

SAN DIEGO COUNTY  
WATER AUTHORITY



EIGHTH ANNUAL REPORT  
1954

SAN DIEGO COUNTY WATER AUTHORITY

EIGHTH ANNUAL REPORT  
*of Authority Operations*

*Fiscal Year Ending June 30, 1954*

CONTENTS

Member Agencies .....	II
Letter of Transmittal .....	III
Board of Directors June 30, 1954 .....	IV
Roll of Directors 1953-54 .....	VI
Committees of the Board .....	VII
Facts on Authority in Brief .....	IX
Growth of Authority Area .....	1
Water Supply and Consumption .....	3
Operation and Maintenance .....	9
Construction Program .....	12
Planning for the Future .....	19
Legal and Legislative .....	22
Financial .....	27
Metropolitan Water District .....	29
Index of Tables .....	33
Index of Figures .....	33

SAN DIEGO, CALIFORNIA

1954

SAN DIEGO COUNTY WATER AUTHORITY

MEMBER AGENCIES AS OF JUNE 30, 1954

<i>Member Agencies</i>	<i>Date of Entry</i>
Fallbrook Public Utility District.....	June 9, 1944
Lakeside Irrigation District.....	June 9, 1944
La Mesa, Lemon Grove and Spring Valley Irrigation District.....	June 9, 1944
City of National City.....	June 9, 1944
City of Oceanside.....	June 9, 1944
City of San Diego.....	June 9, 1944
San Dieguito Irrigation District.....	Dec. 13, 1948
Santa Fe Irrigation District.....	Dec. 13, 1948
City of Escondido.....	Oct. 9, 1950
South Bay Irrigation District:	
City of Chula Vista.....	June 9, 1944
(Withdrew as member agency to become part of So. Bay I.D.).....	Nov. 3, 1952
Area outside Chula Vista.....	Nov. 3, 1952
Rainbow Municipal Water District.....	April 10, 1954
Poway Municipal Water District.....	April 21, 1954
Bueno Colorado Municipal Water District.....	June 11, 1954
Rincon del Diablo Municipal Water District.....	June 14, 1954
Carlsbad Municipal Water District.....	June 16, 1954

LETTER OF TRANSMITTAL

235 Broadway  
San Diego, California  
September 1, 1954

Board of Directors  
San Diego County Water Authority

Gentlemen:

In accordance with the directive set forth in the Board's Ordinance No. 2, adopted December 1, 1944, a report of the Authority and its operations for the fiscal year ending June 30, 1954, has been prepared and is presented to the Board of Directors.

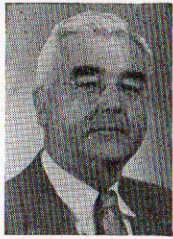
Acknowledgment and sincere appreciation are expressed to the staff and employees for their conscientious duty and devotion to the Authority, making it possible to record the accomplishments contained in this report for the fiscal year of 1953-54.

Very truly yours,

RICHARD S. HOLMGREN

*General Manager and Chief Engineer*

BOARD OF DIRECTORS  
June 30, 1954



Vice-Chairman  
D. Maitland Bakewell  
Santa Fe  
Irrigation District



Chairman  
Fred A. Heilbron  
San Diego



Secretary  
Mercel J. Shelton  
La Mesa, Lemon Grove  
and Spring Valley  
Irrigation District



Paul Beermann  
San Diego



Baylor Brooks  
San Diego



Donald Burnham  
San Diego



Maurice Carrigan  
National City



W. Ray Coyle  
South Bay  
Irrigation District



Charles A. Crytser  
Rincon del Diablo  
Municipal Water District



Hans H. Doe  
Bueno Colorado  
Municipal Water District



E. S. Dulin  
Rainbow Municipal  
Water District



J. William Fisher  
San Diego

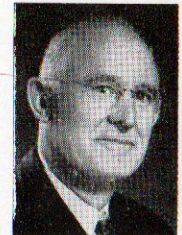
BOARD OF DIRECTORS  
June 30, 1954  
Continued



Tom Harrington  
San Dieguito  
Irrigation District



Otis P. Heald  
Fallbrook Public  
Utility District



George Kerrigan  
San Diego



R. M. Levy  
La Mesa, Lemon Grove  
and Spring Valley  
Irrigation District



Arthur H. Marston  
San Diego



Jack E. McLean  
Lakeside Irrigation  
District



Carl M. Reed  
Escondido



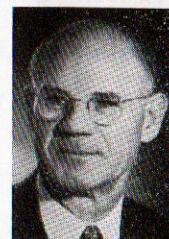
William W. Rogers  
Carlsbad Municipal  
Water District



David R. Shepardson  
Poway Municipal Water  
District



Fred W. Simpson  
San Diego



Robert A. Weese  
Oceanside



Arthur C. Wells  
San Diego

## ROLL OF DIRECTORS

1953 - 54

BUENO COLORADO MUNICIPAL WATER DISTRICT	
Hans H. Doe.....	6-15-54 to Present
CARLSBAD MUNICIPAL WATER DISTRICT	
William W. Rogers.....	6-17-54 to Present
CITY OF ESCONDIDO	
Carl M. Reed.....	10-18-50 to Present
FALLBROOK PUBLIC UTILITY DISTRICT	
Otis P. Heald.....	12-8-50 to Present
LAKESIDE IRRIGATION DISTRICT	
Jack E. McLean.....	4-1-52 to Present
LA MESA, LEMON GROVE AND SPRING VALLEY IRRIGATION DISTRICT	
Mercel J. Shelton.....	2-13-48 to Present
R. M. Levy.....	5-12-53 to Present
CITY OF NATIONAL CITY	
Delavan J. Dickson.....	8-5-47 to 7-21-53
Maurice Carrigan.....	7-21-53 to Present
CITY OF OCEANSIDE	
Robert A. Weese.....	3-25-53 to Present
CITY OF SAN DIEGO	
Fred A. Heilbron.....	7-15-44 to Present
Arthur H. Marston.....	7-15-44 to Present
Fred W. Simpson.....	7-15-44 to Present
J. William Fisher.....	3-7-50 to Present
Raymond M. Wansley.....	3-7-50 to 9-15-53
Bruce Watt.....	8-14-50 to 7-14-53
Paul Beermann.....	2-24-53 to Present
Arthur C. Wells.....	2-24-53 to Present
Clinton D. McKinnon.....	7-14-53 to 5-11-54
George Kerrigan.....	9-15-53 to Present
Baylor Brooks.....	5-11-54 to Present
Donald Burnham.....	5-11-54 to Present
POWAY MUNICIPAL WATER DISTRICT	
David R. Shepardson.....	4-22-54 to Present
RAINBOW MUNICIPAL WATER DISTRICT	
E. S. Dulin.....	4-19-54 to Present
RINCON DEL DIABLO MUNICIPAL WATER DISTRICT	
Charles A. Crytser.....	6-21-54 to Present
SAN DIEGUITO IRRIGATION DISTRICT	
Frank S. Jacobson.....	12-22-48 to 1-8-54
Tom Harrington.....	1-8-54 to Present
SANTA FE IRRIGATION DISTRICT	
D. Maitland Bakewell.....	12-13-48 to Present
SOUTH BAY IRRIGATION DISTRICT	
W. Ray Coyle.....	6-2-53 to Present

## COMMITTEES OF THE BOARD

June 30, 1954

### ENGINEERING AND OPERATIONS

M. J. Shelton, Chairman  
 Paul Beermann, Vice Chairman  
 J. W. Fisher  
 Tom Harrington  
 Arthur H. Marston  
 Carl M. Reed  
 Robert A. Weese

### FINANCE AND INSURANCE

Arthur C. Wells, Chairman  
 D. M. Bakewell, Vice Chairman  
 W. Ray Coyle  
 E. S. Dulin  
 George Kerrigan  
 R. M. Levy  
 Jack E. McLean  
 Carl M. Reed

### LEGAL AND CLAIMS

D. M. Bakewell, Chairman  
 O. P. Heald, Vice Chairman  
 Maurice Carrigan  
 R. M. Levy  
 David R. Shepardson  
 Arthur C. Wells

### ORGANIZATION, PERSONNEL, AND PUBLIC RELATIONS

Fred W. Simpson, Chairman  
 D. M. Bakewell, Vice Chairman  
 Maurice Carrigan  
 W. Ray Coyle  
 Tom Harrington  
 Jack E. McLean  
 David R. Shepardson  
 Robert A. Weese

### WATER PROBLEMS

Arthur H. Marston, Chairman  
 J. W. Fisher, Vice Chairman  
 Paul Beermann  
 W. Ray Coyle  
 E. S. Dulin  
 O. P. Heald  
 Fred A. Heilbron  
 M. J. Shelton  
 Fred W. Simpson

### BUILDING

J. W. Fisher, Chairman  
 M. J. Shelton, Secretary  
 Jack E. McLean  
 W. Ray Coyle  
 Fred W. Simpson  
 Donald Burnham

### 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
Superintendent, Maintenance and Operation.....	A. B. Gale

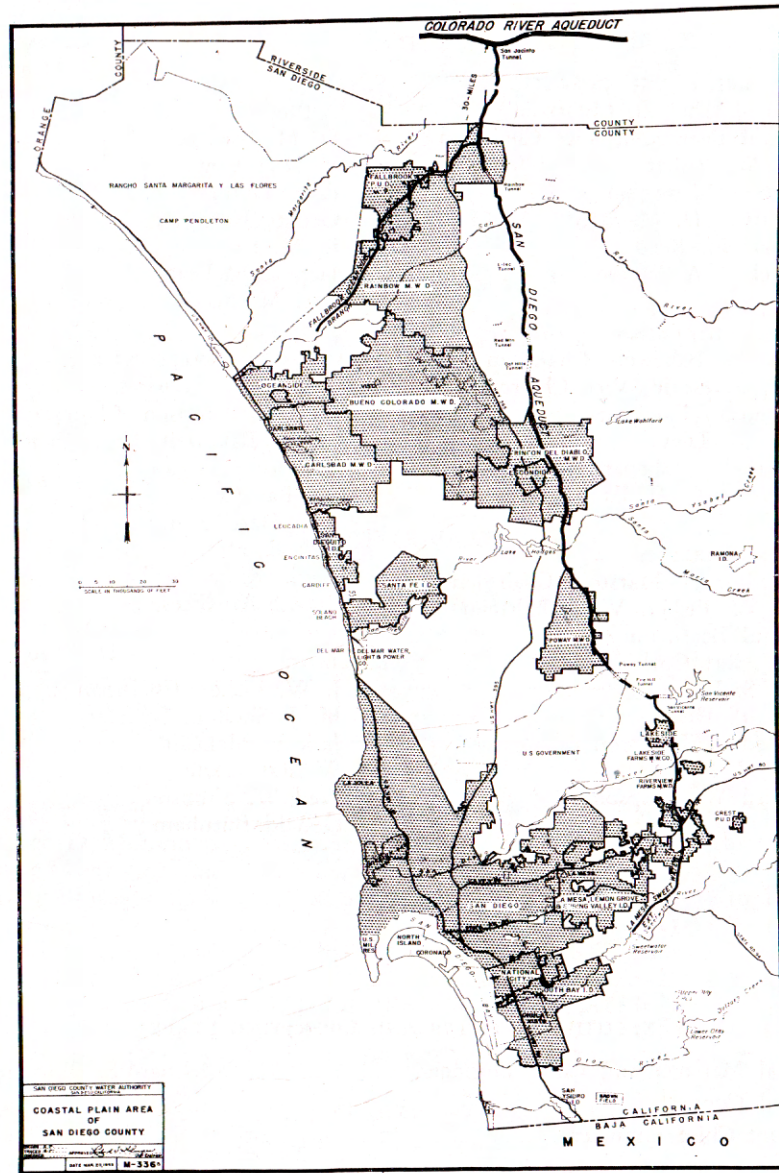


Figure A. Authority area within San Diego County.

## FACTS ON AUTHORITY IN BRIEF

	1945-46	1952-53	1953-54	Increase 8-year period 1945 to 1953
<b>GROWTH OF AREA</b>				
Population .....	350,000	631,706	679,081	329,081
Area ..... (acres)	94,707	140,174	294,117	199,410
Assessed Valuation .....	\$270,296,805	\$506,653,410	\$659,569,810	\$389,273,005
<b>USE OF WATER</b>				
Total Water Production Average acre feet per year .....	88,837	105,975	137,901	49,064
Average m.g.d. ....	79.3	94.6	123.1	43.8
Colorado River Water used Acre feet per year .....	0	30,468	69,649	69,649
Average m.g.d. ....	0	27.2	62.2	62.2
<b>GROWTH OF SYSTEM</b>				
Miles of Aqueduct .....	0	34.7	66.0	66.0
Miles of Branch Lines .....	0	32.7	32.7	32.7
Number of Service Outlets	0	13	16	16
<b>FINANCIAL</b>				
Assets .....	\$ 34,790	\$39,013,678	\$43,570,346	\$43,535,556
Funded Debt .....	0	\$14,325,000	\$13,775,000	\$13,775,000
Total Revenue .....	\$118,061	\$ 1,030,547	\$ 1,563,534	\$ 1,445,473
From taxes .....	\$100,762	\$ 618,334	\$ 670,479	\$ 569,717
From other sources .....	\$ 17,299	\$ 412,213	\$ 893,055	\$ 875,756



*Opening gate valve at San Jacinto Reservoir, admitting first Colorado River water into Second Barrel: l. to r.—J. R. Walton, Bureau of Reclamation; R. B. Diemer, Metropolitan Water District; Fred A. Heilbron, Authority; Captain K. A. Godwin, U. S. Navy; Richard S. Holmgren, Authority.*

## REPORT OF THE AUTHORITY AND ITS OPERATIONS For Fiscal Year 1953-54

The San Diego County Water Authority marked the tenth anniversary of its incorporation on June 9, 1954. The Authority was organized under the County Water Authority Act, passed by the California Legislature in 1944. The primary objective of the formation of the Authority was to import water from outside of San Diego County to supplement an insufficient local supply of water, thereby permitting a continuance of the tremendous growth which was then under way within the County. During its ten years of existence the Authority has increased in size, population, and assessed valuation, moving forward rapidly and substantially, accomplishing the purpose for which it was organized. By June 30, 1954 the San Diego Aqueduct was practically completed, making possible the importation of about 155,000 acre feet of Colorado River water per year (140 m.g.d.). With the present locally developed supply of water, this will make available to the Authority area a combined (local and imported) supply of about 245,000 acre feet of water per year (218 m.g.d.), sufficient to support a population in excess of 1,500,000 people.

Demands on the Authority for Colorado River water continued to increase during the fiscal year. The ability to meet these needs with the existing Authority system was somewhat strained. However, all supplemental water requirements of member agencies were supplied. With only that portion of the Second Barrel of the Aqueduct lying north of Lilac Tunnel completed and in operation at the end of the fiscal year, water was being delivered to member agencies at the rate of 126 c.f.s. (81.43 m.g.d.), equivalent to a delivery of 91,220 acre feet of water if maintained continuously throughout the year. This flow is about 70% of the estimated capacity of the Aqueduct when finally completed.

### GROWTH OF AUTHORITY Area

The total area within the boundaries of the Authority was 294,189 acres on June 30, 1954, an increase of 154,015 acres during the year. Of this increase, 148,300 acres or 96% was due to annexation of the newly organized Rainbow, Carlsbad, Bueno Colorado, Rincon del Diablo, and Poway Municipal Water Districts to the Authority during the year.

These Districts were annexed under terms and conditions, established by the Board of Directors of the Authority, which included the requirement of concurrent annexation to the Metropolitan Water District. The remaining 5,715 acres or 4% of the total area annexed was automatically brought into the Authority by areas annexing to a member city without action of the Authority Board. In the 10-year period from June 30, 1944 to June 30, 1954 the area of the Authority was enlarged from about 94,000 acres to 294,189 acres, an increase of 211%. The 294,189 acres within the boundaries of the Authority, as of June 30, 1954, represent 11% of the 2,725,100 acres of land within San Diego County.

