

SAN DIEGO
COUNTY WATER AUTHORITY



THIRTY-SECOND ANNUAL REPORT
1978

SAN DIEGO COUNTY WATER AUTHORITY
Organized June 9, 1944

THIRTY-SECOND ANNUAL REPORT

OF AUTHORITY OPERATIONS

FOR FISCAL YEAR ENDING JUNE 30, 1978

Linden R. Burzell
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA
1978

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SAN DIEGO COUNTY WATER AUTHORITY
Member Agencies, Date of Entry, and
Representative on Board of Directors on June 30, 1978

CITIES

Del Mar	Nov. 23, 1962
Thomas C. Shepard	
Escondido	Oct. 9, 1950
Robert M. Dodd	
National City	June 9, 1944
Tom Crownover	
Oceanside	June 9, 1944
David Rorick, Jr.	
San Diego	June 9, 1944

Lois A. Brozey, Dr. Charles F. Cooper, John M. Cranston,
Janet Erickson, R. E. Graham
Lawrence Hirsch, George Kerrigan*, Roy W. Lessard,
Arthur H. Marston, Jr., Joseph Parker, John P. Starkey
*Deceased

WATER DISTRICTS

Helix	June 9, 1944
Nat L. Eggert, Harry Griffen, C. G. Watters, Jr.	
San Dieguito	Dec. 13, 1948

IRRIGATION DISTRICTS

Santa Fe	Dec. 13, 1948
R. E. Badger	
South Bay	Nov. 3, 1952
Lloyd L. Lee, John N. Williams	

*(Includes City of Chula Vista, an independent member agency,
from June 9, 1944 to November 3, 1952)*

MUNICIPAL WATER DISTRICTS

Bueno Colorado	June 11, 1954
Hans H. Doe	
Carlsbad	June 16, 1954
Allan O. Kelly	
De Luz Heights	June 28, 1967
George F. Yackey	
Olivenhain	July 25, 1960
Howard G. Golem	
Otay	Oct. 26, 1956
Glenn M. Reiter	
Poway	April 21, 1954
David R. Shepardson	
Rainbow	April 10, 1954
Pat N. Scott	
Ramona	August 27, 1957
Dr. Gordon R. Zick	
Rincon del Diablo	June 14, 1954
Charles A. Crytser	
Padre Dam	June 7, 1956
Harold S. Rakowski	

*(Includes Lakeside I.D., an independent member agency,
from June 9, 1944 to June 7, 1956)*

Valley Center	May 9, 1955
John F. Hennigar	
Yuima	Dec. 16, 1963
F. D. Fitzsimmons	

PUBLIC UTILITY DISTRICT

Fallbrook	June 9, 1944
Paul K. Algert	

FEDERAL AGENCY

Pendleton Military Reservation	Dec. 16, 1977
Paul L. V. Campo	

OFFICERS OF BOARD OF DIRECTORS



Chairman
LLOYD L. LEE
*South Bay
Irrigation District*
4-61 to 6-78



Vice Chairman
JOHN M. CRANSTON
San Diego
10-64 to 6-78



Secretary
DAVID R. SHEPARDSON
*Poway Municipal
Water District*
4-54 to 6-78



Treasurer
HARRY GRIFFEN
*Helix
Water District*
7-56 to 6-78



Controller
LOIS A. BROZEY
San Diego
8-74 to 6-78



Assistant Treasurer
JOHN N. WILLIAMS
South Bay
11-70 to 6-78

EXECUTIVE OFFICERS



LINDEN R. BURZELL
*General Manager and
Chief Engineer*



PAUL D. ENGSTRAND
General Counsel

ADMINISTRATIVE STAFF



B. L. OGDEN
*Assistant Chief
Engineer*



HENRY LOZANO
*Director of
Finance*



I. E. NICHOLS
Superintendent



JANET RAVIART
Executive Secretary

BOARD OF DIRECTORS
1977-78
For Officers, See Page 4



PAUL K. ALGERT
*Fallbrook Public
Utility District*
7-74 to 6-78



R. E. BADGER
*Santa Fe
Irrigation District*
8-57 to 6-78



WALLACE BERON
Del Mar
3-75 to 5-78



GARRY L. BUTTERFIELD
*Ramona Municipal
Water District*
7-75 to 6-77



PAUL L. V. CAMPO
*Pendleton Military
Reservation*
1-78 to 6-78



FRANK J. CERMAK
*San Dieguito
Water District*
7-66 to 1-78



DR. CHARLES F. COOPER
San Diego
4-73 to 6-78



TOM CROWDOVER
National City
6-76 to 6-78



CHARLES A. CRYTSEY
*Rincon del Diablo
Municipal Water District*
6-54 to 6-78



LAENA DASHIELL
*San Dieguito
Water District*
1-78 to 6-78



ROBERT M. DODD
Escondido
1-70 to 6-78



HANS H. DOE
*Burno Colorado
Water District*
6-54 to 6-78



NAT L. EGGERT
Helix
Water District
10-77 to 6-78



JANET ERICKSON
San Diego
2-74 to 6-78



F. D. FITZSIMMONS
*Yuima Municipal
Water District*
8-71 to 6-78



JOHN B. GIBSON
*Helix
Water District*
10-71 to 10-77

**BOARD OF DIRECTORS
1977-78
(Continued)**



HOWARD G. GOLEM
*Olivehain Municipal
Water District*
1-62 to 6-78



R. E. GRAHAM
San Diego
7-63 to 6-78



JOHN F. HENNIGAR
*Valley Center
Municipal Water District*
10-76 to 6-78



LAWRENCE HIRSCH
San Diego
5-73 to 6-78



ALLAN O. KELLY
*Carlsbad Municipal
Water District*
11-63 to 6-78



GEORGE KERRIGAN
San Diego
9-53 to 1-77



ROY W. LESSARD
San Diego
5-73 to 6-78



ARTHUR H. MARSTON, JR.
San Diego
12-74 to 6-78



JOSEPH PARKER
San Diego
3-77 to 6-78



GLENN M. REITER
*Otay Municipal
Water District*
9-71 to 6-78



DAVID RORICK, JR.
Oceanside
8-63 to 6-78



HAROLD S. RAKOWSKI
*Padre Dam
Municipal Water District*
11-76 to 6-78



PAT N. SCOTT
*Rainbow Municipal
Water District*
9-74 to 6-78



THOMAS C. SHEPARD
Del Mar
5-78 to 6-78



JOHN P. STARKEY
San Diego
10-75 to 6-78



C. G. WATTERS, JR.
*Helix
Water District*
5-77 to 6-78

**BOARD OF DIRECTORS
1977-78
(Continued)**



GEORGE F. YACKEY
*De Luz Heights
Municipal Water District*
6-68 to 6-78

PHOTO
NOT
AVAILABLE

DR. GORDON R. ZICK
*Ramona Municipal
Water District*
8-77 to 6-78

**DIRECTORS REPRESENTING SDCWA ON
METROPOLITAN WATER DISTRICT
BOARD OF DIRECTORS**



R. E. BADGER
3-73 to 6-78



JOHN M. CRANSTON
12-74 to 6-78



HANS H. DOE
7-69 to 6-78



HARRY GRIFFEN
1-63 to 6-78



LLOYD L. LEE
10-73 to 6-78

COMMITTEES OF THE BOARD
June 30, 1978

ADMINISTRATIVE CODE

Allan O. Kelly, Chairman
Charles F. Cooper
John M. Cranston
Tom Crownover
Laena Dashiell
Joseph Parker
Harold S. Rakowski
Thomas C. Shepard

LEGAL AND CLAIMS

George F. Yackey, Chairman
John P. Starkey, Vice Chairman
Charles F. Cooper
John M. Cranston
Janet Erickson
John F. Hennigar
Joseph Parker

ENVIRONMENTAL POLICY

Charles F. Cooper, Chairman
Clarence G. Watters, Jr., Vice Chairman
Paul L. V. Campo
Janet Erickson
Arthur H. Marston, Jr.
Joseph Parker
Harold S. Rakowski
David Rorick, Jr.

ENGINEERING AND OPERATIONS

R. E. Badger, Chairman
Robert M. Dodd, Vice Chairman
Paul L. V. Campo
Charles A. Crytser
Hans H. Doe
Howard G. Golem
Ralph E. Graham
Lawrence Hirsch
Allan O. Kelly
Glenn M. Reiter
Pat N. Scott
Thomas C. Shepard
Clarence G. Watters, Jr.
John N. Williams

LANDS AND RIGHTS OF WAY

Robert M. Dodd, Chairman
Allan O. Kelly, Vice Chairman
Paul K. Algert
Tom Crownover
Charles A. Crytser
Laena Dashiell
Nat L. Eggert
F. D. Fitzsimmons
John F. Hennigar
Harold S. Rakowski
Thomas C. Shepard
David R. Shepardson
Gordon R. Zick

FINANCE AND INSURANCE

Howard G. Golem, Chairman
Roy W. Lessard, Vice Chairman
Paul K. Algert
Lois A. Brozey
Paul L. V. Campo
Nat L. Eggert
Harry Griffen
Lawrence Hirsch
David Rorick, Jr.
Pat N. Scott
John P. Starkey
John N. Williams
Gordon R. Zick

ORGANIZATION AND PERSONNEL

John N. Williams, Chairman
R. E. Badger
Lois A. Brozey
Tom Crownover
Howard G. Golem
Harry Griffen
David R. Shepardson
John P. Starkey
George F. Yackey

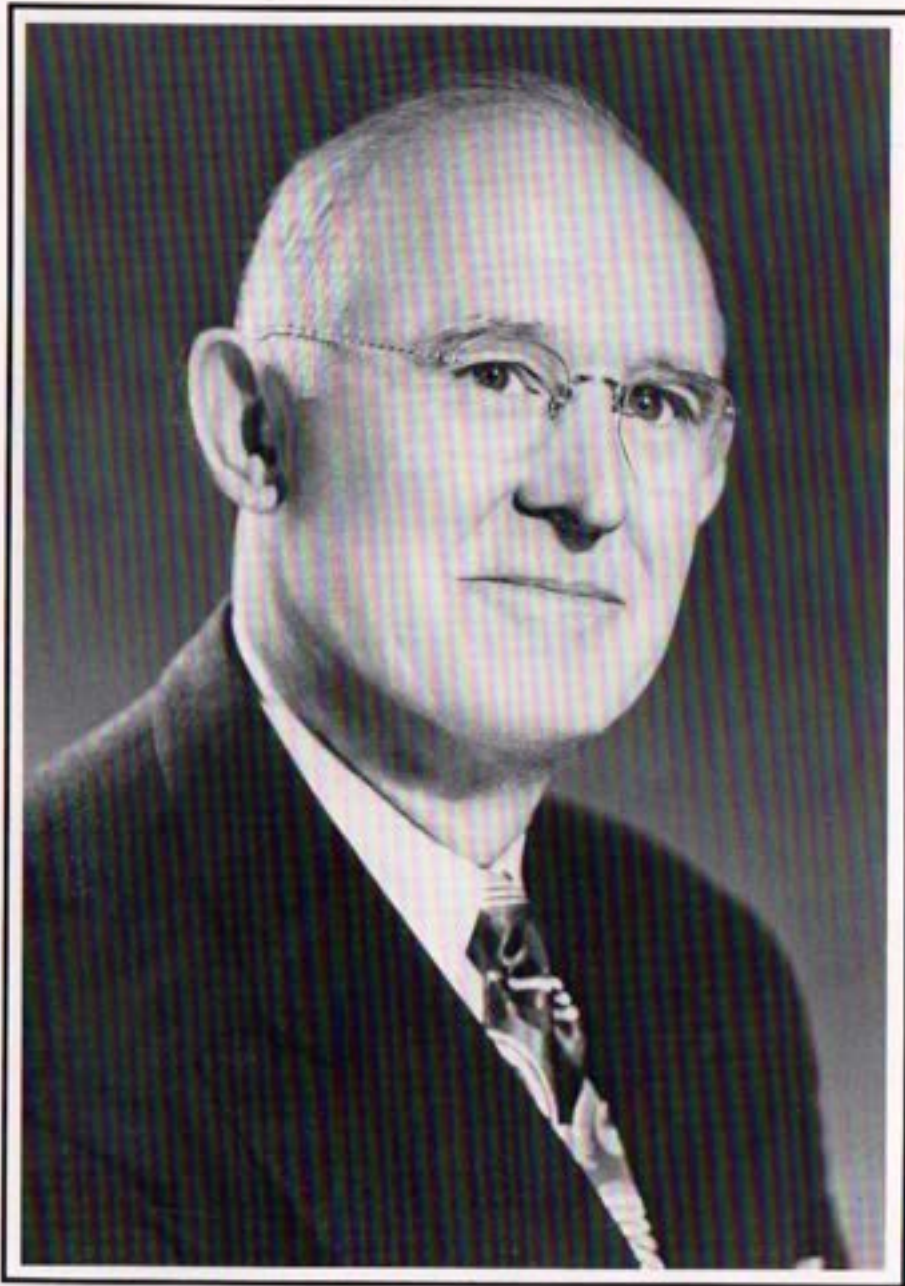
PUBLIC INFORMATION

David Rorick, Jr., Chairman
Janet Erickson, Vice Chairman
Lois A. Brozey
Laena Dashiell
Hans H. Doe
Nat L. Eggert
F. D. Fitzsimmons
Ralph E. Graham
John F. Hennigar
Roy W. Lessard
Arthur H. Marston, Jr.
Glenn M. Reiter
Pat N. Scott

WATER PROBLEMS AND POLICY

Hans H. Doe, Chairman
Paul K. Algert, Vice Chairman
R. E. Badger
John M. Cranston
Charles A. Crytser
Robert M. Dodd
F. D. Fitzsimmons
Ralph E. Graham
Harry Griffen
Lawrence Hirsch
Roy W. Lessard
Arthur H. Marston, Jr.
Glenn M. Reiter
David R. Shepardson
Clarence G. Watters, Jr.
George F. Yackey

In Memoriam



GEORGE KERRIGAN
1894 - 1978
Director
1953 - 1978



San Diego County Water Authority
2750 Fourth Avenue, San Diego, California 92103 (714) 297-3218

John M. Cannon, Chairman
Paul K. Albert, Vice Chairman
Roy W. Lissard, Secretary
Linden K. Surzell, General Manager
and Chief Engineer
Paul D. Engstrand, General Counsel

September 15, 1978

Board of Directors
San Diego County Water Authority

The Thirty-Second Annual Report of the Water Authority, covering activities during the fiscal year ending June 30, 1978, has been prepared and is transmitted herewith.

The two-year drought in California came to an end in the winter of 1977-78 with abundant rainfall and runoff throughout most of the state, including San Diego County. The improved water storage situation permitted the Department of Water Resources to resume delivery of State Project water to Southern California in the spring of 1978. As a result, the Metropolitan Water District was able to begin blending state water with Colorado River water in Lake Skinner, introducing the long-awaited Northern California water to San Diego for the first time in May 1978.

Runoff into San Diego reservoirs exceeded 280,000 acre feet during the fiscal year. It is anticipated that this local runoff will be used by the member agencies over a two-year period, thereby temporarily decreasing the quantity of water to be purchased from the Authority.

However, member agencies monthly water requirements continue to increase because of population growth and expanded agricultural plantings. The Metropolitan Water District has scheduled completion of its Report 929 "A Study of Alternative Methods of Meeting Forecasted Demands of San Diego County Water Authority." The primary conclusion reached is that Metropolitan should begin the design phase of Pipeline 5 and complete the environmental review process at an early date so that this needed facility can be kept on schedule.

On June 6, 1978 the voters approved Proposition 13, an amendment to the constitution of the State of California which places strict tax limitations on all public agencies. An in-depth review of this document indicates that there will be very little adverse effect on the Water Authority's ability to finance its capital program and no effect on its ability to maintain and operate the aqueducts. The Water Authority's financial position remains strong, and it is anticipated that there will be no abrupt changes in the fiscal policies of the Authority as a result of Proposition 13.

Very truly yours,

L. K. Surzell
General Manager and Chief Engineer

LRB/nh

MEMBER AGENCIES

- | | | | |
|---|---|--|--|
| CITIES
•Del Mar •National City
•Escondido •Oceanside
•San Diego | IRRIGATION DISTRICTS
•Santa Fe •South Bay | PUBLIC UTILITY DISTRICT
•Fairbrook | MUNICIPAL WATER DISTRICTS
•Bueno Colorado •Pawley
•Carlsbad •Ramona
•De Luz Heights •Rincon del Diablo
•Olivewood •Valley Center
•Clay •Padre Dam
•Tuma |
| WATER DISTRICTS
•Hahn •San Diego | MILITARY RESERVATION
•Camp Pendleton | | |

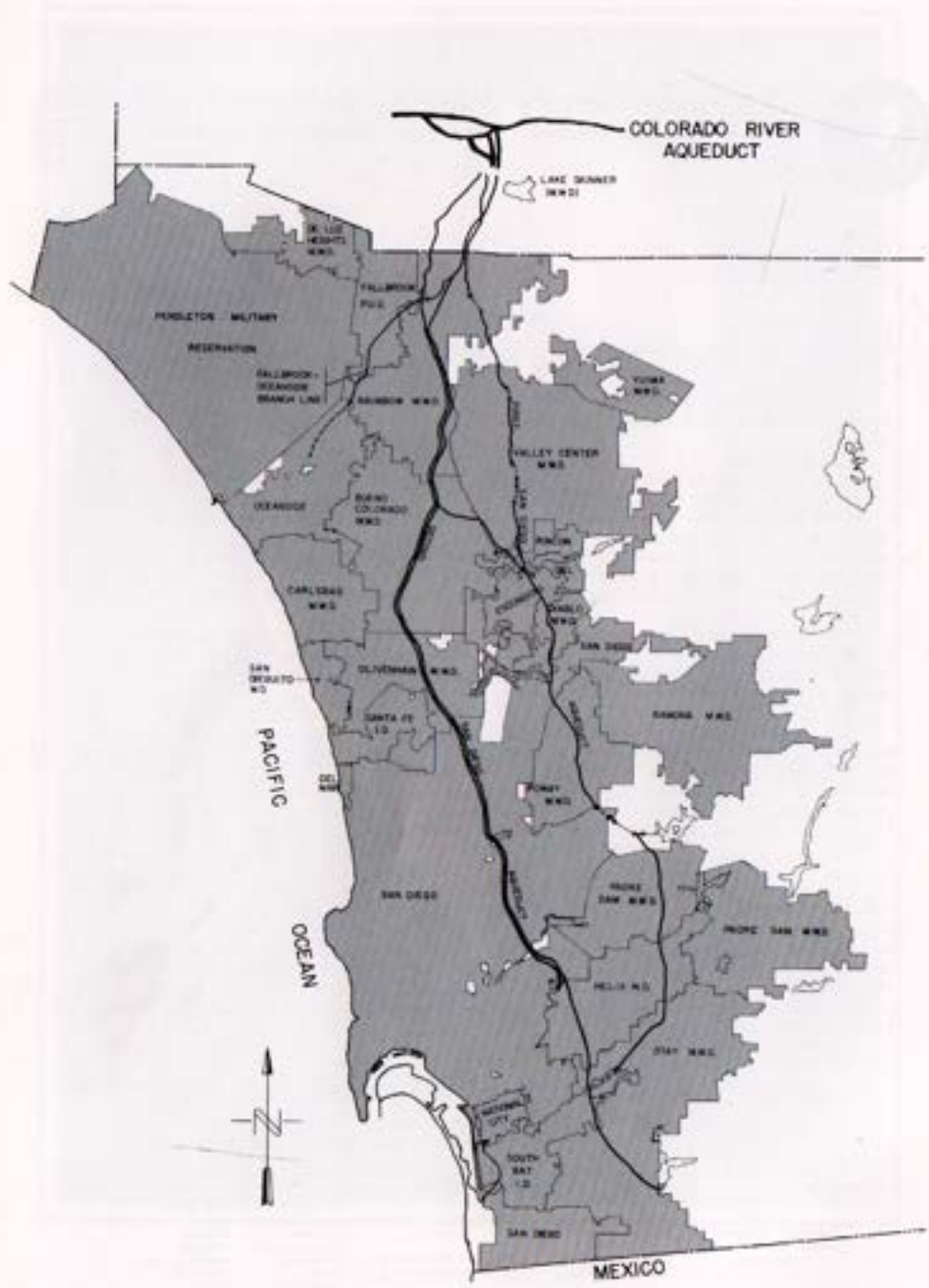


Figure A. Authority Area Within San Diego County.

FISCAL YEAR 1977-1978

The San Diego County Water Authority supplies approximately 90 percent of all water used in San Diego County. It must, therefore, plan well ahead to meet its commitments. It was organized in 1944 under the County Water Authority Act which was approved by the California Legislature the previous year.

Under the terms of that Act, the Authority Board of Directors is charged with providing imported water for municipal, domestic, and other beneficial uses to its 23 member agencies. Until May 1978, the only source of imported water available to the Authority was Colorado River water from The Metropolitan Water District of Southern California (MWD).

With the heavy rains and associated runoff in the watersheds supplying the State Water Project reservoirs during the winter of 1977-78, MWD also began delivery of limited quantities of Northern California water from the State Water Project in May 1978. Water from both sources is blended in Lake Skinner and subsequently sold by the Authority to its member agencies.

All physical features needed for the delivery of the blended water, both treated and untreated, were completed this year. The most significant of these physical features was the completion of Pipeline 4 which began operation in January 1978 and the notice of completion was filed on February 8, 1978 with the San Diego County Recorder.

Several construction projects, other than routine service connections, also were begun during the fiscal year, including the Miramar Pumping Station and the Tri-Agencies Pipeline. These projects are covered in detail under the "Design and Construction" section of this report.

The water conservation program initiated by MWD in April 1977, which imposed a 100 percent surcharge at the municipal and industrial rate for water purchases exceeding the amount purchased during the same month of 1976, was terminated on January 31, 1978. Member agencies of the Authority reduced their accumulated total purchases from MWD during this period by 23,821 acre feet, 13,834 acre feet of which qualified for a \$20 per acre foot incentive credit. The penalties and credits under this program were passed directly to the member agencies.

Water conservation efforts by the Authority and its member agencies continued in recognition of the possible future recurrence of droughts and the need to conserve water from the natural resource and energy consumption aspects. This subject is covered in greater detail in the "Public Information" section of the report.

BOARD OF DIRECTORS

General

Each of the 23 member agencies is represented on the San Diego County Water Authority Board of Directors by one or more persons. A member agency is entitled to an additional representative for each full five percent of total Authority assessed valuation contained within its boundaries. These representatives are appointed by the chief executive officers of the respective agencies with approval by the agencies' governing bodies. During the past fiscal year, only three agencies were represented by more than one director: The City of San Diego by eleven; Helix Water District by three; and South Bay Irrigation District by two. Directors serve without pay from the Authority. The Directors, the agencies they represent, and the dates of their tenure are noted beginning on Page 5 of this report.

Officers of the Board of Directors are elected in July of even-numbered years. In July 1976, Lloyd L. Lee was elected Chairman; John M. Cranston, Vice Chairman; David R. Shepardson, Secretary; and Lois A. Brozey, Controller. Harry Griffen was appointed

as Treasurer and John N. Williams Assistant Treasurer. Under a new Administrative Code section added in 1972, the chairman may not succeed himself.

To facilitate matters, most business coming before the Board is first considered by one or more of its committees. Each committee then reports to the full Board which makes the necessary decisions. There are nine standing committees: Engineering and Operations; Finance and Insurance; Organization and Personnel; Water Problems and Policy; Lands and Rights of Way; Legal and Claims; Administrative Code; Public Information; and Environmental Policy.

During the July 1977 meeting of the Board, Chairman Lee presented a twenty-year service emblem to Director Badger; a fifteen-year service emblem to Director Golem; six-year service emblems to Directors Fitzsimmons and Reiter; and three-year service emblems to Directors Brozey, Erickson, Marston, and Scott.

