constituent area to the District or annexation of lands to constituent areas already members of the District, except for annexations to cities, an annexation charge equal to the taxes which the taxable property within the annexing area would have paid if the area had been part of the District from the date of its formation, is fixed as part of the terms of annexation. Annexing areas are permitted to make payments of the annexation charge to the District through special tax levies annually over a period of 30 years. In such case, interest is charged on the deferred payments at a rate of 4 per cent annually.

The back taxes plus interest charges are set up in such a way as to be paid in 30 substantially equal payments. The total of all annexation charges which has been assumed by the Authority member agencies is \$17,879,477. Of this amount, \$4,297,299 has been levied by the District as of June 30, 1956, leaving a balance of \$13,582,178 still to be paid by future levies.

A tabulation showing the original annexation charges made by Metropolitan for each area within the Authority when annexed, the assessments made to date, and the special tax rate for each area resulting from the 1955-1956 tax levy are shown in Table 23.

Water Rates

The District base rate for raw water delivered to its constituent members is \$10 per acre foot, which is the price paid by the Authority for water, since only raw Colorado River water is available to the

Authority. An additional \$10 is charged agencies receiving treated water.

During the month of November, 1955, the charge for all water delivered by the District was reduced from \$10 to \$8 per acre foot, in order to encourage the storage of water during the off-peak months. During the period from December, 1955 to April, 1956, inclusive, a reduced price of \$8 was charged for water placed in storage by the Authority and which remained in storage at the end of April. Any saving made by these reduced rates was passed on by the Authority to its member agencies, since the Authority ordinance fixes the rate to be charged member agencies as \$2 per acre foot above the price paid to Metropolitan.

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SAN DIEGO COUNTY WATER AUTHORITY

TABLE 1
MEMBER AGENCIES OF THE AUTHORITY
As of June 30

Member Agencies	Area Within Authority (Acres)			Percent of total Authority area 6/30/56
	As of 6/30/55	Changes during year(9)	As of 6/30/56	
	Acres	Acres	Acres	
Bueno Colorado M.W.D.	47,400	+4500	51,900	13.70
Carlsbad M.W.D.	20,883	(3) -45	(4) 20,838	5.51
Escondido	1,940	+40	1,980	0.52
Fallbrook Public Utility Dist.	8,192	0	8,192	2.16
La Mesa, Lemon Grove & Spring Valley Irrigation District ..(1)	30,556	-17	(5) 30,539	8.07
In City of El Cajon	(2,610)	(+ 2,590)	(5,200)	(1.37)
In City of La Mesa	(3,500)	(+ 426)	(3,926)	(1.04)
In Crest Public Utility Dist.	(386)	(0)	(386)	(0.10)
In Unincorporated Areas	(24,060)	(- 3,033)	(21,027)	(5.56)
National City	4,676	+34	4,710	1.24
Oceanside	8,093	+137	8,230	2.18
Poway M.W.D.	10,800	0	10,800	2.85
Rainbow M.W.D.	33,900	0	33,900	8.95
Rincon del Diablo M.W.D.	22,392	(3) -40	(6) 22,352	5.90
Rio San Diego M.W.D. (8)	1,860	+16,840	18,700	4.94
In Lakeside Irrigation District	(1,860)	(+0)	(1,860)	(0.49)
Out Lakeside Irrigation District	(0)	(16,840)	(16,840)	(4.45)
San Diego	(1) 82,353	+1,537	83,890	22.16
San Dieguito Irrigation Dist. (2)	4,009	- 10	3,999	1.05
Santa Fe Irrigation District	10,106	0	10,106	2.67
South Bay Irrigation District	12,812	+2,531	(7) 15,343	4.06
In Chula Vista	(3,890)	(+ 58)	(3,948)	(1.04)
In Unincorporated Areas	(8,922)	(+ 2,473)	(11,395)	(3.02)
Valley Center M.W.D.	53,160	0	53,160	14.04
Total Authority Area (1)	353,132	+ 25,507	378,639	100.00
San Diego County			2,725,100	

- (1) Area revised from Ninth Annual Report to conform with revised data received from agency.
- (2) Does not include areas annexed to agencies without making same a part of the Authority.
- (3) Areas annexed by a city member agency but still a part of the Authority.
- (4) Does not include 45 acres overlapping in City of Oceanside.
- (5) Does not include 139 acres overlapping in City of San Diego.
- (6) Does not include 40 acres overlapping in City of Escondido.
- (7) Does not include 135 acres overlapping in city of San Diego.
- (8) Rio San Diego Municipal Water District became a part of the Authority June 7, 1956.
- (9) For the purpose of these tables, when an area of a district which is part of the Authority annexes to a city member agency, it is considered in the city and becomes an overlapping area—if not excluded from the district.

TABLES

TABLE 2
POPULATION—COUNTY AND AUTHORITY AREAS—1910 to 1956
(Includes Resident Military Personnel)

Year (as of April 1)	COUNTY		AUTHORITY		Percent of County Population in Authority
	Total Population (1)	Average Annual Growth	Total Population (2)	Average Annual Growth	
1910	61,665		46,000		74
1920	112,248	5,058	87,000	4,100	78
1930	209,659	9,741	173,000	8,600	82
1940	289,348	7,969	248,274	7,600	86
1946 (3)	502,804	26,746	(3) 440,659	20,361	88
1950	556,808	43,200	451,886	56,980	81
1954	729,600	39,600	679,800	22,500	93
1955	769,200	50,100	702,300	49,200	91
1956	819,300		751,500		92

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

TABLE 3

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

Member Agencies	Population—U. S. Census				Annual Increase 1950-1956 Percent	Density of Population 1956 Per Sq. Mile
	Area 6/30/56	1940 (1)	1950 (2)	1956 Estimate (4)		
	Acres	Decade Increase		Percent		
Bueno Colorado M.W.D.	51,900	—	—	22,500	—	.43
Carlsbad M.W.D.	20,838	—	—	9,500	—	.46
Escondido	1,980	4,560	6,608	9,500	7	4.80
Fallbrook Public Utility District ..	8,192	2,300	5,500	9,000	11	1.10
La Mesa, Lemon Grove and Spring Valley Irrigation District	30,539	17,100	44,162	68,885	9	2.26
In City of El Cajon	(5,200)	(1,471)	(5,600)	(23,000)	51	4.42
In City of La Mesa	(3,926)	(3,925)	(10,946)	(22,568)	18	5.75
In Crest Public Utility District ..	(386)	—	(928)	(1,575)	12	4.08
In Unincorporated Areas	(21,027)	(11,704)	(26,688)	(21,742)	-3	1.03
National City	4,710	10,344	21,199	26,900	4	5.71
Oceanside	8,230	4,651	12,880	22,750	13	2.76
Poway M.W.D.	10,800	—	—	1,125	—	.10
Rainbow M.W.D.	33,900	—	—	2,365	—	.07
Rincon del Diablo M.W.D.	22,352	—	—	12,025	—	.54
Rio San Diego M.W.D.	18,700	—	—	9,350	—	.50
San Diego	83,890	203,341	334,387	489,450	8	5.83
San Dieguito Irrigation District	3,999	(3) 2,400	6,223	10,425	11	2.61
Santa Fe Irrigation District	10,106	(3) 2,000	3,000	5,075	12	.50
South Bay Irrigation District	15,343	10,938	28,927	51,100	13	3.33
In Chula Vista	(3,948)	(5,138)	(15,927)	(33,000)	17	8.36
In Unincorporated Areas	(11,395)	(3)(5,800)	(13,000)	(18,100)	7	1.59
Valley Center M.W.D.	53,160	—	—	1,550	—	.03
Total Authority Area	378,639	258,634	464,886	751,500	10	1.98
San Diego County	2,725,100	289,348	556,808	819,300	8	.30

