

SAN DIEGO  
COUNTY WATER AUTHORITY



THIRTY-SIXTH ANNUAL REPORT  
1982

SAN DIEGO COUNTY WATER AUTHORITY  
Organized June 9, 1944

# THIRTY-SIXTH ANNUAL REPORT

OF AUTHORITY OPERATIONS  
FOR FISCAL YEAR ENDING JUNE 30, 1982

Linden R. Burzell  
*General Manager and Chief Engineer*

SAN DIEGO, CALIFORNIA  
1982

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SAN DIEGO COUNTY WATER AUTHORITY

Member Agencies, Date of Entry and Representative on Board of Directors on June 30, 1982

CITIES

Del Mar . . . . . Nov. 23, 1962  
 William Tripp  
 Escondido . . . . . Oct. 9, 1950  
 Robert M. Dodd  
 National City . . . . . June 9, 1944  
 Tom Crownover  
 Oceanside . . . . . June 9, 1944  
 David Rorick, Jr.  
 Poway . . . . . April 21, 1954  
 Harry Barber  
 San Diego . . . . . June 9, 1944  
 Dr. Charles F. Cooper, Janet Erickson, R. E. Graham, Lawrence Hirsch, Francesca M. Krauel, Roy W. Lessard, Michael D. Madigan, Joseph Parker, John P. Starkey, Dr. Alice C. Tang

WATER DISTRICTS

Helix . . . . . June 9, 1944  
 Nat L. Eggert, Harry Griffen, C. G. Watters, Jr.  
 Otay . . . . . Oct. 26, 1956  
 Milton R. Emerson  
 San Dieguito . . . . . Dec. 13, 1948  
 Laena Dashiell

IRRIGATION DISTRICTS

Santa Fe . . . . . Dec. 13, 1948  
 John M. Cranston  
 South Bay . . . . . Nov. 3, 1952  
 Lloyd L. Lee  
*(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  
 Costa Real . . . . . June 16, 1954  
 Fred W. Maerkle  
 De Luz Heights . . . . . June 28, 1967  
 George F. Yackey  
 Olivenhain . . . . . July 25, 1960  
 Howard G. Golem  
 Padre Dam . . . . . June 7, 1956  
 Alex L. Adams  
*(Includes Lakeside I.D., an independent member agency, from June 9, 1944 to June 7, 1956)*

Rainbow . . . . . April 10, 1954  
 Robert W. Coates  
 Ramona . . . . . August 27, 1957  
 John T. Wilson  
 Rincon del Diablo . . . . . June 14, 1954  
 Sherwood D. Anderson  
 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