The Lakeside Irrigation District, the La Mesa, Lemon Grove and Spring Valley Irrigation District, and the San Dieguito Irrigation District have within their boundaries areas totaling 5,725 acres lying outside of the Authority's boundaries, which have been annexed to these agencies for local purposes. These areas are not eligible for Colorado River water. The largest acreage of these outside lands includes 4,086 acres of operative lands, lying within La Mesa, Lemon Grove and Spring Valley Irrigation District, on which no water is used.

A detailed tabulation, giving acreage and changes in each agency during the fiscal year, is shown on Tables 1 and 2.

### Population

At the close of the fiscal year, the population within the Authority area was estimated at approximately 679,000, a net increase of 47,375, or 7.5% over the previous year. This represents a growth in population of approximately 227,000 or 50% in the 4-year period since 1950, when the population was determined by the U. S. Census Bureau.

Average density of population per square mile within the Authority area in 1954 was 1,478 persons, ranging from a low of 32 in the Rainbow District to a high of 3,962 in the City of National City. The estimated population of 679,000 people residing within the Authority area at the end of the fiscal year includes 93% of all people living within San Diego County.

Detailed data on population within each member agency is shown on Tables 3 and 4.

### Assessed Valuation

The assessed valuation of all taxable property lying within the Authority area for the fiscal year 1953-54 was reported as \$659,569,810, an increase of \$152,916,400 or 30% over the 1952-53 fiscal year. This

represents an average assessed valuation of \$2,243 per acre for all lands within the Authority, a decrease of \$1,370 per acre over the assessed valuation per acre in 1952-53, reflecting the low assessed valuation of large areas of dry land annexed during the year.

The assessed valuations of taxable property within each member agency for the fiscal year 1953-54, and a comparison to the valuations in the previous year are shown on Table 5.

Prior to publication of this report, an assessed valuation of \$736,636,494 for the fiscal year 1954-55 was determined from data received from the County Assessor and from the estimated assessed valuations used in fixing the annexation fees of the new municipal water districts. This represents about 89% of the assessed valuation of taxable property within San Diego County.

## WATER SUPPLY AND CONSUMPTION

### Aqueduct Flow

During the fiscal year 1953-54, requests for water exceeded the ability of the Aqueduct to supply the demands. All requirements were met, however, by augmenting deliveries of water from the Aqueduct with water previously stored by the Authority in San Vicente Reservoir, under a storage agreement entered into with the City of San Diego in 1950.

At the beginning of the year the maximum capacity of the Aqueduct, as then completed, was 102 c.f.s. This flow was maintained in the Aqueduct and distributed among member agencies. On April 6, 1954 the Second Barrel of the Aqueduct as far south as Lilac Tunnel was completed and placed in operation by the Authority and the Metropolitan Water Dis-



Second Barrel across Slaughterhouse Canyon.

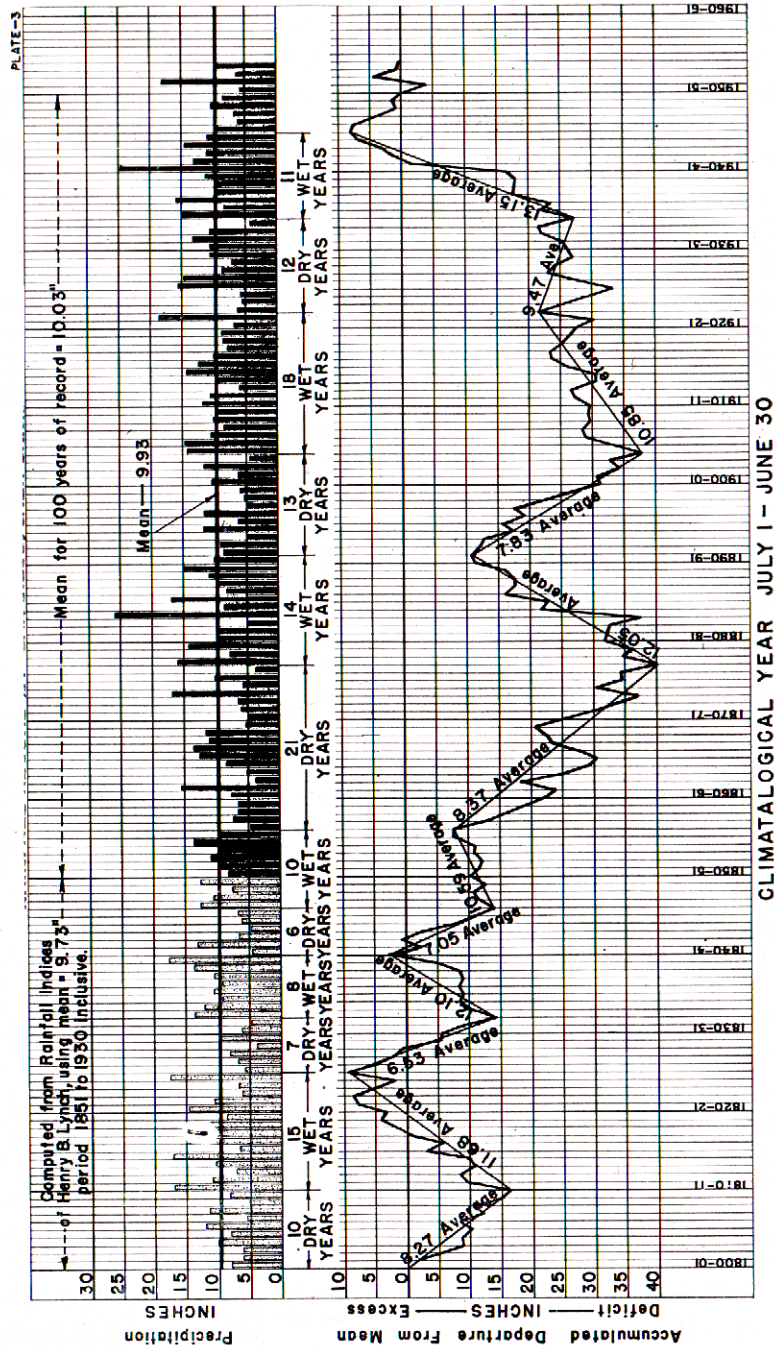


Figure B. Rainfall Record at San Diego, California.

tract under terms of Supplemental Agreement No. 5, pending final completion of the Second-Barrel construction and its official transfer to the Authority. The additional 110 c.f.s. capacity above Lilac Tunnel made it possible to supply supplemental requirements of the Fallbrook, Rainbow, and Carlsbad Districts, and the City of Oceanside with Colorado River water, as well as bring in sufficient water to utilize the full capacity of the First Barrel south of Lilac Tunnel. On June 30, 1954 the Aqueduct carried a record high flow to that date of 126 c.f.s. (81.43 m.g.d.).

Average flow in the Aqueduct during the 1953-54 fiscal year was 92.9 c.f.s. (60.04 m.g.d.). The total quantity of water carried in the Aqueduct during the year was 67,257 acre feet. The average flows carried monthly are shown on Table 6.

**Water Deliveries**

The total quantity of water sold to member agencies during the fiscal year was 69,635 acre feet. This was an increase of 38,691 acre feet above the quantity delivered in the 1952-53 fiscal year, when, because of good winter rains, very little Colorado River water was used over a 10-month period from May 1952 to January 1953.

Monthly water sales to member agencies and water deliveries from the Aqueduct are shown on Table 6.

A maximum monthly water delivery for the entire fiscal year occurred in May, 1954, when 6,985 acre feet, equal to a continuous flow of 113.6 c.f.s. (73.42 m.g.d.), was delivered to member agencies. The maximum daily water delivery occurred on June 28, 1954, when 250 acre feet, equal to a continuous flow of 126 c.f.s. (81.43 m.g.d.), was delivered into the agencies' systems.

The annual quantity of water delivered to member agencies by the Authority since 1947, when operation of the Aqueduct began, is shown on Table 7.

**Water Production of Authority Agencies**

Water production is the total quantity of water diverted into an agency's system from all its sources of water supply, including Colorado River water received from the Authority and water diverted from local storage reservoirs and wells. It represents the quantity of water used by the agency to meet the consumptive needs of its customers, plus the losses in the distribution system and in transmission of water to the area. Water impounded in storage reservoirs during the rainy season for future use is not included as water production until it is diverted for use.

Total water production, as reported by member agencies in the fiscal year ending June 30, 1954, was 137,901 acre feet. Water production of those agencies which were members of the Authority at the beginning of the fiscal year was reported as 113,171 acre feet, an increase of 7,196 acre feet or 6.8% over the previous year.

Of the total 137,901 acre feet of water produced within the Authority, 52,098 acre feet or 37.8% was Colorado River water.

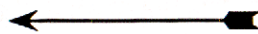
The total water production of each agency, together with the proportion of Colorado River and local waters, and other pertinent information are shown on Tables 8 and 9.

The 137,901 acre feet of water produced by member agencies during the year was used to meet the demands of a gross area of 145,410 acres, the approximate area served by the agencies' present distribution systems. This is equivalent to an average water production within this area of 0.95 acre feet per acre per year, slightly less than that of the previous year. Assuming that practically all of the population living within the Authority area was served with water from one of the agency systems, the average use of water within the Authority area was 0.20 acre feet per capita per year or 180 gallons per day per capita.

The units per acre and per capita production for each agency are shown on Table 10.

### Storage

The Authority has no storage reservoir of its own. Through a 5-year agreement with the City of San Diego, entered into February 17, 1950, the Authority has obtained permission to store up to 20,000 acre feet of water in San Vicente Reservoir whenever capacity is available. Water is stored under this agreement only when an agency requests that a definite quantity of water be stored to its account. The



*San Vicente Reservoir, terminus of San Diego Aqueduct.*



agency agrees to ultimately take all the water stored to its account, and is billed for water and storage charges when the water is delivered. A charge of \$2.50 for each year, or fraction thereof during which water is stored to the agency's account, is added to the regular delivery price of \$12 per acre foot for water delivered directly from the Aqueduct. Of this amount, \$1.00 per acre foot is paid to the City of San Diego as a storage charge, and the remainder is used to pay for water needed to replace that lost by evaporation.

As of June 30, 1954, there was a total of 1,464.1 acre feet of water stored in San Vicente Reservoir by the Authority to the accounts of its member agencies, a decrease of 2,621.5 acre feet from that in storage at the beginning of the fiscal year. Requests from member agencies for water to be placed in storage during the year totaled 2,533 acre feet. Only 1,722.2 acre feet was actually placed in storage during the year, due to lack of surplus capacity in the Aqueduct.

The change in Authority storage in San Vicente Reservoir during the fiscal year is shown on Table 11.

The combined total of all water stored in reservoirs of Authority agencies at the close of this fiscal year was 121,548 acre feet, only 26% of the combined capacity of the reservoirs. This represented a drop of 11,663 acre feet during the year, due primarily to the small runoff into reservoirs during the rainy period of the year.

A chart showing variations in amounts of water in storage since 1947 is shown on Figure C.

### Water Quality

The Metropolitan Water District continues to take monthly samples of water at the intake of the San Diego Aqueduct and to make analyses of these samples at its laboratory located at La Verne, California. Water delivered into the Aqueduct showed an average total hardness of 303 p.p.m. during the year, ranging from a low of 285 p.p.m. in August 1953 to a high of 317 p.p.m. in June 1954.

Results of water analyses, taken by Metropolitan Water District, are shown on Table 12.

Periodic water temperatures taken on the Aqueduct by patrolmen showed a high of 84° in July to a low of 50° in December 1953.

### Preferential Water Rights of Member Agencies

All requests for Colorado River water from member agencies are filled without question of right so long as there is capacity within the Aqueduct and Branch Lines to supply such requests. Whenever the total requests for water exceed the capacity of the pipe lines, through

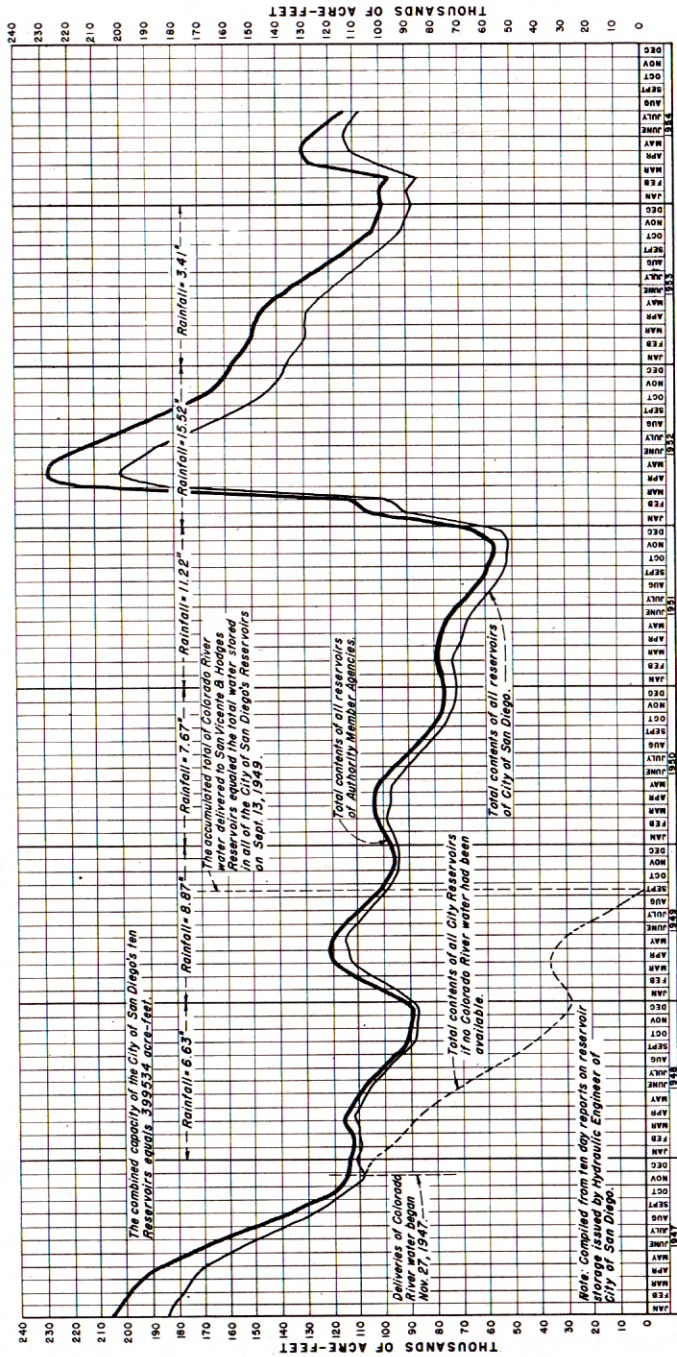


Figure C. Amount of water in storage in reservoirs of Authority member agencies.

which the water must pass before delivery, such requests must be reduced to meet the capacity of the line. This has been accomplished by agencies having other available supplies voluntarily reducing their requests until the total of such requests equal available capacity. If the required reduction cannot be obtained by voluntary means, the available water is allocated among those agencies requesting water in accordance with their preferential rights to purchase water, as specifically set forth in Section 5 (11) of the County Water Authority Act.

Stated briefly, the preferential right of an agency to purchase water is the right to purchase at all times that portion of the Authority's total water supply which bears the same relationship 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 surplus water which results whenever other agencies do not take the full quantity of water to which they have rights.

The Second Barrel of the Aqueduct will be completed early in the fall of 1954, and there will then be capacity available to supply the Authority with a maximum flow of water estimated at 215 c.f.s., or 140 m.g.d.

The basic preferential right of each Authority agency to purchase water on the basis of 215 c.f.s. flow, as of June 30, 1954, is shown on Table 13.

In computing the percentage rights of each agency, the amounts still due the Authority for annexation charges have been considered as a contractual obligation and added to amounts actually paid.

## OPERATION AND MAINTENANCE

### Operation

The heavy demand for water in the Authority area resulted in the Aqueduct flows being kept continuously at the highest rate considered safe without overflowing the walls of the open structures along the Aqueduct. A daily patrol of the Aqueduct line was continued throughout the year, primarily to inspect flow conditions and water levels in the open structures so that any reduction in capacity (due to bacterial growth developing in the pipe lines) might be remedied as soon as possible. A weekly patrol was made over the Branch Lines, there being no open structures on these lines. Patrolmen also inspected all air valves and meters, making minor adjustments, reporting any unusual conditions requiring more extensive work. Once each week the patrolmen changed charts on all recording meters and forwarded the removed charts to the San Diego office. Meter readings

were taken on the last day of the month for the purpose of billing agencies for water delivered by the Authority.