(1) Population in agencies other than cities was estimated from population of judicial townships.

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

(3) Estimated.

(4) Estimated by Agencies.

TABLES

TABLE 4
ASSESSED VALUATIONS—AUTHORITY MEMBER AGENCIES AND COUNTY

Member Agencies	Assessed Valuation—Secured and Unsecured				Annual Increase Percent	Assessed Valuation 1956-57 Total
	1954-55		1955-56			
	Area 6/30/56	Total	Total	Per acre		
Bueno Colorado M.W.D.	51,900	*\$ 17,169,875	\$ 18,483,200	356	7.6	\$ 20,337,060
Carlsbad M.W.D.	20,838	9,031,290	16,106,960	773	78.0	19,316,400
Escondido	1,980	10,157,470	10,904,780	5,507	7.4	12,118,300
Fallbrook Public Utility District ..	8,192	5,595,260	6,777,260	827	21.1	7,063,420
La Mesa, Lemon Grove, and Spring Valley Irrigation District	30,539	76,103,190	85,837,120	2,811	12.8	95,720,610
National City	4,710	19,898,740	21,936,560	4,657	10.2	26,505,140
Oceanside	8,230	19,542,060	20,778,890	2,525	6.3	22,051,940
Poway M.W.D.	10,800	* 1,351,476	1,700,710	158	25.8	2,050,580
Rainbow M.W.D.	33,900	* 2,974,563	2,866,640	85	-3.63	3,567,590
Rincon M.W.D.	22,352	* 10,979,800	10,680,280	478	-2.63	11,854,670
Rio San Diego M.W.D.	18,700	1,505,720	(3)1,577,820	84	4.8	7,791,580
San Diego	83,890	507,527,340	535,879,880	6,388	5.6	588,687,250
San Dieguito Irrigation Dist. (2)	3,999	8,374,500	8,907,810	2,228	6.4	9,587,860
Santa Fe Irrigation District	10,106	7,004,670	7,656,400	758	9.3	8,135,540
South Bay Irrigation District	15,343	39,400,540	44,316,650	2,888	12.5	48,065,420
Valley Center M.W.D.	53,160	* 2,515,740	* 2,689,740	51	6.9	3,027,970
Total Authority	378,639	\$739,152,234	\$797,100,700	2,105	7.8	\$885,881,330
San Diego County	(1) 2,725,100	\$832,232,380	\$893,257,210	328	7.3	\$978,087,650

(1) Excluding 1,475,052 acres of tax-exempt lands in San Diego County as of October 30, 1949.

(2) Includes area excluded from Agency but not from Authority.

(3) Lakeside Irrigation District only.

*Estimated

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 5
DELIVERIES AND SALES OF COLORADO
(All figures in acre feet)

Member Agencies	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 months
Bueno Colorado M.W.D.	498.1	855.5	622.9	1,013.2	482.1	134.4	3,606.2
Carlsbad M.W.D.	71.8	62.3	66.2	136.0	123.6	126.8	586.7
Escondido, City of	136.8	119.3	119.5	77.0	80.2	63.1	595.9
Fallbrook P.U.D.	951.1	1,177.9	1,218.6	659.9	414.8	0	4,422.3
La Mesa, L.G. & S.V. I.D.	1,411.7	1,791.7	1,271.4	1,173.2	821.1	490.4	6,959.5
National City & South Bay I.D.	773.6	920.7	860.3	1,096.4	1,094.7	1,194.0	5,939.7
Oceanside, City of	295.7	307.7	284.3	245.5	231.7	243.6	1,608.5
Poway M.W.D.	187.0	201.9	148.4	107.1	46.9	31.2	722.5
Rainbow M.W.D.	246.6	298.6	327.9	207.7	103.6	12.0	1,196.4
Rincon del Diablo M.W.D. ...	854.0	791.9	784.2	262.1	154.1	123.1	2,969.4
Rio San Diego M.W.D.	19.1	20.7	22.7	100.4	8.9	38.1	209.9
San Diego, City of	4,643.6	4,785.6	6,329.1	6,677.7	6,579.7	7,529.7	36,545.4
San Dieguito I.D.	12.9	137.1	448.0	0	0	0	598.0
Santa Fe I.D.	103.0	0	0	0	0	0	103.0
Valley Center M.W.D.	0	0	0	0	0	0	0
Total Sales to Agencies	10,205.0	11,470.9	12,503.5	11,756.2	10,141.4	9,986.4	66,063.4
Total Sales to Others	0.6	1.0	1.1	0.8	0.7	0.5	4.7
Total Sales to Agencies and Others	10,205.6	11,471.9	12,504.6	11,757.0	10,142.1	9,986.9	66,068.1
Total to Authority Storage ...	+202.2	+134.7	+126.5	+477.1	+1,740.0	+2,135.6	+4,816.1
Total from Authority Storage	(1) -793.4	-946.4	-880.9	-37.1	-5.2	-0	-2,663.0
Total Deliveries from Aqueduct	9,614.4	10,660.2	11,750.2	12,197.0	11,876.9	12,122.5	68,221.2
Rate of Flow: c.f.s. to Agencies & Others	166.0	186.6	210.1	191.2	170.4	162.4	181.03
c.f.s. to Authority Storage	+3.3	+2.2	+2.1	+7.8	+29.2	+34.7	+13.20
c.f.s. from Authority Storage	-12.9	-15.4	-14.8	-0.6	-0.1	-0	-7.30
Total Deliveries from Aqueduct	156.4	173.4	197.4	198.4	199.5	197.1	186.93

138,062.5 acre feet were delivered into San Diego Aqueduct by the Metropolitan Water District at San Jacinto Reservoir. There was an estimated loss of 77.6 acre feet from the Aqueduct.
(1) Not including losses by evaporation.