During the August 1977 meeting, Director Crownover was reseated as representative of National City, his term to expire on July 15, 1983; Director Reiter was reseated as representative of Otay Municipal Water District, his term to expire on September 10, 1983; and Dr. Gordon R. Zick was seated as Director of Ramona Municipal Water District replacing Director Butterfield upon his resignation. His term will expire on October 2, 1981.

Upon motion by Director Reiter, seconded by Director Watters, and carried, the Board adopted a resolution honoring Director Butterfield for his past service on the Board of Directors. The resolution was presented at the May 1978 meeting.

Also at the August 1977 meeting, Chairman Lee presented service emblems to former Director Shelton for twenty years of service; a six-year service emblem to Director Gibson; and a three-year service emblem to Director Algert.

Director Griffen presented former Director Shelton with a resolution from the Helix Water District expressing its appreciation for the many years he had represented that District on the Authority Board.

Proceedings for annexation of the Pendleton Military Reservation were approved at the September 1977 meeting. The completion of this annexation on December 16, 1977 increased the number of member agencies of the Authority to twenty-three.

Upon motion by Director Doe, seconded by Director Algert, and carried, the Board adopted a resolution at its September 1977 meeting honoring Mr. John H. Lauten upon his retirement as General Manager of The Metropolitan Water District.

Mr. Nat L. Eggert was seated at the October 1977 meeting representing the Helix Water District. His term will expire on August 18, 1983.

During the January 1978 meeting, Director Hennigar was reseated as representative for Valley Center Municipal Water District, his term to expire on January 13, 1984; and Mrs. Laena Dashiell was seated as Director representing San Dieguito Water District, replacing Director Cermak. Her term will expire on December 21, 1978.

Also, at the January 1978 meeting, Mr. Paul L. V. Campo was seated as representative of the Pendleton Military Reservation upon completion of annexation proceedings on December 16, 1977. Director Campo's term will expire on January 12, 1984.

Mr. Thomas C. Shepard was seated as Director at the May meeting, replacing Director Beron, representing the City of Del Mar. Director Shepard's term will expire on March 13, 1981.

Director Badger was presented a resolution, adopted by the Board at its May 1977 meeting, honoring him for his years of service on the Colorado River Board. The presentation was made at the May 1978 meeting.

A nominating committee, consisting of Director Graham, Chairman, and Directors Doe and Williams, was appointed at the May 1978 meeting to present nominations for officers to be elected at the July 1978 Board of Directors meeting.

Mr. Hans H. Doe was seated as representative of the Bueno Colorado Municipal Water District at the June 1978 meeting. His term will expire June 15, 1984. He replaces Director Berry.

Upon motion by Director Rorick, seconded by Director Yackey, the Board at its June 1978 meeting adopted a resolution honoring former Director Frank J. Cermak for his service while a Director.

Guest Speakers

At the July 1977 meeting, Mr. David N. Kennedy, Assistant General Manager of the Metropolitan Water District, discussed the situation in the Sacramento River Delta regarding water, the status of the Peripheral Canal, and the status of Senate Bill 346 (Ayala) which would authorize and fund construction of the canal.

At the August 1977 meeting, Mr. Don Gustafson, Farm Advisor for the San Diego County Cooperative Extension Service, University of California, spoke to the Board regarding the types of agriculture in San Diego County. Mr. Jim Roberts reviewed the use of drip irrigation in his avocado, citrus, and nursery operation. Both presentations made use of color slide projections.

At the October 1977 meeting Mr. Richard W. King, Director of Utilities for the City of San Diego, discussed the proposed project for water reclamation through the use of plants and aquatic animals.

Assemblyman Larry Kapiloff, 78th Assembly District, discussed recent legislative actions regarding Senate Bill 346 (Ayala), and his views regarding the future of the bill, as guest speaker at the November 1977 meeting.

At the January 1978 meeting Mr. Jerry B. Gilbert, Consulting Engineer for the Comprehensive Planning Organization of San Diego County, was guest speaker and reviewed his report regarding Alternative Institutional Arrangements for the Areawide Water Quality Management Plan being prepared under Section 208 of Public Law 92-500.

Mr. Myron B. Holburt, Chief Engineer for the Colorado River Board, was guest speaker at the February 1978 meeting. He discussed the current problems being faced by the Board, including future water sources, water claims by various Indian tribes, salinity standards, and contracts for power from Colorado River hydroelectric generating stations.

Policy

A policy statement regarding agricultural water rates adopted by the Board of Directors at the June 1977 meeting was rescinded at the July 1977 meeting, and the following policy statement was adopted as moved by Director Doe and seconded by Director Hennigar.

"The Authority shall request MWD to keep agricultural prices as already fixed by it for the fiscal year 1979-80, agricultural prices shall be raised the same amount as other classes of services are raised, which is estimated to be an increase of \$7 per acre foot for 1978-79 and no increase for 1979-80. In addition, study shall be given by our General Manager to the advisability of redefining the standards to qualify for agricultural price, including environmental and economic impacts, and he shall report within 3 months."

At the same meeting, the Board adopted a resolution authorizing the Treasurer of the Authority to deposit funds with the State Treasurer for deposit to the Local Agency Investment Fund.

A Conflict of Interest Code was adopted by the Board at its September 1977 meeting. This Code requires all Directors and certain staff personnel to disclose businesses, investments, income sources, and real property interests.

The Board, at the October 1977 meeting, reaffirmed its support of Senate Bill 346 (Ayala) for the early completion of the California Water Plan projects, particularly the Peripheral Canal.

On December 8, 1977, the Board adopted a resolution increasing the surcharge rate from \$2.00 per acre foot to \$2.50 per acre foot, effective July 1, 1978. This increase was essential to meet increased operating expenses.

Also, at the December 1977 meeting, the Board adopted a resolution ordering the concurrent annexation of the Pendleton Military Reservation to the Authority and MWD as a single and separate member agency, the twenty-third member agency of the Authority.

The Board, at its January 1978 meeting, adopted a resolution amending Article 11 of the Administrative Code establishing the treated water capacity and commodity charges for the fiscal year beginning July 1, 1978. The new commodity charge is to be \$15.10 per acre foot; capacity charge will be \$4,550 per year, per acre foot delivered on the peak day.

A resolution authorizing the execution of Amendment 3 to the Supplemental and Amendatory Contract for Temporary Delivery of Colorado River Water to Tijuana, Mexico, through facilities of MWD, the Authority, the City of San Diego, and the Otay MWD was adopted by the Board at its March 1978 meeting. This extends the delivery agreement through August 1979.

The Authority's Administrative Code, Section 3.3.1 was amended by resolution adopted during the April 1978 meeting regarding the form of agreement for repurchase agreements.

Also, during the April 1978 meeting, the Board approved, by resolution, the application for federal disaster relief assistance.

Revised guidelines for implementing the California Environmental Quality Act were adopted by the Board at the May 1978 meeting.

The Authority's Administrative Code was amended by resolution of the Board at the June 1978 meeting. This action transfers the functions of the Treasurer and Controller to the Director of Finance as recommended by the Authority auditors.

Also, during the June 1978 meeting, the Authority Board adopted a resolution in-

creasing the surcharge rate from \$2.50 per acre foot to \$3.00 per acre foot effective January 1, 1979.

Administration

The executive officers of the Water Authority are Linden R. Burzell, General Manager and Chief Engineer, and Paul D. Engstrand, General Counsel. The administrative staff consists of Assistant Chief Engineer Buckley L. Ogden; Director of Finance Henry G. Lozano; Superintendent Irwin E. Nichols; and Executive Secretary Janet M. Raviart.

Administrative offices of the Authority are at 2750 Fourth Avenue, San Diego. Field headquarters are located in the Fred A. Heilbron Operations Center at Fifth and Quince Streets, Escondido.

At the end of the fiscal year, the Authority had 42 employees, five of whom were working under grant from the Comprehensive Employment and Training Act.

WATER AUTHORITY COMPOSITION

Area

The Authority encompasses 897,806 acres (1,402.8 square miles), an increase of 134,159 acres during the fiscal year. This increase primarily was caused by the addition of the Pendleton Military Reservation which added 134,625 acres. A detachment from the Authority reduced the area served by 468 acres.

Area changes, addition of member agencies, and percentage of area of each member agency are contained in Table 3. The City of San Diego is the largest area with 204,671 acres; the smallest area is the City of Del Mar consisting of 1,082 acres.

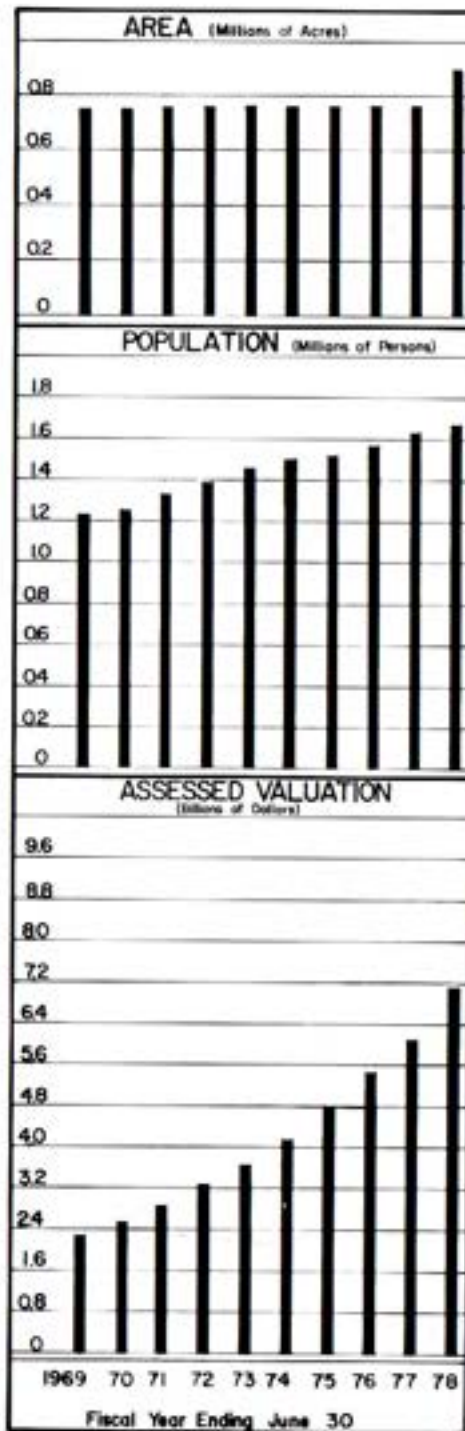
Each calendar year the Authority is required by State law to file a Statement of Change of Boundary. This statement was filed with the Metropolitan Water District, the San Diego County Assessor, and the State Board of Equalization on December 29, 1977.

The statement for calendar year 1977 contained the addition of the Pendleton Military Reservation and five annexations that added area to the Authority, together with nineteen changes in member agency boundaries which did not change the Authority boundary. Also contained in this statement was one detachment from the Ramona Municipal Water District, the Authority, and MWD that reduced the service area.

The Statement of Change of Boundary is used by the County Assessor to determine the total assessed valuation within each member agency and the Authority for tax purposes.

Population

The population of San Diego County is estimated to be 1,714,000 people of which 97 percent live within the Authority service area. The average annual growth rate within the Authority service area for the period from 1946 to 1978 was 8.7 percent. The population within the Authority service area was estimated to be 1,665,200 persons on June 30, 1978, an increase of 40,650 or 2.5 percent from the June 30, 1977 estimate of 1,624,550. Population statistics are contained in Tables 2 and 3.



The City of San Diego, the largest member agency of the Authority in area, also leads the member agencies in population with 799,500 persons, approximately 48 percent of the Authority total. De Luz Heights Municipal Water District has the lowest population, 180 persons, and the lowest density with 0.02 persons per acre. The highest average population density within an identifiable political entity is 9.20 persons per acre in the City of La Mesa which lies within the Helix Water District boundaries.

The average population density of the Authority decreased during the fiscal year from 2.12 to 1.85 persons per acre or 1,187 persons per square mile. This decrease is a direct result of the Pendleton Military Reservation Annexation with its large area and low population.

Assessed Valuation

The assessed valuation of taxable property within the Authority, both secured and unsecured, and the Authority's budget requirements provide the basis for the annual determination of the Authority tax rate by the Board of Directors. The number of directors and the number of votes to which each member agency is entitled are determined by the total assessed valuation within the member agency. The valuations are determined by the San Diego County Assessor who also collects these taxes for the Authority.

Total assessed valuation of taxable property within the Authority for 1977-78 according to the County Auditor's certification was \$7,106,157,703, an increase of \$1,018,327,488 or 16.7 percent from the 1976-77 certified valuation of \$6,087,830,215.

The average assessed valuation of property within the Authority service area decreased from \$7,974 per acre in 1976-77 to \$7,915 per acre in 1977-78, a one percent decrease. This decrease was caused by the annexation of Pendleton Military Reservation with its large

area and low assessed valuation.

The assessed valuation for each member agency, the Authority, and San Diego County are contained in Table 5.

WATER SUPPLY AND CONSUMPTION

Source

The Metropolitan Water District of Southern California (MWD) supplies water to the Authority which, in turn, delivers water to its member agencies. Prior to May 1978, all water received from MWD was 100 percent Colorado River Water. During May, MWD began delivery of State Project water into Lake Skinner so that the heavy winter runoff from the Kern River could be used in the MWD service area, including San Diego County.

The Authority has a preferential right to approximately 10 percent of the total MWD supply. The preferential right provision of the MWD Act has never been enforced as a basis for curtailment of water deliveries. However, the dependence on imported water by the Authority member agencies, whose use is approximately 30 percent of MWD supply, makes the preferential right provision significant to the Authority and its member agencies.

MWD Facilities

The Metropolitan Water District (MWD) diverts water from the Colorado River at Lake Havasu and transports it through the Colorado River Aqueduct to its terminus at Lake Mathews in Riverside County. Supplies for San Diego County are diverted from this aqueduct near the west portal of the San Jacinto Tunnel into the First San Diego Aqueduct (Pipelines 1 and 2). A few miles west, the San Diego Canal receives water from the Casa Loma Canal. Pipelines 1 and 2 enter and traverse San Diego County without going through any other major facilities. The San Diego Canal terminates at Lake Skinner. A portion of the water from Lake Skinner flows directly into Pipeline 4, while another portion is processed through the Skinner Filtration Plant before entering Pipeline 3.

In May 1978, deliveries of water stored in Lake Perris through the Lakeview Pipeline to Lake Skinner were begun. By the end of June, the estimated blend in Lake Skinner was 27 percent State Project water and 73 percent Colorado River water.

Lake Skinner is the major storage facility for the San Diego Aqueducts with a maximum capacity of 44,000 acre feet of storage. The facilities are located in Riverside County south of Winchester. The maximum water surface elevation for storage is 1,479 feet above sea level. The Skinner Treatment Plant is located at the reservoir with a treatment capacity of 150 million gallons per day (mgd). This capacity is currently being expanded by addition of a 90 mgd module which will increase the design capacity to 240 mgd.

Authority Facilities

The Authority takes delivery of water from MWD in the four pipelines of the two San Diego Aqueducts near Rainbow approximately six miles south of the Riverside-San Diego county line.

San Vicente Reservoir, which is owned and operated by the City of San Diego, is the terminus of the First Aqueduct. The Fallbrook-Oceanside Branch originates from the First Aqueduct at Rainbow. The Authority operates and maintains approximately 12.5 miles of this branch from Rainbow to Morro Reservoir. The La Mesa-Sweetwater Branch extends from the First Aqueduct at Slaughterhouse Canyon through Lakeside and El Cajon to Sweetwater Reservoir. The two pipelines of the First San Diego Aqueduct share common tunnels and inverted siphons and are operated as a single unit.

The two pipelines of the Second Aqueduct, although in common right-of-way for most of their length, do not share any facilities south of Lake Skinner and are operated separately. The treated water pipeline terminates in Lower Otay Reservoir. The untreated water pipeline ends at the City of San Diego's Alvarado Treatment Plant near Lake Murray.

To maximize the flexibility of the system, several crossover connections have been constructed during recent years. One such facility is the pipeline from the Second Aqueduct at Twin Oaks Valley to the First Aqueduct just north of Escondido. This connection permits the refilling of the First Aqueduct with untreated water after agencies to the north have used a portion of its capacity.



Heavy rains during February and March 1978 caused severe erosion in several of the major streams in San Diego County. San Diego River in Mission Gorge is pictured with Pipeline 3 encasement exposed. Pipeline 4, constructed during 1977, was also exposed at this river crossing.

Just upstream of the Twin Oaks Valley diversion is an interconnection which permits the transfer of Pipeline 3 flows into Pipeline 4 and vice versa. Member agencies have also increased the flexibility of their operations by increasing the number of aqueduct pipelines to which they are connected.

Flows in the First Aqueduct are chlorinated at a station in Rainbow Pass just north of the Riverside-San Diego county line. Pipeline 3 is chlorinated during the treatment process at the Skinner Plant, and Pipeline 4 is chlorinated at a facility near Lake Skinner.

Design capacity of the First San Diego Aqueduct is 196 cubic feet per second (cfs). Pipeline 3 has a 250 cfs design capacity, and Pipeline 4 has a 380 cfs design capacity.

(One cubic foot equals 7.48 gallons. One cfs flowing for 24 hours will produce nearly two acre feet. An acre foot contains approximately 326,000 gallons.)

No storage facilities are owned or operated by the Authority. However, it does have the contractual right to store up to 40,000 acre feet (af) in San Vicente Reservoir, the terminus of the First Aqueduct. An agreement with the City of San Diego, which owns the reservoir, provides for payment to the City of \$2.20 per af for the maximum amount of water in storage each year.

In addition, the Authority pays the City 50 cents per af for pumping water from storage into the City's system. The agreement also provides that the first water which might be lost over the spillway would be that stored by the Authority.

During the fiscal year, a total of 19,411 af was placed in San Vicente Reservoir by the Authority for the accounts of member agencies. A total of 32,375 af was withdrawn, and 1,300 af was lost by evaporation. The net result of this year's activities was a decrease of 20,866 af from 23,466 af in storage on June 30, 1977, to 2,600 af in storage on June 30, 1978. San Vicente storage statistics are shown in Table 4. Rainbow Municipal Water District had the largest water storage credit during the year with 7,617 af, or about 23 percent of Authority storage in the reservoir.

During the months of February and March 1978, storms produced heavy runoff throughout the County. This caused a spill to occur at San Vicente Reservoir. The Authority lost 6,601 af between March 2 and March 19, 1978. This spill is the first to occur at this reservoir since it was built and the first time the Authority has lost water due to spillage.

Another Authority-City of San Diego agreement permits storage up to 2,500 af in Lower Otay Reservoir, terminus of Pipeline 3. Storage here is for operational purposes only. Water is transferred to the City when it requests delivery at this location. No storage is provided for member agencies. The City is paid \$1 per af for the maximum storage in any 12-month period. A minimum annual fee of \$1,000 is charged. The Authority also pays pumping charges which vary from \$1.50 to \$2.25 per af depending on water elevation.

Lake Jennings owned by Helix Water District can be used for storage of a maximum of 2,000 af under terms of an agreement with the District. This water must be purchased by Helix during the following fiscal year, and all losses are absorbed by the District.

A contract with Sweetwater Authority (successors to California-American Water Company) provides for storage in Sweetwater Reservoir, the quantity to be determined by Sweetwater Authority. Under this contract, Authority storage is charged its proportionate share of evaporation. As of June 30, 1978, Authority storage in Sweetwater Reservoir totalled 2,686 af.

These agreements are designed to relieve seasonal peaking on the San Diego Aqueducts.

Supervision and control of the San Diego Aqueducts' system is conducted from the Fred A. Heilbron Operations Center, Escondido, where delivery requests from member agencies are received. Aqueduct flows and deliveries are controlled and monitored through a telemeter system designed and built by Authority personnel. Communications with operating and maintenance field staff and with MWD's East Valley Operations Section at Lake Skinner is by two-way radio.

Deliveries and Rates

The San Diego County Water Authority aqueducts delivered 339,653 af during the fiscal year. Untreated water accounted for 237,462 af, and the balance, 102,191 af, was water treated at the Robert A. Skinner Treatment Plant in Riverside County. This total flow of 339,653 af was 95,282 af less than the previous fiscal year, a 22 percent reduction. The reduction can be attributed to the water conservation efforts of the Authority and its member agencies and to the very wet winter.

Flow rates in the aqueducts were the lowest experienced for several years during March 1978 with an average of 191 cfs. The highest average delivery of 700 cfs occurred during July 1977. The average for the entire year was 469 cfs.

Water deliveries to member agencies and others during the fiscal year are shown in Table 8. Purchases by member agencies totalled 344,573 af, and 7,961 af were delivered to Tijuana at the international border.

Storage in the Authority's account in San Vicente Reservoir at the beginning of the fiscal year was 23,466 af. During the year, an additional 19,411 af was placed in storage, and 40,277 af was taken from storage by delivery, evaporation, and spill leaving 2,600 af in storage at the end of the fiscal year.

Storage in other member agencies' reservoirs at the end of the fiscal year was 374,148 af, which is approximately 52 percent of total capacity, compared to 144,393 af the previous year. This increase amounts to 229,755 af or 259 percent of the previous year.

Annual water sales to individual member agencies for the eight year period 1970-71 through 1977-78, total water sales from 1947 through 1970 and, total water sales from 1947 through 1978 are shown in Table 7. The sales during fiscal year 1977-78 are 79 percent of the previous fiscal year, a reduction of 80,608 af.

The operations and maintenance of the Authority is financed by a surcharge on water delivered to its member agencies, plus other miscellaneous revenues. The surcharge rate during the fiscal year was \$2 per acre foot for all water delivered through the aqueducts.

Capital costs have been financed by sales of general obligation bonds and from tax revenues. The bond service cost is paid from tax revenues with the balance of tax revenues used for current capital improvements.

With the passage of Proposition 13 on June 6, 1978, the tax revenue from assessed valuation of property within the Authority will drop from the current 11 cents per \$100 assessed valuation to an estimated 6 cents for retirement of bonded indebtedness and possibly 1 or 2 cents for capital improvements.

The Metropolitan Water District generally announces water rates two years in advance. Since 1975 water rates have been increased yearly because of higher cost of energy for pumping, together with the greater proportion of the bond service cost being financed through water sales in accordance with the City of Los Angeles - MWD agreement which settled the lawsuit between these two parties.

During 1977-78, the MWD rate for untreated water for municipal and industrial use was \$67 per af, to which was added the Authority surcharge of \$2 per af. Treatment charge by MWD at the Skinner Treatment Plant was \$17 per af for this same period. A number of contracts between the Authority and some of its member agencies which have treatment plants provide for service by these plants. This treated water is

then sold to agencies which do not have facilities available. Because of the great difference between treatment costs, the Authority charges are based on the average cost of the service and are charged through both a capacity and a commodity rate.

These rates are set annually by the Authority Board in January for the following fiscal year. The capacity charge for fiscal year 1977-78 was \$2,869 for each acre foot used on the day of maximum use. This charge is payable monthly as one-twelfth of the total charge. This charge is added to the monthly statement. The commodity charge for this period was \$11 per acre foot.

At its January meeting, the Authority Board of Directors set the 1978-79 capacity charge at \$4,550 for each acre foot used on the day of maximum use and \$15.10 per af commodity charge. In addition, the surcharge rate was set at \$2.50 per acre foot starting July 1, 1978 and increased to \$3 per af starting January 1, 1979.