Ordinance No. 33, adopted by the Board of Directors on July 24, 1947 (later amended by Ordinance No. 44, adopted June 30, 1949; later amended by Ordinance No. 50, adopted December 21, 1950, designating operating procedure), provides that an agency shall give 18 hours' notice before any change is made in the quantity of water being delivered to that agency. Because of this requirement, the patrolmen were able to make such changes in the course of their daily patrol of the Aqueduct. However, there were several occasions when, due to emergencies, special trips were made to make changes in delivery to member agencies. Such special trips are kept to a minimum and only made in case of an emergency.

### Maintenance

The maintenance crew, consisting of six men, operate out of the Authority's field headquarters in Escondido, California. Maintenance work consists primarily of: (1) upkeep of access roads to permit ready access to the Aqueduct and Branch Lines at all times for operational purposes (2) maintenance of structures, including painting of exposed metal and woodwork, and (3) mechanical upkeep of automotive and mechanical equipment, including metering and control equipment. With the construction of the Second Barrel (still in progress), the contractors were using and maintaining the Authority patrol and access roads within the construction area. This resulted in a substantial reduction during the year of time spent by Authority personnel in the maintenance of these roads.

Careful checks were made of all exposed pipe and metal work for evidence of corrosion. Wherever found, the part was wire brushed and painted. Identification numbers on the Aqueduct and Branch-Line structures were repainted.

Existing maintenance equipment and patrol cars have been in use since the beginning of operations in 1947, and are beginning to show signs of excessive wear. In the near future it will be necessary to replace much of the equipment. The car used by the Maintenance Superintendent was replaced during the fiscal year.

Periodic checks for accuracy have been made of each meter in the Authority system, by which the quantity of water delivered to the agencies is measured. Blowoffs throughout the system were also periodically flushed to prevent an accumulation of silt, and air valves were cleaned and repaired whenever necessary. All plug valves were periodically greased.

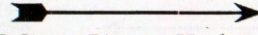
In view of the successful reduction in maintenance work, resulting from drain holes drilled in the bottom of valve and manhole vaults on the Aqueduct, similar drain holes were drilled in Branch-Line structures located on high ground, well above the ground water level. A substantial decrease in time spent removing accumulated water, as well as less rusting of metal parts, has resulted.

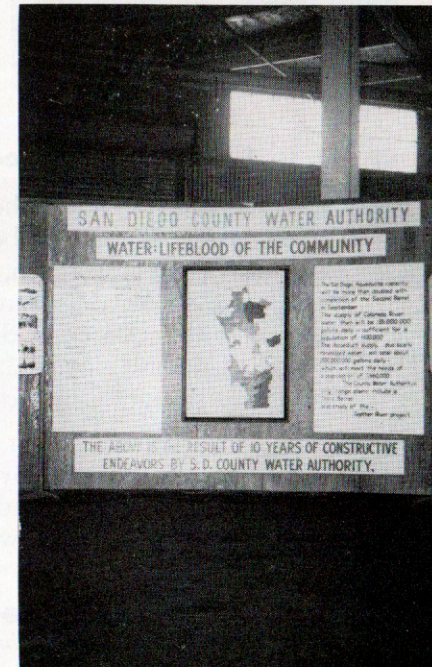
### Chlorination

The Authority does not prepare water for domestic use, but does inject chlorine gas into the line at periodic intervals during the summer to maintain the carrying capacity of the pipe lines. Water levels in open structures were checked daily during the summer months to detect any rise, which would indicate bacterial growth within the pipe lines. Whenever a rise was noted, chlorine gas was introduced into the Aqueduct at Lilac Tunnel, through an injection apparatus constructed by the maintenance crew. Three one-ton containers of chlorine gas were used during the year. Upon completion of the Aqueduct, the Authority will have a modern chlorination station located at Lilac Tunnel. This station was included in the Second-Barrel construction and will permit more efficient chlorination of the flow in the Aqueduct.

### Public Relations

A display was prepared for exhibit at Broadway Pier during the celebration of Harbor Days, May 29 to 31, inclusive. The exhibit consisted of maps, charts, and pictures, portraying the work of the Authority in providing ample water to assist in maintaining the rapid growth of San Diego County. Pictures exhibited included those showing recent construction on the San Diego Aqueduct and service outlets. The Authority also provided pictures and maps of Authority Second-Barrel construction for the Metropolitan Water District exhibit at the Del Mar County Fair.

  
 Authority display at B Street Pier on Harbor Days.



## CONSTRUCTION PROGRAM

### Cooperation with Federal Agencies



The Authority staff continued to cooperate with the Bureau of Reclamation and the U. S. Navy in the construction of the Second Barrel of the San Diego Aqueduct. Cooperation consisted primarily of assistance in securing rights of way for the Aqueduct, and determining the most advantageous points at which nozzles should be installed on the Aqueduct pipe to provide future service outlets, to be constructed by the Authority. The installation of these nozzles, prior to placing the Second Barrel in operation, will result in a minimum shutdown when service to member agencies at these locations is required.

← Grouting top of joint.

### San Diego Aqueduct

On June 30, 1954, there remained only 9,464 feet of pipe to be laid on the Second-Barrel construction, all in the vicinity of Escondido. It is anticipated that all pipe will be placed by September 1, 1954, and that the Second Barrel can be placed in full operation by October 1, 1954.

During the fiscal year a total of 217,870 feet of pipe was laid by the five contractors participating in the construction of the Second Barrel as follows:

→ Pouring mortar grout in outside joint of 75" concrete pipe.



**Schedule No. 1—Contract No. 14-06-D-160:** R. V. Lloyd and Company, contractor, constructed the section of pipe extending from San Jacinto Reservoir to the vicinity of Winchester. This section of the Aqueduct consists of 48,024 feet of 75-inch pipe. The contract was completed on April 15, 1954, 161 days ahead of schedule at a total construction cost of \$2,566,737.76.

**Schedule No. 2—Contract No. 14-06-D-158:** Engineering Constructors, Inc., contractor, constructed the section of pipe extending from Winchester to Murrietta. This section of the Aqueduct consists of 20,762 feet of 48-inch pipe and 31,928 feet of 60-inch pipe. The contract was completed on September 15, 1953, 373 days ahead of schedule at a total construction cost of \$2,027,399.90.

### Schedule No. 3— Contract No. 14-06-D-159:

Johnson Western Constructors, contractor, constructed the section of pipe extending from Murrietta to San Luis Rey Siphon. This section of the Aqueduct consists of 16,672 feet of 48-inch pipe and 45,634 feet of 60-inch pipe. The contract was completed on March 3, 1954, 204 days ahead of schedule at a total construction cost of \$3,169,881.48.

→ Well points for unwatering trench at Temecula River crossing.





*Gathering at placing of last pipe.*

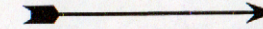
The above three schedules include that portion of the Aqueduct which will be operated and maintained by the Metropolitan Water District.

On January 14, 1954, the U. S. Navy turned over to the Authority for operation and maintenance that portion of the Aqueduct completed under the above schedules, as provided for under Contract No. NOy 13300, Supplemental Agreement No. 5. In view of ultimate possession of this section of the Aqueduct, the Metropolitan Water District assumed responsibility for its operation and maintenance.

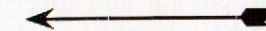
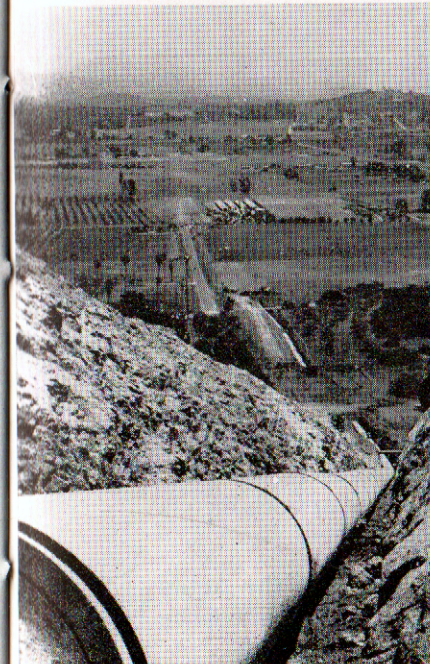
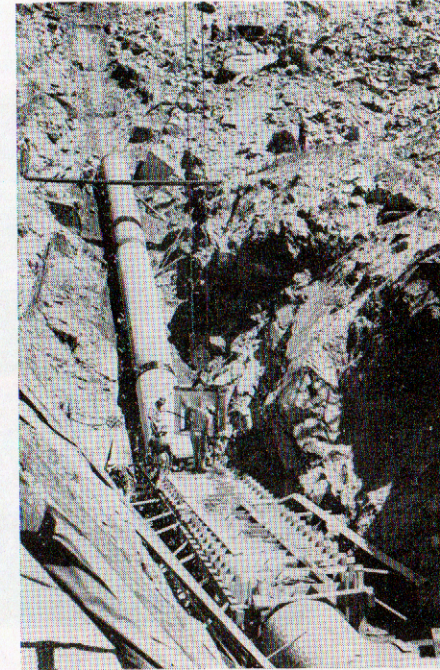
**Contract No. 14-06-D-258:** P. & J. Artukovich and M. Miller Company, contractors, constructed the San Luis Rey Siphon across San Luis Rey River. A total of 6,874 feet of 48-inch steel pipe, having a maximum thickness of 13/16 of an inch, coated internally with coal tar enamel and externally with cement mortar, was laid. The contract was completed on November 9, 1953, 63 days ahead of schedule at a total construction cost of \$705,417.22 and released to the Authority for operation and maintenance on December 28, 1953.

**Schedules 1, 2, and 3—  
Contract No. 14-06-D-267:**

S. A. Healy Company, contractor, is constructing the section of the Aqueduct extending from San Luis Rey Siphon to San Vicente Tunnel. A total of 152,275 feet of pipe will be laid under this contract, consisting of 123,046 feet of 48-inch pipe and 29,229 feet of 54-inch pipe. At the close of the fiscal year only 9,464 feet of 48-inch pipe remained to be laid.

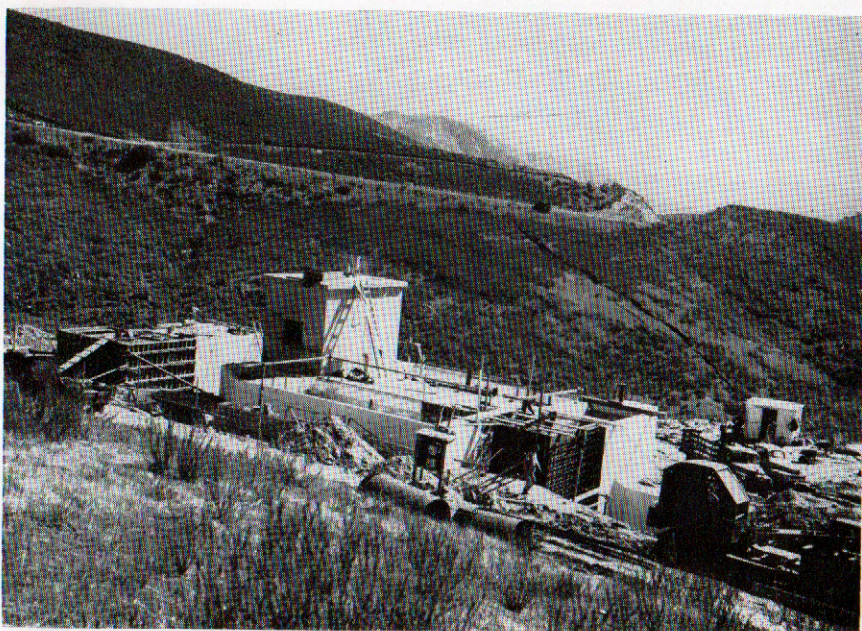


*Placing anchor block concrete under State Highway No. 76 at San Luis Rey River crossing.*



*48" concrete pipe at Hubbard Hill,  
near Escondido.*

Two major structures on the Aqueduct were completed under the S. A. Healy contract—the new chlorination station, located at the South Portal of Lilac Tunnel, and a metering structure, located in Slaughterhouse Canyon. The chlorination station was completed on June 30, 1954



*Metering structure at Slaughterhouse Canyon.*

and ready for installation of equipment, to be furnished by the Authority. The metering structure will house a 60" x 30" venturi meter with a capacity of 180 c.f.s., a 24" x 12" venturi meter with a capacity of 20 c.f.s., and a 30-foot calibrated weir. These meters will make it possible to measure all flows discharged into San Vicente Reservoir.

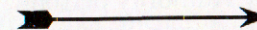
A complete shutdown of that portion of the Aqueduct in Slaughterhouse Canyon was necessary from March 9 to 12, 1954 to permit the removal of a portion of the First Barrel and to complete construction of the interconnecting channel between the First and Second Barrels at the metering and diversion structure. When completed, water from both barrels will pass through either or both meters before being discharged into San Vicente Reservoir.

The San Luis Rey-Lilac section of the Second Barrel of the Aqueduct was transferred to the Authority for operation and maintenance on December 28, 1953, and placed in operation on April 6, 1954.

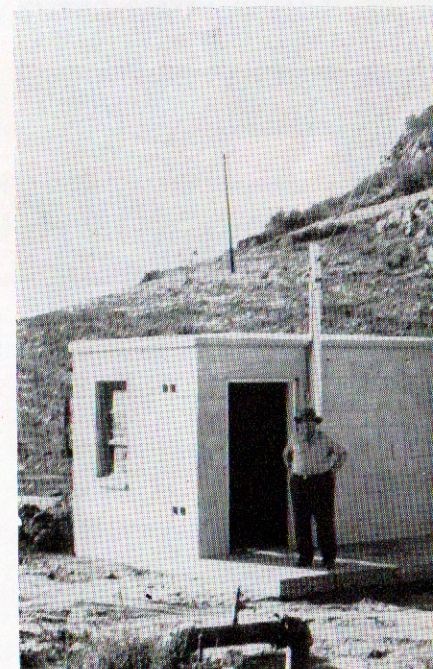
### **Rainbow Station**

This station is located on the Aqueduct at Rainbow, adjacent to the existing Fallbrook-Oceanside Branch takeoff, and will house the equipment for controlling and measuring water to be delivered to the Rainbow and Fallbrook Districts. The Rainbow Station includes a valve vault, in which the main shutoff valves at the connection to the Aqueduct are housed, and a concrete and cement block structure, in which the meters and control valves are housed. A 24" x 12" venturi-type meter with a capacity of 30 c.f.s. will be installed to deliver water to the Fallbrook Public Utility District, and a 10" x 5.3" venturi meter with a capacity of 6 c.f.s. will be installed to supply water to the Rainbow District.

Construction drawings were prepared by the Authority's engineering staff. All construction work was performed by the Authority's maintenance crew, augmented by two carpenters and a helper engaged on a temporary basis.

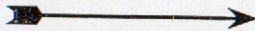


*Rainbow Station, housing meter and control valves for Rainbow Municipal Water District and Fallbrook Public Utility District.*



### Bueno Station

This station will control and measure water to be delivered to the Bueno Colorado Municipal Water District. Construction was started in June 1954, from plans prepared by the Authority's engineering staff. During the Aqueduct shutdown in March, a blank flange installed during the construction of the original pipe line was replaced by a 20-inch plug valve to control flows from the First Barrel of the Aqueduct. By installing the valve during the shutdown, no further shutdown of the Aqueduct will be required to install and place the Bueno Station in operation.