TABLES

TABLE 5 (CONTINUED)
RIVER WATER—FISCAL YEAR 1955-56

Jan.	Feb.	March	April	May	June	Total 6 months	Yearly Total	Yearly Average c.f.s.
195.7	0	227.0	188.4	322.7	893.5	1,827.3	5,433.5	7.48
174.1	183.8	111.6	153.3	122.0	85.3	830.1	1,416.8	1.95
87.8	102.1	146.2	123.8	149.0	176.6	785.5	1,381.4	1.90
150.9	0	335.8	233.9	637.9	785.7	2,144.2	6,566.5	9.05
748.8	665.8	1,281.1	1,354.2	1,245.9	1,297.5	6,593.3	13,552.8	18.67
1,132.1	1,080.5	1,052.4	1,067.6	988.9	1,012.7	6,334.2	12,273.9	16.91
192.8	159.2	184.9	201.1	245.7	272.0	1,255.7	2,864.2	3.94
38.6	8.7	63.1	39.8	103.9	132.0	386.1	1,108.6	1.53
46.7	10.6	51.1	90.3	263.5	402.6	864.8	2,061.2	2.84
38.1	4.2	162.1	173.2	588.6	747.2	1,713.4	4,682.8	6.45
56.7	15.5	35.8	25.3	66.1	103.0	302.4	512.3	.71
7,650.7	7,190.1	7,685.9	7,393.6	6,895.9	6,726.6	43,542.8	80,088.2	110.32
0	0	0	0	0	0	0	598.0	.82
0	0	0	71.4	123.0	119.0	313.4	416.4	.58
0	0	0	0	0	1.2	1.2	1.2	.00
10,513.0	9,420.5	11,337.0	11,115.9	11,753.1	12,754.9	66,894.4	132,957.8	183.15
0.6	0.2	0.6	0.6	9.2	3.8	15.0	19.7	.03
10,513.6	9,420.7	11,337.6	11,116.5	11,762.3	12,758.7	66,909.4	132,977.5	183.18
+1,598.7	+1,873.9	+646.6	+785.0	+385.2	+503.1	+5,792.5	+10,608.6	+14.61
-97.1	-21.2	-252.6	-237.8	-793.4	-1,536.1	-2,938.2	-5,601.2	-7.72
12,015.2	11,273.4	11,731.6	11,663.7	11,354.1	11,725.7	69,763.7	137,984.9	190.07
171.0	163.8	184.4	186.8	191.3	214.4	185.35	183.18	
+26.0	+32.6	+10.5	+13.2	+6.3	+8.5	+16.05	+14.61	
-1.6	-0.4	-4.1	-4.0	-12.9	-25.8	-8.14	-7.72	
195.4	196.0	190.8	196.0	184.7	197.1	193.26	190.07	

TABLE 6
DELIVERIES OF COLORADO RIVER WATER—1947 to 1956
(All figures in acre-feet)

Member Agencies	(1) 1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56
Bueno Colorado M.W.D.	—	—	—	—	—	—	0	3,627.3	5,433.5
Carlsbad M.W.D.	—	—	—	—	—	—	54.0	1,599.7	1,416.8
Escondido	—	—	—	117.1	540.0	382.8	738.9	928.9	1,381.4
Fallbrook Public Utility District	690.6	2,125.4	3,004.0	3,979.2	2,209.7	3,566.1	5,720.4	7,030.7	6,566.5
La Mesa, L.G. and S.V. I.D.	4,256.3	8,080.1	4,792.6	8,282.5	5,514.8	5,100.5	5,311.4	11,609.5	13,552.8
National City and South Bay I.D.	3,636.6	10,510.7	10,973.2	12,964.7	6,649.0	0	4,895.5	5,706.2	12,273.9
Oceanside	0	1.5	127.8	558.5	513.4	604.1	1,469.5	2,064.0	2,864.2
Poway M.W.D.	—	—	—	—	—	—	0	523.7	1,108.6
Rainbow M.W.D.	—	—	—	—	—	—	137.1	1,416.2	2,061.2
Rincon del Diablo M.W.D.	—	—	—	—	—	—	0	2,905.5	4,682.8
Rio San Diego M.W.D. (2)	0	3.5	30.4	27.2	20.8	80.2	99.2	226.5	512.3
San Diego	32,461.0	50,126.8	35,371.2	51,453.9	43,745.3	20,684.9	51,176.3	60,059.1	80,088.2
San Dieguito Irrigation District	—	451.3	1,655.0	1,043.8	691.0	0	32.8	913.3	598.0
Santa Fe Irrigation District	—	270.8	2,657.9	832.1	146.8	0	0	358.4	416.4
Valley Center M.W.D.	—	—	—	—	—	—	—	0	1.2
Total Sales to Agencies	41,044.5	71,570.1	58,612.1	79,259.0	60,030.8	30,418.6	69,635.1	98,968.8	132,957.8
Total Sales to Others	0	0	0	0	0	49.4	13.7	3.4	19.7
Total to Authority Storage	0	0	+10,652.0	+821.4	+5,763.2	+1,612.8	+1,722.2	+6,217.5	+10,608.6
Total from Authority Storage	0	0	0	-6,265.5	-3,176.0	-3,514.5	-4,113.6	-2,975.7	-5,601.2
Total Deliveries from Aqueduct	41,044.5	71,570.1	69,264.1	73,814.9	62,618.0	28,566.3	67,257.4	102,213.8	137,984.9
Rate of Flow:									
c.f.s. to Agencies and Others	98.3	98.9	81.0	109.5	82.7	42.1	96.2	136.7	183.2
c.f.s. to Authority Storage	0	0	+14.7	+1.1	+7.9	+2.2	+2.4	+8.6	+14.6
c.f.s. from Authority Storage	0	0	0	-8.6	-4.4	-4.8	-5.7	-4.1	-7.7
c.f.s. total from Aqueduct	98.3	98.9	95.7	102.0	86.2	39.5	92.9	141.2	190.1

(1) The operation of the Aqueduct was formally initiated on November 27, 1947.
(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 BY AUTHORITY AGENCIES—FISCAL YEARS 1943-44 to 1955-56
(All Figures in Acre-Feet)