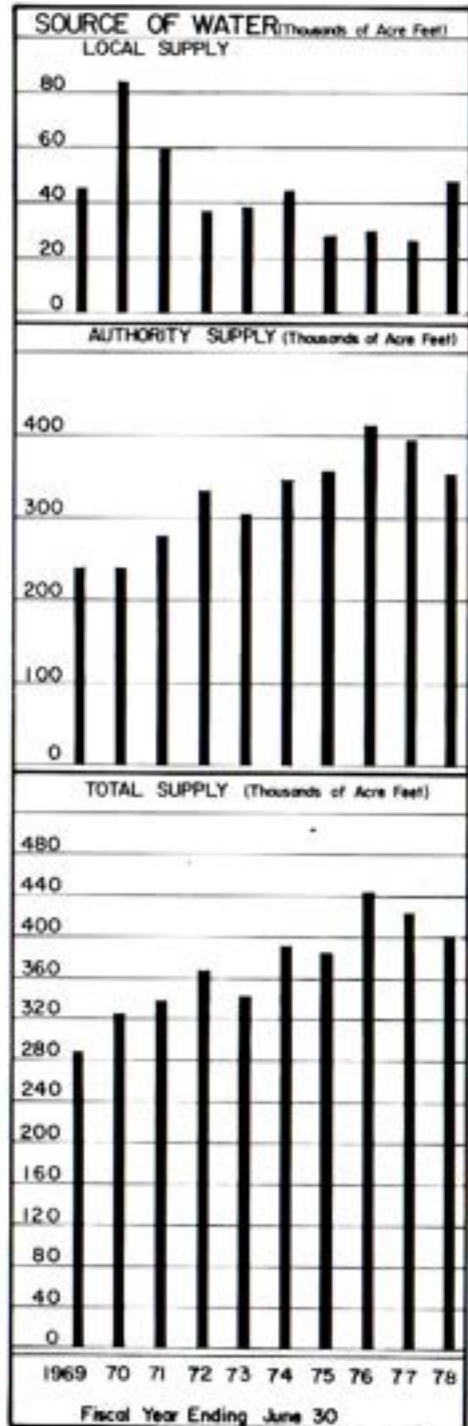
The following is a complete summary of past and future MWD and Authority rates:

**SUMMARY OF WATER RATES
(Dollars Per Acre Foot)**

From	To	MWD	Authority	Total	Agricultural Rebate	Resulting Agricultural Rate
7/1/58	1/1/61	15.00	2.00	17.00	3.00	14.00
1/1/61	1/1/62	17.00	2.00	19.00	4.25	14.75
1/1/62	1/1/63	19.00	2.00	21.00	5.50	15.50
1/1/63	1/1/64	21.00	2.00	23.00	6.75	16.25
1/1/64	7/1/64	24.00	2.00	26.00	9.00	17.00
7/1/64	9/1/64	25.00	2.00	27.00	9.75	17.25
9/1/64	7/1/65	25.00	1.25	26.25	9.75	16.50
7/1/65	7/1/66	28.00	1.25	29.25	12.00	17.25
7/1/66	7/1/67	31.00	1.25	32.25	14.00	18.25
7/1/67	7/1/68	34.00	1.25	35.25	16.00	19.25
7/1/68	7/1/69	37.00	1.25	38.25	18.00	20.25
7/1/69	7/1/70	40.00	1.25	41.25	20.00	21.25
7/1/70	7/1/71	44.00	1.25	45.25	23.00	22.25
7/1/71	7/1/72	48.00	1.25	49.25	26.00	23.25
7/1/72	8/13/73	52.00	1.25	53.25	28.50	24.75
8/13/73	7/1/75	56.00	1.25	57.25	31.00	26.25
7/1/75	7/1/76	58.00	1.25	59.25	33.00	26.25
7/1/76	7/1/77	62.00	2.00	64.00	33.00	31.00
7/1/77	7/1/78	67.00	2.00	69.00	33.00	36.00
7/1/78	1/1/79	74.00	2.50	76.50	34.00	42.50
1/1/79	7/1/79	79.00	3.00	82.00	34.00	48.00

NOTE: The above summary of water rates shows prices for untreated Colorado River and State Project water; treatment cost of \$13.00/af for the period 7/1/76 to 7/1/77, \$17.00/af for the period 7/1/77 to 7/1/78, \$21.00/af for the period 7/1/78 to 7/1/79 and \$25.00/af for the period 7/1/79 to 7/1/80 must be added to the above rates.

As shown in the above summary, MWD gives encouragement to agriculture through lower prices. To obtain the rebate, the Authority certifies to MWD the quantities of water used for agriculture. Rebates granted the Authority are paid in full to the member agencies. The agencies, in turn, credit the agricultural users.



Water Production of Member Agencies

The phrase "Water Production" describes the quantity of water an agency obtains from all sources to meet its consumers' needs. It includes losses between the source and the consumer. These losses may result from pipeline breaks, evaporation from reservoirs, and operating shortages. Sources include impounding reservoirs, wells, and the Authority system.

Total water production for each of the 23 member agencies of the Authority is shown in Table 4. During 1977-78, the total water production was 400,821 af, a decrease from 425,143 af in 1976-77 of 24,322 af or 6 percent. The highest monthly production occurred during June 1978 with 51,324 af of water used, slightly less than the previous high during August 1976 when 52,646 af were used. The lowest monthly production occurred during February 1978 when 16,549 af of water were used. The Authority supplied 76.6 percent of the water production during the maximum month of June and 93.4 percent of the production for the fiscal year.

The winter of 1977-78 produced 18.71 inches of rainfall at Lindbergh Field, 198 percent of normal; 37.78 inches at Lake Cuyamaca, 153 percent of normal; and 25.81 inches at Lake Henshaw, 200 percent of normal.

Runoff from this heavy rainfall increased storage in reservoirs from 144,393 af on June 30, 1977 to 374,148 af on June 30, 1978, an increase of 159 percent.

The City of San Diego maintains the most extensive system of impounding reservoirs in the Authority service area. This system produced 22,585 af during the fiscal year, of which agencies outside the Authority received 6,279 af. Helix Water District produced 4,285 af from Lake Cuyamaca and its wells in the El Monte Basin. The Vista Irrigation District, part of Buena Colorado Municipal Water District, produced 4,123 af from Lake Henshaw and the Warner

**SAN DIEGO COUNTY WATER AUTHORITY
WATER PRODUCTION**

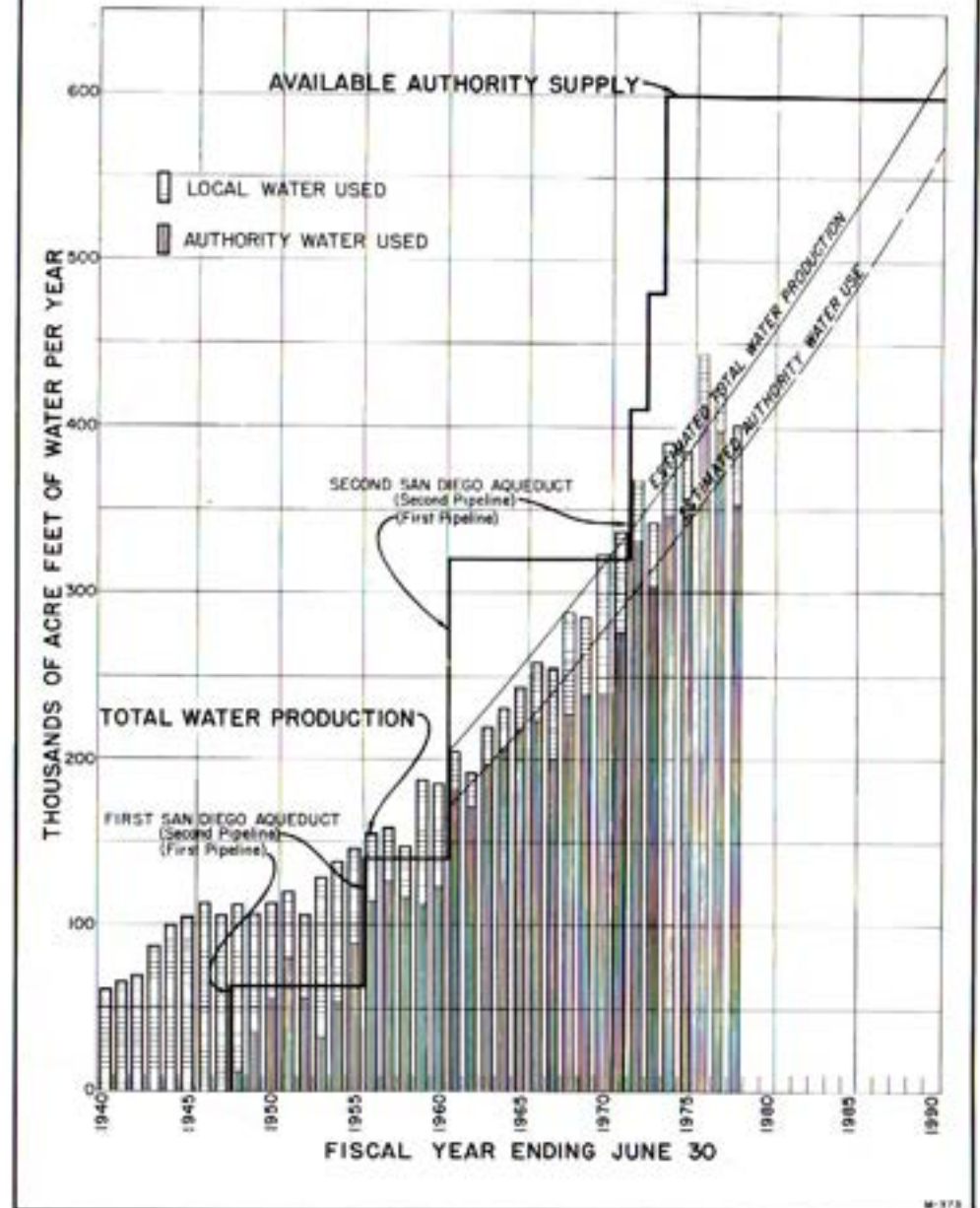


Figure B. Water Production of Authority Member Agencies

Ranch wells. The City of Escondido produced 6,638 af from the Henshaw-Wolford system, and 1,368 af were produced within the Yuima Municipal Water District from the Pauma Valley wells.

Sweetwater Authority produced 7,561 af for use in National City and South Bay Irrigation District.

Local water production of other member agencies is shown in Table 4.

The Authority has 23 member agencies, nine of which are 100 percent dependent on the Authority for water. The fourteen remaining agencies vary from 99 to 59 percent dependence on Authority water.

Water production per unit area is highest in the urbanized portions of the county. However, the per capita use of water is generally less in areas of greater population density, such as the Helix Water District, National City, and the City of San Diego. Water production per unit area in the less densely populated areas, such as Rainbow MWD, Valley Center MWD, and Olivenhain MWD, is approximately the same but the per capita use is considerably higher.

Average daily per capita consumption for fiscal year 1977-78 was 214 gallons, down from 250 gallons per capita per day during the previous year.

Approximately 44 percent of the area within the Authority is estimated to be served. This figure is down from last year because of the large area of Pendleton Military Reservation annexed during the year.

The combined water production of Authority member agencies is shown in Figure B. Shading indicates the proportion obtained from local sources compared with that supplied by the Authority. The trend toward increased dependence on imported water and changes in the quantity of local water used each year are shown graphically.

Projections for future water production are based on the assumption that additional water will be available as needed. Although these projections indicate that present facilities are adequate to meet volume demands until approximately 1985, operational requirements associated with delivery of treated water may dictate construction of Pipeline 5 before that date. When treated water demands require use of more than one pipeline, the new facility will be necessary to provide the additional capacity.

Water Quality

The general quality of water entering the Authority system has improved markedly since the Lake Skinner taste and odor problems were resolved in 1976-77. Seasonal high algae still occurs which has caused a high turbidity of 7.2 TU to be reported during April 1978 at Miramar Treatment Plant. The average reported for the year at this location was about 1.7 TU.

The Authority maintains its continuous chlorination program, injecting 1.00 to 1.25 ppm to flows in Pipelines 1 and 2 at the Rainbow Chlorination Station. This program has effectively controlled the residual algae from the Colorado River Aqueduct. The algae problem in Pipelines 1 and 2 has also been relieved somewhat by the lower flows and related less frequent cleaning of the Colorado River Aqueduct open channel sections.

During the fiscal year, all water delivered through Pipeline 3 was treated at the Robert A. Skinner Treatment Plant. This treatment includes chlorination as well as filtration

which relieved a substantial portion of the load from Rainbow Chlorination Station.

The continuous chlorination of flows in Pipeline 4 is performed at a temporary station near Lake Skinner. This temporary chlorination station was operated and maintained by the Authority until August 31, 1977 at which time MWD agreed to operate and maintain the station.

The Authority pays for the chlorine to provide for continuous chlorination at this location which has averaged between \$0.30 and \$0.35 per af since that date.

Until May 1978, all water delivered to the Authority by MWD was 100 percent Colorado River water. On May 6, 1978, State Project water was introduced to the system from Perris Reservoir, and by the end of the fiscal year about 27 percent of the content of Lake Skinner was State Project water. No immediate improvement in total dissolved solids was evident, possibly due to the long period of time the water had been detained in Perris Reservoir causing considerable concentration of the dissolved solids, and also because of the low percentage of State Project water involved.

Chemical constituents of the dissolved solids in aqueduct water are shown in Table 11. The analyses are based on samples taken from West Portal of San Jacinto Tunnel and tested by MWD. Total hardness ranged from a high of 328 mg/l to a low of 313 mg/l. The hardness was measured as the mg/l equivalent of calcium carbonate which averaged 322 mg/l. Water temperature varied from a low of 55°F recorded in December 1977 and January 1978, to a high of 80°F reported in September 1977.

Agricultural Water Use

Agricultural water use during 1977-78 was 92,581 af, 12,865 af less than the previous year's use of 105,446 af. The percentage of agricultural water to total water production was 23.1 percent, down from 25.4 percent in 1976-77.

The percentage of agricultural water use from the Authority is considerably higher at 94.8 percent, than the total water production of 88.1 percent because agencies with high percentage of agricultural water in many cases have no local water production. Several agencies, such as the Helix Water District and the City of San Diego, have very low percentage of agricultural use and high percentage of local water production. A complete summary of agricultural water use is contained in Table 4.



Agricultural development continues in rugged areas of north San Diego County in spite of rising water and power rates experienced over last several years.

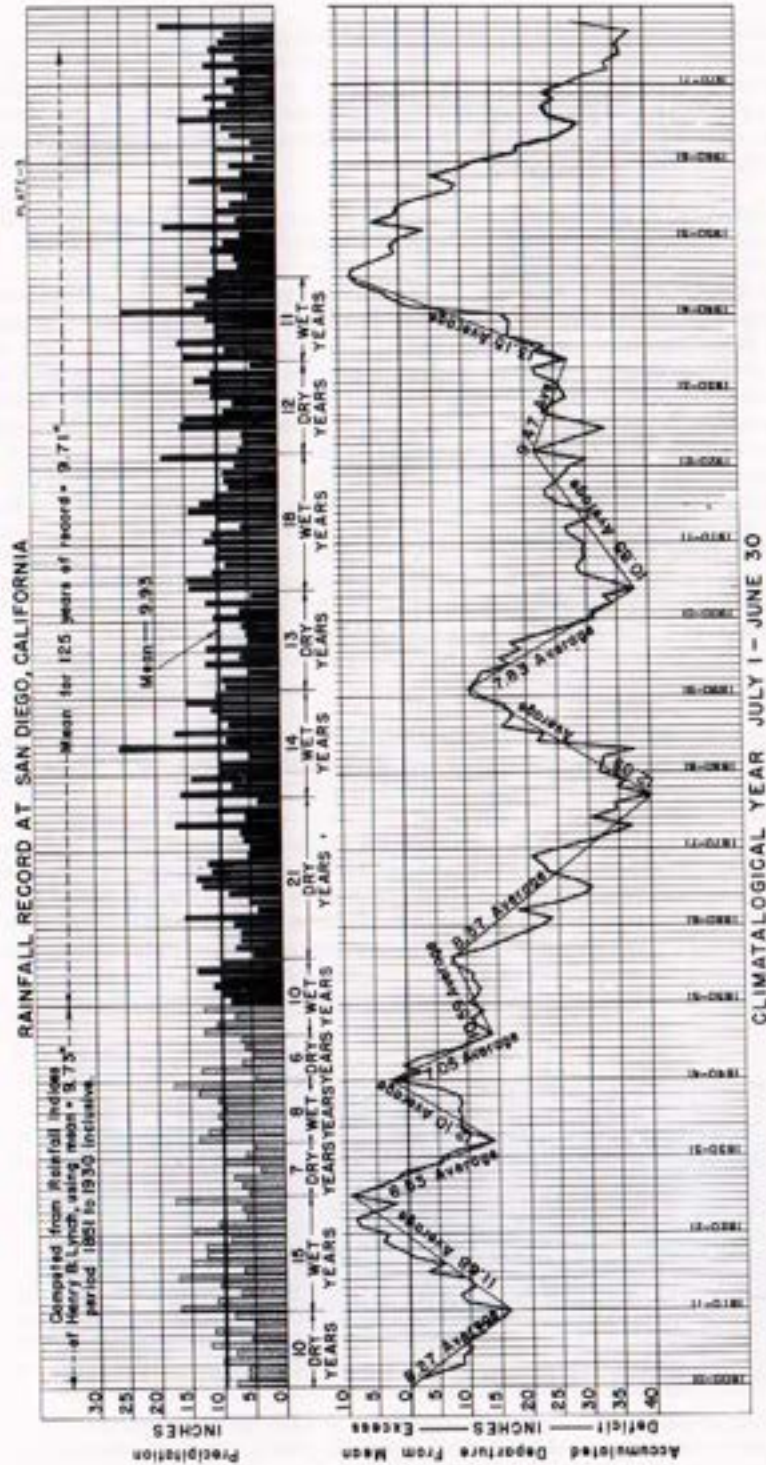
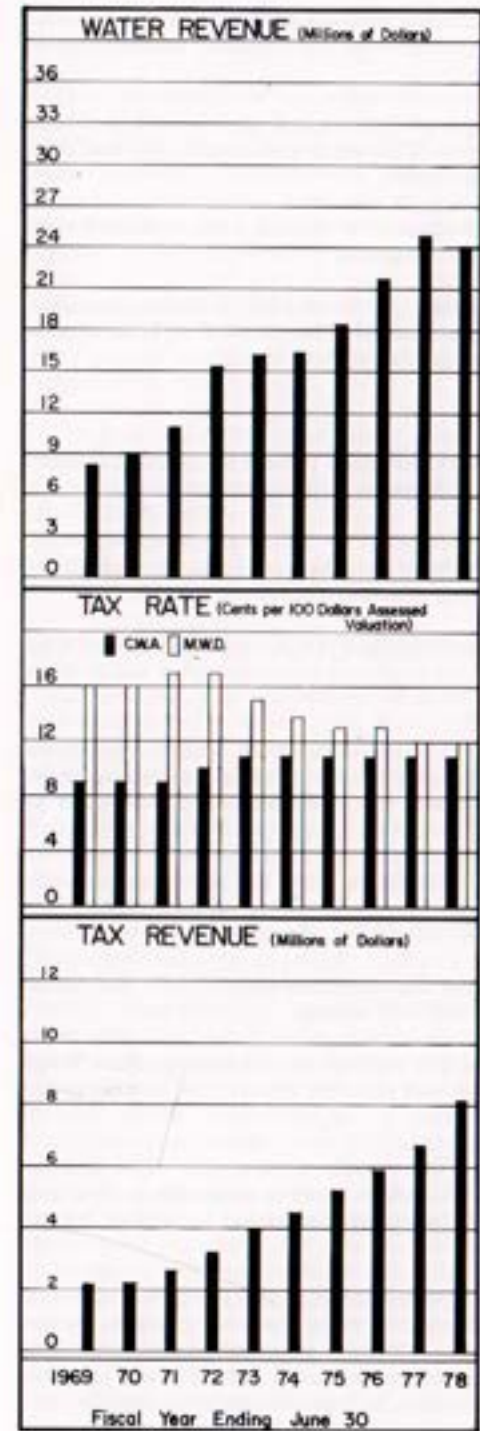


Figure C. Rainfall Record at San Diego, California.



Water Treatment

The Robert A. Skinner Treatment Plant began operations in September 1976. Initial capacity of the facility was 150 million gallons per day (mgd). The capacity of the plant has been reached several times since operations began, and on several occasions plant operations have exceeded its design capacity.

MWD has a 90 mgd expansion of the plant under construction which is scheduled for completion in April 1979. This expansion will provide sufficient treated water to satisfy the demands of all agencies requiring treated water on Pipeline 4 for several years.

Member agencies of the Authority who own and operate treatment plants within the county are the City of San Diego; the City of Escondido (joint ownership with Vista Irrigation District); San Dieguito Water District-Santa Fe Irrigation District (joint ownership); Helix Water District; Poway Municipal Water District; and Sweetwater Authority (agents for National City and South Bay Irrigation District).

For those agencies not having access to the treated water pipeline, the Authority has negotiated contracts for treated water from other agencies within the county operating treatment plants. These contracts are with the City of San Diego, Helix Water District, and Poway Municipal Water District. The cost of all treated water delivered to member agencies is the same regardless of the treatment source.

Several agencies on the First Aqueducts still use Colorado River water with dual chlorination as the only treatment provided. The Authority provides the first chlorine application in its pipelines, and the agencies are responsible for the second chlorination after delivery.

Allocation of Water to Member Agencies

The County Water Authority Act (Sec. 5.11) provides a preferential entitlement

for the purchase of water by each of the Authority member agencies. This preferential right is established by the proportion of all payments to the Authority to meet capital costs, primarily the annexation fees and taxes.

Voluntary agreement between member agencies has made it unnecessary to invoke these provisions when shortages have developed. When water and capacity are available, agencies are permitted to purchase without restriction.

In addition, the California Water Code (Sections 350 through 358) contains procedures which may be followed should water shortages occur.

The Authority's Administrative Code (Sections 12.4 and 12.5) contains provisions for normal and abnormal water allocations in situations not deemed to be so serious that either of the above-mentioned provisions need be invoked.

Future Supplies

It is the responsibility and the policy of the Authority to provide all the supplemental water required by its member agencies to meet the needs of their consumers.

It is recognized that this policy must be tempered by an obligation to encourage prudent conservation practices. It is also recognized that there are certain acts of nature against which there is no defense available within reasonable economic bounds.

However, the availability of imported water is so basic to the economy of San Diego County that it justifies the most diligent efforts to protect current supplies and develop future sources.

Growth rates within the Authority service area have slackened but projections indicate a continued population increase for the foreseeable future. The long lead time required for development of new water resources demands that constant attention be given to meeting future needs.

The Authority obtains all of the water it distributes from the Metropolitan Water District of Southern California which has two sources of supply: the Colorado River and the State Water Project.

The water shortage in Northern California was alleviated entirely with the return to normal or above-normal rainfall during the 1977-78 winter.

Construction of the Peripheral Canal and other features to complete the State Water Project should assure adequate supplies until well after the turn of the century under present contracts and allocations.

It is estimated that the MWD service area will contain a population of 20 million, nearly two times the present population of 11 million, and the Authority service area will contain a population of 3 million, nearly two times the present 1.6 million, by the turn of the century.

The MWD Board has adopted a policy to provide additional water and/or facilities as needed to meet demands of its member agencies. To fulfill that policy, MWD contracted with the State of California in 1960 for 1.5 million acre-feet annually from the State Water Project. When faced with the loss of approximately half of its annual Colorado River supply of 1,212,000 af because of the U.S. Supreme Court's decision in *Arizona v. California*, MWD amended its contract with the State to provide an additional

500,000 af/year. Annexations and other changes have brought the total MWD-State contract to 2,011,500 af/year.

The California Aqueduct, a key water supply feature of the State Project, was completed in 1973. When the system is operational, MWD can take deliveries from it at several points. Supplies destined for San Diego County are delivered to MWD at Lake Perris, terminus of the 444-mile Aqueduct. Water then flows through Lakeview Pipeline which parallels the Colorado River Aqueduct. Northern California water is mixed with that from the Colorado at the existing canal turnout for the Second San Diego Aqueduct. It then flows south into Lake Skinner.

If present projections are correct, additional water sources must be developed by the year 2010. The Authority, MWD, the State of California, various federal agencies, and many private organizations are presently making preliminary investigation of possible supplemental water sources.