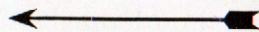
*Pouring concrete, Bueno metering station.*



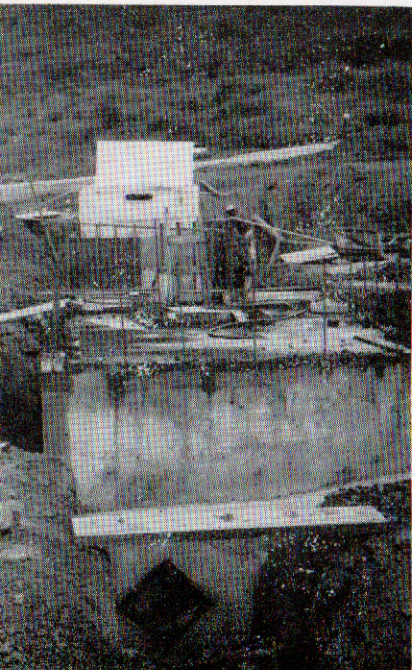
A 24" x 12" meter with a capacity of 30 c.f.s. will be installed at this location to supply water to the Bueno Colorado District. Provision has been made for the installation of an additional meter in the station at minimum expense some time in the future. All work is being performed by Authority personnel. At the end of the fiscal year, construction had progressed to approximately 10% with completion anticipated in mid-August of 1954.

### Rincon Station

Designs have been completed and major equipment ordered for the construction of Rincon Station, which will house an 18" x 10" venturi meter with a capacity



*Substructures, Bueno metering station.*



of 21 c.f.s., through which water will be delivered to the Rincon del Diablo Municipal Water District. By June 30, 1954 no construction had started.

### Poway Station

Engineering designs and plans for the construction of the Poway Station were well under way at the close of the fiscal year, but no construction work had started. The 3 c.f.s. capacity meter, authorized to be installed at Authority expense at its meeting held February 25, 1954, was increased in capacity at the request of the Poway Municipal Water District to a 12" x 7" meter with a capacity of 10 c.f.s., the District agreeing to pay the difference in cost.

### Rainbow Temporary Metering Installations

In order to provide water to the Rainbow District during the early summer, prior to completion of the permanent station, two temporary valves and meters were installed at the blowoff located at Station 0 + 90 on the Fallbrook-Oceanside Branch. The meters were a Hersey 6-inch Model FM and a 2-inch Compound Model CT. Installation was completed in March, and the first water was delivered near the end of the month. All costs were met with funds deposited by the Rainbow Municipal Water District, and the work was performed by Authority personnel.

### Poway Temporary Meters

In accordance with permission granted by the Board of Directors at the June meeting, two temporary meters were installed at the blowoffs located at Stations 523 + 43 and 276 + 26. Connections were made to discharge pipes of the blowoffs, and no change was made in the blowoff structures. The meter at Station 523 + 43 is a Hersey 6-inch Model FM, to conserve all head possible. The one located at Station 276 + 26 is a Hersey 6-inch Compound Model CT, which will probably remain in service for a year. All installation costs were met by funds deposited with the Authority by the Poway Municipal Water District.

### PLANNING FOR THE FUTURE

At various times during the year the Board of Directors requested that the staff make studies looking toward the future needs of the Authority. Special studies are being made for the need of additional

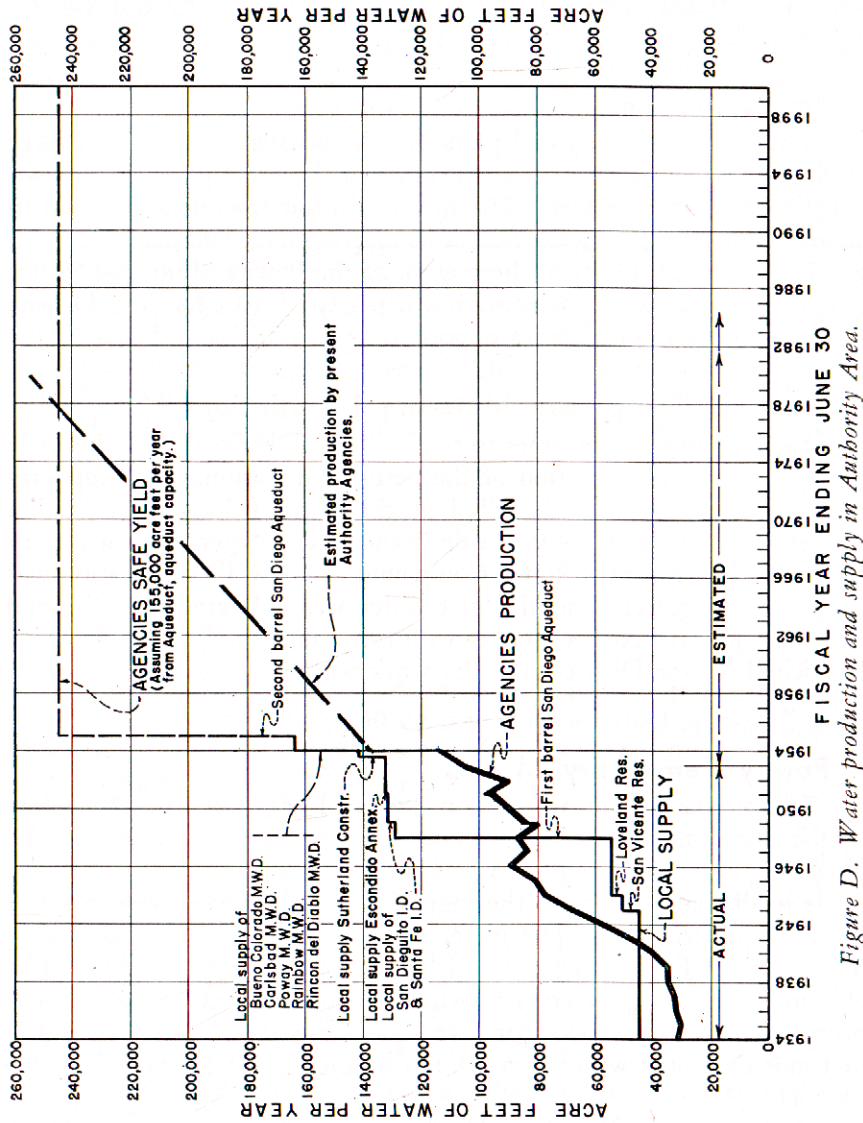


Figure D. Water production and supply in Authority Area.

Branch Lines to serve the areas recently annexed, the need and possibilities of storage for surplus water, and the sources of additional water supply.

### Additional Branch Lines

The terms and conditions of annexation extended to all districts annexed during the year, included the requirement that point of delivery of water to the districts would be the existing San Diego Aqueduct. This was in accordance with action of the Board, taken at its meeting on May 13, 1948, as follows:

“It was moved by Director Beck, seconded by Director Shelton and unanimously carried that the Board adopt the policy that annexing agencies must construct at their own expense the required connecting lines to the Authority’s works; and should the point of delivery of water by the Authority be other than the point of connection, the line from connection to point of delivery must be constructed to the Authority’s approval and, upon completion, be turned over to the Authority for operation and maintenance.”

With the annexation of five large districts during the year and the consideration of other large areas, it became evident that additional Branch Lines must be constructed from the Aqueduct to supply water to these areas if they are to be efficiently served without the duplication of facilities. Preliminary studies made thus far indicate that two Branch Lines leading from the Aqueduct will probably be necessary, one in the vicinity of Escondido and extending to Carlsbad via San Marcos, and the other paralleling the existing La Mesa-Sweetwater Line and extending to Otay Reservoir.

At the end of the fiscal year, the approximate location of pipe lines and water requirements for each area to be served had been determined by preliminary studies.

### Storage Capacity

The Authority now has 20,000 acre feet of storage capacity in San Vicente Reservoir whenever such storage is available and not required by the City of San Diego. The current 5-year contract with the City of San Diego, under which the Authority stores water in the reservoir, expires February 17, 1955.

A beginning has been made on a study of the future requirements

of the Authority member agencies' need for storage capacity and the possible locations of such storage.

### **Additional Water Supply**

Studies made by the staff indicate that with a continuation of the present population growth in the County, the developed water supply, including Colorado River water, will be used up in about 20 years or in 1975, and that new supplies should be available at that time. A report by Mr. A. D. Edmonston, State Engineer, on the proposed Feather River Project has been reviewed in the light of the Authority's needs. An inspection trip over the Feather River Project was made by Directors Paul Beermann, George Kerrigan, M. J. Shelton, and General Manager and Chief Engineer of the Authority, Richard S. Holmgren, accompanied by State personnel.

### **Authority Building**

A Building Committee, with Director J. W. Fisher appointed as Chairman, was appointed by Fred A. Heilbron, Chairman of the Board of Directors, to investigate the need and feasibility of the Authority constructing its own building. Sketches of a possible new San Diego headquarters building have been prepared by the engineering staff at the request of this Committee. Studies indicate that the building should have a gross area of at least 5,000 square feet, and that it should provide ample parking facilities for the public, the staff, and the Directors when attending meetings.

## **LEGAL AND LEGISLATIVE**

### **Annexations**

Annexations during the year, more than doubling the Authority's area from 140,174 acres to 294,117 acres, increasing the assessed valuation from \$622,927,240 to \$736,597,824, and the number of member agencies from ten to fifteen have greatly increased the volume of work of the General Counsel.

For the first time, municipal water districts were formed in San Diego County under the Municipal Water District Act of 1911. The Authority's member units have heretofore included only cities, irrigation districts, and public utility districts.

The agencies forming the original Authority area were all long-established operating units whose authenticity was beyond question. This was true also of the earlier annexations. Consequently, it was

unnecessary for the Counsel to investigate the legal sufficiency of their formation proceedings. Beginning with the South Bay Irrigation District and continuing with the current annexations, a different problem was involved; here were governmental units newly formed for the sole purpose of annexation to the Authority. Any serious defect in the legal sufficiency of the proceedings for their formation would make the tax levies of the Authority, the Metropolitan Water District, and also those of the agencies involved subject to attack.

With the cooperation of the attorneys employed by the organizing agencies and the County officials involved in the formation procedure, a method was worked out by which each required document and action from the original petition for formation, through the election and concluding with the certificate of the Secretary of State, was submitted in advance and reviewed by the Authority's Counsel. Thus, upon the completion of the proceedings the Counsel was able to report the agency to be one properly organized and qualified for annexation.

Immediately after organizing, each agency instituted the procedure for annexation to the Authority. Again, each step was reviewed by the Counsel and conformed with the legal department of the Metropolitan Water District. Consequently, when the last step had been taken towards completion of annexation no extensive review was necessary.

In this manner, five new municipal water districts were formed and their annexations to the Authority were completed between August 1953 and the end of June 1954 as follows: Rainbow, formed December 30, 1953 and annexed to the Authority on April 10, 1954; Poway, formed February 1, 1954 and annexed on June 21, 1954; Bueno Colorado, formed February 19, 1954 and annexed on June 11, 1954; Rincon del Diablo, formed February 19, 1954 and annexed on June 14, 1954; and Carlsbad, formed March 22, 1954 and annexed on June 16, 1954.

In the process of formation, but not organized at the close of the year, were Ramona, comprising most of the Santa Maria Valley; Otay, from the Sweetwater River to the Mexican border; and Valley Center, from Rincon del Diablo north to the San Luis Rey River. Except for the area lying between the northerly limits of the City of San Diego and the southerly boundary of the Poway and Santa Fe Districts, the formation of these additional districts, covering areas already informally approved by the Authority and the Metropolitan Water District, will make Colorado River water available to the San Diego County area from Riverside County to the Mexican border.

### Colorado River Water

During the year, the suit filed in the U. S. Supreme Court by the State of Arizona to perfect her claims to the waters of the Colorado River system continued to develop. As originally instituted, the suit included the State of Arizona as plaintiff against the State of California and the six public agencies in California, which were contracting parties with the Secretary of Interior relative to the storage and delivery of Colorado River water. These defendants included the Metropolitan Water District, the City of Los Angeles, the Imperial Irrigation District, the Palo Verde Irrigation District (Blythe), the Coachella Valley County Water District, and the City and County of San Diego.

The San Diego County Water Authority, whose rights to the water spring, not from such contracts but from its membership in the Metropolitan Water District, was not named as a technical party to the suit. Being the distributor for all of the water involved for all of San Diego County, the Authority nevertheless is as gravely concerned in the proper presentation of the issues for the protection of this State's claims to the water as are those named to defend the suit. The Authority's Counsel, as a member of the Technical Advisors' Staff of the Colorado River Board, has therefore participated in the deliberations and work of the attorneys conducting the proceedings.

The issues in the suit involve both the rights in the river and the administration of such rights by the government. Early in the proceedings the United States obtained leave of the Court to intervene. Nevada also entered the case. Inasmuch as the interpretation of the Seven-State Colorado River Compact is involved, it is obvious that all of the parties to that agreement should be bound by the Court's decision. To that end, California has asked that the remaining states, New Mexico, Utah, Colorado, and Wyoming be brought into the action.

The main issues of the case, simply stated, include the final determination of the method of measurement of the water to which each Basin and each user within the Basin is entitled; the source of the water which the government requires for the Indians and other Federal uses; whether or not there remains any waters available for further apportionment; and the manner in which the regulation of the river shall be administered. Involved, is the judicial interpretation of the Colorado River Compact, the Boulder Canyon Project Act, the California Limitation Act, the Mexican Water Treaty, and the several contracts between the local agencies and the United States. The deci-

sion, to be effective, must finally settle the conflicting claims, not only between the states within the Lower Basin but also between the two Basins.

The importance of the case to California is indicated by the fact that if the Court should fully support Arizona's contentions, the amount of water available for actual use in this State would be reduced to 3,800,000 acre feet per year—an amount substantially less than that being used today.

Near the end of the year the Court appointed a highly regarded Chicago lawyer, George I. Haight, Esquire, as Special Master to organize the trial procedure, establish the issues and arrange for the presentation of the evidence. California and its agencies are represented by competent and resourceful counsel of the highest integrity. Whatever happens in the suit, Californians may rest assured that their case will be ably and honorably presented.

### Feather River Project

Chairman Fred A. Heilbron, with the approval of the Authority's Directors, instructed the General Counsel to study and report upon the legal problems involved in the Authority's participation in the Feather River Project.

Early in 1951 the State Engineer submitted to the State Legislature a report and recommendation that a project to construct a dam on the Feather River near Oroville, which would regulate and conserve its flood waters and provide for the generation of electric power, would make feasible, from an engineering and financial viewpoint, a project to divert surplus waters of the Sacramento River system from the Delta area to a canal along the west side of the San Joaquin Valley through which, by a series of pump lifts, the water could be supplied to that water-deficient area and lifted over the Tehachapi Mountains for distribution in Southern California.

The Legislature enacted Chapter 1441, Statutes of 1951, by which the Feather River Project and the Sacramento-San Joaquin Delta Diversion Project were established as units of the Central Valley Project, authorized for construction by the State's Water Project Authority. The Act authorized and directed the State Engineer to proceed further with detailed studies of the project, and the Legislature has made continuing appropriations to finance his work.

Pursuant to such authorization Mr. A. D. Edmonston, State Engineer, has developed preliminary plans for the construction of the dam,

aqueduct, and pumping stations for a project which, in addition to other deliveries in route, would make available to Southern California below the Tehachapi 1,773,000 acre feet of water per year.

In the meantime, by Legislative authority, the state's Director of Finance filed the required applications for permits to appropriate water necessary for the project under conditions which preserve such applications without the requirement of due diligence in prosecuting the development of the works for diversion of the water until October 1, 1955, or such date thereafter as the Legislature might subsequently establish.

On June 29, 1954, the Water Project Authority formally requested the transfer of the filings, in order that contracts might be negotiated with prospective users, so that the extent of the project could be determined and arrangements be perfected for its financing and construction. This matter was pending at the close of the year.

Under the State's water law, as long established, permits for the appropriation of water can be granted only to the extent that there exists a surplus over and above the uses of those having prior and superior rights in the stream. In addition, by act of the Legislature, the filings by the Director of Finance can be transferred only subject to the reservation for the benefit of the areas in which the water originates of all water for which they might presently or in the future have any need.

The water delivered in Southern California would be costly. The question posed is: under existing conditions, can a firm and assured right be established to sufficient water to warrant Southern California assuming the very substantial financial obligation the construction of the project would impose? The answer requires further study of the amount of water subject to reservation to supply prior and superior rights, the ultimate needs of the areas of origin, and study of the need and possibility of enactment of legislation under which sufficiently firm legal ownership of the water might be obtained.