COUNTY WATER DISTRICT

San Marcos  
 Dale Mason . . . . . Feb. 25, 1980

**OFFICERS OF BOARD OF DIRECTORS  
1981-82**



**Chairman**  
**R. E. GRAHAM**  
*San Diego*  
7-63 to 6-82



**Vice Chairman**  
**ROY W. LESSARD**  
*San Diego*  
5-73 to 6-82



**Secretary**  
**NAT L. EGGERT**  
*Helix*  
*Water District*  
10-77 to 6-82

**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*  
*and Treasurer*



**I. E. NICHOLS**  
*Superintendent*



**JANET RAVIART**  
*Executive Secretary*

**BOARD OF DIRECTORS**

**1981-82**

*For Officers, See Page 4*



**ALEX L. ADAMS**  
*Padre Dam*  
*Municipal Water District*  
7-80 to 6-82



**PAUL K. ALGERT**  
*Fallbrook Public*  
*Utility District*  
7-74 to 6-82



**S. D. ANDERSON**  
*Rincon Del Diablo*  
*Municipal Water District*  
8-78 to 6-82



**HARRY BARBER**  
*Poway Municipal*  
*Water District*  
2-81 to 6-82



**C. R. CAMPBELL**  
*Otay Municipal*  
*Water District*  
5-81 to 12-81



**PAUL L. V. CAMPO**  
*Pendleton Military*  
*Reservation*  
1-78 to 6-82



**ROBERT W. COATES**  
*Rainbow Municipal*  
*Water District*  
2-79 to 6-82



**DR. CHARLES F. COOPER**  
*San Diego*  
4-73 to 6-82



**JOHN M. CRANSTON**  
*Santa Fe*  
*Irrigation District*  
10-64 to 6-82



**TOM CROWNOVER**  
*National City*  
6-76 to 6-82



**LAENA DASHIELL**  
*San Dieguito*  
*Water District*  
1-78 to 6-82



**ROBERT M. DODD**  
*Escondido*  
1-70 to 6-82



**HANS H. DOE**  
*Bueno Colorado*  
*Municipal Water District*  
6-54 to 6-82



**MILTON R. EMERSON**  
*Otay*  
*Water District*  
12-81 to 6-82



**JANET ERICKSON**  
*San Diego*  
2-74 to 6-82



**F. D. FITZSIMMONS**  
*Yuima Municipal*  
*Water District*  
8-71 to 6-82

**BOARD OF DIRECTORS**

**1981-82**

*(Continued)*



**HOWARD G. GOLEM**  
*Olivenhain Municipal  
Water District*  
1-62 to 6-82



**HARRY GRIFFEN**  
*Helix  
Water District*  
7-56 to 6-82



**JOHN F. HENNIGAR**  
*Valley Center  
Municipal Water District*  
10-76 to 6-82



**LAWRENCE HIRSCH**  
*San Diego*  
5-73 to 6-82



**FRANCESCA M. KRAUEL**  
*San Diego*  
8-78 to 6-82



**LLOYD L. LEE**  
*South Bay  
Irrigation District*  
4-61 to 6-82



**MICHAEL D. MADIGAN**  
*San Diego*  
5-79 to 6-82



**FRED W. MAERKLE**  
*Costa Real Municipal  
Water District*  
11-78 to 6-82



**DALE MASON**  
*San Marcos  
County Water District*  
3-80 to 6-82



**JOSEPH PARKER**  
*San Diego*  
3-77 to 6-82



**DAVID RORICK, JR.**  
*Oceanside*  
8-73 to 6-82



**JOHN P. STARKEY**  
*San Diego*  
10-75 to 6-82



**DR. ALICE C. TANG**  
*San Diego*  
10-79 to 6-82



**WILLIAM TRIPP**  
*City of Del Mar*  
6-80 to 6-82



**C. G. WATTERS, JR.**  
*Helix  
Water District*  
5-77 to 6-82



**JOHN T. WILSON**  
*Ramona Municipal  
Water District*  
10-79 to 6-82

**BOARD OF DIRECTORS**

**1981-82**

*(Continued)*



**GEORGE F. YACKEY**  
*De Luz Heights  
Municipal Water District*  
6-68 to 6-82

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



**JOHN M. CRANSTON**  
12-74 to 6-82



**R. E. GRAHAM**  
7-79 to 6-82



**HANS H. DOE**  
7-59 to 6-82



**HARRY GRIFFEN**  
1-63 to 6-82



**JOHN P. STARKEY**  
1-81 to 6-82

COMMITTEES OF THE BOARD

June 30, 1982

ADMINISTRATIVE CODE

Paul L. V. Campo, Chairman  
Dale Mason, Vice Chairman  
Harry Barber  
Tom Crownover  
Laena Dashiell  
Janet Erickson  
William Tripp

LEGAL AND CLAIMS

John M. Cranston, Chairman  
Paul K. Algert, Vice Chairman  
Alex L. Adams  
Tom Crownover  
Nat L. Eggert  
Francesca Krauel  
John T. Wilson

ENGINEERING AND OPERATIONS

John F. Hennigar, Chairman  
Sherwood D. Anderson, Vice Chairman  
Robert W. Coates  
Robert M. Dodd  
Hans H. Doe  
F. D. Fitzsimmons

LONG RANGE PLANNING

Francesca Krauel, Chairman  
Lawrence Hirsch, Vice Chairman  
Charles F. Cooper  
Nat L. Eggert  
Milton R. Emerson  
Lloyd L. Lee  
David Rorick, Jr.

ENVIRONMENTAL POLICY

Janet Erickson, Chairman  
Joseph Parker, Vice Chairman  
Harry Griffen  
Lawrence Hirsch  
Michael D. Madigan  
Dale Mason  
Alice C. Tang

ORGANIZATION AND PERSONNEL

Howard G. Golem, Chairman  
Clarence G. Watters, Vice Chairman  
Paul K. Algert  
Harry Barber  
F. D. Fitzsimmons  
Joseph Parker  
George F. Yackey

FINANCE AND INSURANCE

John P. Starkey, Chairman  
Robert W. Coates, Vice Chairman  
John M. Cranston  
Milton R. Emerson  
Howard G. Golem  
Roy W. Lessard  
John T. Wilson

PUBLIC INFORMATION

Michael D. Madigan, Chairman  
Charles F. Cooper, Vice Chairman  
Alex L. Adams  
Hans L. Doe  
Roy W. Lessard  
David Rorick, Jr.  
Alice C. Tang

LANDS AND RIGHTS OF WAY

Robert M. Dodd, Chairman  
Laena Dashiell, Vice Chairman  
Paul L. V. Campo  
Fred W. Maerke  
William Tripp  
Clarence G. Watters, Jr.