The potential of the undeveloped rivers of Northern California, the Columbia River, rivers in Canada and Alaska, waste water reclamation, weather modification, geothermal water development, sea water conversion, and other possibilities continue to receive careful consideration.

Figure B shows the increase in water requirements within the Authority since 1940.

OPERATION AND MAINTENANCE

All operation and maintenance is directed by the Superintendent from the Fred A. Heilbron Operation Center, 610 West Fifth Avenue, Escondido. This centrally-located facility is equipped with a telemeter panel, automatic and manual control of remote valves, and two-way radio to operate the Aqueduct system around the clock. Base radio stations are at Escondido, the Authority office in San Diego and the Metropolitan Water District's Robert Skinner Treatment plant in Riverside County. A repeater station on Palomar Mountain relays communications to 25 mobile radios.

A second emergency frequency can be used by the Escondido base and the mobile units for direct unit to unit communication if the Palomar relay station is inoperable. The Operation Center is staffed 7:30 a.m. to 4:30 p.m., 365 days per year, for normal operations. The Operation Center and telemeter panel are checked several times each evening. When necessary, System Operators are assigned night time checks. After hour phone calls are transferred to the duty operator's home phone, so responses to local districts' emergencies can be made at any hour. The ability to respond quickly to member agencies flow requests and the use of automatic equipment which transfers water to other service connections as the water demand changes, allows districts to satisfy local fluctuating demands even with limited reservoir storage capacities.

The Authority maintenance facilities, also based at the Fred A. Heilbron Operations Center, include a well-equipped automotive shop, a valve shop and carpenter shop. Maintenance equipment includes two road graders, two bulldozers, skid loader, backhoe, hydro-crane, two vans equipped as mobile electronic and meter shops as well as with miscellaneous dump trucks, welders, compressors, crew trucks and patrol vehicles. Three pickups and two sedans were replaced during the year. A relatively small, versatile, well trained and equipped crew normally takes care of all operations and maintenance duties. These duties include maintenance of vehicles, equipment, 100 miles of patrol road, valves, metering, chlorination, office and shop facilities. Continuous routine patrol checks on vandalisms, erosion, leaks and private development which may endanger the

integrity or restrict maintenance of the Aqueducts.

During the year twelve control buildings and piping were painted as well as miscellaneous other structures. Meter charts are changed each week, and an ongoing program provides an average of over three calibration checks per meter each year. On-line monitoring equipment continuously checks the water quality parameters of chlorine residual, turbidity and total dissolved solids.



Warehouse and equipment building, with area of 11,250 square feet, was a major addition to Operations Center Facilities during 1977-78.

In July 1977, Rancho California and Santa Rosa Ranchos, which are part of Eastern Municipal and Western Municipal Water Districts in Riverside County, started taking delivery of water from the Second San Diego Aqueduct. This marks the first time that a major service connection outside of the San Diego County Water Authority has taken water from the Metropolitan Water District's San Diego Aqueduct. Flows later reached as high as 30 cfs. Special cooperative operating procedures were worked out at staff level between these districts and the Authority to share available water in the Aqueducts.

Because of shortage of treated water during the last week in July 1977, the State Health Department lifted a ban on the use of the City of San Diego's lower Otay Reservoir water.

In August 1977, the Fallbrook No. 3 service connection control valve and venturi recovery cone developed leaks and were found to be badly cavitated. A new valve was purchased, a recovery cone was fabricated, and both were installed.

Metropolitan Water District (MWD) took responsibility for operation and maintenance of the Auld Valley chlorination plant starting September 1. Operation of this temporary plant provides the only chlorination of Pipeline 4 and the plant must continue in use until MWD switches treated water to Pipeline 4 in 1979.

Normal operations were disrupted on Sunday, September 11 when the Colorado River Aqueduct was shut down after a flash flood washed rock and sand into the Fan Hill siphon near Desert Hot Springs. The Aqueduct was out of service until September 17. The Authority began receiving water on September 19. First reports of possible Aqueduct problems came to the Authority with reports from the Rainbow Municipal Water District of very dirty water in the First Aqueduct. Second Aqueduct agencies and those south of the crossover line on the First Aqueduct continued to receive a reduced flow

from Lake Skinner, but all agencies north of Escondido on the First Aqueduct were shut off on Friday, September 16. With approval of the State Health Department, under emergency conditions, State Project water was released from Lake Perris into the San Diego canal for delivery to the dry First Aqueduct water agencies. Sand washed into the Aqueduct caused numerous problems and damage to local pumps and meters.

Also in September, a three-day shutdown of the First Aqueduct was required to repair a leak at the transition structure located in the abandoned MWD San Jacinto Reservoir site. During this shutdown water was available in Pipeline 1 from the San Diego canal, and all water demands were met.

The Fallbrook-Oceanside Branch Line was shut down and drained in October to repair a leak.

Blow-off structures in the Los Penasquitos Ranch area were raised at the request and expense of the developers.

Pipeline 4 was shut off south of the Olivenhain No. 1 service connection to remove the bulkhead south of the San Diego No. 5 valve structure. This put treated water from MWD's Skinner Treatment Plant into the Pomerado Line and the first half of the new Alvarado pipeline before switching back to Pipeline 3 and continuing south. After the downstream piping of the new pump station was connected to the Pomerado Line, the treated water Aqueduct was put back in service.

During this shutdown the City of San Diego pumped chlorinated Lower Otay Lake water back into the Aqueduct for delivery to Tijuana through the Otay Municipal Water District system.

About 36 hours after completion of the shutdown of Pipeline 4 a leak developed in a coupling at the new pump station. Because of the location of the coupling, a quick, one-day shutdown of the pipeline was required to repair the leak.

With the Pomerado Line now a part of the treated water Aqueduct extending to Lower Otay Reservoir, the new San Diego No. 11 service connection was turned on for the first time on December 19. Before this time the City of San Diego operated this jointly owned pipeline exclusively to transport water from the City's Miramar Treatment plant to the area now served by the new meter station.

Working with the City of San Diego, an air valve on Pipeline 4 near Miramar Reservoir was converted to a chlorine injection point. Chlorine will be supplied from the Miramar Treatment Plant to boost the Pipeline 4 chlorine residual.

Heavy rains starting in December and continuing through the winter made access roads impassable in most parts of the county. Many normal maintenance activities were nearly impossible or severely restricted. In addition to road washouts, the pipelines were exposed in at least twelve places, and many structures were buried under up to 8 feet of silt and debris.

Control stations were flooded, damaging interior equipment. More than 600 sand bags were placed to protect pipelines, structures and roads.

The availability of treated water in the Second Aqueduct allowed local water districts to shut down or limit operation of four treatment plants for up to 30 days for construction and maintenance activities.

With local reservoirs spilling on April 8. Aqueduct flows dropped to an 8-year low of 155 cfs.

On Tuesday morning, March 28, a panel explosion and fire in the switch house of MWD's Eagle Mountain pump station put the Colorado River Aqueduct out of service. By Thursday all service connections north of the Crossover line on the First Aqueduct had been shut off. Enough switch gear was undamaged to allow MWD to reactivate the pump station in two days, returning flows to San Diego on Friday, March 31.

On April 4, the First Aqueduct south of the Crossover was shut down to repair a leak at the Diversion Structure to Helix No. 2 service connection. During this shutdown, the Lakeside branch line diversion gate was also repaired.

Pipeline 4 was shut down April 22 for a two-week period to revise piping at Auld Valley by the Metropolitan Water District. Taking advantage of the MWD shutdown, the Water Authority drained sections of the pipeline to remove unneeded valves and piping for later use elsewhere.

Except during emergency operations, State Project water was first introduced into the San Diego Aqueduct system at Lake Skinner on May 6. All agencies except those on the First Aqueduct north of the Crossover must now provide treated water service or have special approval of the State Health Department to deliver untreated blended water.

A capacity test on MWD Skinner Treatment Plant revealed that a maximum of 270 cfs treated water is available for the Authority and Rancho California until expansion of the plant can be completed.

Construction by Authority Forces

The new Bueno No. 4 valve vault was completed, connecting this service connection for a part of the San Marcos area to the Aqueduct treated water line.

Two new service connections, Otay No. 8 and Padre Dam No. 6 were completed to take treated water from the Helix District under contract and deliver that water to the Otay and Padre Dam water districts. These installations include telemeter to and supervisory control from Helix's Levy Treatment Plant.

An automatic emergency power unit was installed at Otay No. 8 to provide power not only to that control station, but also to the Helix Water District's 54-inch pressure control valve.

Valve vaults with piping and valves were built on Pipelines 3 and 4 for a new Bueno No. 6 service connection to serve the Vista Irrigation District.

A valve vault was completed for the new Bueno No. 7, Olivenhain No. 3 and Carlsbad No. 2 combination service connection to be built later.

An enclosure was built at the Fred A. Heilbron Operation Center to later house an emergency power unit.

Work started on the San Dieguito-Santa Fe No. 2 service connection. This new meter and valve will go in the existing control station, but requires enlargement of the valve structure. Excavation has been completed and a section of the present structure has been removed.

Construction of the Ramona No. 2 service connection started, and excavation was completed and the floor slab placed. This service connection, and a pipeline being built from the Poway Municipal Water District treatment plant, will deliver additional treated water to the Ramona Water District.

DESIGN AND CONSTRUCTION

The completion of the Pipeline 4 Extension allowed the Authority to introduce State Project water into its system. Together with the prior completion of a number of service connection modifications, the Pipeline 4 Extension provided the capability to deliver untreated water to the Alvarado Treatment Plant while Pipeline 3 delivers treated water to Padre Dam M.W.D., Helix Water District, Sweetwater Authority, Otay MWD and the City of San Diego.



Pipeline 4 construction in rugged area north of Mission Gorge affords panoramic view of developed area of northeast San Diego. Jackson Drive, alignment of pipeline in upper left background.



Pipeline 4 Extension to Alvarado Treatment Plant, completed in January 1978, terminates in pressure reducing system in San Diego No. 12 Service Connection, which was constructed under the pipeline contract.

Pipeline 4 Extension was constructed by Channel Constructors at a completed contract cost of \$5,637,720. The work was started in November, 1976 and accepted as complete by the Authority on February 6, 1978. The project consisted of 29,505 L.F. of 72-inch prestressed concrete pipe, three new metering stations and the rough grading for about three-quarters of a mile of a future portion of Jackson Drive in the City of San Diego.

A major project which was vigorously pushed towards completion this past year was the Miramar Pumping Plant. The function of this plant is to raise treated water from the City of San Diego's Miramar Treatment Plant to the hydraulic grade line of the Authority's treated water aqueduct for deliveries to the south.

The design of the pumping plant was completed early this year and Authority forces started clearing the site in September, 1977. The concrete, reinforcing steel, and electrical work were performed by specialty contractors. The earth work, piping, pump installation and travelling crane erection were performed by Authority personnel. At the



Exterior view of 140 cfs pumping plant located near Miramar Treatment Plant.



Interior view of pumping plant showing two pumps nearing completion. Total of all pumps installed will be 2,800 horsepower when completed. Station was about 75% complete at end of fiscal year.

end of the year the structure was essentially complete with the pump installation and about 50 percent of the electrical work remaining. The estimated cost of the pumping plant is \$1,064,900 and it will be ready for operation in December, 1978.

In July, 1977 the Authority contracted for the removal of the old shop and storage building located along the west side of the Fred A. Heilbron Operations Center in Escondido. A new all-steel building on a heavy concrete slab was erected on the site. The new building is 50 feet wide and 225 feet long which provides 11,250 square feet of inside storage for construction materials and equipment, spare parts, valves, meters and other inventoried items. The estimated final cost of this building is \$124,000 including \$41,000 for required street improvements.

While Specification 228, the Pipeline 4 Extension, was in its last six months of construction, the design of the Tri-Agencies Water Transmission Pipeline, Specification 229, was completed by the Construction Department to meet an early spring bid opening. The project is a 7½ mile pipeline, ranging in size from 42 inches to 21 inches in diameter. It will serve the Vista Irrigation District, the Carlsbad Municipal Water District and the City of Oceanside and these agencies share in the Project financially with the Authority.

On April 6, 1978 bids were opened for the Tri-Agencies Pipeline and Metro-Young Construction Company of San Diego submitted the lowest of eight bids with a bid of \$2,759,902. The scope of the contract reflected a modification of the original project that deleted about 1½ miles of the Carlsbad branch. The fabrication of the pipe was started in June, 1978 and no field work was accomplished this fiscal year.

Other design and construction activities involved numerous improvements to the Authority's physical plant. Although these new works often involve only construction they have been a necessary key in the operation of an increasingly complex water supply system.

Design and construction has been initiated or completed on the following service connections: Bueno #4, Bueno #6, Bueno #7, San Dieguito-Santa Fe #2, Ramona #2, Padre Dam #6, and Otay #8.

Agreements for the use of the City of San Diego's pipeline easement in Shephard Canyon and in Christiana Community Developers property were received so that the Authority can proceed to install 4,500 L.F. of underground power and telemetering cable to the San Diego #11 Service Connection.

A remote-controlled electric operator was installed and placed in service on the Pipeline 2 connection to the Crossover Pipeline which permits a more even control of flows into the First Aqueduct.

A preliminary design of the relocation of the Fallbrook-Oceanside Line at Interstate 15 near Rainbow was completed and an estimate of the cost was forwarded to the California Department of Transportation.

A survey of badly-eroded cover over the Authority's pipelines in Mission Gorge and the South Fork of Keys Canyon was made and a preliminary design of the restoration work was made.

PUBLIC INFORMATION

The most pressing issue facing the Water Authority during this year was the continued drought which had a grip on the entire state.

The Authority and its member agencies, which supply more than 90 percent of the water to San Diego County, were committed to a program of water conservation with the ultimate goal of a 10 percent savings in water from that used the year before.

For this effort to be successful, the support of a well-informed community was needed. It was evident that the public information programs initiated the previous year needed to be intensified.

Seven CETA employees furnished by the County of San Diego were trained and supervised by the Water Authority in basic water conservation techniques. These individuals were used to staff displays throughout the county. The displays were located strategically at shopping centers, banks, savings and loan institutions, post offices, home shows, and other high-traffic areas.

Several thousand pieces of literature on water conservation were distributed, and hundreds of persons were contacted and encouraged to participate personally and to motivate others to conserve.

The speakers bureau was a huge success. Several staff members participated. Presentations were made to civic, cultural, fraternal, community, and social organizations.

Three Educational Resource Specialists provided instructions on water conservation techniques to elementary, junior high, and high school students as well as college students. The program was extended to public, private, and parochial school districts. Hundreds of hours were devoted to this effort.

A puppet show, "The Water Players," was created by two CETA employees under the direction of the public information staff. The program was designed to reach students in grades five to seven and other youth groups such as Girl Scouts and Boy Scouts. However, the program proved very effective and appealed to all age groups.

The Authority's bi-monthly publication "Patter" continued to provide information

about water matters to community leaders. Authority and member agency events and activities were publicized through this medium.

Print and broadcast news media also were used extensively to inform the public about water conservation matters. Public service announcements on radio and television and films at local theaters were used. Information was exchanged through regular contracts with editors, reporters, and public service directors, through news releases, and through tours of water facilities.

The results of the program far exceeded initial expectations.

The goal, as stated before, was a 10 percent savings of water used the previous year. This voluntary water conservation program resulted in a net savings of 16 percent of the water used the previous year.

The public information blitz reached at least two-thirds of all the men, women, and children in San Diego County, either directly on a one-to-one basis, or through the media and printed publications.

The drought has passed but the need to save water and energy continues and will continue for many years.

As the supplier of more than 90 percent of the water used in the region, the Authority Board believes that it is in the best position to advise the public of impending increases in the cost of water. Users can best serve themselves by reversing the trend toward higher per capita consumption and by learning new techniques of conservative water use which are more appropriate to our semi-arid area. This objective remains a basic, long-range goal of the program.

The public information program includes a speakers bureau, a school program, and a motion picture film library. Printed materials and interviews are available to individuals or organizations wishing additional information.

LEGAL DEPARTMENT

Principal responsibility for legal advice and representation comes from the General Counsel. However, members of his firm provide assistance from time to time. Mr. Wallace R. Peck generally assists in all areas and Messrs. Larry M. Marshall and Ronald Endeman handle some litigation.

Litigation - Claims

There are two lawsuits pending in connection with the right of way for the Tri-Agencies pipeline. The three agencies involved were Carlsbad Municipal Water District, Vista Irrigation District and the City of Oceanside. The agencies were funding the costs but the Authority was serving as the coordinating agency.

Litigation brought vs. United Enterprises, Inc. involving the Second Aqueduct, Pipeline 3, which was installed by the Authority in 1960 was nearing trial.

The litigation brought against the Metropolitan Water District by the City of Los Angeles was settled. The temporary court restrictions against the City of Los Angeles regarding use of its Inyo and Mono County water rights were lifted in August.

Florian Brzezinski and Stella Brzezinski, on behalf of themselves, other named claimants, and on behalf of a class of all other similarly situated, filed a claim against the Authority on May 1, 1978 and an amended claim on June 5, 1978, seeking \$10 million for damages caused to owners of property downstream from San Vicente Reservoir by reason of spillage from the Reservoir in March of 1978.

Camp Pendleton Annexation

Consent from the United States to the annexation of the Camp Pendleton lands (including the Marine Corps base and the Fallbrook annex to the Naval Weapons Station, about 130,166 acres) was secured and the annexation was completed by fillings made with the Secretary of State on December 15, 1977. The Water Authority Act contains special provisions for the annexation of lands within a federal military reservation (Section 10.2). It becomes a separate unit member and is entitled to one director, who has one vote regardless of assessed valuation of taxable property. If ownership of the land is transferred to "nonmilitary ownership", the land so transferred is automatically excluded from the Authority.

Conflict of Interest Code

A Conflict of Interest Code was adopted by the Authority and approved by the San Diego County Board of Supervisors. It conforms to the Political Reform Act of 1974 and applies to directors, officers, consultants and certain employees.

Other

The Governor's Commission to Review California Water Rights Law had completed its public hearings and was expected to publish its "Draft Report" in August.

On February 18, 1977, Senator Ayala had introduced Senate Bill 346 in the State Legislature. It was amended four times and passed the Senate on June 22, 1977. It was also amended four times in the Assembly, the last time being September 8, 1977. It failed to pass the Senate and was sent to Conference Committee. The Joint Conference Committee held five public hearings (one in San Diego on November 28, 1977).

It was a very complex and controversial bill. It had two overriding objectives, particularly as far as the Authority was concerned. First, it would increase the water supply for the State Water Resources Development System by providing for the construction of a peripheral canal on the Sacramento River Delta and the study of development of additional off stream reservoir sites. Secondly, it called for agreement between the state and federal government on criteria for joint operation of the State Project and the Central Valley Project as to standards to be maintained in the Delta to meet legally established and practically desirable requirements for salinity control, fish and wildlife preservation and enhancement, and water supply in the Delta. It is extremely important to the Authority that some state action be taken which will accomplish these goals in the near future. New legislation will be followed and support for any reasonable plan can be expected from the Board of Directors.

The Comprehensive Planning Organization of the San Diego Region (CPO) made a study on an Areawide Water Quality Management Plan. This study was financed with federal funds from the U.S. Environmental Protection Agency and private consultants were engaged to make reports. One of the major recommendations by the consultant for the areawide plan was "... to have the County Water Authority act as the 'lead agency' in the annual preparation of a 'detailed water resources program.'"

To facilitate this contemplated role, a new subparagraph 12 was added to Section 5 of the County Water Authority Act. However, CPO did not accept the recommended plan. Instead it voted to keep for itself the role which had been recommended for the Authority.

The County Water Authority Act also was amended to allow the Authority "to acquire water and water rights" within the County of San Diego thereby eliminating a previous restriction on the powers of the Authority. The role which the Authority will play in the reclamation of water for beneficial use in San Diego County remains to be developed.

TREASURER'S REPORT

Much of the strong financial condition of the Water Authority is the result of careful investments made by Treasurer Harry Griffen. The Treasurer is responsible for all funds not immediately required for the conduct of business by the Authority. Appointment to the office of Treasurer is by the Chairman of the Board of Directors. Service is without remuneration.

Under Board policy, the Treasurer invests funds in interest-bearing bank time deposits, in direct obligations of the Federal Government, and in Federal agency obligations, or through the State Local Agency Investment Fund.

The Administrative Code requires the Treasurer to report a summary of his financial transactions monthly and for each fiscal year-end. For fiscal 1977-78, the report is as follows:

For the fiscal year ending June 30, 1978, total Water Authority income was \$32,934,737. Total disbursements during the year were \$26,329,727. At the fiscal year end, the Treasurer had control of funds and investments totaling \$8,798,578.

Income was as follows:	1978	1977
Water sales	\$24,093,865	\$24,848,158
Taxes	8,123,221	6,703,271
Interest on investments	565,537	674,205
Tijuana water service	122,230	143,782
Miscellaneous	29,884	1,575

Total income	\$32,934,737	\$32,370,991
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Disbursements were as follows:

Water purchases	\$22,882,489	\$23,926,405
Operation and maintenance	1,062,525	944,885
Interest expense	2,384,713	2,466,427
Total disbursements	\$26,329,727	\$27,337,717

As of June 30, 1978, the Treasurer's cash accountability was as follows:

Demand deposits	\$ 28,578	\$ 49,127
Time deposits	8,770,000	3,500,000
Savings account	---	5,319,000
Total deposits	\$8,798,578	\$8,868,127

METROPOLITAN WATER DISTRICT MEMBERSHIP

Because of the close relationship between the Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority, readers of this report may find a description of MWD's organization and operations to be of interest.

The Authority joined MWD on December 17, 1946, the most recent of the 27 member agencies of that District, and work very closely with it.

The Metropolitan Water District Act was approved by the State Legislature in 1927. Early the following year MWD was organized. The original act provided for membership by cities. An amendment passed later by the Legislature permitted annexation of large water districts. MWD membership now includes the 13 original cities, one city added in 1971, 12 municipal water districts, and the San Diego County Water Authority.

The MWD Act and the County Water Authority Act are similar. Under each act, policy is established by a board of directors which represents the member agencies. Each director is appointed by the chief executive officer of the agency he represents with approval from its legislative body. Under present MWD rules, each member agency is entitled to a minimum of one director. An additional representative may be appointed for each three percent of the total MWD assessed valuation which lies within the member agency's boundaries. The district member agencies are listed in Figure D.

The Authority began and ended the fiscal year with five representatives on the Metropolitan Board of Directors. All were members of the Authority Board. Director Hans H. Doe has served on the MWD Board for 18 years and is a vice chairman of the Board. He is a member of the Executive, Water Problems, and Organization and Personnel Committees.

Treasurer Harry Griffen, an MWD Board member of fifteen years, is Chairman of the Finance and Insurance Committee, and Chairman of its Audit Subcommittee; and a member of the Water Problems Committee, and of the Special Committee on Charges and Payments under the State contract.

Director R. E. Badger has represented the Authority on Metropolitan's Board for five years. He serves as a member of the Engineering and Operations and the Legal and Claims Committees.

Chairman Lloyd L. Lee is a five-year member of the MWD Board and is a member of the Finance and Insurance and the Land Committees.

Vice Chairman John M. Cranston, who has been an MWD Director for four years, is a member of the Engineering and Operations and the Legal and Claims Committees.

As of June 30, 1978, the Authority representatives had a total of 643 votes out of 4,613 or 13.94 percent of the total voting strength of MWD. The delegation of each member agency is entitled to cast one vote for each \$10 million or major fraction thereof, of assessed valuation within the Agency's boundaries. Each representative of an agency with a multi-member delegation is entitled to vote a fraction of the total votes proportionate to the number of that agency's representatives present.