Member Agencies	From Local Sources						From Local and Authority Supplies						
	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56
Bueno Colorado M.W.D.	11,333	10,390	13,200	12,335	13,407	11,344	11,977	13,484	7,572	11,171	11,671	*12,707	13,043
Carlsbad M.W.D.	2,177	2,274	2,444	2,582	2,856	2,613	2,499	2,033	2,074	2,565	*2,961	2,445	2,972
Escondido	668	711	707	835	954	801	858	*1,034	1,033	1,238	1,398	1,712	1,741
Fallbrook Public Utility District	1,464	1,439	2,120	2,596	*3,470	3,613	5,379	5,777	5,803	6,655	7,606	8,001	8,394
La Mesa, L.G. and S.V. I.D.	7,516	7,423	8,920	9,790	*10,290	9,325	10,204	11,412	9,858	13,524	15,519	15,557	15,998
National City and South Bay I.D.	9,963	9,288	10,799	10,519	*10,265	+11,293	+12,709	11,750	10,491	11,308	12,076	12,840	13,795
Oceanside	1,713	1,881	2,304	2,519	*2,787	2,641	2,977	3,055	2,955	3,553	3,954	4,099	4,653
Poway M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	*554	1,120
Rainbow M.W.D.	(a)	(a)	107	179	385	699	892	1,336	1,120	1,657	*1,697	2,830	3,535
Rincon del Diablo M.W.D.	8,339	7,852	8,710	8,799	9,259	7,372	7,668	6,905	5,577	7,710	8,401	*10,023	9,804
Rio San Diego M.W.D. (b)	61	65	69	90	*103	110	161	183	197	292	292	355	1,501
City of San Diego:													
Inside City	49,742	53,473	56,266	49,431	*51,078	49,693	51,410	54,935	53,784	60,552	63,258	66,000	68,715
Outside City (not in Authority)	815	1,223	1,147	1,038	1,529	1,946	1,049	2,051	1,406	2,396	2,373	2,610	3,001
San Dieguito Irrigation District	2,521	2,611	2,966	3,369	3,034	*2,303	2,899	3,039	2,326	3,139	3,440	3,329	3,378
Santa Fe Irrigation District	3,300	2,760	3,539	3,512	3,491	*2,878	3,372	3,315	2,539	3,358	3,255	3,361	3,663
Valley Center M.W.D.	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Total	99,412	105,390	113,298	105,594	112,708	106,631	114,054	120,489	106,735	129,078	137,901	146,423	155,313

*Delivery of Colorado River Water began in this year.
†Includes evaporation losses of Colorado River Water in Sweetwater Reservoir.
(a) Not available.
(b) Figures shown for Rio San Diego M.W.D. prior to 1955-56 are for Lakeside I.D. only.

TABLE 8
WATER PRODUCTION OF AUTHORITY AGENCIES—FISCAL YEAR 1955-56

Member Agencies	TOTAL WATER PRODUCTION				SOURCE OF WATER			COLORADO RIVER		
	as m.g.d.	as c.f.s.	as ac. ft.	Amount ac. ft.	Amount ac. ft.	Per cent	Amount ac. ft.	Per cent	Amount ac. ft.	Per cent
Bueno Colorado M.W.D.	11.61	17.97	13,043.1	7,603.3	58.3	5,439.8	41.7			
Carlsbad M.W.D.	2.65	4.09	2,972.1	1,555.3	52.3	1,416.8	47.7			
Escondido	1.55	2.40	1,741.1	356.8	20.5	1,384.3	79.5			
Fallbrook Public Utility District	7.47	11.56	8,394.0	1,827.0	21.8	6,567.0	78.2			
La Mesa, L.G. and S.V. I.D.	14.24	22.04	15,998.3	1,345.6	8.4	14,652.7	91.6			
National City and South Bay I.D.	12.28	19.00	13,795.0	1,520.0	11.0	12,275.0	89.0			
Oceanside	4.14	6.41	4,652.7	1,788.5	38.4	2,864.2	61.6			
Poway M.W.D.	1.00	1.54	1,119.7	0	0	1,119.7	100.0			
Rainbow M.W.D.	3.15	4.87	3,534.6	1,780.5	50.4	1,754.1	49.6			
Rincon M.W.D.	8.73	13.50	9,803.9	5,121.0	52.2	4,682.9	47.8			
Rio San Diego M.W.D.	1.34	2.07	1,501.2	1,200.1	79.9	301.1	20.1			
City of San Diego:										
Inside City	61.18	94.66	68,715.3	7,429.0	10.8	61,286.3	89.2			
Outside City (not in Authority)	2.67	4.13	3,000.7	3,000.7	100.0	0	0			
San Diego Irrigation District	3.01	4.65	3,378.0	2,444.7	72.4	933.3	27.6			
Santa Fe Irrigation District	3.26	5.05	3,662.9	3,246.5	88.6	416.4	11.4			
Valley Center M.W.D.	0	0	0	0	0	0	0			
Total	138.28	213.94	155,312.6	40,219.0	25.9	115,093.6	74.1			

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.

TABLES

TABLE 9
UNIT WATER PRODUCTION—PER ACRE AND PER CAPITA—1955-56

Member Agencies	Gross Area (2) acres	Total Production of Water ac. ft.	Estimated Area Served by Water System acres	Water Production per Acre ac. ft./acre/yr.	Estimated Population	Water Production per Capita ac. ft./cap./yr.
Bueno Colorado M.W.D.	51,900	13,043.1	18,804	0.69	22,500	0.58
Carlsbad M.W.D.	20,838	2,972.1	5,800	0.51	9,500	0.31
Escondido	1,980	1,741.1	1,980	0.88	9,500	0.18
Fallbrook Public Utility District	8,192	8,394.0	8,192	1.02	9,000	0.93
La Mesa, L.G. and S.V. I.D.	30,539	15,998.3	15,310	1.04	68,885	0.23
National City	4,710	3,268.0	3,217	1.02	26,900	0.12
Oceanside	8,230	4,652.7	7,777	0.60	22,750	0.20
Poway M.W.D.	10,800	1,119.7	5,000	0.22	1,125	1.00
Rainbow M.W.D.	33,900	3,534.6	9,000	0.39	2,365	1.49
Rincon M.W.D.	22,352	9,803.9	9,165	1.07	12,025	0.82
Rio San Diego M.W.D.	18,700	1,501.2	2,855	0.53	9,350	0.16
San Diego	83,890	71,716.0	(3)52,750	1.36	489,450	0.15
San Diego Irrigation District	3,999	3,378.0	3,999	0.84	10,425	0.32
Santa Fe Irrigation District	10,106	3,662.9	10,106	0.36	5,075	0.72
South Bay Irrigation District	15,343	10,527.0	7,704	1.37	51,100	0.21
Valley Center M.W.D.	53,160	0	0	0	1,550	0
Total and average	378,639	155,312.6	161,659	0.96	751,500	0.21

(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 2.