The need for additional water to supplement full local development and the complete utilization of all Colorado River water rightfully available to Southern California, has long been recognized by the San Diego County Water Authority. The methods by which the area can participate in this additional source will continue to receive the diligent attention of the General Counsel.

## FINANCIAL

The Authority's financial operations continue to reflect the long-range policy of the Board of Directors of the Authority, as adopted in 1949 and described in detail in previous reports. In general, costs of operation and maintenance have been met primarily from revenues from the sale of water, while requirements for payments to the Federal Government and for a sinking fund for retirement of bonded debt have been met by tax levies.

The assessed valuation of taxable property within the Authority area for each fiscal year since 1945-46, and the total regular Authority tax for each year are shown on Table 18.

During the fiscal year 1953-54 water sales amounted to \$855,282.20, which was an increase of approximately \$473,800 over the preceding year. Requirements of the general fund (operation and maintenance) during the year were, therefore, met without the necessity of a tax levy for that purpose.

Statements of income, expense, and revenues for the fiscal year 1953-54 are shown on Tables 19, 20, and 21.

On June 30, 1954 cash and marketable securities amounted to \$2,104,220.94, as compared with \$1,725,727.54 on June 30, 1954. The total amount included \$1,737,360 in securities of the United States Government, earning an average interest rate of 1.96%. During the year current assets increased \$10,513.10, and current liabilities were decreased by \$23,923.45. Reserves for debt redemption were increased by \$69,842.75; investment in fixed assets increased \$2,560,413.81; appropriated surplus increased \$326,053.69; and unappropriated surplus increased \$5,707.93, making a net increase of \$2,962,018.18 for the year in the Authority's net equities.

A detailed statement of the financial position of the Authority on June 30, 1954 is contained on Table 22.

The Authority's accounting system follows the basic principles of fund accounting, normally used in municipalities, modified to the extent necessary to reflect conditions peculiar to the Authority. The accounts are maintained on the accrual basis, and the system has been adapted to machine accounting. All accounts have been regularly audited by the firm of Everts and Esenoff, Certified Public Accountants.

Tables 22 to 25 contain more detailed information on the financial activities of the Authority.



29% was delivered to the Authority. A total of 115,550 acre feet was treated and softened in the La Verne Treatment Plant before being delivered to agencies in the Los Angeles metropolitan area. Water deliveries increased 105,889 acre feet or 81% over the previous year. Water delivered to the Authority is natural Colorado River water.

Water sales of the Metropolitan Water District, since its first sale in 1941-42, are shown on Table 15. The 1953-54 water production is shown on Table 16.

### Area

At the close of the fiscal year, the total area of the District was 1,368,038 acres, an increase of 247,590 acres or 22% over the previous year.

The area by years since 1940-41 is shown on Table 17.

### Assessed Valuation

The assessed valuation of the Metropolitan Water District in 1953-54 was \$6,015,691,980, an increase of \$643,193,465 or 12% over the previous year. The average assessed valuation per acre within the District equaled \$4,400.

The assessed valuation of taxable property within the District, since its first tax year in 1929-30, is shown on Table 17.

### Tax Rate

The regular tax rate of the District for 1953-54 was 25¢ per \$100 of assessed valuation, a reduction of 3¢ from 28¢ for the previous year. The maximum regular tax rate levied by the District was 50¢ in 1945-46, just prior to the annexation of the Authority. There has been a decrease annually; except for the 1949-50 fiscal year, when the previous year's rate of 34¢ was maintained. The 25¢ rate for 1953-54 represents a reduction of 50% in the regular tax levied by the District over a 9-year period, from 1945 to 1954.

The tax rates for each year in which a tax levy has been made are shown on Table 17.

In addition to the regular tax levied by the District on all taxable property lying within the boundaries of the District, there is also levied a special tax on those areas which have been annexed to the District since its organization and still have outstanding payments to make on their annexation charges due the District.

The original amount of such outstanding annexation charges, annexation assessments made to date, and the special tax rate levied in 1953-54 are shown on Table 14.

### Water Rates

The base rate for untreated water delivered by the District to its constituent areas continued to be \$10 per acre foot. An additional charge of \$10 is made when water is treated before delivery.

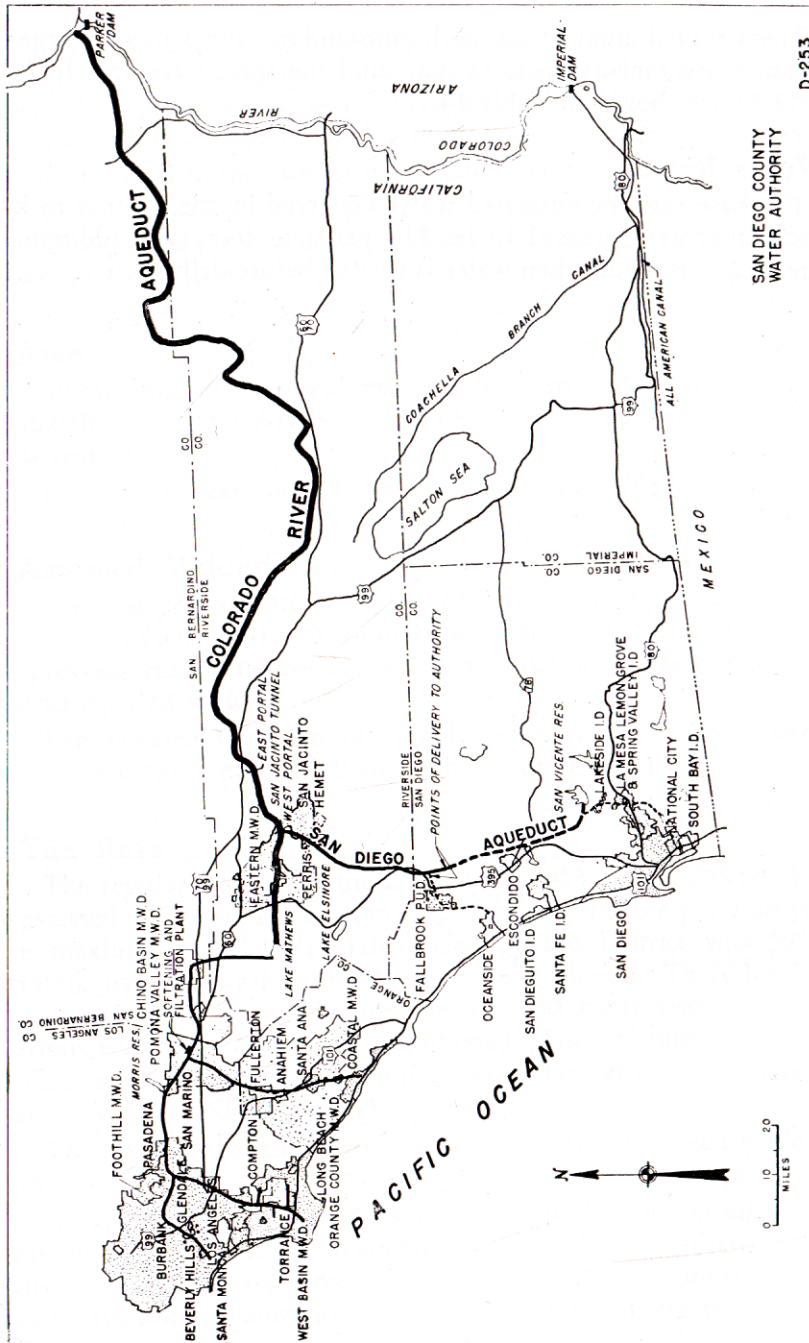


Figure F. Water Systems of Metropolitan Water District and San Diego County Water Authority.

INDEX OF TABLES

No.	Page
1. Constituent Areas of Authority .....	34
2. Member Agency Areas of Authority .....	35
3. Population—County and Authority Areas—1910-1954 .....	36
4. Population—Authority Constituent Areas and County .....	37
5. Assessed Valuations—Authority Constituent Areas and County .....	38
6. Deliveries and Sales of Colorado River Water—1953-54 .....	38 (Opposite)
7. Deliveries of Colorado River Water—1947 to 1954 .....	39
8. Water Production of Authority Agencies—1953-54 .....	40
9. Water Production by Authority Agencies—1941-1954 .....	41
10. Unit Water Production—Per Acre and Per Capita—1953-54 .....	42
11. Authority Storage in San Vicente Reservoir—1953-54 .....	43
12. Chemical Character of Colorado River Water .....	44
13. Estimated Preferential Right to Purchase Colorado River Water .....	45
14. Metropolitan Special Tax Rates for Annexation Charges .....	46
15. Water Sales by Metropolitan Water District .....	47
16. Water Production—Metropolitan Water District .....	48
17. Assessed Valuations and Tax Rates of Metropolitan M.W.D. ....	49
18. Income and Expense—1953-54 .....	50
19. Assessed Valuations and Tax Rates to June 30, 1954 .....	52
20. Revenues—Estimated and Actual—June 30, 1954 .....	53
21. Financial Position—June 30, 1954 .....	54
22. Cash Receipts and Disbursements—1954 .....	56
23. Appropriations and Expenditures—1954 .....	57
24. Tax Assessments and Collections—1954 .....	58
25. Bonds Payable—June 30, 1954 .....	59

INDEX OF FIGURES

A. Authority Area Within San Diego County .....	VIII
B. Rainfall Record of San Diego, California .....	4
C. Reservoir Storage Water—Authority Member Agencies .....	8
D. Water Production and Supply—Authority Area .....	20
E. Composition of Metropolitan Water District .....	28
F. Water Systems of Metropolitan and Authority .....	32

TABLE 1  
CONSTITUENT AREAS OF THE AUTHORITY  
as of June 30

Constituent Areas	Area Within Authority—Acres			Per cent of total Authority area 6/30/54	
	As of 6/30/53	Changes during year	As of 6/30/54		
	acres	acres	acres		
Bueno Colorado Municipal Water District .....	(5)	47,000	47,000	15.98	
Carlsbad Municipal Water Dist. ..	(6)	30,000	30,000	10.20	
Escondido .....	(1)	1,901	1,932	0.66	
Fallbrook Public Utility District ..		8,192	8,192	2.78	
Lakeside Irrigation District .....		1,860	1,860	0.63	
La Mesa, Lemon Grove & Spring Valley Irrigation Dist.: (1) (2)					
In City of El Cajon .....	(1,004)	+ (196)	(1,200)	(0.40)	
In City of La Mesa .....	(2,496)	+ (847)	(3,343)	(1.14)	
In Crest Public Utility Dist. ..	( 386)	( 0)	( 386)	(0.13)	
In unincorporated areas .....	(14,573)	—(1,043)	(13,530)	(4.61)	
Total .....	18,459	0	18,459	6.28	
National City .....	4,096	1	4,097	1.39	
Oceanside .....	(1)	7,752	267	8,019	2.73
Poway Municipal Water District ..	(7)	10,800	10,800	3.67	
Rainbow Municipal Water District ..	(8)	36,500	36,500	12.41	
Rincon del Diablo Municipal Water District .....	(9)	24,000	24,000	8.16	
San Diego .....	(1) (4)	70,861	5,427	76,288	25.90
San Dieguito Irrig. Dist. (2) (3)		4,020	—11	4,009	1.36
Santa Fe Irrigation District .....		10,106	0	10,106	3.44
South Bay Irrigation District: (5)					
In Chula Vista .....	(3,498)	(+ 191)	(3,689)	(1.26)	
In unincorporated .....	(9,429)	(—191)	(9,238)	(3.14)	
Total .....	12,927	0	12,927	4.40	
Total Authority Area (1)	140,174	154,015	294,189	100.00	
San Diego County .....			2,725,100		

- (1) Area revised from that in Seventh Annual Report, to conform with revised data received from agency.
- (2) Does not include areas annexed to agencies without making the same a part of the Authority.
- (3) Includes areas excluded from agency but still a part of the Authority.
- (4) Does not include 659 acres of overlapping area in La Mesa, Lemon Grove and Spring Valley Irrigation District, served with water by District.
- (5) Bueno Colorado Municipal Water District became a part of the Authority on June 11, 1954.
- (6) Carlsbad Municipal Water District became a part of the Authority on June 16, 1954.
- (7) Poway Municipal Water District became a part of the Authority on April 21, 1954.
- (8) Rainbow Municipal Water District became a part of the Authority on April 10, 1954.
- (9) Rincon del Diablo Municipal Water District became a part of the Authority on June 14, 1954.

TABLE 2  
AREAS OF MEMBER AGENCIES LYING WITHIN  
AND WITHOUT THE BOUNDARIES OF THE AUTHORITY  
as of June 30, 1954

Member Agency	Total area lying within agency boundaries	Area with-in agency but not a part of Authority (1)	Area with-in agency and a part of Authority	Area excluded from agency but still a part of Authority	Total area within Authority's boundaries
	Acres	Acres	Acres	Acres	Acres
Bueno Colorado Municipal Water Dist.	47,000	0	47,000	0	47,000
Carlsbad Municipal Water District .....	30,000	0	30,000	0	30,000
Escondido .....	1,932	0	1,932	0	1,932
Fallbrook P. U. D. ....	8,192	0	8,192	0	8,192
Lakeside Irrig. Dist. ..	2,010	150	1,860	0	1,860
La Mesa, Lemon Grove & Spring Valley I. D. .... (3)	24,004	5,545	18,459	0	18,459
National City .....	4,097	0	4,097	0	4,097
Oceanside .....	8,019	0	8,019	0	8,019
Poway Municipal Water District .....	10,800	0	10,800	0	10,800
Rainbow Municipal Water District .....	36,500	0	36,500	0	36,500
Rincon del Diablo Municipal W. D. ...	24,000	0	24,000	0	24,000
San Diego .....	(2)	76,288	0	76,288	76,288
San Dieguito I. D. ...	3,982	30	3,952	57	4,009
Santa Fe Irrig. Dist. ...	10,106	0	10,106	0	10,106
South Bay Irrig. Dist. ....	12,927	0	12,927	0	12,927
Totals .....	299,857	5,725	294,132	57	294,189

- (1) An area when annexed to a city which is an independent agency of the Authority is automatically annexed to the Authority.
- (2) Does not include 659 acres of overlapping area in La Mesa, Lemon Grove and Spring Valley Irrigation District.
- (3) Does not include 226 acres annexed by City of San Diego.

TABLE 3  
POPULATION—COUNTY AND AUTHORITY AREAS—1910 to 1954  
(Includes Resident Military Personnel)

Year (as of April 1)	COUNTY		AUTHORITY		Per cent of County population in Authority
	Total population (1)	Average annual growth	Total population (2)	Average annual growth	
1910	61,665		46,000	4,100	74
1920	112,248	5,058	87,000	8,600	78
1930	209,659	9,741	173,000	7,600	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		451,886	20,361	81
1953	710,000	51,064	631,706	59,940	89
1954	729,600	19,600	679,081	47,375	93

- (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 4  
POPULATION—AUTHORITY CONSTITUENT AREAS AND COUNTY  
(Includes Resident Military Personnel)

Constituent Areas	Area 6/30/54 Acres	Population—U.S. Census				Annual Increase 1950-54 Per cent	Density of Population 1954 Per Acres	Per Sq. Mile
		1940 (1)	1950 (2)	Decade Increase	1954 Estimate (5)			
		Per cent						
Bueno Colorado M.W.D.	47,000	—	—	—	18,500	—	0.39	250
Carlsbad M.W.D.	30,000	—	—	—	8,000	—	0.27	173
Escondido	1,932	4,560	6,608	45	8,300	6	4.30	2,752
Fallbrook Public Utility District	8,192	2,300	5,500	139	8,000	11	0.98	627
Lakeside Irrigation District	1,860	(4) 1,000	2,000	100	2,000	0	0.48	307
La Mesa, Lemon Grove & Spring Valley Irrigation District:								
In City of El Cajon	(1,200)	(1,471)	(5,600)	281	(15,500)	44	12.92	8,267
In City of La Mesa	(3,343)	(3,925)	(10,946)	178	(18,000)	16	5.38	3,443
In Crest Public Utility District	(386)	—	(928)	—	(1,350)	11	3.50	2,240
In unincorporated areas	(13,550)	(11,704)	(26,688)	128	(30,323)	3	2.24	1,434
Total	18,459	17,100	44,162	158	68,473	14	3.71	2,374
National City	4,097	10,344	21,199	105	25,350	5	6.19	3,962
Oceanside	8,019	4,651	12,880	177	19,887	13	2.48	1,587
Poway M.W.D.	10,800	—	—	—	1,000	—	0.09	58
Rainbow M.W.D.	36,500	—	—	—	2,000	—	0.05	32
Rincon del Diablo M.V.D.	24,000	—	—	—	11,000	—	0.46	293
San Diego	76,288	203,341	334,387	64	451,860	9	5.93	3,794
San Diego Irrigation District	4,009	(4) 2,400	6,223	159	8,043	7	2.01	1,286
Santa Fe Irrigation District:	10,106	(4) 2,000	3,000	50	4,268	11	0.42	269
South Bay Irrigation District:								
In Chula Vista	(3,689)	(5,138)	(15,927)	210	(25,350)	15	(6.87)	(4,397)
In unincorporated areas	(9,238)	(4) (5,800)	(13,000)	124	(17,050)	8	(1.85)	(1,184)
Total	12,927	10,938	28,927	164	42,400	11	3.28	2,099
Total Authority Area	294,189	258,634	464,886	80	679,801	12	2.31	1,478
San Diego County	2,725,100	289,348	556,808	92	729,600	8	0.27	173

- (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) Does not include 659 acres of overlapping area in La Mesa, Lemon Grove and Spring Valley Irrigation District.
- (4) Estimated.
- (5) Estimated by Agencies.