The Metropolitan Water District's aqueduct and distribution system and its service area are shown in Figure E. Also shown is the Authority system (shown in greater detail in Figure A). Approximately 11 million people live within the portions of Ventura,

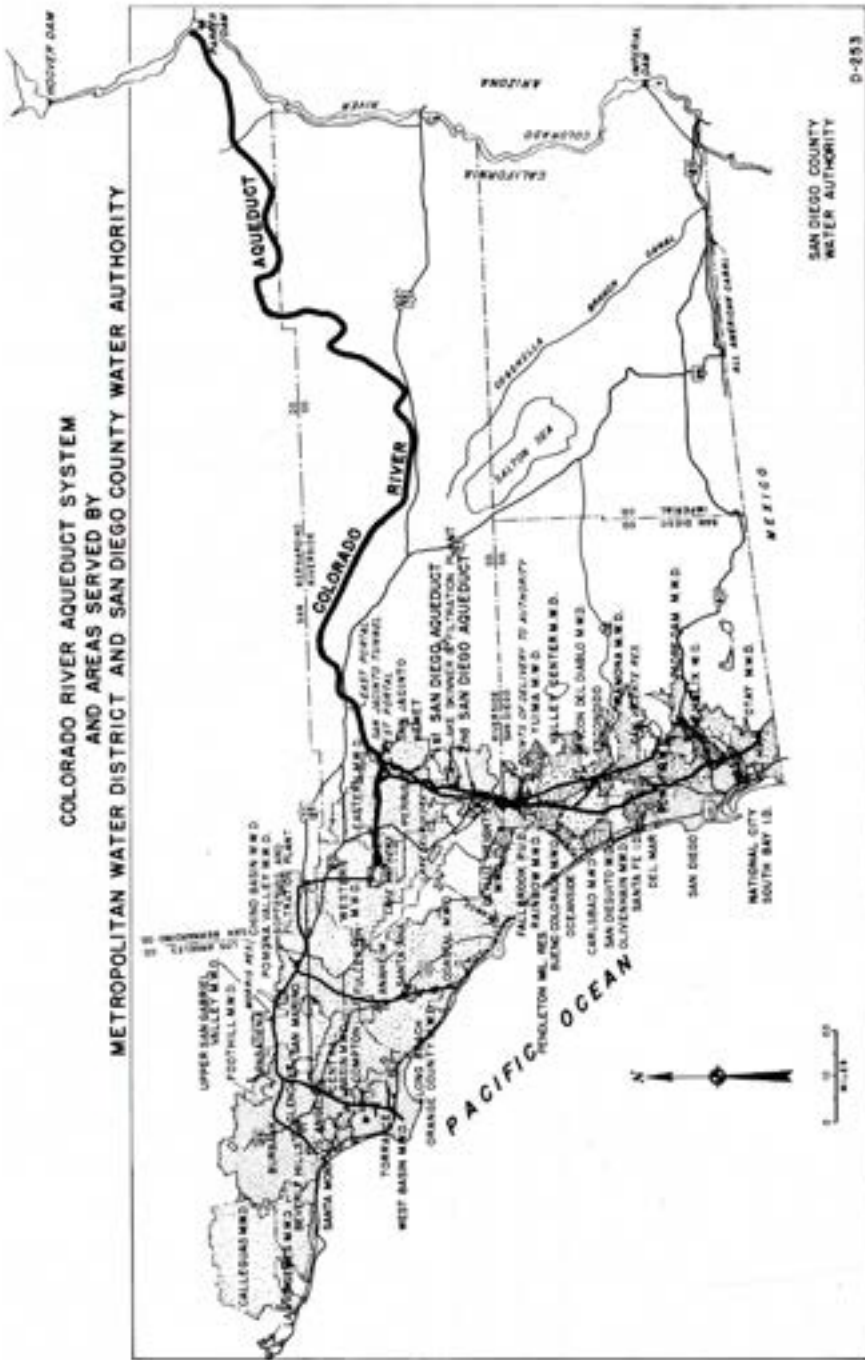


Figure E. Water Systems of Metropolitan Water District and San Diego County Water Authority.

capacity. The Jensen Plant can be supplied water only from the West Branch of the California Aqueduct.

Tax Rate

During fiscal 1977-78, MWD maintained its tax rate of 12 cents per \$100 of assessed valuation. When the Authority annexed to MWD in 1946, the tax rate was 50 cents per \$100 assessed valuation. The tax rate for each year from that time is shown in Table 12. The total MWD tax levy during the report year, including regular and special taxes, was approximately \$61,522,550, of which \$9,429,800, or 15.3 percent, was levied against property within the Authority. Special taxes are levied when an area annexing to the District decides to amortize its annexation fees over a 30-year period. As of the fiscal year's end, Authority member agencies had assumed annexation fee liability totaling \$30,055,358. Of this amount, \$16,858,699 had been paid by the end of the fiscal year.

COLORADO RIVER BOARD MEMBERSHIP

The Colorado River Board of California is an agency of the State devoted to the protection of California rights to Colorado River water. Originally composed of representatives of the six agencies which depend on Colorado River supplies selected by each agency, the Board was reorganized in April 1977 on the initiative of Governor Edmund G. Brown, Jr. Under the new arrangement, the six agencies continue to be entitled to representation but the representative for each agency is selected by the Governor from a slate of at least three nominees designated by that agency. Two State officers, and Resources Secretary, and the Director of Water Resources, are ex-officio members. In addition, the Governor may appoint three public members.

The six agencies are: San Diego County Water Authority; Metropolitan Water District; City of Los Angeles Department of Water and Power; Coachella Valley County Water District; Palo Verde Irrigation District; and Imperial Irrigation District. Following the reorganization, Imperial Irrigation District withdrew its support of the Colorado River Board. Governor Brown appointed Vice Chairman John M. Cranston to represent the Authority on the new Board.

Once fully financed by the State, the Board now receives only one-third of its support from that source. Until Imperial Irrigation District's withdrawal, the remainder was financed by the six agencies as follows: 44.5 percent by MWD; 28.5 percent by Los Angeles DWP; 19 percent by Imperial ID; 5 percent by Coachella Valley; 2 percent by the Authority; and 1 percent by Palo Verde ID. The deficiency caused by Imperial's withdrawal temporarily is causing a proportional adjustment in the financing arrangements.

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Table 1
STATISTICAL SUMMARY

	1976-77	1977-78	Percent Change
GROWTH OF AREA			
Number of Agencies	22	23	+4.5
Total Area - Acres	763,647	897,806	+17.6
Population	1,624,550	1,665,200	+2.5
Assessed Valuation	\$6,087,830,215	7,106,157,703	+16.7
OPERATIONS			
Water Imported by Authority-ac. ft.	434,935	339,653	-21.9
Water Production of Agencies-ac. ft.	423,031	400,821	-5.3
Local Water Used-ac. ft.	26,542	47,556	+79.2
Authority Water Used-ac. ft.	396,489	353,265	-10.9
Miles of Pipe Line	204	210	+2.9
Miles of Patrol Roads Maintained	100	100	-
Number of Service Connections	63	69	+9.5
FINANCIAL			
Revenues:			
Water Revenue	\$ 24,848,158	24,093,865	-3.0
Other Revenue	675,780	595,421	-11.9
Taxes	6,703,271	8,123,221	+21.2
Tijuana Water Service	143,782	122,230	-15.0
Expenditures:			
Operation and Maintenance	\$ 944,885	1,062,525	+12.5
Purchase of Water	23,967,798	22,882,489	-4.5
Payments on Outstanding Debt	2,449,030	2,384,713	-2.6
Total Investment in Plant:			
Total Fixed Assets	\$ 209,243,744	222,268,727	+6.2
Long-Term Debt	71,293,025	71,295,940	-0-

Table 2
POPULATION GROWTH-COUNTY AND AUTHORITY AREA
1910 to 1978 -

Year (as of April 1)	COUNTY		AUTHORITY		Percent of County Population in Authority
	Total Population (1)	Average Annual Growth	Total Population	Average Annual Growth	
1910	61,665				
1920	112,248	5,058			
1930	209,659	9,741			
1940	289,348	7,969			
1946	(3) 502,804	26,746	(3) 440,659	2,807	88
1950	556,808	42,478	(2) 451,886	50,083	81
1955	(4) 769,200	52,762	(2) 702,300	50,820	91
1960	1,033,010	32,198	(2) 956,400	38,720	93
1965	(4) 1,194,000	23,360	(5) 1,150,000	21,000	96
1970	(4) 1,310,800	49,850	(5) 1,255,000	54,500	96
1975	(4) (6) 1,560,038	30,662	(5) 1,527,520	31,840	98
1976	(7) 1,590,700	66,100	(5) 1,559,360	65,190	98
1977	(7) 1,656,800	57,200	(5) 1,624,550	40,650	98
1978	(7) 1,714,000		(5) 1,665,200		97

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

Table 3
AREA - AUTHORITY MEMBER AGENCIES

Member Agencies	Area Within Authority			Percent of Total Authority Area 6/30/78
	As of 6/30/77 (acres)	Changes During Year (acres)	As of 6/30/78 (acres)	
Bueno Colorado M.W.D.	48,634	-12 (2)	48,622	5.41
In City of San Marcos	(11,520)	(+1,280)	(12,800)	(1.43)
In City of Vista	(10,887)	(+59)	(10,946)	(1.22)
Carlsbad M.W.D.	20,362	-0- (3)	20,362	2.27
In City of Carlsbad	(18,363)	(-0-)	(18,363)	(2.05)
Del Mar, City of	1,082	-0-	1,082	0.12
De Luz Heights M.W.D.	11,830	-0-	11,830	1.32
Escondido, City of	13,177	+88 (12)	13,265	1.48
Fallbrook Public Utility District	15,762	+12	15,774	1.76
Helix Water District	31,526	-0- (4)	31,526	3.51
In City of El Cajon	(8,018)	(+838)	(8,856)	(0.99)
In City of La Mesa	(5,787)	(+5)	(5,792)	(0.65)
National City, City of	5,419	(1) +10	5,429	0.60
Oceanside, City of	25,371	(1) +12	25,383	2.83
Olivenhain M.W.D.	27,367	-0- (5)	27,367	3.05
Otay M.W.D.	63,911	-0- (6)	63,911	7.12
Padre Dam M.W.D.	54,180	-0- (8)	54,180	6.03
Pendleton Military Res.	---	+134,625	134,625	14.99
Poway M.W.D.	22,809	-0-	22,809	2.54
Rainbow M.W.D.	47,096	-12 (10)	47,084	5.24
Ramona M.W.D.	47,658	-468	47,190	5.26
Rincon del Diablo M.W.D.	16,526	(1) -88 (7)	16,438	1.83
San Diego, City of	204,669	+2	204,671	22.80
San Dieguito Water District	5,637	-0-	5,637	0.63
Santa Fe Irrigation District	10,200	-0-	10,200	1.14
South Bay Irrigation District	15,557	-10 (9)	15,547	1.73
In City of Chula Vista	(12,722)	(+10)	(12,732)	(1.42)
Valley Center M.W.D.	62,061	-0- (11)	62,061	6.91
Yuima M.W.D.	12,813	-0-	12,813	1.43
Total Authority Area	763,647	+134,159	897,806	100.00
San Diego County	---	---	2,725,100	---

- (1) Includes area annexed by an adjacent city member agency but still in district, being an overlapping area and considered here as being part of the city.
- (2) Does not include 2,806 acres overlapping in City of Oceanside and 289 acres overlapping in City of Escondido.
- (3) Does not include 34 acres overlapping in City of Oceanside.
- (4) Does not include 3 acres overlapping in City of San Diego.
- (5) Does not include 5 acres overlapping in City of San Diego.
- (6) Does not include 726 acres overlapping in City of San Diego.
- (7) Does not include 10,222 acres overlapping in City of Escondido and 39 acres overlapping in City of San Diego.
- (8) Does not include 12 acres overlapping in City of San Diego.
- (9) Does not include 297 acres overlapping in City of San Diego and 655 acres overlapping in City of National City.
- (10) Does not include 701 acres overlapping in City of Oceanside.
- (11) Does not include 61 acres overlapping in City of Escondido.
- (12) Includes 61 acres overlapping in Valley Center M.W.D.

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

Population - U.S. Census				Average Annual Increase 1970-78 Percent	Density of Population 1978	
1960	1970	Decade Increase 1960-70 Percent	1978 Estimate		Per Acre	Per Sq. Mile
(13)	(13)		(14)			
31,500	39,000	24	66,200	9	1.36	871
---	(3,900)	--	(14,100)	(33)	(1.10)	(705)
---	(24,600)	--	(31,700)	(4)	(2.90)	(1,853)
10,000	15,500	55	27,800	10	1.37	874
(9,400)	(14,850)	58	(27,200)	(10)	(1.48)	(948)
---	3,900	--	5,200	4	4.81	3,076
---	150	--	180	3	0.02	10
18,500	36,000	95	57,700	8	4.35	2,784
10,000	12,000	20	17,300	6	1.10	702
122,100	163,000	33	190,900	2	6.06	3,875
(37,300)	(50,900)	36	(68,500)	(4)	(7.73)	(4,950)
(29,900)	(38,800)	30	(53,300)	(5)	(9.20)	(5,890)
32,300	39,000	21	43,400	1	7.99	5,116
24,700	40,700	65	66,200	8	2.61	1,669
200	2,000	900	7,500	34	0.27	175
5,400	19,400	259	42,000	15	0.66	421
25,500	46,000	80	81,500	10	1.50	963
---	---	--	35,700	--	0.27	170
4,800	14,000	192	34,700	18	1.52	974
2,800	4,200	50	6,500	7	0.14	88
5,600	6,800	21	11,200	8	0.24	152
14,000	18,900	35	17,400	-1	1.06	677
557,200	675,800	21	799,500	2	3.91	2,500
15,000	21,800	45	29,700	5	5.27	3,372
7,700	8,600	12	13,000	6	1.27	816
64,300	80,000	24	96,000	3	6.17	3,952
(42,400)	(64,500)	52	(79,700)	3	(6.26)	(4,006)
3,600	7,000	94	13,800	12	0.22	142
---	1,250	--	1,820	6	0.14	91
955,200	1,255,000	31	1,665,200	4	1.85	1,187
1,033,010	1,310,800	27	1,714,000	4	0.63	404

- (13) Population in agencies other than cities was furnished by agencies.
- (14) Estimate by agencies.

WATER PRODUCTION

(Compila

Member Agencies	SOURCE OF WATER (5)				Total Water Production Ac. Ft.	Gross Area (2) Acres	Estimated Area Served by Water System Acres	Per Cent of Gross Area Served	SAN VICENTE RESERVOIR OPERATIONS				Total Quantity in Storage 6/30/78 Ac. Ft.
	Local Supply		Authority Supply						Placed into Storage During Fiscal Year Ac. Ft.	STORED WATER WITHDRAWN DURING FISCAL YEAR			
	Amount Ac. Ft.	Percent	Amount Ac. Ft.	Percent						By Delivery Ac. Ft.	By Evaporation Ac. Ft.	By Spill Ac. Ft.	
Bueno Colorado M.W.D.	4,122.8	21.9	14,702.4	78.1	18,825.2	48,622	36,817		1,219.9	2,147.5	88.5	432.8	179.3
Carlsbad M.W.D.	0	0	10,010.1	100.0	10,010.1	20,362	16,950		1,070.8	1,527.9	56.7	324.6	119.4
Del Mar, City of	0	0	920.5	100.0	920.5	1,082	1,082		0	0	0	0	0
De Luz Heights M.W.D.	60.0	9.8	552.1	90.2	612.1	11,830	1,350		76.3	129.2	5.2	27.1	10.4
Escondido, City of	6,637.9	34.9	12,362.7	65.1	19,000.6	13,265	10,681		0	0	0	0	0
Fallbrook P.U.D.	0	0	11,127.9	100.0	11,127.9	15,774	9,881		2,394.3	3,962.5	160.7	811.6	333.1
Helix W.D.	4,284.8	13.0	28,597.2	87.0	32,882.0	31,526	29,592		0	0	0	0	0
National City, City of	2,022.2	37.7	3,347.3	62.3	5,369.5	5,429	3,950		0	0	0	0	0
Oceanside, City of	0	0	15,850.7	100.0	15,850.7	25,383	15,443		718.1	1,199.8	47.3	243.5	89.6
Olivenhain M.W.D.	0	0	4,358.1	100.0	4,358.1	27,367	3,985		525.2	1,138.4	48.5	216.5	79.6
Otay M.W.D.	0	0	11,845.6	100.0	11,845.6	63,911	28,298		1,595.7	2,666.1	104.9	541.1	199.1
Padre Dam M.W.D.	0	0	11,799.3	100.0	11,799.3	54,180	29,388		797.9	1,333.1	52.5	270.5	99.6
Pendleton Military Res (3)	N.A.	-	N.A.	-	N.A.	134,625	N.A.	N	0	0	0	0	0
Poway M.W.D.	166.9	2.5	6,386.0	97.5	6,552.9	22,809	6,990		0	0	0	0	0
Rainbow M.W.D.	0	0	22,529.2	100.0	22,529.2	47,084	12,400		4,469.2	7,654.8	296.7	1,515.0	366.4
Ramona M.W.D.	9.2	0.2	5,521.8	99.8	5,531.0	47,190	9,707		558.4	933.1	36.7	189.4	69.7
Rincon del Diablo M.W.D.	0	0	3,926.4	100.0	3,926.4	16,438	14,115		398.9	666.4	26.4	135.3	49.7
San Diego, City of (1)	22,584.9	14.0	138,664.2	86.0	161,249.1	204,671	108,476		0	0	0	0	0
San Dieguito W.D.	385.3	6.0	6,066.4	94.0	6,451.7	5,637	5,000		476.0	728.0	27.8	151.5	55.8
Santa Fe I.D.	66.5	0.9	7,187.8	99.1	7,254.3	10,200	9,304		321.9	604.9	24.9	119.0	43.8
South Bay I.D.	5,538.4	37.8	9,113.5	62.2	14,651.9	15,547	10,200		0	0	0	0	0
Valley Center M.W.D.	309.0	1.2	26,429.0	98.8	26,738.0	62,061	29,617		3,990.3	6,829.3	266.1	1,352.7	331.0
Yuima M.W.D.	1,368.2	41.0	1,967.1	59.0	3,335.3	12,813	4,120		797.9	854.2	57.4	270.5	573.6
Total and Average	47,556.1	11.9	353,265.3	88.1	400,821.4	897,806	397,346		19,410.8	32,375.2	1,300.3	6,601.1	2,600.1

- (1) Includes production by City of San Diego for areas outside City (not in Authority).
 - (2) Does not include overlapping area as shown in Table 3.
 - (3) No water deliveries since annexation.
 - (4) Included in the City of San Diego.
 - (5) Figures include losses from transmission and distribution systems but not from reservoirs.
- N.A. - Not Applicable

TABLES

TABLE 4
 WATER PRODUCTION, AGRICULTURAL USE AND AUTHORITY STORAGE
 FISCAL YEAR 1977-78
 (Compilation of data furnished by member agencies)

Gross Area (2) Acres	Estimated Area Served by Water System Acres	Percent of Gross Area Served by Water System Percent	Water Production Per Acre Served Ac. Ft./Acre/Yr.	Estimated Population	Water Production Per Capita Ac. Ft./Cap./Yr.	WATER USED FOR AGRICULTURAL PURPOSES					Percent of Agricultural Water to Total Production	SAN VICENTE RESERVOIR OPERATIONS					
						From Local Supply		From Authority		Total Ac. Ft.		Total Quantity in Storage 6/30/77 Ac. Ft.	Placed into Storage During Fiscal Year Ac. Ft.	STORED WATER WITHDRAWN DURING FISCAL YEAR			Total Quantity in Storage 6/30/78 Ac. Ft.
						Ac. Ft.	Percent	Ac. Ft.	Percent					By Delivery Ac. Ft.	By Evaporation Ac. Ft.	By Spill Ac. Ft.	
48,622	36,817	76	0.51	66,200	0.28	1,299.1	24.1	4,083.9	75.9	5,383.0	28.6	1,628.2	1,219.9	2,147.5	88.5	432.8	179.3
20,362	16,950	83	0.59	27,800	0.36	0	0	3,232.4	100.0	3,232.4	32.3	957.8	1,070.8	1,527.9	56.7	324.6	119.4
1,082	1,082	100	0.85	5,200	0.18	(4)	-	(4)	-	(4)	(4)	0	0	0	0	0	0
11,830	1,350	11	0.45	180	3.40	58.5	10.0	524.4	90.0	582.9	95.2	95.6	76.3	129.2	5.2	27.1	10.4
13,265	10,681	81	1.78	57,700	0.33	1,822.7	26.8	4,981.3	73.2	6,804.0	35.8	0	0	0	0	0	0
15,774	9,881	63	1.13	17,300	0.64	0	0	7,781.4	100.0	7,781.4	69.9	2,873.6	2,394.3	3,962.5	160.7	811.6	333.1
31,526	29,592	94	1.11	190,900	0.17	50.2	6.1	770.1	93.9	820.3	2.5	0	0	0	0	0	0
5,429	3,950	73	1.36	43,400	0.12	0	0	0	0	0	0	0	0	0	0	0	0
25,383	15,443	61	1.03	66,200	0.24	0	0	3,453.7	100.0	3,453.7	21.8	862.1	718.1	1,199.8	47.3	243.5	89.6
27,367	3,985	15	1.09	7,500	0.58	0	0	1,520.5	100.0	1,520.5	34.9	957.8	525.2	1,138.4	48.5	216.5	79.6
63,911	28,298	44	0.42	42,000	0.28	0	0	4,405.6	100.0	4,405.6	37.2	1,915.5	1,595.7	2,666.1	104.9	541.1	199.1
54,180	29,388	54	0.40	81,500	0.14	0	0	333.1	100.0	333.1	2.8	957.8	797.9	1,333.1	52.5	270.5	99.6
134,625	N.A.	N.A.	N.A.	35,700	N.A.	N.A.	-	N.A.	-	N.A.	-	0	0	0	0	0	0
22,809	6,990	31	0.94	34,700	0.19	0	0	1,165.3	100.0	1,165.3	17.8	0	0	0	0	0	0
47,084	12,400	26	1.82	6,500	3.47	0	0	20,748.3	100.0	20,748.3	92.1	5,363.7	4,469.2	7,654.8	296.7	1,515.0	366.4
47,190	9,707	21	0.57	11,200	0.49	0	0	3,283.8	100.0	3,283.8	59.4	670.5	558.4	933.1	36.7	189.4	69.7
16,438	14,115	86	0.28	17,400	0.23	0	0	1,226.3	100.0	1,226.3	31.2	478.9	398.9	666.4	26.4	135.3	49.7
204,671	108,476	53	1.49	799,500	0.20	67.0	10.1	597.8	89.9	664.8	0.4	0	0	0	0	0	0
5,637	5,000	89	1.29	29,700	0.22	61.6	3.4	1,728.4	96.6	1,790.0	27.7	487.1	476.0	728.0	27.8	151.5	55.8
10,200	9,304	91	0.78	13,000	0.56	42.1	3.2	1,283.6	96.8	1,325.7	18.3	470.7	321.9	604.9	24.9	119.0	43.8
15,547	10,200	66	1.44	96,000	0.15	82.4	30.2	190.5	69.8	272.9	1.9	0	0	0	0	0	0
62,061	29,617	48	0.90	13,800	1.94	0	0	24,466.9	100.0	24,466.9	91.5	4,788.8	3,990.3	6,829.3	266.1	1,352.7	331.0
12,813	4,120	32	0.81	1,820	1.83	1,362.9	41.1	1,957.2	58.9	3,320.1	99.5	957.8	797.9	854.2	57.4	270.5	573.6
897,806	397,346	44	1.01	1,665,200	0.24	4,846.5	5.2	87,734.5	94.8	92,581.0	23.1	23,465.9	19,410.8	32,375.2	1,300.3	6,601.1	2,600.1

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY
 TABLE 5
 ASSESSED VALUATION, TAX COLLECTIONS
 AND ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER
 FISCAL YEAR 1977-78
 (Figures do not total due to omission of cents)