(3) Estimated by Staff.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 10
 AUTHORITY STORAGE IN SAN VICENTE RESERVOIR
 (Fiscal Year 1955-56)

Member Agencies	Total Quantity in Storage 7/1/55 (acre feet)	Placed into Storage during Fiscal year (acre feet)	Withdrawn during Fiscal Year (acre feet)	Total Quantity in Storage 6/30/56 (acre feet)
Bueno Colorado M.W.D.	497.4	2,396.9	1,036.5	1,857.8
Carlsbad M.W.D.	225.0	317.7	15.8	526.9
Escondido	300.0	0	138.1	161.9
Fallbrook Public Utility District	0	397.7	397.7	0
La Mesa, L.G. and S.V. I.D.	3,067.3	3,360.7	1,431.1	4,996.9
National City & South Bay I.D.	0	0	0	0
Oceanside	200.0	450.0	206.1	443.9
Poway M.W.D.	0	652.7	226.2	426.5
Rainbow M.W.D.	0	1,303.8	818.1	485.7
Rincon M.W.D.	0	1,367.0	855.2	511.8
Rio San Diego M.W.D.	6.3	111.1	56.4	61.0
San Diego	0	0	0	0
San Dieguito Irrigation District	215.5	1,404.5	420.0	1,200.0
Santa Fe Irrigation District	0	0	0	0
Valley Center M.W.D.	23.3	729.1	0	752.4
Authority (for evaporation)	42.6	721.1	535.1	228.6
Total	4,577.4	13,212.3	6,136.3	11,653.4

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TABLE 11
 CHEMICAL CHARACTER OF NATURAL COLORADO RIVER
 WATER AT WEST PORTAL OF SAN JACINTO TUNNEL
 Year Ending June 30, 1956
 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 ₃	Non Carbonate Hardness as P.P.M. CaCO ₃	Alkalinity as P.P.M. CaCO ₃		Magnesium as P.P.M. of Mg.	Hydrogen Ion Concentration	Temperature when sampled F°
			Total	Phenolphthalein			
July	363	241	122	1	32.5	8.3	77
August	361	239	122	0	32.0	8.1	82
September	361	240	121	0	32.5	8.1	84
October	365	242	123	0	33.0	8.3	76
November	370	248	122	1	33.0	8.3	70
December	379	253	126	0	34.5	8.4	59
January	388	260	128	3	36.0	8.4	56
February	385	256	129	2	34.0	8.4	55
March	392	258	134	1	33.5	8.4	54
April	386	251	135	2	32.5	8.5	60
May	382	252	130	0	33.5	8.4	69
June	380	255	125	1	34.0	8.3	71
Average	376	250	126	1	33.4	8.3	68
Maximum	392	260	135	3	36.0	8.5	84
Minimum	361	239	121	0	32.0	8.1	54

TABLE 12
ESTIMATED PREFERENTIAL RIGHT TO PURCHASE COLORADO RIVER WATER
As of June 30, 1956

Member Agency	Total Amount Paid by Each Member Agency to 6/30/56	Amount Remaining to be Paid under Terms of Annexation	Total Contributions Paid and Contracted for	Preferential right to purchase	
				Percentage of Aqueduct Flow	Equivalent Flow Completed Aqueduct c.f.s.
Bueno Colorado M.W.D.	\$ 41,477.61	\$ 96,523.32	\$ 138,001.13	2.46	4.82
Carlsbad M.W.D.	27,014.48	44,814.43	71,828.91	1.28	2.51
Escondido, City of	58,438.96	12,684.12	71,123.08	1.27	2.49
Fallbrook P.U.D.	41,620.11	0	41,620.11	.74	1.45
La Mesa, L.G. and S.V. I.D.	478,410.98	32,073.41	510,484.39	9.11	17.86
National City, City of	141,994.93	0	141,994.93	2.54	4.98
Oceanside, City of	128,202.68	0	128,202.68	2.29	4.49
Poway M.W.D.	3,645.31	8,189.08	11,834.39	.21	.41
Rainbow M.W.D.	20,579.97	0	20,579.97	.37	.73
Rincon del Diablo M.W.D.	26,717.67	65,611.55	92,329.22	1.65	3.23
Rio San Diego M.W.D.	9,351.53	46,100.00	55,451.53		
San Diego, City of	3,919,861.61	0	3,919,861.61	.89	1.74
San Diegoquito I.D.	58,122.77	2,741.84	60,864.61	69.96	137.12
Santa Fe I.D.	49,201.77	2,013.78	51,215.55	1.09	2.14
South Bay I.D.	253,823.73	15,560.45	269,384.18	.91	1.78
Valley Center M.W.D.	0	23,600.00	23,600.00	4.81	9.43
Total Authority	\$ 5,258,464.11	\$ 349,912.18	\$ 5,608,376.29	100.00	196.00
			(\$ 5,602,751.44) *		

*Back taxes for period to June, 1956.

TABLES

TABLE 13
STATEMENT OF ASSESSED VALUATIONS AND TAX RATES TO JUNE 30, 1956

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

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

Basis of assessment approximately 50 per cent.

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

(2) City of Coronado and Ramona Irrigation District not included in this or subsequent total valuation.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 14
STATEMENT OF FINANCIAL POSITION
June 30, 1956

ASSETS		
CURRENT ASSETS—GENERAL FUND:		
Cash with treasurer		\$ 57,417.44
Petty cash		100.00
Accounts receivable		116,037.97
Inventory of water in storage		91,078.00
Investments		249,311.25
Delinquent taxes receivable	\$ 1,910.21	
Less allowance for estimated losses	1,910.21	
<hr/>		
SPECIAL FUND ASSETS:		
General Reserve Fund:		
Cash with treasurer	109,630.32	
Investments	258,000.00	367,630.32
<hr/>		
Bond Interest and Sinking Fund:		
Cash with treasurer	18,821.56	
Cash with fiscal agent for payment of bond interest	18,520.00	
Investments	590,054.25	
Delinquent taxes receivable	\$ 2,824.51	
Less allowances for estimated losses	2,824.51	
<hr/>		
U. S. Government Contract Fund:		
Cash with treasurer	75,233.70	
Due from Metropolitan Water District:		
On 1st Barrel, S.D. Aqueduct	5,437,500.00	
On 2nd Barrel, S. D. Aqueduct	8,017,157.11	13,454,657.11
<hr/>		
Investments	30,000.00	
Delinquent taxes receivable	13,812.06	
Less allowance for estimated losses	13,812.06	
<hr/>		
Special Tax Fund:		
Cash with treasurer	32,423.73	
Investments	105,907.00	
Annexation charges re- ceivable—not due	349,912.18	
Delinquent taxes re- ceivable	2,180.19	
Less Allowance for estimated losses	2,180.19	
<hr/>		
Fixed Assets:		
Cost of participation in Metropolitan Water District to 6/30/56		
Plant	17,631,607.61	30,147,700.54
Less allowance for depreciation	899,368.39	
<hr/>		
Work in progress	16,732,239.22	
	304,368.96	17,036,608.18
<hr/>		
		\$62,741,413.23