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 5  
ASSESSED VALUATIONS—AUTHORITY CONSTITUENT AREAS AND COUNTY

Agency	Area 6/30/54 Acres	Assessed Valuation Secured and Unsecured		Per cent Annual Increase	Assessed Valuation 1954-55
		1952-53	1953-54		
Bueno Colorado M.W.D. ....	47,000	\$ 12,450,780	\$ 15,561,400	25.0	*\$ 17,169,875
Carlsbad M.W.D. ....	30,000	5,930,490	7,490,890	26.3	* 9,051,290
Escondido .....	1,932	7,347,020	8,492,910	15.6	10,157,470
Fallbrook Public Utility District .....	8,192	4,396,690	5,080,060	15.5	5,595,260
Lakeside Irrigation District .....	1,860	985,680	1,353,840	37.4	1,505,720
La Mesa, Lemon Grove and Spring Valley Irrigation District .....	18,459	50,063,670	67,338,950	34.5	76,103,190
National City .....	4,097	13,859,190	17,786,340	28.3	19,898,740
Oceanside .....	8,019	12,993,400	16,928,320	30.3	19,542,060
Poway M.W.D. ....	10,800	1,170,084	1,260,780	7.8	* 1,351,476
Rainbow M.W.D. ....	36,500	2,164,937	2,569,750	18.7	* 2,974,563
Rincon del Diablo M.W.D. ....	24,000	8,539,700	9,759,750	14.2	* 10,979,800
San Diego .....	(3) 76,288	378,428,820	457,906,330	21.0	507,527,340
San Dieguito Irrigation District .....	(2) 4,009	6,189,200	7,421,680	19.9	8,374,500
Santa Fe Irrigation District .....	10,106	5,125,370	6,033,880	17.7	7,004,670
South Bay Irrigation District .....	12,927	27,264,370	34,584,930	26.9	39,400,540
<b>Total Authority Area .....</b>	<b>294,189</b>	<b>\$536,909,401</b>	<b>\$659,569,810</b>	<b>22.8</b>	<b>\$736,636,494</b>
<b>San Diego County .....</b>	<b>1,250,048 (1)</b>	<b>\$610,188,480</b>	<b>\$747,351,600</b>	<b>22.5</b>	<b>\$832,232,380</b>

(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) Does not include 659 acres of overlapping area in La Mesa, Lemon Grove and Spring Valley Irrigation District.

\* Estimated

TABLE 6

Constituent Areas	pr.	May	June	Total 6 months	Yearly total	Yearly average c.f.s.
Bueno Colorado M.W.D. ....	—	—	0	0	0	0
Carlsbad M.W.D. ....	—	—	47.1	47.1	47.1	0.06
Escondido .....	9.0	111.3	135.4	467.8	738.9	1.02
Fallbrook Public Utility District .....	6.8	518.3	688.7	2,284.6	5,720.4	7.90
Lakeside Irrigation District .....	5.9	12.1	13.0	43.0	99.2	0.14
La Mesa, Lemon Grove & Valley Irrigation District .....	5.2	566.1	562.2	2,080.2	5,311.4	7.34
National City & South Bay .....	4.4	513.8	499.6	2,162.0	4,895.5	6.76
Oceanside .....	3.7	117.7	151.4	591.8	1,476.4	2.04
Poway Municipal Water District .....	0	0	0	0	0	0
Rainbow Municipal Water District .....	2.3	4.9	18.2	137.1	137.1	0.19
Rincon del Diablo M.W.D. ....	—	—	0	0	0	0
San Diego .....	8.0	5,000.0	4,776.3	22,071.3	51,176.3	70.69
San Dieguito Irrigation District .....	0	0	0	0	32.8	0.04
Santa Fe Irrigation District .....	0	0	0	0	0	0
<b>Total Sales to Agencies .....</b>	<b>4.3</b>	<b>6,844.2</b>	<b>6,891.9</b>	<b>29,884.9</b>	<b>69,635.1</b>	<b>96.18</b>
<b>Total Sales to Others .....</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>7.8</b>	<b>13.7</b>	<b>0.02</b>
<b>Total Sales to Agencies &amp; Others .....</b>	<b>4.4</b>	<b>6,844.2</b>	<b>6,891.9</b>	<b>29,892.7</b>	<b>69,648.8</b>	<b>96.20</b>
<b>Total to Authority Storage .....</b>	<b>13.9</b>	<b>+ 232.2</b>	<b>+ 33.2</b>	<b>+ 772.8</b>	<b>+ 1,722.2</b>	<b>+ 2.38</b>
<b>Total from Authority Storage .....</b>	<b>0</b>	<b>— 91.1</b>	<b>— 86.0</b>	<b>— 177.1</b>	<b>— 4,113.6</b>	<b>— 5.68</b>
<b>Total Deliveries from Aqueduct .....</b>	<b>8.3</b>	<b>6,985.3</b>	<b>6,839.1</b>	<b>30,488.4</b>	<b>67,257.4</b>	<b>92.90</b>
<b>Rate of Flow:</b>						
c.f.s. to Agencies & Others .....	4.6	111.3	115.8	83.3	96.20	
c.f.s. to Authority Storage .....	0.7	+ 3.8	+ 0.6	+ 2.1	+ 2.38	
c.f.s. from " " .....	0	— 1.5	— 1.5	— 0.5	— 5.68	
<b>Total deliveries from Aqueduct .....</b>	<b>5.3</b>	<b>113.6</b>	<b>114.9</b>	<b>84.9</b>	<b>92.90</b>	

67,552.2 acre-feet was delivered of 155.5 acre-feet from the Aqueduct.

139.3 acre-feet was delivered

(1) Not including local

TABLE 6  
 DELIVERIES AND SALES OF COLORADO RIVER WATER—FISCAL YEAR 1953-54  
 (All figures in acre-feet)

TABLE 6

Constituent Areas	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 months	Jan.	Feb.	Mar.	Apr.	May	June	Total 6 months	Yearly total	Yearly average c.f.s.
Bueno Colorado M.W.D. ....	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0	0
Carlsbad M.W.D. ....	—	—	—	—	—	—	—	—	—	—	—	—	47.1	47.1	47.1	0.06
Escondido .....	73.6	56.5	41.2	39.6	22.8	37.4	271.1	67.0	29.7	55.4	69.0	111.3	135.4	467.8	738.9	1.02
Fallbrook Public Utility District ..	524.9	677.8	667.7	741.9	314.7	508.8	3,435.8	235.4	146.9	388.5	306.8	518.3	688.7	2,284.6	5,720.4	7.90
Lakeside Irrigation District .....	12.5	12.0	10.6	8.8	4.8	7.5	56.2	3.9	3.4	4.7	5.9	12.1	13.0	43.0	99.2	0.14
La Mesa, Lemon Grove & Spring Valley Irrigation District .....	583.0	492.3	477.7	553.1	450.8	674.3	3,231.2	251.1	1.4	194.2	505.2	566.1	562.2	2,080.2	5,311.4	7.34
National City & South Bay I.D. ...	442.2	453.9	439.7	463.9	460.1	473.7	2,733.5	472.7	0	241.5	434.4	513.8	499.6	2,162.0	4,895.5	6.76
Oceanside .....	144.6	216.6	209.8	129.8	89.9	93.9	884.6	94.8	58.8	86.4	82.7	117.7	151.4	591.8	1,476.4	2.04
Poway Municipal Water District..	—	—	—	—	—	—	—	—	—	—	0	0	0	0	0	0
Rainbow Municipal Water Dist. ...	—	—	—	—	—	—	—	—	—	71.7	42.3	4.9	18.2	137.1	137.1	0.19
Rincon del Diablo M.W.D. ....	—	—	—	—	—	—	—	—	—	—	—	—	0	0	0	0
San Diego .....	4,847.5	4,887.6	4,720.2	4,927.1	4,860.0	4,862.6	29,105.0	4,757.7	152.9	2,816.4	4,568.0	5,000.0	4,776.3	22,071.3	51,176.3	70.69
San Dieguito Irrigation District ..	0	0	32.8	0	0	0	32.8	0	0	0	0	0	0	0	32.8	0.04
Santa Fe Irrigation District .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Sales to Agencies .....	6,628.3	6,796.7	6,599.7	6,864.2	6,203.1	6,658.2	39,750.2	5,882.6	393.1	3,858.8	6,014.3	6,844.2	6,891.9	29,884.9	69,635.1	96.18
Total Sales to Others .....	1.2	1.2	0.8	1.0	0.8	0.9	5.9	0.4	0.7	6.6	0.1	0	0	7.8	13.7	0.02
Total Sales to Agencies & Others	6,629.5	6,797.9	6,600.5	6,865.2	6,203.9	6,659.1	39,756.1	5,883.0	393.8	3,865.4	6,014.4	6,844.2	6,891.9	29,892.7	69,648.8	96.20
Total to Authority Storage .....	+ 569.9	+ 98.6	+117.5	+ 52.3	+ 82.5	+ 28.6	+ 949.4	+271.6	+18.4	+173.5	+43.9	+232.2	+33.2	+772.8	+1,722.2	+2.38
Total from Authority Storage (1)	-1,008.2	-697.6	-705.0	-734.5	-292.3	-498.9	-3,936.5	0	0	0	0	-91.1	-86.0	-177.1	-4,113.6	-5.68
Total Deliveries from Aqueduct ..	6,191.2	6,198.9	6,013.0	6,183.0	5,994.1	6,188.8	36,769.0	6,154.6	*408.8	4,042.3	6,058.3	6,985.3	6,839.1	30,488.4	67,257.4	92.90
Rate of Flow:																
c.f.s. to Agencies & Others ....	107.8	110.5	110.9	111.7	104.1	108.3	108.9	95.7	7.1	60.9	104.6	111.3	115.8	83.3	96.20	
c.f.s. to Authority Storage .....	+ 9.3	+ 1.6	+ 2.0	+ 0.8	+1.4	+0.5	+ 2.6	+4.4	+0.3	+2.7	+0.7	+3.8	+0.6	+2.1	+2.38	
c.f.s. from " " (1)	-16.4	-11.3	-11.8	-11.9	-4.9	-8.1	-10.8	-0	-0	-0	-0	-1.5	-1.5	-0.5	-5.68	
Total deliveries from Aqueduct	100.7	100.8	101.1	100.6	100.6	100.7	100.7	100.1	7.4	63.6	105.3	113.6	114.9	84.9	92.90	

67,552.2 acre-feet was delivered into San Diego Aqueduct by The Metropolitan Water District at San Jacinto Reservoir. There was an estimated loss of 155.5 acre-feet from the Aqueduct.  
 139.3 acre-feet was delivered by The Metropolitan Water District to Contractors for construction of Second Barrel of Aqueduct.

(1) Not including losses by evaporation.

TABLE 7  
DELIVERIES OF COLORADO RIVER WATER—1947 to 1954  
(All figures in acre-feet)

Constituent Areas	(1) 1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54
Bueno Colorado Municipal Water District	—	—	—	—	—	—	0
Carlsbad Municipal Water District	—	—	—	117.1	540.0	382.8	54.0
Escondido	690.6	2,125.4	3,004.0	3,979.2	2,209.7	3,566.1	738.9
Fallbrook Public Utility District	0	3.5	30.4	27.2	20.8	80.2	5,720.4
Lakeside Irrigation District	—	—	—	—	—	—	99.2
La Mesa, Lemon Grove & Spring	4,256.3	8,080.1	4,792.6	8,282.5	5,514.8	5,100.5	5,311.4
Valley Irrigation District	3,636.6	10,510.7	10,973.2	12,964.7	6,649.0	0	4,895.5
National City & South Bay I.D.	0	1.5	127.8	558.5	513.4	604.1	1,469.5
Oceanside	—	—	—	—	—	—	0
Poway Municipal Water District	—	—	—	—	—	—	137.1
Rainbow Municipal Water District	—	—	—	—	—	—	0
Rincon del Diablo Municipal Water District	32,461.0	50,126.8	35,371.2	51,453.9	43,745.3	20,684.9	51,176.3
San Diego	—	451.3	1,655.0	1,043.8	691.0	0	32.8
San Diego Irrigation District	—	270.8	2,657.9	832.1	146.8	0	0
Santa Fe Irrigation District	—	—	—	—	—	—	—
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
Total Sales to Others	0	0	0	0	0	49.4	13.7
Total to Authority Storage	0	0	+10,652.0	+821.4	+5,765.2	+1,612.8	1,722.2
Total from Authority Storage	0	0	0	-6,265.5	-3,176.0	-3,514.5	-4,113.6
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
Rate of Flow:							
c.f.s. to Agencies & Others	98.3	98.9	81.0	109.5	82.7	42.1	96.2
c.f.s. to Authority Storage	0	0	+14.7	+1.1	+7.9	+2.2	+2.4
c.f.s. from Authority Storage	0	0	0	-8.6	-4.4	-4.8	-5.7
Total deliveries from Aqueduct	98.3	98.9	95.7	102.0	86.2	39.5	92.9

(1) The operation of the Aqueduct was formally initiated on November 27, 1947.

TABLE 8  
WATER PRODUCTION OF AUTHORITY AGENCIES—FISCAL YEAR 1953-54

Constituent Areas	TOTAL WATER PRODUCTION				LOCAL		COLORADO RIVER	
	as ac. ft.	as m.g.d.	as c.f.s.	Amount ac. ft.	Per cent	Amount ac. ft.	Per cent	
Bueno Colorado M.W.D. ....	11,671.5	10.42	16.12	11,671.5	100.0	0	0	
Carlsbad Municipal Water District .....	2,960.4	2.64	4.09	2,906.4	98.2	54.0	1.8	
Escondido .....	1,398.0	1.25	1.93	659.1	47.1	738.9	52.9	
Fallbrook Public Utility District .....	7,605.8	6.79	10.51	1,929.0	25.4	5,676.8	74.6	
Lakeside Irrigation District .....	291.9	0.26	0.40	192.7	66.0	99.2	34.0	
La Mesa, Lemon Grove and Spring Valley Irrigation District .....	15,519.2	13.85	21.44	10,202.3	65.7	5,316.9	34.3	
National City & South Bay I.D. ....	12,076.0	10.78	16.68	7,180.0	59.5	4,896.0	40.5	
Oceanside .....	3,954.5	3.53	5.46	2,485.0	62.8	1,469.5	37.2	
Poway Municipal Water District .....	(a)	(a)	(a)	(a)	(a)	0	0	
Rainbow Municipal Water District .....	1,697.1	1.52	2.34	1,560.0	91.9	137.1	8.1	
Rincon del Diablo M.W.D. ....	8,400.9	7.50	11.60	8,400.9	100.0	0	0	
City of San Diego:								
Inside City .....	63,258.0	56.47	87.38	29,547.8	46.7	33,710.2	53.3	
Outside City (not in Authority) .....	2,373.2	2.12	3.28	2,373.2	100.0	0	0	
San Diegoito Irrigation District .....	3,439.9	3.07	4.75	3,439.9	100.0	0	0	
Santa Fe Irrigation District .....	3,254.7	2.91	4.50	3,254.7	100.0	0	0	
Totals .....	137,901.3	123.10	190.48	85,802.7	62.2	52,098.6	37.8	

(a) Not available.