WATER PROBLEMS AND POLICY

Harry Griffen, Chairman  
Fred W. Maerke, Vice Chairman  
Sherwood D. Anderson  
John F. Hennigar  
Lloyd L. Lee  
John P. Starkey  
George F. Yackey



San Diego County Water Authority

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

(A Public Agency Organized June 9, 1942)

Roy W. Lessard, Chairman  
Nat L. Eggert, Vice Chairman  
Francesca M. Krauel, Secretary  
Linden R. Bursell, General Manager and Chief Engineer  
Paul G. Engstrand, General Counsel

September 30, 1982

Board of Directors  
San Diego County Water Authority

The Thirty-sixth Annual Report of the Water Authority, covering activities during the fiscal year ending June 30, 1982, has been prepared and is transmitted herewith.

The winter rainfall of 1981-82 was near normal in Southern California. The water supply in storage at June 30, 1982 was approximately 387,930 acre feet, a net increase of over 16,800 acre feet during the year.

In the June 1982 primary election, the referendum of Senate Bill 200 which became Proposition 9 was defeated. This reversal by the voters stopped all work on the Peripheral Canal project and most other new facilities for the State Water Project. The result is a great deal of uncertainty among State water contractors regarding availability of water in the late 1980's and beyond.

The Metropolitan Water District and the San Diego County Water Authority are undertaking extensive studies to ascertain the availability of alternative sources of water. Among the most promising interim steps are increasing pumping and storage capacity at Clifton Court, the widening, deepening and improving of north Delta channels and levees, and interim use of presently developed but unsold Central Valley Project water—all coupled with stepped up conservation and reclamation. The studies and reports will be completed early in 1983.

The Authority's Pipeline 5 project is on schedule with the last pipe section to be installed in October 1982. This means that all structures, testing and startup will be completed by year's end and this much needed facility will be fully operational to meet anticipated 1983 peak demands. Pipeline 5 will increase aqueduct carrying capacity by approximately 50%.

The Water Authority is continuing negotiations with the City of San Diego in an effort to find a way to construct Pamo Dam and Reservoir. This proposed 130,000 acre foot facility is needed to increase water storage in anticipation of future periods of short supply, to increase production of local natural runoff, and to provide emergency storage. Additionally, the Pamo project will produce significant quantities of hydroelectric energy as a byproduct.

The Water Authority's financial position remains strong, and staff is dedicated to identifying needed water sources to meet water demands through this decade and into the 1990's.

Very truly yours,

*L. R. Bursell*

L. R. Bursell  
General Manager and Chief Engineer

MEMBER AGENCIES

CITIES	IRRIGATION DISTRICTS	COUNTY WATER DISTRICT	MUNICIPAL WATER DISTRICTS
*Del Mar *National City *Plymouth *San Marcos *Oceanside *San Diego	*Santa Fe *South Bay	*San Marcos	*Buena Vista *Borwick *Casta Real *Mission Viejo *City of Los Angeles *Chico *Chico *Palmdale
WATER DISTRICTS		PUBLIC UTILITY DISTRICT	
*Holt *Otay *San Diego		*Palmdale	
		MILITARY RESERVATION	
		*Camp Pendleton	

FISCAL YEAR 1980-1982

The San Diego County Water Authority was formed on June 9, 1944 under the County Water Authority Act which was approved by the Governor on May 17, 1943. Its purpose is to provide water for municipal, domestic, and other beneficial uses throughout the County of San Diego.

Since its inception, the Authority has been providing approximately 90 percent of the water used in San Diego County from The Metropolitan Water District of Southern California which owns and operates the Colorado River Aqueduct. MWD is also the distributor of water from the State Water Project.