TABLES

TABLE 14 (Continued)
STATEMENT OF FINANCIAL POSITION
June 30, 1956

LIABILITIES		
CURRENT LIABILITIES—GENERAL FUND:		
Accounts payable		\$ 19,118.06
Contracts payable:		
Uncompleted contracts	\$ 2,649.13	
Completed contracts— retained percentage	10,069.64	12,718.77
<hr/>		
Advances by agencies for construction		21,444.10
LONG-TERM OBLIGATIONS:		
General obligation bonds payable—not due		1,800,000.00
Estimated balance due on U. S. Government Contract:		
For cost of 1st Barrel, S. D. Aqueduct	10,875,000.00	
For cost of 2nd Barrel, S. D. Aqueduct	14,694,343.06	25,569,343.06
<hr/>		
Balance due Metropolitan Water District on annexation charges		13,582,093.31
SURPLUS:		
Invested in fixed assets		6,232,872.35
Reserves for debt redemption:		
For retirement of general obligation bonds	627,395.81	
For retirement of U. S. Government contract	13,559,890.81	
<hr/>		
Total reserves for debt redemption		14,187,286.62
Appropriated:		
For petty cash fund balance	100.00	
For general reserve fund balance	367,630.32	
For special tax fund balance	488,242.91	
For incomplete projects (continuing appns.)	67,161.71	
<hr/>		
Total appropriated		923,134.94
Unappropriated surplus		393,402.02

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 15
STATEMENT OF INCOME AND EXPENSE
July 1, 1955 to June 30, 1956

INCOME DIVISION			
OPERATING INCOME:			
Water sales			\$1,530,167.59
DEDUCT OPERATING COSTS:			
Cost of water sold:			
Inventory of water in storage July 1, 1955	\$ 39,784.60		
Water purchased	1,307,674.60		
Storage charges	10,763.72		
	<u>1,358,222.92</u>		
Less inventory of water in storage June 30, 1956	91,078.00	\$1,267,144.92	
Direct operating expense		28,083.98	
General & administrative expense		81,150.45	
Total operating costs		<u>1,376,379.35</u>	
Net operating income before depreciation & debt service expense			153,788.24
DEDUCT DEPRECIATION AND DEBT SERVICE EXPENSE:			
Depreciation	183,100.44		
Debt service expense	424,578.09		607,678.53
			<u>(453,890.29)</u>
Net operating income (deficit)			
ADD NON-OPERATING INCOME:			
Revenue from taxes	87,340.65		
Less collection expense	247.80	87,092.85	
Miscellaneous revenue		9,242.02	
Net gain on disposal of fixed assets		219.00	
Debt service expense provided by:			
Bonds interest & sinking fund	36,500.00		
U. S. Government contract fund....	176,224.00		
Refunds from Metropolitan Water District	211,605.33	424,329.33	520,883.20
Net income for the year to surplus division			<u>\$ 66,992.91</u>

TABLES

TABLE 15 (Continued)
STATEMENT OF INCOME AND EXPENSE
July 1, 1955 to June 30, 1956

SURPLUS DIVISION			
SURPLUS, JULY 1, 1955:			
Appropriated surplus:			
For incomplete projects	\$ 63,625.86		
For petty cash fund	100.00	\$ 63,725.86	
Unappropriated surplus:			
Water in storage	39,784.60		
Available for reduction of tax levy	286,939.99	326,724.59	\$390,450.45
ADDITIONS TO SURPLUS:			
Depreciation charged to surplus entailing no expenditure of current funds			
		183,100.44	
Refunds of prior year's expenditures.....		7,073.71	
Net income for the year from income division		66,992.91	
Construction funds provided from agencies' advances for construction.....		47,889.51	305,056.57
			<u>695,507.02</u>
DEDUCTIONS FROM SURPLUS:			
Expenditures for construction work:			
From general fund	178,316.48		
From agencies' advances for special construction	47,889.51	226,205.99	
Expenditures for furniture, fixtures and equipment	8,733.30		
Less reduction in investment in fixed assets traded in	96.00	8,637.30	234,843.29
Surplus, June 30, 1956			<u>\$460,663.73</u>
Consisting of:			
Appropriated surplus:			
For incomplete projects		\$ 67,161.71	
For petty cash fund		100.00	\$ 67,261.71
Unappropriated surplus:			
Water in storage		91,078.00	
Available for appropriation		302,324.02	393,402.02
			<u>\$460,663.73</u>

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 16
STATEMENT OF REVENUES—ESTIMATED AND ACTUAL
Fiscal Year Ended June 30, 1956

Source	Estimated Revenue	Actual Revenue	Actual Over or (Under) Estimate
Taxes, secured, current levy	\$ 695,900.00	\$ 705,968.81	\$10,068.81
Taxes, unsecured, current levy ..	80,150.00	82,665.15	2,515.15
Taxes, secured, prior years' levies	9,600.00	11,909.53	2,309.53
Taxes, unsecured, prior years' levies	600.00	160.55	(439.45)
Penalties and interest on delinquent taxes	1,020.00	1,184.96	164.96
Miscellaneous tax on options		3.86	3.86
Receipts in lieu of taxes		34,668.71	34,668.71
Miscellaneous tax sales		137.79	137.79
Sale of water	1,575,500.00	1,530,167.59	(45,332.41)
Earnings on Investments	22,200.00	22,810.66	610.66
Rentals	1,600.00	3,698.58	2,098.58
Use of Authority facilities	200.00	346.50	146.50
Total	\$2,386,770.00	\$2,393,722.69	\$ 6,952.69
DISTRIBUTION BY FUNDS:			
General fund	\$1,665,555.00	\$1,625,452.81	(\$40,102.19)
Bond interest and sinking fund	89,725.00	94,385.60	4,660.60
U.S. Government contract fund	544,120.00	563,800.63	19,680.63
General reserve fund	6,000.00	5,749.97	(250.03)
Special tax fund	81,370.00	104,333.68	22,963.68
Total	\$2,386,770.00	\$2,393,722.69	\$ 6,952.69