Member Agencies	ASSESSED VALUATION - SECURED AND UNSECURED				Area 6/30/78 Acres	1978-79 Valuation Per Acre	Tax Assessments to Date	Adj. to Tax Assessments	Uncollected 6/30/78	Tax Collections	Interest & Penalties	Tax on Options	Receipts in Lieu of Taxes	Misc. Tax Sales	Less Refunds	Net Total Collections
	1976-77 Total	1977-78 Total	1976-77 to 1977-78 Percent Increase	1978-79 Total												
Bueno Colorado M.W.D.	\$ 258,043,291	\$ 315,671,686	22.3	\$ 329,719,755	48,622	\$ 6,781	\$ 2,332,464	\$ 1,028	\$ 13,332	\$ 2,320,160	\$ 8,628	\$ 1	\$ 10,802	\$ 121	\$ 285	\$ 2,339,429
Carlsbad M.W.D.	161,337,733	196,966,159	22.1	234,369,026	20,362	11,510	1,570,328	(2,526)	426	1,567,376	5,164	-	33,275	10	371	1,605,455
Del Mar, City of	40,569,531	40,631,663	0.2	36,096,717	1,082	33,361	425,093	2,458	8,860	418,691	1,444	-	530	1	44	420,623
De Luz Heights M.W.D.	3,073,032	4,862,955	58.2	4,468,917	11,830	378	34,413	(205)	543	33,664	270	-	1,000	-	-	34,934
Escondido, City of	144,344,846	176,092,574	22.0	190,985,782	13,265	14,398	1,490,619	3,960	6,406	1,488,172	5,028	-	28	28	136	1,493,122
Fallbrook P.U.D.	51,579,883	78,038,259	51.3	73,296,469	15,774	4,647	598,200	86	4,315	593,970	2,160	-	3,420	42	62	599,531
Helix W.D.	616,508,849	758,410,114	23.0	774,463,776	31,526	24,566	7,055,307	6,581	28,351	7,033,537	17,790	89	4,930	693	733	7,056,308
National City, City of	106,604,560	118,531,599	11.2	120,134,362	5,419	22,169	1,317,929	5,471	10,773	1,312,627	2,694	8	6,828	85	615	1,321,628
Oceanside, City of	166,947,569	215,124,206	28.9	223,994,442	25,383	8,825	1,833,674	1,525	8,294	1,826,904	5,722	5	2,601	95	582	1,834,746
Olivenhain M.W.D.	72,734,036	101,557,352	39.6	115,401,477	27,367	4,217	506,915	(2,483)	6,211	498,219	4,087	-	1,250	-	50	503,506
Otay M.W.D.	136,131,459	167,102,386	22.8	184,242,913	63,911	2,883	1,123,853	(2,697)	14,005	1,107,150	4,016	-	-	45	176	1,111,036
Padre Dam M.W.D.	208,050,454	230,001,382	10.6	228,694,170	54,180	4,221	1,687,145	(2,280)	15,313	1,669,550	9,052	-	878	131	274	1,679,338
Pendleton Military Res				134,932,000	134,625	1,002	-	-	-	-	-	-	-	-	-	-
Poway M.W.D.	103,089,972	121,131,335	17.5	137,348,541	22,809	6,022	742,558	(2,497)	14,857	725,204	5,412	-	15	8	34	730,605
Rainbow M.W.D.	57,101,838	83,956,944	47.0	78,271,990	47,084	1,662	610,576	(2,318)	17,711	590,546	4,506	-	23,679	-	31	618,702
Ramona M.W.D.	61,081,565	67,532,978	10.6	73,544,507	47,190	1,558	464,605	(98)	(76,693)	541,200	2,537	-	5,400	58	14	549,182
Rincon del Diablo M.W.D.	84,509,059	107,702,579	27.4	125,615,765	16,438	7,642	890,587	(139)	6,411	884,036	3,135	-	58,800	1	43	945,930
San Diego, City of	3,179,897,217	3,569,154,663	12.2	3,697,807,759	204,671	18,067	36,484,655	15,262	8,483	15,281,938	28,904	42	21,361,828	2,424	44,799	36,630,339
San Dieguito W.D.	88,239,146	138,002,209	56.4	123,399,767	5,637	21,891	956,870	(5)	7,861	949,002	2,246	3	5,426	127	321	956,485
Santa Fe I.D.	121,926,124	149,167,968	22.3	143,315,344	10,200	14,051	1,021,069	171	9,531	1,011,709	3,566	821	2,892	1,093	748	1,019,333
South Bay I.D.	349,022,638	375,865,201	7.7	402,629,994	15,557	25,881	3,964,795	(4,957)	3,972	3,955,865	6,318	-	15,296	142	13,026	3,964,596
Valley Center M.W.D.	62,758,217	76,705,727	22.2	87,790,921	62,061	1,414	560,073	8,087	7,135	561,026	4,389	-	1,011	26	15	566,438
Yuima M.W.D.	14,279,196	13,947,764	-2.3	13,359,940	12,813	1,042	158,689	(27)	1,813	156,848	390	-	1,500	-	47	158,692
Total Authority	\$6,087,830,215	\$7,106,157,703	16.7	\$7,533,884,334	897,806	\$ 8,391	\$65,830,417	\$24,397	\$117,910	\$44,527,394	\$127,458	\$969	\$21,541,389	\$5,130	\$62,406	\$66,139,958
San Diego County (1)	\$6,430,098,152	\$7,502,581,620	16.7	\$7,858,170,302	1,250,000	\$ 6,287										

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

(2) Maximum capacity as of June 30, 1978.

SAN DIEGO COUNTY WATER AUTHORITY
 TABLE 5
 ASSESSED VALUATION, TAX COLLECTIONS
 AND ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER
 FISCAL YEAR 1977-78
 (Figures do not total due to omission of cents)

Uncollected 6/30/78	Tax Collections	Interest & Penalties	Tax on Options	Receipts in Lieu of Taxes	Misc. Tax Sales	Less Refunds	Net Total Collections		Amount Paid for Service Connections to 6/30/78	Total Amount Paid by Each Member Agency to 6/30/78	Amount Remaining to be Paid Under Terms of Annexation	Total Contributions Paid and Contracted for	ALLOCATION OF RIGHT TO PURCHASE AUTHORITY WATER	
													Percentage of Auth. Supply	Equivalent Flow c.f.s.
13,332	\$ 2,320,160	\$ 8,628	\$ 1	\$ 10,802	\$ 121	\$ 285	\$ 2,339,429		\$ 56,654	\$ 2,396,083	\$ 0	\$ 2,396,083	3.55	29.3
426	1,567,376	5,164	--	33,275	10	371	1,605,455		7,931	1,613,386	0	1,613,386	2.39	19.7
8,860	418,691	1,444	--	530	1	44	420,623		--	420,623	0	420,623	0.62	5.1
543	33,664	270	--	1,000	--	--	34,934		--	34,934	1,135	36,069	0.05	0.4
6,406	1,488,172	5,028	--	28	28	136	1,493,122		9,253	1,502,375	0	1,502,375	2.23	18.4
4,315	593,970	2,160	--	3,420	42	62	599,531		67,773	667,304	0	667,304	0.99	8.2
28,351	7,033,537	17,790	89	4,930	693	733	7,056,308		28,905	7,085,213	0	7,085,213	10.50	86.7
10,773	1,312,627	2,694	8	6,828	85	615	1,321,628		--	1,321,628	0	1,321,628	1.96	16.2
8,294	1,826,904	5,722	5	2,601	95	582	1,834,746		106,369	1,941,115	0	1,941,115	2.88	23.8
6,211	498,219	4,087	--	1,250	--	50	503,506		66,608	570,114	0	570,114	0.84	6.9
14,005	1,107,150	4,016	--	--	45	176	1,111,036		99,019	1,210,055	0	1,210,055	1.79	14.8
15,313	1,669,550	9,052	--	878	131	274	1,679,338		45,244	1,724,582	750	1,725,332	2.56	21.2
--	--	--	--	--	--	--	--		--	--	227,578	227,578	0.34	2.8
14,857	725,204	5,412	--	15	8	34	730,605		103,875	834,480	0	834,480	1.24	10.3
17,711	590,546	4,506	--	23,679	--	31	618,702		152,685	771,387	0	771,387	1.14	9.4
(76,693)	541,200	2,537	--	5,400	58	14	549,182		3,378	552,560	7,069	559,629	0.83	6.9
6,411	884,036	3,135	--	58,800	1	43	945,930		14,527	960,457	0	960,457	1.42	11.7
8,483	15,281,938	28,904	42	21,361,828	2,424	44,799	36,630,339		181,864	36,812,203	0	36,812,203	54.54	450.5
7,861	949,002	2,246	3	5,426	127	321	956,485		5,758	962,243	0	962,243	1.43	11.8
9,531	1,011,709	3,566	821	2,892	1,093	748	1,019,333		8,129	1,027,462	0	1,027,462	1.52	12.6
3,972	3,955,865	6,318	--	15,296	142	13,026	3,964,596		594	3,965,190	0	3,965,190	5.87	48.5
7,135	561,026	4,389	--	1,011	26	15	566,438		128,973	695,411	0	695,411	1.03	8.5
1,813	156,848	390	--	1,500	--	47	158,692		28,424	187,116	835	187,951	0.28	2.3
117,910	\$44,527,394	\$127,458	\$969	\$21,541,389	\$5,130	\$62,406	\$66,139,958		\$1,115,963	\$67,255,921	\$237,367	\$67,493,288	100.00	(2) 826.0

Table 6
WATER PRODUCTION WITHIN AUTHORITY AGENCIES - FISCAL YEARS 1968-69 to 1977-78
(All Figures in Acre Feet)

Member Agencies	From Local and Authority Supplies									
	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78
Bueno Colorado M.W.D.	13,241	15,513	15,511	17,376	15,839	18,396	17,477	20,452	19,463	18,825
Carlsbad M.W.D.	7,002	7,960	8,700	9,373	8,907	10,029	10,022	10,965	10,752	10,010
Del Mar, City of	722	868	855	944	850	942	893	1,162	918	921
De Luz Heights M.W.D.	0	0	0	0	9*	99	178	362	503	612
Encinitas, City of	5,831	6,459	8,911	20,299	16,911	18,749	18,181	21,828	19,740	19,001
Fairbrook Public Utility District	10,072	11,598	11,221	13,087	10,790	12,198	11,524	13,429	12,999	11,128
Helix Water District	28,504	31,802	31,684	33,583	32,141	35,466	33,807	37,724	34,465	32,882
National City and South Bay I.D.	15,904	17,718	18,812	21,326	18,614	20,095	20,065	22,038	21,339	20,021
Oceanside, City of	8,808	10,134	11,510	13,000	12,575	14,539	14,817	17,358	16,565	15,851
Olivehain M.W.D.	1,189	1,923	1,650	2,278	2,265	2,857	2,697	4,079	3,739	4,358
Otay M.W.D.	8,471	9,037	9,760	10,666	9,643	12,043	10,970	12,927	11,787	11,846
Padre Dam M.W.D.	6,018	6,956	7,765	9,015	8,681	10,523	10,785	12,011	11,623	11,799
Pendleton Military Res	-	-	-	-	-	-	-	-	-	-
Poway M.W.D.	3,882	4,375	4,648	5,066	5,428	7,053	7,335	7,983	7,177	6,553
Rainbow M.W.D.	14,358	18,347	18,010	21,987	18,542	21,565	20,678	25,472	25,824	22,529
Ranoma M.W.D.	1,390	1,789	1,932	2,519	2,765	3,723	4,086	5,482	5,653	5,531
Rincon del Diablo M.W.D.	12,703	14,642	13,899	3,076	2,396	3,345	3,328	4,080	3,914	3,926
San Diego, City of:										
Inside City	113,421	122,630	130,290	141,815	138,472	153,672	153,724	167,392	162,003	155,226
Outside City (not in Authority)	5,396	6,147	6,056	6,548	6,216	6,308	6,304	7,887	7,367	6,023
San Diegoito Water District	3,641	4,397	4,696	5,238	5,088	5,677	5,811	7,167	7,058	6,452
Santa Fe Irrigation District	5,034	5,958	6,351	7,175	6,204	7,931	7,171	8,951	7,517	7,254
Valley Center M.W.D.	11,423	14,409	15,146	18,931	16,512	20,663	20,353	29,198	28,895	26,738
Yuma M.W.D.	7,072	9,927	8,636	4,643	3,471	4,529	4,251	4,263	3,729	3,355
Total	284,182	322,589	336,043	367,945	342,319	390,502	384,457	442,210	423,030	400,821

*Use of imported water began this year. All other agencies' use began prior to 1967-68. See previous reports.

Table 7
WATER SALES - 1947 to 1978
(All figures rounded to nearest whole acre foot)

Member agencies	WATER SALES - 1947 to 1978										Total
	(1) 1947-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78		
Bueno Colorado M.W.D.	114,838	6,248	13,000	9,854	11,737	15,500	16,511	15,793	14,697	218,178	
Carlsbad M.W.D.	77,848	8,745	9,350	8,974	10,060	9,999	10,989	10,761	10,011	156,687	
Del Mar, City of	3,187	855	944	850	942	894	1,162	918	921	10,673	
De Luz Heights M.W.D.	0	0	0	9	99	178	362	533	732	1,733	
Encinitas, City of	45,417	6,761	15,085	12,937	12,934	10,928	17,017	17,670	11,825	150,574	
Fairbrook Public Utility District	168,054	11,168	13,065	10,852	12,163	11,502	13,374	12,894	11,298	264,370	
Helix Water District	367,477	30,386	31,782	30,151	27,972	32,320	29,809	37,232	38,350	615,479	
National City & South Bay I.D.	224,310	17,186	20,399	11,373	16,556	18,376	19,190	17,183	13,357	337,950	
Oceanside, City of	89,813	11,484	12,972	12,542	14,511	14,787	17,337	16,552	15,851	205,849	
Olivehain M.W.D.	61,865	9,769	10,666	9,643	12,043	10,970	12,927	11,787	11,846	131,516	
Padre Dam M.W.D.	50,758	7,565	8,782	8,552	10,371	10,785	12,280	11,617	11,799	132,509	
Pendleton Military Res	-	-	-	-	-	-	-	-	-	-	
Poway M.W.D.	37,733	4,648	6,493	6,257	8,060	7,859	8,187	7,649	6,304	93,190	
Rainbow M.W.D.	142,831	18,019	21,987	18,186	21,858	20,697	25,364	26,039	22,529	317,510	
Ranoma M.W.D.	9,523	1,785	2,420	2,639	3,755	4,155	5,455	5,653	5,174	40,559	
Rincon del Diablo M.W.D.	91,723	7,874	4,426	2,396	3,345	3,327	4,080	3,914	3,926	125,011	
San Diego, City of	1,726,595	110,407	145,343	165,212	124,699	155,139	*173,863	179,387	130,150	2,910,795	
San Diegoito Water District	34,362	2,243	4,911	4,215	4,817	5,438	6,641	7,078	6,067	75,772	
Santa Fe Irrigation District	31,021	3,008	6,740	5,139	6,716	6,798	8,325	7,531	7,162	82,440	
Valley Center M.W.D.	70,750	15,145	20,624	16,551	20,345	23,039	29,468	29,183	26,429	251,534	
Yuma M.W.D.	10,231	2,342	2,370	2,025	2,936	2,645	2,558	1,953	1,967	29,027	
Total Sales to Agencies	3,266,609	277,244	333,607	340,564	328,776	368,033	419,089	425,181	344,573	6,223,676	
Total Sales to Others	1,405	208	233	6,776	8,982	8,253	8,186	9,058	8,200	51,301	
Total to Authority Storage	+153,501	+14,348	+19,218	+13,500	+15,683	+20,109	+35,592	+26,819	+21,411	+330,181	
Total from Authority Storage	-120,518	-8,127	-15,732	-16,781	-15,561	-17,910	-37,015	-26,123	-34,531	-292,298	
Total to Metropolitan Storage	+97,034	+19,995	+3,900	0	0	0	0	0	0	+120,929	
Total from Metropolitan Storage	-82,574	-21,030	-11,496	-1,808	0	0	0	0	0	-116,908	
Total Flow in Authority System	3,415,457	282,638	349,730	342,251	337,680	388,485	425,851	434,935	339,653	6,316,880	
Average Rate of Flow (c.f.s.)											
To Agencies and Others	205.7	381.2	487.4	479.8	466.5	519.7	588.6	599.8	487.3		
To Authority Storage	+9.4	+19.8	+26.5	+18.6	+21.7	+41.6	+49.0	+37.0	+29.6		
From Authority Storage	-7.4	-11.2	-21.7	-23.2	-21.5	-24.7	-36.1	-36.1	-47.7		
To Metropolitan Storage	+5.9	+27.6	+5.4	0	0	0	0	0	0		
From Metropolitan Storage	-5.0	-29.0	-15.8	-2.5	0	0	0	0	0		
Flow in Authority System	208.6	390.4	481.8	472.7	466.7	536.6	586.6	600.7	469.2		

(1) The operation of the First Aqueduct was formally initiated on November 24, 1947. For sales in intervening years, see previous reports.

*Corrected Figure

SAN DIEGO COUNTY WATER AUTHORITY

TABLES

TABLE 8
SALES OF IMPORTED WATER - FISCAL YEAR 1977-78
(All figures in acre feet except as noted)

Member Agency	July	August	Sept.	Oct.	Nov.	Dec.	Total 6 Months
Bureau Colorado M.W.D.	2,263.8	2,130.2	1,569.0	1,834.3	1,595.3	1,244.6	13,637.2
San Marcos C.W.D.	1655.4	1749.1	1990.7	1563.8	1422.4	1408.8	13,388.2
Vista I.D.	(1,610.8)	(1,381.1)	(938.3)	(1,290.5)	(1,172.9)	(835.8)	(7,269.4)
Carlsbad M.W.D.	1,356.4	1,113.0	969.1	1,150.5	917.3	668.1	6,074.4
Del Mar, City of	206.7	98.1	124.0	55.6	63.3	63.8	515.3
De Luz Heights M.W.D.	77.5	71.8	75.0	60.9	67.5	46.2	387.5
Escondido, City of	2,174.8	1,632.6	1,439.9	1,419.4	1,698.8	1,391.1	9,756.6
Fallbrook P.U.D.	1,622.2	1,057.3	1,455.9	1,340.5	1,166.6	837.7	7,380.2
Holla W.D.	3,746.2	3,376.6	2,732.3	2,947.8	2,756.0	2,877.3	18,416.4
National City & South Bay I.D.	1,495.9	1,505.2	1,331.1	1,657.6	1,543.4	1,332.7	9,067.9
Oceanside, City of	1,905.4	1,610.2	1,387.3	1,497.0	1,374.1	1,083.1	9,055.1
Oliverheim M.W.D.	638.8	461.0	461.7	404.2	375.8	260.2	2,581.7
Otay M.W.D.	1,524.8	1,246.3	1,499.8	1,127.1	1,082.4	722.2	7,202.4
Palmdam M.W.D.	1,407.3	1,178.5	1,214.4	969.0	859.7	782.4	6,332.3
Pendleton Mil. Res.	-	-	-	-	-	-	-
Poway M.W.D.	874.3	943.3	474.9	1,049.6	628.0	352.0	4,322.1
Rancho M.W.D.	3,270.4	2,583.2	2,738.2	2,900.9	2,429.5	1,548.9	15,091.1
Ranoma M.W.D.	768.2	647.3	637.8	558.6	489.3	349.9	3,471.1
Rincon del Diablo M.W.D.	545.4	408.8	439.9	375.3	353.9	255.5	2,380.8
San Diego, City of	16,346.1	18,096.5	1,593.3	15,618.3	6,903.0	8,971.0	67,528.2
San Diego M.W.D.	707.4	651.3	678.6	625.7	525.7	430.6	3,603.3
Santa Fe I.D.	1,057.2	737.1	827.8	715.4	641.5	468.6	4,427.6
Valley Center M.W.D.	4,217.1	3,361.3	3,182.4	3,105.6	2,318.8	1,718.3	17,761.7
Yuma M.W.D.	416.2	211.9	246.9	286.3	213.2	182.9	1,501.4
Total Sales to Agencies	46,322.3	35,121.3	31,497.2	39,216.6	27,967.1	25,548.1	205,669.0
Total Sales to Others	753.0	844.6	714.8	619.0	629.0	727.2	4,279.6
Total Sales to Agencies and Others	47,075.3	35,965.9	32,212.0	39,835.6	28,596.1	26,275.3	209,948.6
Total to Authority Storage	-	-	-	-	+1,008.8	+4,341.2	+5,350.0
Total from Authority Storage	-4,009.0	-208.0	-515.8	-3,200.0	-200.0	-200.0	-10,368.8
Total Flow in Authority System	43,066.3	35,757.9	31,696.2	36,635.6	27,597.3	25,775.3	199,600.8
Total Evaporation Losses (Authority Storage in S.V.R. & Lower Otay Reservoirs)	236.7	188.9	154.4	107.3	53.1	53.9	793.3
Total Evaporation Losses in Sweetwater Reservoir	119.3	98.3	94.9	62.3	55.3	33.8	604.1
Total Spillage from S.V.R.	-	-	-	-	-	-	-
Rate of Flow (c.f.s.)							
To agencies and others	761.6	584.9	541.3	647.9	480.4	427.3	575.3
To Authority Storage	-	-	-	-	+119.3	+67.4	+308.8
From Authority Storage	-45.2	-3.2	-9.3	-44.8	-3.3	-3.3	-88.4
Flow in Authority System	700.4	581.7	532.0	563.3	566.4	491.4	577.7

*Pendleton Military Reservation Annexed December 16, 1977.
**To Authority's Contractor for Construction and to Otay for Delivery to Tijuana, Mexico.