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

TABLE 9  
WATER PRODUCTION BY AUTHORITY AGENCIES—FISCAL YEARS 1941-42 to 1953-54  
(All figures in acre-feet)

Agency	From Local Sources					From Local and Authority Supplies						
	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54
Bueno Colorado M.W.D. ....	(a)	11,333	10,590	13,200	12,335	13,407	11,344	11,977	13,484	7,572	11,171	11,671
Carlsbad Municipal Water District ..	1,900	2,177	2,274	2,444	2,582	2,856	2,613	2,499	2,033	2,074	2,565	*2,961
Escondido .....	663	668	711	707	835	954	801	858	*1,034	1,033	1,238	1,398
Fallbrook Public Utility District .....	1,232	1,464	1,439	2,120	2,596	*3,470	3,613	3,379	5,777	5,803	6,635	7,606
Lakeside Irrigation District .....	60	61	65	69	90	*103	110	161	183	197	292	292
La Mesa, Lemon Grove and Spring Valley Irrigation District .....	6,455	7,316	7,423	8,920	9,790	*10,290	9,325	10,204	11,412	9,858	13,524	15,319
National City & South Bay I.D. ....	9,048	9,963	9,288	10,799	10,519	*10,265	+11,293	+12,709	11,750	10,491	11,368	12,076
Oceanside .....	1,508	1,713	1,881	2,304	2,519	*2,787	2,641	2,977	3,035	2,955	3,533	3,954
Poway Municipal Water District .....	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Rainbow Municipal Water District .....	(a)	(a)	(a)	107	179	385	699	892	1,336	1,120	1,657	*1,697
Rincon del Diablo M.W.D. ....	8,504	8,339	7,852	8,710	8,799	9,259	7,372	7,668	6,905	5,577	7,710	8,401
City of San Diego:												
Inside City .....	43,966	49,742	53,473	56,266	49,431	*51,078	49,693	51,410	54,935	53,784	60,552	63,258
Outside City (not in Authority) ..	504	815	1,147	1,038	1,329	1,946	1,946	1,049	2,051	1,406	2,396	2,373
San Diegoito Irrigation District .....	2,280	2,521	2,611	2,966	3,369	3,034	*2,303	2,899	3,039	2,326	3,139	3,440
Santa Fe Irrigation District .....	3,073	3,300	2,760	3,539	3,512	3,491	*2,878	3,372	3,515	2,539	3,358	3,255
Totals .....	79,193	99,412	105,590	113,298	107,594	112,708	106,631	114,054	120,489	106,735	129,078	137,901

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

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

(a) Not available.

TABLES

TABLE 10  
UNIT WATER PRODUCTION—PER ACRE AND PER CAPITA—1953-54

Area	Gross Area (1) 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 Municipal Water Dist.	47,000	11,671.5	17,467	0.67	18,500	0.63
Carlsbad Municipal Water District	30,000	2,960.6	6,600	0.44	8,000	0.37
Escondido	1,932	1,398.0	1,680	0.83	8,300	0.17
Fallbrook Public Utility District	8,192	7,605.8	8,192	0.93	8,000	0.95
Lakeside Irrigation District	1,860	291.9	1,420	0.21	2,000	0.15
La Mesa, Lemon Grove & Spring Valley Irrigation District	18,459	15,519.2	14,096	1.10	68,473	0.23
National City	4,097	2,990.0	3,061	0.98	25,350	0.12
Oceanside	8,019	3,954.5	7,636	0.52	19,887	0.20
Poway Municipal Water District	10,800	(2)	(2)	(2)	1,000	(2)
Rainbow Municipal Water District	36,500	1,697.1	7,100	0.24	2,000	0.85
Rincon del Diablo M.W.D.	24,000	8,400.9	6,934	1.21	11,000	0.76
San Diego—Inside City (3)	76,288	63,258.0	50,200	1.26	451,860	0.14
Outside City (not in Authority)	(2)	2,373.2	—	—	(2)	—
San Dieguito Irrigation District	4,009	3,439.9	4,020	0.86	8,043	0.43
Santa Fe Irrigation District	10,106	3,254.7	10,106	0.32	4,268	0.76
South Bay Irrigation District	12,927	9,086.0	6,898	1.32	42,400	0.21
Totals and Averages	294,189	137,901.3	145,410	0.95	679,081	0.20

(1) Does not include those areas which are a part of the agencies but not a part of the Authority.

(2) Not available.

(3) Does not include 659 acres of overlapping area in La Mesa, Lemon Grove and Spring Valley Irrigation District served with water by the District.

TABLE 11  
AUTHORITY STORAGE IN SAN VICENTE RESERVOIR  
(Fiscal Year 1953-54)

Agency	Total Quantity in Storage 7/1/53 (acre-feet)	Placed into Storage During Fiscal Year (acre-feet)	Withdrawn During Fiscal Year (acre-feet)	Total Quantity in Storage 6/30/54 (acre-feet)
Bueno Colorado M.W.D.	0	0	0	0
Carlsbad Municipal Water Dist.	0	0	0	0
Escondido	100.5	132.8	67.2	166.1
Fallbrook Public Utility District	2,995.9	0	2,995.9	0
Lakeside Irrigation District	0	24.1	0	24.1
La Mesa, Lemon Grove & Spring Valley Irrigation District	422.6	761.9	437.6	746.9
National City & South Bay I.D.	0	0	0	0
Oceanside	145.8	0	145.8	0
Poway Municipal Water Dist.	0	44.7	0	44.7
Rainbow Municipal Water Dist.	0	0	0	0
Rincon del Diablo M.W.D.	0	0	0	0
San Diego	0	0	0	0
San Dieguito Irrigation District	379.8	83.0	32.8	430.0
Santa Fe Irrigation District	0	0	0	0
Authority (for evaporation)	41.0	675.7	664.4	52.3
Totals	4,085.6	1,722.2	4,343.7	1,464.1

TABLE 12  
CHEMICAL CHARACTER OF NATURAL COLORADO RIVER WATER

Year Ending June 30, 1954

Samples taken at entrance to San Diego Aqueduct by M.W.D. and analyzed at District Laboratory

Month	Total Hardness as P.P.M. of CaCO <sub>3</sub>	Non Carbonate Hardness as P.P.M. of CaCO <sub>3</sub>	Alkalinity as P.P.M. of CaCO <sub>3</sub>		Magnesium as P.P.M. of Mg.	Hydrogen Ion Concentration	Temperature when sampled F°
			Total	Phenolphthalen			
July	314	197	117	0	28.5	8.1	78
August	285	171	114	1	25.5	8.3	80
September	304	186	118	1	28.5	8.4	77
October	289	180	109	0	26.0	8.3	—
November	301	179	122	0	27.0	8.2	—
December	301	177	124	0	26.5	8.2	60
January	302	176	126	0	26.0	8.2	—
February	302	174	128	0	25.5	8.2	51
March	300	172	128	0	25.5	8.3	—
April	304	178	126	1	26.0	8.4	63
May	318	181	127	1	27.0	8.5	69
June	313	191	122	2	27.5	8.5	74
Average	301	179	122	0	26.5	8.3	—
Maximum	314	197	128	2	28.5	8.5	80
Minimum	285	172	109	0	25.5	8.1	51

TABLE 13  
ESTIMATED PREFERENTIAL RIGHT TO PURCHASE COLORADO RIVER WATER  
as of June 30, 1954

Constituent Areas	Total Amount paid by each member agency to 6/30/54	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 Municipal Water Dist. ...		\$122,400.00	\$ 122,400.00	2.62	5.63
Carlsbad Municipal Water District .....		(104,838.57)*	(104,838.57)*		2.60
Escondido .....	\$ 32,762.55	57,700.00	57,700.00	1.21	2.73
Fallbrook Public Utility District .....	29,544.21	( 48,286.04)*	( 48,286.04)*	1.27	1.59
Lakeside Irrigation District .....	6,434.51	18,113.04	50,875.59	0.74	0.34
La Mesa, Lemon Grove & Spring Valley Irrigation District .....			29,544.21	0.16	
National City .....			6,434.51		
Oceanside .....			317,479.13	7.92	17.03
Poway Municipal Water District .....			101,493.59	2.53	5.44
Rainbow Municipal Water District .....			89,533.85	2.23	4.79
Rincon del Diablo Municipal Water Dist. ....			10,400.00	0.23	0.49
San Diego .....	2,899,712.48	( 9,044.13)*	( 9,044.13)*	0.37	0.80
San Dieguito Irrigation District .....	38,029.61	18,000.00	18,000.00		3.83
Santa Fe Irrigation District .....	31,984.56	( 14,998.86)*	( 14,998.86)*		155.60
South Bay Irrigation District .....	150,283.52	82,700.00	82,700.00		2.37
Total Authority .....	\$3,697,258.01	( 71,400.25)*	( 71,400.25)*	1.78	5.44
		6,198.55	2,899,712.48	72.37	155.60
		31,984.56	44,228.16	1.10	2.37
		150,283.52	36,930.55	0.92	1.98
			182,194.97	4.55	9.78
		\$352,369.03	\$4,049,627.04	100.00	215.00
		(\$309,736.88)*	(\$4,006,994.89)*		

\* Back taxes for period to June 30, 1954.

TABLE 14  
METROPOLITAN WATER DISTRICT SPECIAL TAX RATES  
ON AUTHORITY AREAS FOR ANNEXATION CHARGES

Agency & Area	Date of Annexation	Amount of Annexation Charge	Period of Special Tax Levies		Fiscal Year 1953-54			Remaining Balance of Annexation Fee 6/30/54
			First Year	Last Year	Special Tax Levy 6/30/53	Special Tax Levy	Tax Rate ¢/\$100	
Chula Vista								
Fallbrook Public Utility District (area as of 12-17-1946)	12-17-46	\$13,045,000	1947-48	1976-77	\$2,620,253.23	\$427,685.44	7¢	\$ 9,997,061.33
Lakeside Irrigation District (area as of 12-17-1946)								
La Mesa, Lemon Grove and Spring Valley Irrigation District (area as of 12-17-1946)								
National City								
Oceanside								
San Diego								
Bueno Colorado Municipal Water District	6-11-54	1,072,230	1955-56	1984-85	0	0	0	1,072,230.00
Carlsbad Municipal Water District	6-16-54	548,100	1955-56	1984-85	0	0	0	548,100.00
Escondido	10-9-50	386,000	1951-52	1980-81	25,964.54	12,886.80	15¢	347,148.66
Fallbrook Public Utility District—1950 Annexation	8-1-50	34,600	1951-52	1980-81	8,994.41	894.16	11¢	24,711.43
Lakeside Irrigation District—1951 Annexation	7-18-52	352	1951-52	1951-52	352.00	0	0	0
La Mesa, Lemon Grove and Spring Valley Irrigation District—Crest Public Utility District Annexation								
1951 Annexation	12-13-48	10,500	1949-50	1978-79	1,403.43	368.07	8¢	8,728.50
Poway Municipal Water District	5-14-52	9,875	1951-52	1951-52	9,875.00	0	0	0
Rainbow Municipal Water District	4-21-54	91,800	1955-56	1984-85	0	0	0	91,800.00
Rincon del Diablo Municipal Water Dist.	4-10-54	167,700	1955-56	1984-85	0	0	0	167,700.00
San Diego Municipal Water District	6-14-54	757,200	1955-56	1984-85	0	0	0	757,200.00
Santa Fe Irrigation District	12-13-48	187,100	1949-50	1978-79	25,477.67	5,966.94	8¢	155,655.39
South Bay Irrigation District (not including City of Chula Vista)	12-13-48	167,000	1949-50	1978-79	22,697.92	5,462.21	9¢	138,859.87
Totals	11-3-52	449,370	1953-54	1982-83	0	15,178.25	19¢	454,191.75
		\$16,926,827			\$2,715,018.20	\$468,441.87		\$13,743,366.93

TABLE 15  
WATER SALES BY METROPOLITAN WATER DISTRICT  
Fiscal Years 1941-42 to 1953-54

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
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

TABLE 16  
WATER PRODUCTION—METROPOLITAN WATER DISTRICT CONSTITUENT AREAS

Constituent Area	Total Water Production			Source of Water Produced—1953-54			
	1952-53 amount ac. ft.	1953-54 amount ac. ft.	Per cent increase or decrease	M.W.D.		Other	
				Amount ac. ft.	Per cent of total	Amount ac. ft.	Per cent of total
Anaheim .....	4,001	4,501	+ 12.5	3,313	73.6	1,188	26.4
Beverly Hills .....	9,447	9,266	- 1.9	976	10.5	8,290	9.0
Burbank .....	21,261	22,424	+ 5.5	2,119	9.4	20,305	90.6
Chino Basin MWD .....	68,544	71,688	+ 4.6	3,135	4.4	68,553	95.6
Coastal MWD .....	8,234	9,180	+ 11.5	5,658	61.6	3,522	38.4
Compton .....	5,140	6,011	+ 16.9	108	1.8	5,903	98.2
Eastern MWD .....	—	102,117	—	250	0.2	101,867	99.8
Foothill MWD .....	—	12,852	—	2,292	17.8	10,560	82.2
Fullerton .....	4,376	6,382	+ 45.8	2,751	43.1	3,631	56.9
Glendale .....	20,363	21,603	+ 6.1	1,284	5.9	20,319	94.1
Long Beach .....	37,640	38,475	+ 2.2	15,427	40.1	23,048	59.9
Los Angeles .....	443,774	445,472	+ 0.4	17,052	3.8	428,420	96.2
Orange County MWD .....	—	283,528	—	50,349	17.8	233,179	82.2
Pasadena .....	27,784	28,790	+ 3.6	20,255	70.4	8,535	29.6
Pomona Valley MWD .....	46,641	48,027	+ 3.0	5,819	12.1	42,208	87.9
San Diego CWA .....	105,974	*137,901	+ 30.1	52,098	37.8	85,803	62.2
San Marino .....	3,989	4,618	+ 15.8	0	0	4,618	100.0
Santa Ana .....	8,271	9,044	+ 9.3	7,042	77.9	2,002	22.1
Santa Monica .....	11,856	13,774	+ 16.2	11,863	96.8	390	3.2
Torrance .....	7,045	11,708	+ 66.2	5,512	47.1	6,196	52.9
West Basin MWD .....	76,392	71,265	- 6.7	18,751	26.3	52,514	73.7
Totals .....	910,762	1,358,626	+ 49.2	226,054	16.6	1,132,572	83.4

NOTE: Quantities include total water diverted into agencies' transmission and distribution systems from sources of supply.  
\* The Metropolitan Water District delivered 67,370 acre-feet to San Diego County Water Authority in 1953-54 whereas the Authority reported 52,098 acre-feet of Colorado River water used. The difference, 15,272 acre-feet, was added to water in storage.

TABLE 17  
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 (3)	—	6,548,392,114	.23	.25

- (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 1954-55 were available before completion of report and are included for convenience of reader.