TABLES

TABLE 17
STATEMENT OF APPROPRIATIONS AND EXPENDITURES
July 1, 1955 to June 30, 1956

E & A No.	Purpose	Prior Years' Appropriation Carried Over	Appropriations 1955-1956	Expenditures 1955-1956	Cancelled Appropriations	Unexpended Appropriations 6/30/56
136	Co-operative construction of second barrel ..	\$10,368.63		2,097.89		\$ 8,270.74
161	Special engineering studies	3,257.23	\$ 38,000.00	7,656.61		33,600.62
165	Construction of Headquarters Building	50,000.00	115,000.00	158,664.34		6,335.66
166	Construction of By-Pass Line, San Vicente Reservoir		1,572.25	1,572.25		
168	Purchase of water for resale		1,388,300.00	1,317,140.87	\$71,159.13	
169	Payment of bonds and interest coupons		86,500.00	86,500.00		
170	Payments on lease-purchase—San Diego Aqueduct		600,000.00	598,426.00	1,574.00	
171	Operation and maintenance		142,500.00	118,946.57	23,553.43	
172	No. 1 service connection—Valley Center Municipal Water District		12,000.00	7,504.84		4,495.16
181	No. 1 service connection—Rio San Diego Municipal Water District		14,500.00	40.47		14,459.53
		\$63,625.86	\$2,398,372.25	\$2,298,549.84	\$96,286.56	\$67,161.71
DISTRIBUTION BY FUNDS						
	General fund	\$63,625.86	\$1,711,872.25	\$1,613,623.84	\$94,712.56	\$67,161.71
	Bonds interest and sinking fund		86,500.00	86,500.00		
	U.S. contract fund		600,000.00	598,426.00	1,574.00	
		\$63,625.86	\$2,398,372.25	\$2,298,549.84	\$96,286.56	\$67,161.71

TABLE 20
STATEMENT OF TAX ASSESSMENTS AND COLLECTIONS
As of June 30, 1956

Member Agency	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, 1956
Fallbrook P.U.D.	\$ 38,321.70	\$ 58.27	\$ 38,035.82	\$ 172.61	\$.27	\$ 3,415.36	\$ 3.22	\$ 7.17	\$ 41,620.11	\$ 344.15
Lakeside Irri. Dist. ..	9,378.96	25.43	9,244.62	50.48	.05	45.00	19.38	8.00	9,351.53	159.77
La Mesa, L.G. & S.V. Irri. Dist.	479,535.55	(331.82)	475,824.08	1,212.79	88.72	1,060.00	404.48	179.09	478,410.98	3,379.65
City of National City ..	136,879.05	(225.40)	135,742.41	455.58	5.58	6,215.68	36.92	461.24	141,994.93	911.24
City of Oceanside	125,788.91	240.54	125,383.91	300.42	5.11	2,560.68	42.70	90.14	128,202.68	645.54
City of San Diego	3,768,109.07	11,845.08	3,768,856.94	6,950.03	35.64	146,677.19	1,664.07	4,322.26	3,919,861.61	11,097.21
Santa Fe Irri. Dist.	48,502.33	100.24	48,428.54	142.48	11.00	10.37	630.12	10.37	49,201.77	174.03
San Diego Irri. Dist.	58,369.99	66.41	58,014.80	200.94	3.88	97.48	194.33	6.32	58,122.77	421.60
City of Escondido	58,122.31	372.44	58,349.96	66.48		13,191.96	28.84	6.32	58,438.96	144.79
South Bay Irri. Dist.	241,467.83	238.61	240,498.47	447.97	.39	20,579.97	57.13	372.19	233,823.73	1,207.97
Rainbow M.W.D.	3,741.56	(.07)	3,645.31						3,645.31	96.18
Poway M.W.D.	42,511.36	(1.05)	40,735.10		1.73	750.00		9.22	41,477.61	1,775.21
Bueno Colorado M.W.D.	26,700.71	(.54)	26,717.67					1.41	26,717.67	(17.50)
Rincon del Diablo M.W.D.	27,381.84	(.38)	27,015.89						27,014.48	365.57
Carlsbad M.W.D.										
Total member agencies	5,064,811.17	12,387.76	5,056,493.52	9,999.78	152.37	194,495.84	2,984.34	5,661.74	5,238,464.11	20,705.41
Withdrawn agencies	4,242.83	41.90	4,263.17	9.27	.15	186.64	.52		4,459.75	21.56
Total	\$5,069,054.00	\$12,429.66	\$5,060,756.69	\$10,009.05	\$152.52	\$194,682.48	\$2,984.86	\$5,661.74	\$5,262,923.86	\$20,726.97

ANALYSIS OF UNCOLLECTED TAXES BY FUNDS

General fund	\$ 1,910.21
Bonds interest and sinking fund	2,824.51
U. S. contract fund	13,812.06
Special tax fund	2,180.19
Total as above	\$20,726.97

TABLE 21
TAX LEVIES AND TAX COLLECTIONS
Fiscal Years 1945-46 to 1955-56

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

(1) Including adjustments to current year's levy.

(2) Including adjustments to current and prior years' levies.

TABLE 22

SAN DIEGO COUNTY WATER AUTHORITY
ANNEXATION CHARGES, ASSESSMENTS AND BALANCES

Area	Date of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments to 6/30/55	Fiscal Year 1955-56		Remaining Balance of Annexation Charges 6/30/56
			First Year	Last Year		Special Assessments	Tax Rate	
			1955-56	1959-60		\$	¢/\$100	
Bueno Colorado M.W.D.	6-11-54	\$122,400.00	1955-56	1959-60	0	\$ 25,876.48	14¢	\$ 96,523.52
Annexation of 1956	6-11-56	750.00	1955-56	1955-56	0	750.00	0	0
Carlsbad M.W.D.	6-16-54	57,700.00	1955-56	1959-60	0	12,885.57	8¢	44,814.43
Escondido	10-19-50	27,500.00	1951-52	1960-61	12,523.88	2,292.00	2¢	12,684.12
Fallbrook P.U.D.	8-1-50	2,700.00	1950-51	1950-51	2,700.00	0	0	0
Annexation of 1950								
Lakeside I. D.	7-18-52	45.00	1951-52	1951-52	45.00	0	0	0
La Mesa, IG&SV I. D.								
Crest P.U.D. Annexation	12-13-48	861.00	1949-50	1949-50	861.00	0	0	0
Annexation of 1951	5-14-52	1,060.00	1951-52	1951-52	1,060.00	0	0	0
El Cajon Dry Island Annexation	12-20-54	40,800.00	1955-56	1959-60	0	8,726.59	10¢	32,073.41
Poway M.W.D.	4-21-54	10,400.00	1955-56	1959-60	0	2,210.92	13¢	8,189.08
Rainbow M.W.D.	4-10-54	18,000.00	1955-56	1955-56	0	18,000.00	0	0
Rincon del Diablo M.W.D.	6-14-54	82,700.00	1955-56	1959-60	0	17,088.45	16¢	65,611.55
Rio San Diego M.W.D.	6-7-56	46,100.00	1937-58	1961-62	0	0	0	46,100.00
(not including Lakeside I.D.)	12-13-48	13,733.00	1949-50	1958-59	9,209.55	1,781.61	2¢	2,741.84
San Diegoito I.D.	12-13-48	11,541.00	1949-50	1958-59	7,995.94	1,531.28	2¢	2,013.78
Santa Fe I.D.								
South Bay I.D.	11-3-52	39,900.00	1953-54	1957-58	15,961.20	8,378.35	6¢	15,560.45
(not including City of Chula Vista)...								
Sweetwater Reservoir Area	7-13-55	5,405.00	1955-56	1955-56	0	5,405.00	0	0
Annexation	5-9-55	23,600.00	1956-57	1960-61	0	0	0	23,600.00
Valley Center M.W.D.								
Total		\$505,195.00			\$50,356.57	\$104,926.25		\$349,912.18