Table 8
(Continued)

	Jan.	Feb.	March	April	May	June	Total 6 Months	Yearly Total	Yearly Average cfs
	682.8	566.7	416.8	298.3	832.9	1,244.6	4,040.1	14,697.2	20.3
	(244.2)	(169.4)	(249.2)	(276.7)	(176.3)	(707.0)	(2,568.8)	(15,556.8)	(21.7)
	(438.6)	(295.3)	(167.6)	(121.6)	(306.4)	(542.0)	(1,871.5)	(9,140.3)	(12.8)
	376.9	399.4	428.2	298.1	1,047.7	1,146.6	3,996.9	10,011.3	13.8
	52.4	46.8	54.1	73.8	97.0	83.6	409.8	926.5	1.3
	3.7	3.0	7.5	13.7	63.3	64.4	155.6	552.3	0.8
	459.7	25.1	-3.4	10.3	493.3	1,130.6	2,668.4	11,825.0	16.4
	177.2	186.1	335.3	254.0	1,245.1	1,755.8	3,817.5	11,297.7	15.6
	2,335.2	1,907.3	834.3	571.5	950.4	1,404.7	9,954.1	28,790.1	39.2
	651.7	815.9	647.5	401.0	745.9	1,077.5	4,286.5	13,357.4	18.4
	798.9	649.8	771.9	899.9	1,767.8	1,997.5	6,795.6	15,890.7	21.9
	144.3	128.1	188.2	213.6	437.8	664.6	1,776.4	4,358.1	6.0
	396.1	427.8	454.7	576.2	1,257.0	1,256.4	4,643.2	11,845.6	16.4
	535.3	532.6	641.8	682.1	1,237.5	1,598.7	5,268.0	11,799.3	16.3
	-	-	-	-	-	-	-	-	-
	392.2	371.6	-20.4	85.2	634.4	1,017.3	1,961.3	6,303.6	8.7
	39.1	163.5	280.6	427.9	2,792.0	3,335.0	7,438.1	21,328.2	29.1
	119.4	180.1	219.3	227.6	495.0	511.8	1,703.2	5,714.4	7.8
	308.3	301.8	122.7	171.0	443.1	398.3	1,545.6	3,926.4	5.4
	8,059.4	8,394.2	6,326.3	8,094.6	17,376.1	19,370.9	64,621.5	150,149.7	179.8
	133.7	276.1	188.3	455.3	668.4	738.2	2,460.4	6,066.7	8.4
	92.0	207.9	347.6	342.5	884.2	1,080.0	2,734.2	7,361.8	9.9
	136.0	254.6	278.2	437.2	1,678.7	4,331.6	8,665.3	26,429.0	36.5
	4.7	4.1	-	-0.3	129.9	321.0	459.8	1,966.8	2.7
Total Sales to Agencies and Others	16,089.3	12,247.5	12,299.9	14,978.6	36,222.7	47,106.1	138,904.1	344,573.1	476.0
Total Sales to Others	829.2	747.6	718.9	533.2	944.3	474.8	3,950.2	8,399.8	11.3
Total Sales to Agencies and Others	16,878.5	12,995.1	13,018.8	15,511.8	36,817.0	47,580.9	142,854.3	352,972.9	487.3
Total to Authority Storage	+1,421.1	+2,787.7	-	-	+1,000.0	+1,000.0	-	+10,168.8	+13,510.8
Total from Authority Storage	-300.0	-200.0	-1,266.2	-3,000.0	-9,500.0	-10,000.0	-24,166.2	-34,331.0	-46.7
Total Flow in Authority System	22,099.6	15,543.0	11,752.6	13,511.8	28,317.0	37,580.9	128,688.1	318,641.9	440.6
Total Evaporation Losses (Authority Storage in S.V.R. & Lower Otay Reservoirs)	94.7	57.8	80.6	86.9	142.7	112.8	535.0	1,300.3	1.8
Total Evaporation Losses in Sweetwater Reservoir	21.5	26.4	57.9	36.0	48.2	57.5	247.5	711.6	0.9
Total Spillage from S.V.R.	-	-	6,601.1	-	-	-	6,601.1	6,601.1	8.9
Rate of Flow (c.f.s.)									
To agencies and others	774.1	234.0	213.7	261.0	598.8	799.6	3,077.8	487.2	6.6
To Authority Storage	+88.2	+49.5	-	+16.8	+16.3	-	+28.3	+79.6	1.1
From Authority Storage	-3.3	-3.6	-20.6	-50.4	-134.3	-168.0	-473.3	-47.7	-0.6
Flow in Authority System	358.4	279.9	193.1	227.4	460.5	631.6	358.8	467.2	6.1

SAN DIEGO COUNTY WATER AUTHORITY

Table 9
ASSESSED VALUATIONS AND TAX RATES
Fiscal Years 1945-46 to 1977-78

Fiscal Year	Secured Property	Public Utilities	Unsecured Property	Total	Tax Rate per \$100	
					Secured	Unsecured
1945-46	\$ 212,082,975	28,253,700	29,960,180	270,296,855	0.04	-
1946-47	208,715,150 (1)	29,435,450	30,665,910	268,814,510	0.04	0.04
1947-48	233,379,990	32,740,880	40,977,850	307,298,720 (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	45,743,500	378,524,515	0.10	0.14
1950-51	306,104,930	43,595,730	44,717,740	394,418,400	0.10	0.10
1951-52	344,670,030	48,452,940	50,904,035	443,977,005	0.10	0.10
1952-53	382,948,860	53,208,220	61,996,330	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
1954-55	546,272,880	69,243,550	79,629,790	695,146,220	0.10	0.10
1955-56	627,062,960	87,485,290	79,936,450	794,484,700	0.09	0.10
1956-57	680,854,400	101,254,260	97,950,800	879,999,460	0.09	0.09
1957-58	761,048,330	111,151,890	128,785,440	1,001,025,660	0.09	0.09
1958-59	865,283,080	128,479,290	128,154,720	1,121,917,090	0.10	0.09
1959-60	979,491,050	145,317,290	134,846,730	1,259,655,070	0.11	0.10
1960-61	1,116,723,830	165,666,720	159,954,740	1,442,345,290	0.11	0.11
1961-62	1,220,810,650	191,276,650	155,149,890	1,567,237,190	0.11	0.11
1962-63	1,272,506,330	201,245,370	154,989,440	1,628,741,140	0.11	0.11
1963-64	1,340,197,170	209,793,780	159,714,930	1,709,705,880	0.11	0.11
1964-65	1,423,375,590	213,352,470	151,686,520	1,788,414,580	0.11	0.11
1965-66	1,511,967,750	212,605,040	155,417,220	1,879,990,010	0.11	0.11
1966-67	1,567,290,460	212,225,530	147,740,730	1,927,256,720	0.11	0.11
1967-68	1,735,209,870	209,136,160	178,641,120	2,122,987,150	0.10	0.11
1968-69	1,876,936,060	208,018,700	197,139,600	2,282,094,360	0.09	0.10
1969-70	2,063,618,542	210,839,300	237,451,400	2,512,409,242	0.09	0.09
1970-71	2,348,151,943	216,378,300	276,932,717	2,841,462,960	0.09	0.09
1971-72	2,755,734,087	213,191,301	306,608,099	3,275,533,487	0.10	0.09
1972-73	3,061,010,163	225,254,650	347,857,938	3,634,092,751	0.11	0.10
1973-74	3,481,734,238	239,346,070	393,300,174	4,114,380,482	0.11	0.11
1974-75	4,075,825,685	249,562,970	430,374,627	4,755,763,282	0.11	0.11
1975-76	4,679,303,071	283,156,410	503,491,823	5,415,951,304	0.11	0.11
1976-77	5,230,851,497	311,553,680	545,425,038	6,087,830,215	0.11	0.11
1977-78	6,121,864,014	376,899,840	607,393,849	7,106,157,703	0.11	0.11

(1) City of Coronado secured assessed valuations not included in this or subsequent tax levies by the Authority, having withdrawn from the Authority prior to 1946-47.
(2) City of Coronado not included in this or subsequent total valuation.
(3) Does not include business inventory exemption or homeowners exemption.

TABLES

Table 9
Continued
TAX LEVIES AND TAX COLLECTIONS BY FISCAL YEAR
(Includes in Lieu of Taxes)
Fiscal Years 1945-46 to 1977-78

Fiscal Year	Tax Levy (3)	Collection of Current Year's Taxes During Fiscal Year	Percentage Collected During Fiscal Year	Adjustments to Prior Year's Levies	Collection of Prior Years' Taxes During Fiscal Year	Total Tax Collections	Accumulated Delinquent Taxes	Ratio of Accumulated Delinquent Taxes to Tax Levy
107,808	105,753	98.09	-	1,090	106,844	2,439	2.26	
289,591	281,363	97.94	-	1,882	283,245	8,583	2.92	
474,520	459,504	96.84	-	5,916	465,420	17,683	3.73	
401,112	392,732	97.91	320	13,342	406,074	13,052	3.25	
397,970	390,274	98.07	375	8,217	398,492	12,904	3.24	
450,825	441,582	97.97	978	7,699	449,281	15,346	3.40	
594,603	585,417	98.46	(1,140)	12,367	597,685	10,824	1.82	
652,335	640,239	98.15	4,213	9,942	650,181	17,191	2.62	
709,678	695,200	97.96	1,295	12,638	707,838	20,326	2.86	
803,375	788,734	97.81	(2,099)	12,140	800,874	20,756	2.59	
874,774	861,461	98.48	576	13,056	874,517	21,560	2.46	
965,006	946,445	98.08	958	12,890	959,335	28,189	2.92	
1,278,885	1,157,265	98.17	-	13,347	1,170,613	36,462	3.09	
1,436,270	1,408,277	98.05	(5,274)	16,647	1,424,925	42,533	2.97	
1,624,733	1,586,169	97.63	(8,720)	21,301	1,607,671	50,874	3.15	
1,763,785	1,718,375	97.44	(2,761)	21,477	1,739,653	62,330	3.54	
1,816,449	1,775,932	97.77	(3,688)	28,134	1,814,066	61,023	3.37	
1,910,019	1,862,975	97.54	(2,681)	26,825	1,889,799	70,975	3.72	
2,000,067	1,948,853	97.44	(6,588)	42,596	1,991,450	73,003	3.66	
2,101,023	2,033,032	96.76	2,503	44,784	2,077,816	98,714	4.69	
2,154,994	2,090,637	97.01	(7,164)	54,333	2,144,970	101,373	4.71	
2,175,256	2,129,996	97.92	(301)	64,473	2,194,470	82,078	3.71	
2,110,913	2,103,601	99.65	-	55,253	2,158,854	34,136	1.62	
2,382,274	2,149,330	98.49	91,680	24,018	2,204,127	103,963	4.52	
2,450,123	2,408,899	98.32	38,500	104,032	2,512,932	79,635	3.15	
3,084,869	3,058,713	99.15	27,045	32,926	3,091,639	99,930	3.24	
3,790,191	3,743,715	98.77	494	45,314	3,789,029	101,586	2.68	
4,004,024	3,941,152	98.43	4,891	43,846	3,984,999	125,302	3.13	
4,673,400	4,597,610	98.37	(4,573)	42,611	4,640,222	154,107	3.32	
5,136,375	5,223,483	97.84	(17,845)	76,632	5,300,115	172,522	3.23	
6,012,954	5,928,085	98.59	34,543	109,718	6,037,803	182,216	3.03	
7,111,999	7,083,080	99.59	(6,021)	87,193	7,170,273	117,921	1.66	

Table 10
SAN DIEGO COUNTY WATER AUTHORITY
ANNEXATION CHARGES, ASSESSMENTS AND BALANCES

Area	Date of Annexation	Amount of Annexation Charge	Period of Special Assessments		Special Assessments to 6/30/77	Fiscal Year 1977-78		Remaining Balance of Annexation Charges 6/30/78
			First Year	Last Year		Special Assessments	Tax Rate \$/100	
Annexation Charges Completed		\$ 940,680			\$ 940,680			
Annexation Charges Outstanding:								
De Luz Heights M.W.D.	6-28-67	7,400	1968-69	1977-78	6,521	\$ 458	01¢	\$ 421
No. 1 Annex of 1969	10-20-69	4,200	1970-71	1978-80	3,125	361	13¢	714
Olivewood M.W.D.	11-15-67	3,500	1968-69	1977-78	3,210	290	07¢	-0-
Padre Dam M.W.D. (Formerly Rio San Diego M.W.D.)	8-03-70	3,100	1971-72	1980-81	2,140	210	02¢	750
No. 4 Annex of 1970	12-22-77	227,578	1978-79	1982-83	-0-	-0-	-0-	227,578
Pensadero Military Reservation	12-22-77							
Rainbow M.W.D.	12-11-67	9,100	1968-69	1977-78	8,448	652	04¢	-0-
No. 3 Annex of 1967								
Ranoma M.W.D.	11-30-67	6,100	1968-69	1977-78	5,688	412	05¢	-0-
No. 4 Annex of 1967	5-17-72	18,300	1971-72	1982-83	9,557	1,674	01¢	7,069
No. 5 Annex of 1972								
Valley Center M.W.D.	12-04-67	1,650	1968-69	1977-78	1,514	136	21¢	-0-
No. 2 Annex of 1967	12-04-67	2,750	1968-69	1977-78	2,732	18	01¢	-0-
No. 3 Annex of 1967								
Yuma M.W.D.	11-27-67	6,200	1968-69	1977-78	5,168	461	03¢	371
No. 1 Annex of 1967	11-03-69	2,800	1970-71	1979-80	2,098	238	40¢	464
No. 2 Annex of 1969								
Total		\$1,233,158			\$990,881	\$4,910		\$237,367

Table 11
CHEMICAL CHARACTER OF NATURAL COLORADO RIVER WATER
AT WEST PORTAL OF SAN JACINTO TUNNEL
Year Ending June 30, 1978
Samples Taken at Entrance to San Diego Aqueduct by M.W.D.
and Analyzed by District Laboratory

Month	Total Hardness as mg/l CaCO ₃	Non Carbonate Hardness as mg/l CaCO ₃	Alkalinity as mg/l CaCO ₃		Hydrogen Ion Concentration	Temperature When Sampled	
			Total	Phenolphthalein		Magnesium as mg/l	'F
July	327	199	128	0	31.0	8.33	NR NR
August	323	198	125	0	30.0	8.13	79° 26.0°
September	313	192	121	3	30.0	8.44	80° 26.5°
October	314	193	121	0	29.5	8.18	73° 23.0°
November	313	194	119	0	30.0	8.30	71° 21.5°
December	321	197	124	4	30.0	8.29	61° 16.0°
January	328	201	127	0	30.0	8.35	55° 13.0°
February	323	196	127	0	30.0	8.34	55° 13.0°
March	322	195	127	1	29.0	8.34	59° 15.0°
April	328	197	131	0	30.0	8.31	66° 19.0°
May	326	194	132	3	29.5	8.47	67° 19.5°
June	326	195	131	0	30.0	8.39	73° 23.0°

ANALYSIS - YEAR ENDING JUNE 30, 1978

Constituent	Symbol	ANALYSIS		
		Average	Maximum	Minimum
Silica	SiO ₂	8.6 mg/l	9.3 mg/l	7.8 mg/l
Iron	Fe	NR	NR	NR
Calcium	Ca	80 mg/l	82 mg/l	76 mg/l
Magnesium	Mg	29.9 mg/l	31.0 mg/l	29.0 mg/l
Sodium	Na	103 mg/l	104 mg/l	101 mg/l
Potassium	K	4.5 mg/l	4.7 mg/l	4.4 mg/l
Carbonate	CO ₃	1 mg/l	5 mg/l	-0 mg/l
Bicarbonate	HCO ₃	152 mg/l	160 mg/l	140 mg/l
Sulfate	SO ₄	284 mg/l	297 mg/l	280 mg/l
Chloride	Cl	90 mg/l	93 mg/l	87 mg/l
Nitrate	NO ₃	0.2 mg/l	0.5 mg/l	0.0 mg/l
Fluoride	F	0.32 mg/l	0.36 mg/l	0.25 mg/l
Boron	B	0.12 mg/l	0.14 mg/l	0.11 mg/l
Total Dissolved Solids		677 mg/l	696 mg/l	665 mg/l
Hardness as CaCO ₃				
Total		322 mg/l	328 mg/l	313 mg/l
Carbonate		126 mg/l	132 mg/l	119 mg/l
Noncarbonate		196 mg/l	201 mg/l	192 mg/l
Alkalinity - Phenolphthalein		1 mg/l	4 mg/l	-0 mg/l
Alkalinity - Total		126 mg/l	132 mg/l	119 mg/l
Free Carbon Dioxide		1 mg/l	2 mg/l	1 mg/l
Total Suspended Matter		701 mg/l	714 mg/l	685 mg/l
Hydrogen Ion Concentration		8.32	8.47	8.13
Electrical Conductivity		1049	1070	1040
Temperature		67°F (19.5°C)	80°F (26.5°C)	55°F (13.0°C)

NR - Not Reported

SAN DIEGO COUNTY WATER AUTHORITY

Table 12
ASSESSED VALUATIONS AND TAX RATES OF THE
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Fiscal Year	Area (acres)	Assessed Valuation Total (1)	Tax Rate	
			Per \$100 Secured	Per \$100 Unsecured
1929-30	-	\$ 2,439,836,920	0.04	0.00
1930-31	-	2,431,684,250	.03	.04
1931-32	-	2,382,184,445	.03	.03
1932-33	-	1,936,051,180	.04	.03
1933-34	-	1,654,403,890	.04	.04
1934-35	-	1,587,147,565	.10	.04
1935-36	-	1,783,531,020	.20	.10
1936-37	-	1,789,160,685	.37	.20
1937-38	-	1,827,765,725	.40	.37
1938-39	-	1,896,966,255	.40	.40
1939-40	-	1,910,152,190	.42	.40
1940-41	389,588	1,841,248,450	.49	.42
1941-42	399,875	1,900,599,934	.48	.49
1942-43	400,614	2,001,924,735	.48	.48
1943-44	401,190	2,005,496,430	.48	.48
1944-45	401,536	2,109,192,795	.48	.48
1945-46	402,779	2,159,731,425	.50	.48
1946-47	501,425	2,413,186,570	.48	.50
1947-48	546,573	3,443,212,822 (2)	.35	.48
1948-49	578,368	3,883,081,225	.34	.35
1949-50	585,184	4,181,812,855	.34	.34
1950-51	721,850	4,281,519,725	.31	.34
1951-52	995,130	4,674,664,040	.30	.31
1952-53	1,120,448	5,372,498,515	.28	.30
1953-54	1,368,038	6,015,691,980	.25	.28
1954-55	1,793,651	6,548,392,114	.23	.25
1955-56	1,876,256	8,514,868,335	.21	.23
1956-57	1,932,205	9,674,000,560	.19	.21
1957-58	2,046,189	11,235,906,510	.18	.19
1958-59	2,128,333	12,070,838,070	.18	.18
1959-60	2,171,290	12,714,205,470	.17	.18
1960-61	2,544,960	13,737,971,925	.16	.17
1961-62	2,647,014	14,803,202,587	.15	.16
1962-63	2,797,946	15,699,681,030	.14	.15
1963-64	2,825,306	17,261,412,395	.14	.14
1964-65	2,882,144	17,757,246,740	.14	.14
1965-66	2,890,266	19,143,157,788	.14	.14
1966-67	2,901,421	20,979,190,165	.14	.14
1967-68	3,061,885	22,732,157,500	.14	.14
1968-69	3,067,896	24,016,568,274	.16	.14
1969-70	3,072,058	25,572,510,561	.17	.16
1970-71	3,075,616	27,605,064,302	.17	.17
1971-72	3,093,303	29,023,413,462	.17	.17
1972-73	3,126,803	31,001,520,641	.15	.17
1973-74	3,127,680	32,838,476,378	.14	.15
1974-75	3,129,664	35,941,961,265	.14	.14
1975-76	3,132,012	39,585,365,754	.13	.14
1976-77	3,132,800	45,695,542,697	.12	.13
1977-78	3,267,533	51,268,796,300	.12	.12
1978-79	-	53,573,470,118	.10	.12

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

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

TABLES

Table 13
METROPOLITAN WATER DISTRICT ANNEXATION CHARGES
AND BALANCES ON AUTHORITY AREAS

Member Agencies	Date of Annexation	Amount of Annexation Charge	Remaining Balance 6/30/78
Annexation Charges Outstanding			
Bueno Colorado M.W.D.	6-11-54	\$ 1,072,230	\$ 238,804
Carlsbad M.W.D.	6-16-54	548,100	124,957
Del Mar, City of	11-23-62	611,250	304,255
De Luz M.W.D.	6-28-67	2,002,000	2,769,535 *
No. 1 Annexation of 1969	10-15-69	312,000	414,956 *
Escondido, City of	10- 9-50	386,000	35,895
Fallbrook P.U.D.			
No. 1 Annexation of 1950	8- 1-50	34,600	1,865
No. 2 Annexation of 1958	11-24-58	50,400	17,493
Fallbrook Community Air Park	12-23-69	59,800	76,954 *
Helix Water District			
Crest P.U.D. Annexation	12-13-48	10,500	110
El Cajon Dry Island Annexation	12-20-54	327,450	62,119
Helix-Watson Ranch Annexation	2-20-59	8,730	3,426
* Helix-Sunny Slope Hts. Annexation	9-17-59	38,250	15,262
Olverhain M.W.D.	7-25-60	83,880	34,470
No. 1 Annexation of 1965	2-11-65	512,520	306,706
No. 4 Annexation of 1967	11-13-67	74,000	87,786 *
Otay M.W.D.	10-26-56	273,000	79,701
No. 3 Annexation of 1960	10-20-60	95,100	40,309
Padre Dam M.W.D. (not including Lakeside I.D.)			
(Formerly Rio San Diego M.W.D.)	6- 7-56	373,980	103,642
No. 2 Annexation of 1959	11- 6-59	109,110	43,317
No. 3 Annexation of 1960	10-17-60	289,890	124,073
No. 4 Annexation of 1970	8- 3-70	164,000	162,920
Presiditron Military Reservation	12-16-77	2,402,229 **	2,402,229 **
Poway M.W.D.			
No. 1 Annexation of 1959	4-21-54	91,800	18,073
Rainbow M.W.D.			
No. 1 Annexation of 1959	9-21-59	27,150	9,959
No. 2 Annexation of 1967	4-10-54	167,700	34,029
No. 3 Annexation of 1959	5-12-59	24,300	9,666
No. 3 Annexation of 1967	12- 6-67	1,728,000	2,454,585
No. 5 Annexation of 1973	11-22-73	13,200	14,208
Ranoma M.W.D.			
No. 1 Annexation of 1959	8-27-57	339,000	111,305
No. 2 Annexation of 1961	5-29-59	42,330	16,498
No. 3 Annexation of 1963	9-22-61	15,480	7,097
No. 4 Annexation of 1967	9-20-63	10,560	5,550
No. 5 Annexation of 1972	11-27-67	480,000	625,403 *
Rincon del Diablo M.W.D.			
No. 1 Annexation of 1972	5-17-72	732,000	1,045,664
No. 4 Annexation of 1972	6-14-54	757,200	172,503
San Diegoito W.D.			
No. 1 Annexation of 1972	11- 2-72	19,200	22,488 *
San Diegoito W.D.	12-13-48	187,100	0-
No. 1 Annexation of 1959	9-15-59	71,820	27,710
No. 2 Annexation of 1972	12- 8-72	107,000	122,787 *
Santa Fe I.D.	12-13-48	167,000	0-
South Bay I.D.			
(not including City of Chula Vista)	11- 3-52	449,370	61,740
Valley Center M.W.D.			
No. 1 Annexation of 1960	5- 9-55	205,680	50,903
No. 2 Annexation of 1960	12-12-60	23,700	10,231
No. 2 Annexation of 1967	11-29-67	22,000	27,982 *
No. 3 Annexation of 1967	11-30-67	502,000	670,262 *
Yuima M.W.D.			
No. 1 Annexation of 1967	12-16-63	749,490	399,319
No. 2 Annexation of 1967	11-21-67	72,200	87,294
No. 2 Annexation of 1969	11-24-69	14,400	16,149 *
Total		\$16,858,699	\$13,472,189
Annexation charges received from other annexed areas not listed above having no remaining balance			
		\$13,545,759	

*Annual interest charge on outstanding balance is greater than tax levy based on maximum MWD tax rate of 75¢ per \$100 of assessed valuation.