TABLE 18  
STATEMENT OF INCOME AND EXPENSE  
July 1, 1953 to June 30, 1954

## INCOME DIVISION

OPERATING INCOME:			
Water sales .....			\$855,282.20
DEDUCT OPERATING COSTS:			
Cost of water sold:			
Inventory of water in storage July 1, 1953	\$ 40,856.00		
Water purchased .....	673,700.00		
Storage charges .....	6,826.90		
	721,382.90		
Less inventory of water in storage June 30, 1954 .....	14,641.00	\$706,741.90	
Direct operating expense .....	30,090.19		
General and administrative expense .....	71,079.78		
Total operating costs .....		807,911.87	
Net operating income before depreciation and debt service expense .....		47,370.33	
DEDUCT DEPRECIATION AND DEBT SERVICE EXPENSE:			
Depreciation .....	98,431.99		
Debt service expense .....	39,133.35	137,565.34	
Net operating income (deficit) .....		(90,195.01)	
ADD NON-OPERATING INCOME:			
Revenue from taxes .....	62,684.03		
Less collection expense .....	106.18	62,577.85	
Miscellaneous revenues .....	3,320.83		
Net gain on disposal of miscellaneous fixed assets .....	118.83	66,017.51	
Net income (deficit) for the year to surplus .....			\$(24,177.50)

TABLE 18 (Continued)  
STATEMENT OF INCOME AND EXPENSE  
July 1, 1953 to June 30, 1954

## SURPLUS DIVISION

SURPLUS, JULY 1, 1953:			
Appropriated surplus:			
For incomplete projects .....	\$ 31,028.42		
For petty cash fund .....	100.00	\$ 31,128.42	
Unappropriated surplus:			
Water in storage .....	40,856.00		
Available for reduction of tax levy .....	146,770.35	187,626.35	\$218,754.77
ADDITIONS TO SURPLUS:			
Depreciation charged to surplus entailing no expenditure of current funds .....		98,431.99	
Refunds of prior year's expenditures .....		807.77	99,239.76
			317,994.53
DEDUCTIONS FROM SURPLUS:			
Expenditures for construction work .....	35,969.24		
Less amount transferred to fixed assets .....	70.18	35,899.06	
Expenditures for furniture, fixtures and equipment .....	4,926.45		
Less:			
Amount included in prior year's expenditures but received in current year .....	(30.90)		
Recovery of net book value of fixed assets trade in .....	(168.90)	4,726.65	
Net income (deficit) for the year from income division .....		24,177.50	64,803.21
Surplus, June 30, 1954 .....			\$253,191.32
CONSISTING OF:			
Appropriated surplus:			
For incomplete projects .....	\$ 59,757.04		
For petty cash fund .....	100.00	\$ 59,857.04	
Unappropriated surplus:			
Water in storage .....	14,641.00		
Available .....	178,693.28	193,334.28	
			\$253,191.32

TABLE 19  
STATEMENT OF ASSESSED VALUATIONS AND TAX RATES TO JUNE 30, 1954

Fiscal Year	Secured		Public Utilities	Unsecured Personal		Total	Tax Rate per \$100	
	Real	Personal		Secured	Unsecured		Secured	Unsecured
1945-46	\$212,082,975		\$28,253,700	\$29,960,130	\$270,296,805	\$0.04	\$	
1946-47	208,715,150 (1)		29,433,450	30,665,910	268,814,510	0.04	0.04	
1947-48	233,579,990		32,740,680	40,977,850	307,298,520 (2)	0.14	0.04	
1948-49	254,227,570		37,482,020	47,177,300	338,886,890	0.14	0.14	
1949-50	290,351,875		42,429,140	45,743,200	378,524,215	0.10	0.14	
1950-51	306,104,930		43,595,730	44,717,740	394,418,400	0.10	0.10	
1951-52	344,620,030		48,452,940	50,904,035	443,977,005	0.10	0.10	
1952-53	382,948,860		53,208,220	63,996,330	500,153,410	0.12	0.10	
1953-54	490,709,350		63,092,050	69,147,150	622,948,550	0.10	0.12	

Debt limit 15 per cent of last equalized assessed valuation of Authority.

Basis of assessment approximately 50 per cent.

(1) City of Coronado and Ramona Irrigation District secured assessed valuations not included in this or subsequent tax 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.

TABLE 20  
STATEMENT OF REVENUES—ESTIMATED AND ACTUAL  
Fiscal Year Ended June 30, 1954

Source	Estimated Revenue	Actual Revenue	Actual Over or (Under) Estimate
Taxes, secured, current levy	\$ 547,905.00	\$ 555,533.05	\$7,628.05
Taxes, unsecured, current levy	83,300.00	84,640.46	1,340.46
Taxes, secured, prior years' levies	10,000.00	9,762.90	(237.10)
Taxes, unsecured, prior years' levies		91.49	91.49
Penalties and interest on delinquent taxes	500.00	1,227.88	727.88
Miscellaneous tax on options		14.98	14.98
Receipts in lieu of taxes	18,000.00	18,330.29	330.29
Miscellaneous tax sales		878.33	878.33
Sale of water	864,000.00	855,282.20	(8,717.80)
Earnings on investments	28,000.00	35,215.66	7,215.66
Rentals	2,100.00	2,377.00	277.00
Use of Authority facilities		180.00	180.00
<b>Total</b>	<b>\$1,553,805.00</b>	<b>\$1,563,534.24</b>	<b>\$9,729.24</b>
<b>DISTRIBUTION BY FUNDS:</b>			
General Fund	\$ 889,740.00	\$ 882,412.06	(\$7,327.94)
Bond Interest and Sinking Fund	113,450.00	116,796.04	3,346.04
U. S. Government			
Contract Fund	530,500.00	544,073.03	13,573.03
General Reserve Fund	6,400.00	5,950.00	(450.00)
Special Tax Fund	13,715.00	14,303.11	588.11
<b>Total</b>	<b>\$1,553,805.00</b>	<b>\$1,563,534.24</b>	<b>\$9,729.24</b>

TABLE 21  
STATEMENT OF FINANCIAL POSITION  
June 30, 1954

ASSETS		
CURRENT ASSETS—GENERAL FUND:		
Cash with treasurer .....	\$ 90,980.39	
Petty cash .....	100.00	
Accounts receivable .....	84,950.70	
Inventory of water in storage .....	14,641.00	
Investments .....	100,000.00	
Delinquent taxes receivable .....	\$ 823.17	
Less allowance for est. losses .....	823.17	—
Total current assets .....		\$ 290,672.09
SPECIAL FUND ASSETS:		
General Reserve Fund:		
Cash with treasurer .....	107,161.85	
Accrued interest receivable .....	6,400.00	
Investments .....	250,000.00	363,561.85
Bond Interest and Sinking Fund:		
Cash with treasurer .....	28,686.74	
Cash with fiscal agent for payment of bond interest .....	19,445.00	
Investments .....	558,692.25	
Delinquent taxes rec. ....	\$3,284.88	
Less allowance for estimated losses .....	3,284.88	—
		606,823.99
U. S. Government Contract Fund:		
Cash with treasurer .....	120,105.81	
Due from Metropolitan Water District .....	5,937,500.00	
Investments .....	828,667.75	
Delinquent taxes receivable .....	12,616.60	
Less allowance for estimated losses .....	12,616.60	—
		6,886,273.56
Special Tax Fund:		
Cash with treasurer .....	19,926.15	
Annexation charges receivable— not due .....	352,369.03	
Delinquent taxes receivable .....	466.47	
Less allowance for estimated losses .....	466.47	—
		372,295.18
Total special fund assets .....		8,228,954.58
FIXED ASSETS:		
Cost of participation rights in Metropolitan Water District to June 30, 1954 .....		25,889,836.76
Plant .....	9,454,339.60	
Less allowance for depreciation .....	595,186.03	
Work in progress .....	8,859,153.57	9,160,882.10
	301,728.53	
Total fixed assets .....		35,050,718.86
		<u>\$43,570,345.53</u>

TABLE 21 (Continued)  
STATEMENT OF FINANCIAL POSITION  
June 30, 1954

LIABILITIES		
CURRENT LIABILITIES—GENERAL FUND:		
Accounts payable .....	\$ 22,758.25	
Advances by Agencies for construction .....	14,722.52	
Total current liabilities .....		\$ 37,480.77
LONG-TERM OBLIGATIONS:		
General obligations bonds payable— not due .....	1,900,000.00	
Estimated balance due on U. S. Government contract for cost of aqueduct .....	11,875,000.00	
Balance due Metropolitan Water District on annexation charges .....	13,743,352.01	
Total long-term obligations .....		27,518,352.01
SURPLUS:		
Invested in fixed assets .....	7,532,366.85	
Reserves for debt redemption:		
For retirement of general obligation bonds .....	\$ 606,823.99	
For retirement of U. S. Government contract .....	6,886,273.56	
Total reserves for debt redemption .....	7,493,097.55	
Appropriated:		
For petty cash fund balance .....	100.00	
For general reserve fund balance ..	363,561.85	
For special tax fund balance .....	372,295.18	
For incomplete projects (continuing appns.) .....	59,757.04	
Total appropriated .....	795,714.07	
Unappropriated surplus .....	193,334.28	
Total surplus .....		16,014,512.75
		<u>\$43,570,345.53</u>

TABLE 22  
SUMMARY STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS  
July 1, 1953 to June 30, 1954

	Cash Balance July 1, 1953	Cash Receipts	Cash Disbursements	Cash Balance June 30, 1954
General Fund .....	\$147,072.49	\$ 922,965.08	\$ 979,057.18	\$ 90,980.39
Bond Interest and Sinking Fund .....	26,928.49	611,987.02	610,228.77	28,686.74
U. S. Contract Fund .....	51,827.24	1,042,024.82	973,746.25	120,105.81
General Reserve Fund .....	107,161.85			107,161.85
Special Tax Fund .....	5,658.40	14,267.75		19,926.15
<b>Total All Funds .....</b>	<b>\$338,648.47</b>	<b>\$2,591,244.67</b>	<b>\$2,563,032.20</b>	<b>\$366,860.94</b>
<b>TREASURY CASH ON DEPOSIT JUNE 30, 1954</b>				
First National Trust and Savings Bank .....			\$499,150.18	
Bank of America National Trust and Savings Association .....			44,445.00	
San Diego Trust and Savings Bank .....			50,000.00	
<b>Total Bank Balances .....</b>			<b>593,595.18</b>	
<b>Deduct:</b>				
Outstanding warrants .....			\$207,289.24	
Special deposit for payment of bond interest coupons .....			19,445.00	
<b>Treasury cash June 30, 1954 .....</b>			<b>226,734.24</b>	
				<b>\$366,860.94</b>

TABLE 23  
STATEMENT OF APPROPRIATIONS AND EXPENDITURES  
July 1, 1953 to June 30, 1954

E&A No.	Purpose	Prior Year Appropriation Carried Over	Appropriations 1953-54	Expenditures 1953-54	Cancelled Appropriations	Unexpended Appropriations 6/30/54
110	Construction of access roads .....	\$ 3,195.61	\$	352.90		\$ 2,842.71
136	Cooperative construction of second barrel .....	27,460.49		11,141.99		16,318.50
141	Oat Hills and Red Mountain metering station .....	372.32		70.18	\$ 302.14	
142	Operation and maintenance .....		\$ 121,620.00	106,253.69	15,366.31	
143	Bond principal and interest redemption .....		88,875.00	88,875.00		
144	Lease-Purchase of San Diego Aqueduct .....		250,000.00	250,000.00		
145	Purchase of water .....		757,000.00	680,526.90	76,473.10	
149	Construction of service connection for Rainbow M.W.D. ....		10,000.00	7,420.93		2,579.07
152	Construction of service connection for Poway M.W.D. ....		10,000.00	37.36		9,962.64
158	Construction of service connection for Buena-Colorado M.W.D. ....		30,000.00	16,945.88		13,054.12
159	Construction of service connection for Rincon del Diablo M.W.D. ....		15,000.00			15,000.00
		<b>\$31,028.42</b>	<b>\$1,282,495.00</b>	<b>\$1,161,624.83</b>	<b>\$92,141.55</b>	<b>\$59,757.04</b>

TABLE 24  
STATEMENT OF TAX ASSESSMENTS AND COLLECTIONS  
as of June 30, 1954

Member Agency	Tax Assessments to Date	Adjustments to Tax Assessments	Tax Collections	Interest and Penalties	Tax on Options	Receipts in Lieu of Taxes	Misc. Tax Sales	Less Refunds	Net Total Collections	Uncollected June 30, 1954
Fallbrook P.U.D. ....	\$ 26,607.29	\$ (25.25)	\$ 26,121.33	\$ 103.10	\$ .24	\$ 3,322.77	\$ .46	\$ 3.69	\$ 29,544.21	\$ 460.71
Lakeside Irr. District La Mesa, Lemon Grove and Spring Valley I.D. ....	6,448.49	22.66	6,336.26	37.67	.05	45.00	19.38	3.85	6,434.51	134.89
City of National City	317,149.74	150.54	315,139.21	907.47	87.75	1,060.00	399.18	114.48	317,479.13	2,161.07
City of Oceanside	97,019.20	165.44	96,168.18	274.88	5.58	5,463.03	36.92	455.00	101,493.59	1,016.46
City of San Diego	87,394.70	97.15	86,822.91	219.35	5.11	2,536.61	22.44	72.57	89,533.85	668.94
Santa Fe Irr. Dist. ....	2,771,304.08	9,859.78	2,770,618.40	5,188.93	34.65	126,623.79	1,437.15	4,190.44	2,899,712.48	10,545.46
San Dieguito I.D. ....	31,647.24	17.60	31,346.11	79.66	7.06	557.65	57.65	5.92	31,984.56	318.73
City of Escondido	38,498.50	68.64	38,002.57	120.86	3.20	94.38	94.38	191.40	38,029.61	564.57
City of Escondido	32,610.58	149.47	32,723.74	22.71			17.88	1.78	32,762.55	36.31
South Bay Irr. Dist.	145,681.66	194.69	144,592.52	255.80	.39	5,793.16		358.35	150,283.52	1,283.83
Total member agencies	3,554,361.48	10,700.72	3,547,871.23	7,210.43	144.03	144,844.36	2,585.44	5,397.48	3,697,258.01	17,190.97
Withdrawn agencies	4,150.45	21.32	4,171.62	8.71	.15	186.64			4,367.12	.15
Total	\$3,558,511.93	\$10,722.04	\$3,552,042.85	\$7,219.14	\$144.18	\$145,031.00	\$2,585.44	\$5,397.48	\$3,701,625.13	\$17,191.12

ANALYSIS OF UNCOLLECTED TAXES BY FUNDS

General Fund	\$ 823.17
Bond Interest and Sinking Fund	3,284.88
U. S. Contract Fund	12,616.60
Special Tax Fund	466.47
Total as above	\$17,191.12

TABLE 25  
STATEMENT OF BONDS PAYABLE  
June 30, 1954

Description	Rate of Interest	Date of Issue	Maturity	Authorized	Bonds		Outstanding	Sinking Fund	
					Issued	Required		Actual	Excess
Waterworks Bonds	2%-2 1/2 %	1947	1971	\$2,000,000.00	\$2,000,000.00	\$1,900,000.00	\$508,695.64	\$587,378.99	\$78,683.35

STATEMENT OF BONDED DEBT MATURITIES

Fiscal Year	Bond Nos.	Interest Payable (1)		Bond Principal Payable (2)	Total Cash Required
		Rate	Amount		
1954-55	101-150	2 1/2 %	\$ 37,625.00	\$ 50,000.00	\$ 87,625.00
1955-56	151-200	2	36,500.00	50,000.00	86,500.00
1956-57	201-300	2	35,000.00	100,000.00	135,000.00
1957-58	301-400	2	33,000.00	100,000.00	133,000.00
1958-59	401-500	2	31,000.00	100,000.00	131,000.00
1959-60	501-600	2	29,000.00	100,000.00	129,000.00
1960-61	601-700	2	27,000.00	100,000.00	127,000.00
1961-62	701-850	2	24,500.00	150,000.00	174,500.00
1962-63	851-1000	2	21,500.00	150,000.00	171,500.00
1963-64	1001-1150	2	18,500.00	150,000.00	168,500.00
1964-65	1151-1300	2	15,500.00	150,000.00	165,500.00
1965-66	1301-1450	2	12,500.00	150,000.00	162,500.00
1966-67	1451-1600	2	9,500.00	150,000.00	159,500.00
1967-68	1601-1700	2	7,000.00	100,000.00	107,000.00
1968-69	1701-1800	2	5,000.00	100,000.00	105,000.00
1969-70	1801-1900	2	3,000.00	100,000.00	103,000.00
1970-71	1901-2000	2	1,000.00	100,000.00	101,000.00
			\$347,125.00	\$1,900,000.00	\$2,247,125.00

(1) Interest payable January 1 and July 1.  
(2) Maturity day January 1.