TABLE 23

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

Member Agencies	Dates of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments to 6/30/55	Fiscal Year 1955-56		Remaining Balance of Annexation Fee 6/30/56
			First Year	Last Year		Special Assessments	Tax Rate	
			1955-56	1984-85		\$	¢/\$100	
Chula Vista	12-17-46	\$13,045,000	1947-48	1976-77	\$3,508,487.55	\$423,228.23	6¢	\$ 9,113,284.22
Fallbrook Public Utility District								
(area as of 12-17-1946)								
Lakeside Irrigation District	6-11-54	1,072,230	1955-56	1984-85	0	36,966.40	20¢	1,035,263.60
(area as of 12-17-1946)	6-16-54	548,100	1955-56	1984-85	0	19,328.35	12¢	528,771.65
La Mesa, Lemon Grove and Spring Valley Irrigation District	10-9-50	386,000	1951-52	1980-81	52,235.41	12,217.34	11¢	321,547.25
(area as of 12-17-1946)								
National City	8-1-50	34,600	1951-52	1980-81	10,797.13	913.90	8¢	22,888.97
Oceanside	7-18-52	352	1951-52	1951-52	352.00	0	0	0
San Diego	12-13-48	10,500	1949-50	1978-79	2,132.53	359.65	7¢	8,007.82
Bueno Colorado M.W.D.	5-14-52	9,875	1951-52	1951-52	9,875.00	0	0	0
Carlsbad M.W.D.	12-20-54	327,450	1955-56	1984-85	0	11,362.99	13¢	316,087.01
Escondido	3-16-55	15	1954-55	1954-55	15.00	0	0	0
Fallbrook Public Utility District	4-21-54	91,800	1955-56	1984-85	0	3,061.28	18¢	88,738.72
1950 Annexation	4-10-54	167,700	1955-56	1984-85	0	5,733.28	20¢	161,966.72
Lakeside Irrigation District	6-14-54	757,200	1955-56	1984-85	0	25,632.67	24¢	731,567.33
1951 Annexation								
La Mesa, Lemon Grove and Spring Valley Irrigation District	6-7-56	373,980	1957-58	1986-87	0	0	0	373,980.00
Crest Public Utility District Annexation	12-13-48	187,100	1949-50	1978-79	38,144.21	6,238.95	7¢	142,696.84
Annexation during 1951	12-13-48	167,000	1949-50	1978-79	33,781.19	5,386.94	7¢	127,831.87
El Cajon Dry Island Annexation	11-3-52	449,370	1955-54	1982-83	30,134.40	15,369.23	11¢	403,866.37
Concurrent Islands	7-13-55	45,525	1955-56	1955-56	0	45,525.00	0	0
Poway M.W.D.	5-9-55	205,680	1956-57	1985-86	0	0	0	205,680.00
Rainbow M.W.D.								
Rincon del Diablo M.W.D.								
Rio San Diego M.W.D.								
(not including Lakeside I.D.)								
San Diegoito Irrigation District								
Santa Fe Irrigation District								
South Bay Irrigation District								
(not including City of Chula Vista).....								
Sweetwater Reservoir Annex								
Valley Center M.W.D.								
Total		\$17,879,477			\$3,685,954.42	\$611,344.21		\$13,582,178.37

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 24
WATER SALES BY METROPOLITAN WATER DISTRICT
Fiscal Years 1941-42 to 1955-56

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

TABLES

TABLE 25
WATER PRODUCTION—METROPOLITAN WATER DISTRICT CONSTITUENT AREAS

Constituent Areas	Total Water Production		Source of Water Produced—1956			
	1954-55 amount ac. ft.	1955-56 amount ac. ft.	M.W.D.			
			Amount ac. ft.	Per cent of total	Other Amount ac. ft.	Per cent of total
Anaheim	6,153	8,840	4,987	56.4	3,853	43.6
Beverly Hills	9,632	9,835	2,334	25.7	7,301	74.3
Burbank	22,201	22,501	1,717	7.6	20,784	92.4
Central Basin M.W.D.	200,465	165,167	2,141	1.3	163,026	98.7
Chino Basin M.W.D.	75,089	100,923	5,033	2.8	95,890	97.2
Coastal M.W.D.	9,432	10,424	7,475	71.7	2,949	28.3
Compton	5,918	6,315	72	1.1	6,243	98.9
Eastern M.W.D.	163,450	164,900	21,217	12.8	143,683	87.2
Foothill M.W.D.	12,785	12,922	5,266	40.7	7,656	59.3
Fullerton	7,968	9,435	4,694	49.8	4,741	50.2
Glendale	22,641	23,855	1,449	6.1	22,406	93.9
Long Beach	39,396	41,137	14,885	36.0	26,252	64.0
Los Angeles	431,050	473,939	30,706	6.5	443,233	93.5
Orange County M.W.D.	223,669	167,846	4,617	2.8	163,229	97.2
Pasadena	28,105	28,769	17,830	61.9	10,939	38.1
Pomona Valley M.W.D.	46,105	44,924	6,230	13.9	38,694	86.1
San Diego C.W.A.	146,423	155,313	*115,094	74.1	40,219	25.9
San Marino	4,159	4,364	0	0.0	4,364	100.0
Santa Ana	9,624	10,746	5,019	46.7	5,727	53.3
Santa Monica	11,986	12,074	11,059	91.6	1,015	8.4
Torrance	10,149	12,021	9,605	79.9	2,416	20.1
West Basin M.W.D.	85,692	92,360	41,685	45.1	50,675	54.9
Western M.W.D.	128,500	135,028	28	0.1	135,000	99.9
Totals	1,700,592	1,713,638	313,343	18.3	1,400,295	81.7

NOTE: Quantities include total water diverted into agencies transmission and distribution systems from sources of supply.
*The Metropolitan Water District delivered 137,985 acre feet to San Diego County Water Authority in 1955-56, whereas the Authority reported 115,094 acre feet of Colorado River water used. The difference of 22,891 acre feet was added to water in storage.

SAN DIEGO COUNTY WATER AUTHORITY

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

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

(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 1956-57 were available before completion of report and are included for convenience of reader.