**Principal only.

Table 14
WATER SALES BY METROPOLITAN WATER DISTRICT
Fiscal Years 1941-42 to 1977-78

Year	To Member Municipalities						Total
	Natural Water		Treated Water		Total to Agencies	To Others	
	Acre feet	Per cent	Acre feet	Per cent	Acre feet	Acre feet	
1941-42	0	0	9,372.6	100	9,372.6	70.7	9,443.3
1942-43	0	0	14,457.8	100	14,457.8	2,626.4	17,084.2
1943-44	0	0	15,874.9	100	15,874.9	3,301.8	19,176.7
1944-45	0	0	30,591.3	100	30,591.3	1,715.7	32,307.0
1945-46	0	0	46,685.8	100	46,685.8	1,264.2	47,950.0
1946-47	0	0	59,861.8	100	59,861.8	524.0	60,385.8
1947-48	41,093.5	36	71,995.4	64	113,088.9	116.8	113,255.7
1948-49	71,642.6	49	73,237.1	51	144,879.7	128.4	145,008.1
1949-50	69,308.0	49	72,936.0	51	142,244.0	23,371.6	165,615.6
1950-51	75,000.9	54	63,493.1	46	138,494.0	26,978.6	165,472.6
1951-52	66,674.3	44	84,616.1	56	151,290.4	42,464.2	193,754.6
1952-53	30,845.3	24	99,589.6	76	130,434.9	31,682.4	162,117.3
1953-54	120,773.0	51	115,550.6	49	236,323.6	7,820.7	244,144.3
1954-55	192,544.7	59	134,923.3	41	327,468.0	58,184.5	385,652.5
1955-56	190,337.2	53	169,506.4	47	359,843.6	45,562.9	405,406.5
1956-57	286,059.1	60	191,110.7	40	477,169.8	66,074.1	543,243.9
1957-58	266,024.1	57	197,900.0	43	463,924.1	75,612.8	539,536.9
1958-59	244,354.2	46	282,248.1	54	526,602.3	74,107.1	600,709.4
1959-60	425,019.0	58	304,874.8	42	729,893.8	3,523.2	733,417.0
1960-61	594,521.1	64	335,207.2	36	929,728.3	4,099.4	933,827.7
1961-62	608,811.0	66	312,975.9	34	921,786.9	3,676.9	925,463.8
1962-63	668,881.8	66	348,092.6	34	1,016,974.4	3,677.0	1,020,651.4
1963-64	671,853.4	63	388,553.9	37	1,060,407.3	3,776.7	1,064,184.0
1964-65	645,577.3	58	471,042.0	42	1,116,619.3	5,035.3	1,121,654.6
1965-66	550,630.8	52	503,424.9	48	1,054,055.7	4,821.8	1,058,877.5
1966-67	523,141.2	50	531,659.7	50	1,054,800.9	4,513.0	1,059,313.9
1967-68	514,248.1	48	557,730.9	52	1,071,979.0	4,934.9	1,076,913.9
1968-69	455,174.3	43	599,237.7	57	1,054,412.0	2,232.4	1,056,644.4
1969-70	482,256.9	41	682,846.4	59	1,165,103.3	650.0	1,165,753.3
1970-71	520,983.9	46	612,511.6	54	1,133,495.5	150.3	1,133,645.8
1971-72	590,356.9	47	656,635.9	53	1,246,992.8	549.6	1,247,542.4
1972-73	569,290.7	48	606,120.4	52	1,175,411.1	4.3	1,175,415.4
1973-74	655,057.2	52	593,177.8	48	1,248,235.0	954.2	1,249,189.2
1974-75	721,969.9	54	607,014.7	46	1,328,984.6	147.7	1,329,132.3
1975-76	735,103.0	53	653,516.0	47	1,388,619.0	629.0	1,389,248.0
1976-77	560,124.0	40	830,011.0	60	1,390,135.0	331.0	1,390,466.0
1977-78	439,625.0	37	757,270.0	63	1,196,895.0	1,430.0	1,198,325.0

Table 15
WATER PRODUCTION - METROPOLITAN WATER DISTRICT CONSTITUENT AREAS
Figures Furnished by Metropolitan Water District

Constituent Area	Total Water Production			Source of Water Produced - 1977-78			
	1977-78		Percent Increase or Decrease	M. W. D.		Other	
	Amount ac. ft.	Amount ac. ft.		Amount ac. ft.	Percent of Total		
Arabian	54,143	36,320	-32.9	14,040 (b)	39	22,280	61
Beverly Hills	13,993	11,933	-14.7	11,933	100	-	-
Burbank	21,454	17,825	-16.9	12,757 (b)	72	5,068	28
Calleguas M.W.D.	81,573	73,773	-10.1	50,537 (b)	69	22,836	31
Central Basin M.W.D.	203,988	180,726	-11.4	37,139 (b)	21	143,597	79
Chino Basin M.W.D.	162,392	157,544	-3.1	5,998 (b)	4	151,546	96
Coastal M.W.D.	29,508	27,287	-7.5	26,865	99	422	1
Compton	7,976	7,533	-5.6	2,735 (b)	36	4,798	64
Eastern M.W.D.	132,566	102,191	-22.9	28,433 (a)	28	73,758	72
Foot Hill M.W.D.	13,598	11,643	-14.4	6,540 (b)	56	5,103	44
Fullerton	29,076	19,832	-31.8	10,376 (b)	52	9,456	48
Glendale	25,314	22,373	-11.6	17,828	80	4,545	20
Las Virgenes M.W.D.	10,214	8,813	-13.7	8,351	95	462	5
Long Beach	63,585	56,801	-11.0	30,477 (b)	54	26,124	46
Los Angeles	561,666	480,972	-14.4	41,481 (b)	9	439,491	91
Orange County M.W.D.	344,713	264,290	-23.3	119,290 (b)	44	145,000	56
Pasadena	33,259	34,379	26.7	12,123 (b)	50	12,256	50
Pomona Valley M.W.D.	81,542	74,381	-8.8	29,459 (b)	40	44,922	60
San Diego C.W.A.	447,599	375,404	-16.1	327,848	87	47,556	13
San Fernando	3,260	3,030	-7.1	18	1	3,012	99
San Marino	4,692	3,939	-16.0	-	-	3,939	100
Santa Ana	34,236	31,472	-8.3	9,920 (b)	32	21,552	68
Santa Monica	16,222	10,263	-36.7	6,599 (b)	65	3,604	35
Torrance	20,535	17,888	-12.9	14,594 (b)	82	3,294	18
Upper San Gabriel Valley M.W.D.	175,586	166,969	-4.9	3,693 (b)	2	163,276	98
West Basin M.W.D.	167,857	149,978	-10.7	106,351 (b)	71	43,627	29
Western M.W.D.	212,410	217,083	+2.2	35,155	16	181,928	84
Totals	2,953,257	2,554,052	-13.5	970,600	38	1,983,452	62

NOTES: (a) Includes seepage into San Jacinto Tunnel.
(b) Does not include water delivered for replacement and In-Lieu replenishment purposes.

San Diego County Water Authority
ANNUAL FINANCIAL REPORT
YEAR ENDED JUNE 30, 1978

FINANCIAL REPORT

PEAT, MARWICK, MITCHELL & CO.

CERTIFIED PUBLIC ACCOUNTANTS

850 FIFTH AVENUE

SAN DIEGO, CALIFORNIA 92101

The Board of Directors
San Diego County Water Authority:

We have examined the balance sheets of San Diego County Water Authority as of June 30, 1978 and 1977, and the related statements of earnings, changes in financial position and changes in equity for the years then ended. Our examinations were made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned financial statements present fairly the financial position of San Diego County Water Authority at June 30, 1978 and 1977, and the results of its operations and changes in financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

The examinations referred to above were directed primarily toward formulating an opinion on the financial statements of San Diego County Water Authority, taken as a whole. The supplementary data included in Schedule 1 are presented for supplementary analysis purposes and are not necessary for a fair presentation of the financial position and results of operations and changes in financial position of San Diego County Water Authority. The supplementary data have been subjected to the auditing procedures applied in the examination of the basic financial statements and, in our opinion, are stated fairly in all material respects only when considered in conjunction with the financial statements taken as a whole.

Peat, Marwick, Mitchell & Co.

September 29, 1978

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Balance Sheets

June 30, 1978 and 1977

<u>Assets</u>	<u>1978</u>	<u>1977</u>
Current assets:		
Cash, including certificates of deposit	\$ 7,650,238	7,627,604
Accounts receivable, net	4,151,896	2,247,949
Current installments of long-term receivables (note 2)	48,562	6,507
Inventory of water in storage	463,972	1,790,244
Prepaid expenses	28,700	8,580
Total current assets	<u>12,343,368</u>	<u>11,680,884</u>
Restricted assets:		
Debt redemption:		
Waterworks bonds:		
Cash, including certificates of deposit	1,115,347	1,014,676
Cash with fiscal agent	147,240	29,100
Taxes and interest receivable, net	25,949	22,687
U.S. Government contract:		
Cash, including certificates of deposit	-	27,001
Taxes and interest receivable, net	2,009	6,502
Due from Metropolitan Water District (note 4)	3,463,942	3,781,794
Capital improvement, waterworks bonds:		
Cash, including certificates of deposit	41,972	199,147
Accounts receivable	-	848
Investment in annuity contract	40,918	19,758
Total restricted assets	<u>4,837,377</u>	<u>5,101,513</u>
Property, plant and equipment, net (note 3)	89,728,757	87,900,142
Participation rights (note 3)	132,539,970	121,343,602
Long-term receivables, excluding current installments (note 2)	188,805	8,186
Deposits	-	18,800
	<u>\$ 239,638,277</u>	<u>226,053,127</u>

See accompanying notes to financial statements.

FINANCIAL REPORT

<u>Liabilities and Equity</u>	<u>1978</u>	<u>1977</u>
Current liabilities, payable from current assets:		
Accounts payable	\$ 4,680,862	5,904,339
Advances and deposits by agencies	1,139,072	131,116
Accrued expenses	55,000	25,000
Total current liabilities, payable from current assets	5,874,934	6,060,455
Current liabilities, payable from restricted assets:		
Current installments of long-term debt (note 4)	2,119,030	2,544,030
Matured bond principal and interest payable	147,240	29,100
Accounts payable	-	930
Accrued interest payable	704,400	730,800
Bank overdraft - U.S. Government contract	8,677	-
Total current liabilities	<u>8,854,281</u>	<u>9,365,315</u>
Deferred compensation payable	40,918	19,758
Long-term debt, excluding current installments (note 4):		
General obligation waterworks bonds	49,735,000	51,475,000
U.S. Government contracts	5,969,720	6,070,849
Annexation charges - Metropolitan Water District	13,472,190	11,203,146
Total long-term debt	<u>69,176,910</u>	<u>68,748,995</u>
Equity:		
Equity in property, plant and equipment (note 3)	31,946,978	28,009,328
Contributed capital (note 3)	119,067,781	110,140,456
Restricted balances:		
Waterworks bonds, debt redemption	436,896	306,563
U.S. Government contract, debt redemption	3,457,274	3,815,297
Appropriated, long-term projects	3,011,659	3,742,238
Unrestricted balance	3,645,580	1,905,177
Total equity	161,566,168	147,919,059
Commitments and contingent liabilities (notes 5, 6 and 7).		
	<u>\$ 239,638,277</u>	<u>226,053,127</u>

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Statements of Earnings

Years ended June 30, 1978 and 1977

	1978	1977
Water sales	\$ 24,093,865	24,848,158
Cost of water sold	<u>22,882,489</u>	<u>23,926,405</u>
Gross margin from water sales	<u>1,211,376</u>	<u>921,753</u>
Operating expenses:		
Water treatment	84,176	140,953
Systems operations	101,162	99,314
Maintenance of structures and plant	128,793	94,532
Automotive operation, maintenance and shop expense	67,784	63,040
Depreciation expense	1,016,134	979,691
Administrative and general salaries	174,881	151,060
General expense and supplies	<u>505,729</u>	<u>395,986</u>
Total operating expenses	<u>2,078,659</u>	<u>1,924,576</u>
Net loss from operations	(867,283)	(1,002,823)
Nonoperating income (expense):		
Property tax income	8,123,221	6,703,271
Interest expense	(2,384,713)	(2,466,427)
Interest income	565,537	674,205
Tijuana water delivery fees	122,230	143,782
Other	<u>29,884</u>	<u>1,375</u>
Net earnings	<u>\$ 5,588,876</u>	<u>4,053,583</u>

See accompanying notes to financial statements.

FINANCIAL REPORT

SAN DIEGO COUNTY WATER AUTHORITY

Statements of Changes in Financial Position

Years ended June 30, 1978 and 1977

	1978	1977
Sources of working capital:		
Net earnings	\$ 5,588,876	4,053,583
Add back depreciation which does not use working capital	<u>1,016,134</u>	<u>979,691</u>
Working capital provided by operations	6,605,010	5,033,274
Taxes and direct payments by member agencies to Metropolitan Water District for participation rights	8,927,325	8,279,552
Contributions by member agencies for property, plant and equipment	49,488	97,699
Decrease in waterworks bonds, capital improvement, net restricted assets, applied to new construction	157,093	106,033
Decrease in U.S. Government contract, debt redemption, restricted balance applied to debt redemption	358,023	443,392
Long-term debt repayments, net	2,915	-
Decrease in working capital	<u>-</u>	<u>2,482,150</u>
	<u>\$ 16,099,856</u>	<u>16,662,100</u>
Uses of working capital:		
Long-term debt borrowings, net	-	2,745,225
Capital expenditures	14,959,697	13,593,066
Increase in waterworks bonds, debt redemption, restricted balance, in excess of amounts applied to debt service	130,333	116,661
Increase (decrease) in other assets, net	161,819	(12,852)
Increase in working capital	<u>848,005</u>	<u>-</u>
	<u>\$ 16,099,856</u>	<u>16,662,100</u>
Changes in components of working capital:		
Increase (decrease) in current assets:		
Cash, including certificates of deposit	22,634	(483,141)
Accounts receivable, net	1,903,947	(770,521)
Current installments of long-term receivables	42,055	(634)
Inventory of water in storage	(1,326,272)	41,393
Prepaid expenses	<u>20,120</u>	<u>8,580</u>
	<u>662,484</u>	<u>(1,204,323)</u>
Increase (decrease) in current liabilities, payable from current assets:		
Accounts payable	(1,223,477)	1,154,473
Advances and deposits by agencies	1,007,956	98,354
Accrued expenses	<u>30,000</u>	<u>25,000</u>
	<u>(185,521)</u>	<u>1,277,827</u>
Increase (decrease) in working capital	<u>\$ 848,005</u>	<u>(2,482,150)</u>

See accompanying notes to financial statements.

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY
 Statements of Changes in Equity
 Years ended June 30, 1978 and 1977

	Total equity	Unrestricted balance
Balance, July 1, 1976	\$ 135,488,225	7,544,681
Additions (deductions):		
Net earnings	4,053,583	2,896,721
Taxes and direct payments by member agencies to Metropolitan Water District for participation rights	8,279,552	-
Capital expenditures for property, plant and equipment:		
From operations	-	(5,391,723)
From contributions by member agencies	97,699	-
Waterworks bonds redeemed	-	-
Payments on U.S. Government contracts	-	-
Transfers	-	(3,144,502)
Balance, June 30, 1977	147,919,059	1,905,177
Additions (deductions):		
Net earnings	5,588,876	4,565,207
Taxes and direct payments by member agencies to Metropolitan Water District for participation rights	8,927,325	-
Capital expenditures for property, plant and equipment:		
From operations	-	(3,555,383)
From contributions by member agencies	49,488	-
Waterworks bonds redeemed	-	-
Payments on U.S. Government contracts	-	-
Work performed for member agency, previously capitalized	(901,080)	-
Cost of land sold	(17,500)	-
Transfers	-	730,579
Balance, June 30, 1978	\$ 161,366,168	1,645,580

See accompanying notes to financial statements.

FINANCIAL REPORT

Appropriated long-term projects	Restricted balances		Contributed capital	Equity in property, plant and equipment
	U.S. Government contract	Debt redemption Waterworks bonds		
597,736	4,258,689	189,902	101,860,904	21,036,313
-	384,880	1,737,419	-	(965,437)
-	-	-	8,279,552	-
-	-	-	-	5,391,723
-	-	-	-	97,699
-	-	(1,570,000)	-	1,570,000
-	(879,030)	-	-	879,030
3,144,502	50,758	(50,758)	-	-
3,742,238	3,815,297	306,563	110,140,456	28,009,328
-	243,105	1,795,333	-	(1,014,769)
-	-	-	8,927,325	-
-	-	-	-	3,555,383
-	-	-	-	49,488
-	-	(1,665,000)	-	1,665,000
-	(601,128)	-	-	601,128
-	-	-	-	(901,080)
-	-	-	-	(17,500)
(730,579)	-	-	-	-
3,011,659	3,457,274	436,896	119,067,781	31,946,978

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements

June 30, 1978 and 1977

(1) Summary of Significant Accounting Policies

Accounting Method:

The Authority operates and reports as an enterprise utilizing the accrual method of accounting.

Taxes Receivable:

Uncollected taxes receivable are recorded at the amount billed and an allowance is established for the amount estimated uncollectible within the ensuing year.

Inventories of Water in Storage:

Inventories of water in storage are stated at cost using the first-in, first-out method.

Property, Plant, Equipment and Participation Rights:

Property, plant, equipment and participation rights are recorded at cost. Depreciation of property, plant and equipment is computed on the straight-line method over the estimated lives of the respective items. Participation rights are not amortized.

(2) Long-Term Receivables

	1978	1977
Annexation charges due from special districts	\$ 237,367	14,693
Less current installments of long-term receivables	<u>48,562</u>	<u>6,507</u>
Long-term receivables, excluding current installments	\$ <u>188,805</u>	<u>8,186</u>

(Continued)

FINANCIAL REPORT

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(3) Property, Plant, Equipment and Participation Rights and Equity Therein

	1978	1977
Property, plant, equipment and participation rights:		
Property, plant and equipment	\$ 95,424,468	94,549,577
Construction work in progress	<u>8,083,079</u>	<u>6,127,726</u>
	103,507,547	100,677,303
Less accumulated depreciation	<u>13,778,790</u>	<u>12,777,161</u>
Net property, plant and equipment	89,728,757	87,900,142
Participation rights in Metropolitan Water District	<u>132,539,970</u>	<u>121,343,602</u>
Net property, plant, equipment and participation rights	222,268,727	209,243,744
Less total long-term debt	<u>71,295,940</u>	<u>71,293,025</u>
	150,972,787	137,950,719
Add:		
Construction capital projects - waterworks bonds, improvement assets, net of construction accounts payable	<u>41,972</u>	<u>199,065</u>
Equity in property, plant, equipment and participation rights	\$ <u>151,014,759</u>	<u>138,149,784</u>
Represented by:		
Equity in property, plant and equipment	31,946,978	28,009,328
Contributed capital	<u>119,067,781</u>	<u>110,140,456</u>
	\$ <u>151,014,759</u>	<u>138,149,784</u>
The property, plant and equipment was financed by:		
General obligation bonds	67,396,802	67,349,961
U.S. Government contract	14,873,408	14,873,408
Current revenues	11,938,896	11,110,846
Agencies contributions	<u>1,215,362</u>	<u>1,215,362</u>
	\$ <u>95,424,468</u>	<u>94,549,577</u>

(Continued)

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY
Notes to Financial Statements, Continued

(4) Long-Term Debt

	Interest rate	1978	1977
General obligation bonds:			
Waterworks bonds, 1957, maturing February 1, 1979-1994	1% - 6%	\$ 25,455,000	26,595,000
Waterworks bonds, 1966, maturing October 1, 1978-2004	4-1/2% - 5-1/2%	<u>26,020,000</u>	<u>26,545,000</u>
Total bonds		<u>\$1,475,000</u>	<u>\$3,140,000</u>
U.S. Government contract:			
Authority's share:			
First pipeline	-	-	111,049
Second pipeline	2.599%	<u>2,884,808</u>	<u>3,057,036</u>
		<u>2,884,808</u>	<u>3,168,085</u>
Metropolitan Water District's share:			
First pipeline	-	-	111,049
Second pipeline	2.599%	<u>3,463,942</u>	<u>3,670,745</u>
		<u>3,463,942</u>	<u>3,781,794</u>
Total U.S. Government contract		<u>6,348,750</u>	<u>6,949,879</u>
Annexation charges - Metropolitan Water District		<u>13,472,190</u>	<u>11,203,146</u>
Total long-term debt		71,295,940	71,293,025
Less current installments of long-term debt		<u>2,119,030</u>	<u>2,544,030</u>
Long-term debt, excluding current installments		\$ <u>69,176,910</u>	<u>68,748,995</u>

(Continued)

FINANCIAL REPORT

SAN DIEGO COUNTY WATER AUTHORITY
Notes to Financial Statements, Continued

(4) Long-Term Debt, Continued

The Metropolitan Water District's share of the U.S. Government contract, \$3,463,942 and \$3,781,794 at June 30, 1978 and 1977, respectively, is also recorded as due from Metropolitan Water District.

The Authority's liability, \$13,472,190 and \$11,203,146 at June 30, 1978 and 1977, respectively, for annexation charges due Metropolitan Water District (MWD) and interest thereon are paid by means of a special tax levied on the properties within the annexed areas. Since the collections of these taxes are remitted directly to MWD by the County of San Diego, the Authority records the net collections as a reduction in its liability to MWD and an increase in its equity in participation rights. The Authority also receives credit for participation rights payments received by MWD, both in the form of additional taxes levied and collected on properties within the Authority and direct payments made by member agencies. The Authority records such credits when received by MWD as increases in participation rights and contributed capital.

(5) Pension Plan

The Authority is a member of the California Public Employee's Retirement System which provides retirement benefits for all of its permanent employees. The total pension expense was \$75,205 in 1978 and \$58,768 in 1977, which included amortization of prior service costs to 1980. Based on a recent actuarial report, the Authority's contribution rate will increase from 9.94% to 15.82% of annual payroll commencing July 1, 1978.

(6) Commitments

In connection with the introduction of Northern California water into the Authority's system, the Authority has committed to provide filtered water service to member agencies which lack filtration facilities. The Authority intends to accomplish this by obtaining treated water from the Metropolitan Water District and by contracting for filtered water deliveries from member agencies with filtration facilities and delivering the filtered water to those agencies which do not have such facilities. In connection with this commitment to deliver filtered water, the Authority will incur approximately \$3,000,000 of capital improvement costs through 1980 to provide related delivery facilities. At June 30, 1978, the Authority had incurred \$2,665,985 of these capital improvement costs. These capital improvements were financed primarily from property tax revenues. However, with the passage of Proposition 13 the Authority is now making a study to determine an alternative form of financing. The Authority intends to recover such capital improvement costs over a 20-year period from member agencies that receive the benefits of such improvements in the form of a treated water surcharge. Income received by the Authority in connection with the delivery of filtered water in 1978 is included in water sales in the accompanying statements of earnings.

(Continued)

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(7) Contingent Liability

On June 5, 1978 a claim, as amended, was filed against San Diego County Water Authority seeking in excess of \$10 million for alleged damages caused to owners of property downstream from San Vicente Reservoir by reason of spillage from the reservoir in March of 1978, as a result of unusually heavy rains. The Authority has rejected this claim and intends to vigorously contest any legal action which may arise from this claim. Based upon the information known at this time, management is of the opinion that the liability, if any, resulting from this claim would not have a material adverse effect on the financial position or results of operations of the Authority.

FINANCIAL REPORT

Schedule 1

SAN DIEGO COUNTY WATER AUTHORITY

Bonded Debt Maturities

June 30, 1978

Year ended June 30,	Waterworks Bonds		Total principal	Total interest	Total
	1957 principal	1966 principal			
1979	\$ 1,195,000	545,000	1,740,000	2,165,437	3,905,437
1980	1,260,000	570,000	1,830,000	2,087,250	3,917,250
1981	1,330,000	595,000	1,925,000	2,009,917	3,934,917
1982	1,400,000	625,000	2,025,000	1,931,967	3,956,967
1983	1,470,000	650,000	2,120,000	1,852,260	3,972,260
1984	1,540,000	680,000	2,220,000	1,767,890	3,987,890
1985	1,620,000	710,000	2,330,000	1,678,707	4,008,707
1986	1,680,000	745,000	2,425,000	1,584,486	4,009,486
1987	1,740,000	775,000	2,515,000	1,486,521	4,001,521
1988	1,815,000	815,000	2,630,000	1,384,475	4,014,475
1989	1,880,000	850,000	2,730,000	1,277,868	4,007,868
1990	1,960,000	890,000	2,850,000	1,166,815	4,016,815
1991	2,040,000	925,000	2,965,000	1,051,020	4,016,020
1992	2,100,000	970,000	3,070,000	930,117	4,000,117
1993	2,165,000	1,015,000	3,180,000	804,537	3,984,537
1994	260,000	1,060,000	1,320,000	694,630	2,014,630
1995	-	1,105,000	1,105,000	632,747	1,737,747
1996	-	1,155,000	1,155,000	577,377	1,732,377
1997	-	1,210,000	1,210,000	519,435	1,729,435
1998	-	1,265,000	1,265,000	458,797	1,723,797
1999	-	1,320,000	1,320,000	395,465	1,715,465
2000	-	1,380,000	1,380,000	329,315	1,709,315
2001	-	1,440,000	1,440,000	260,225	1,700,225
2002	-	1,505,000	1,505,000	188,072	1,693,072
2003	-	1,575,000	1,575,000	112,612	1,687,612
2004	-	1,645,000	1,645,000	37,012	1,682,012
	\$ 25,455,000	26,020,000	51,475,000	27,384,956	78,859,956