During the 1981-82 fiscal year, the Authority delivered a blend of Colorado River water and State Project water to its 24 member agencies that represent approximately 98 percent of the population in San Diego County. Water from both sources is blended at the Robert A. Skinner Filtration Plant which is located in southern Riverside County. The blend of water as of June 1982 was 43 percent State Project water and 57 percent Colorado River water.

Imported water will continue to be the major source of water in San Diego for several decades. However, during drought periods when imported water is in short supply, local resources and conservation will be of significant importance.

The Board of Directors of the San Diego County Water Authority authorized the General Manager to execute an agreement between the Water Authority, City of San Diego, and the County of San Diego for joint development of water reclamation projects now known as the San Diego Water Reuse Study.

Negotiations with the City of San Diego for the construction of Pamo Dam and Reservoir continued throughout the fiscal year. It is anticipated that an agreement may be concluded during fiscal year 1983.

The General Manager was authorized to retain the services of a public relations consultant to assist staff in expanding the Water Conservation and Awareness Programs.

BOARD OF DIRECTORS

General

The San Diego County Water Authority is comprised of 24 member agencies. Each member agency is represented by at least one person. A member agency is entitled to one additional representative for each full five percent of total assessed valuation contained within its boundaries. Assessed valuation is determined by the County of San Diego's Assessor's Office. These representatives are appointed by the chief executive officer of the respective agencies with approval by the agencies' governing bodies. During the year, only two agencies were represented by more than one representative: The City of San Diego by ten; Helix Water District by three. Directors serve without pay from the Authority.

Officers of the Board of Directors are elected in July of even-numbered years. In July 1980, Ralph E. Graham was elected Chairman; Roy W. Lessard, Vice Chairman; and Nat L. Eggert, Secretary.

To facilitate matters, most business coming before the Board is first considered by one of its committees. Each committee then reports to the full Board which makes the necessary decisions. There are ten standing committees:



Figure A. Authority Area Within San Diego County.

SAN DIEGO COUNTY WATER AUTHORITY

Administrative Code	Legal and Claims
Engineering and Operations	Long Range Planning
Environmental Policy	Organization and Personnel
Finance and Insurance	Public Information
Lands and Rights of Way	Water Problems and Policy

During fiscal year 1981-82, Directors were presented with service emblems as follows:

Director	Length of Service
Harry Griffen	25 years
Lloyd L. Lee	20 years
F. D. Fitzsimmons	10 years
John P. Starkey	6 years
S. D. Anderson	3 years
Paul L. V. Campo	3 years
Laena Dashiell	3 years
Francesca M. Krauel	3 years

At the September 10, 1981 meeting, the Board adopted a resolution commending Costa Real Municipal Water District for its participation in the low water use garden program.

At the October 8, 1981 meeting, the Board adopted a resolution honoring the City of San Diego for its outstanding contribution to the community through natural resources recovery.

During the December 17, 1981 adjourned meeting, Milton R. Emerson was seated as a Director of the Water Authority representing Otay Water District. Mr. Emerson replaced Charles R. Campbell for a term expiring September 10, 1982.

At the January 14, 1982 meeting, Director John Wilson was reelected as an Authority Director representing Ramona Municipal Water District. His term will expire on October 2, 1987.

During the March 11, 1982 meeting, Director William Tripp was reelected as a Water Authority Director representing the City of Del Mar. His term expires on March 13, 1987. Also adopted at that meeting was a resolution honoring Irwin E. Farrar upon his retirement as a Director of The Metropolitan Water District of Southern California representing Eastern Municipal Water District.

The Annual Inspection of the Authority aqueducts was conducted by members of the Board of Directors of the San Diego County Water Authority during the month of April 1982.

The Board adopted a resolution at the May 13, 1982 meeting expressing appreciation to the Authority employees for outstanding effort in repair of Pipeline 3. Several problems developed due to corrosion resulting in blowouts which could have caused damage to life and property. Staff designed innovative repair techniques and invented, constructed, and operated special equipment to repair the pipeline in record time which resulted in minimum interruption of water delivery services at a very reasonable cost.

BOARD OF DIRECTORS

Policy

During the August 13, 1981 meeting, a resolution was adopted, moved by Director Dodd and seconded by Director Maerkle, establishing the number of votes of each member agency is entitled to as determined by assessed valuation of property within the Water Authority's service area for fiscal year 1981-82.

At the same meeting, the Board adopted a resolution authorizing an extension of the July 1981 contract for temporary emergency delivery of water to Tijuana, Mexico.

In addition, the Board adopted a resolution authorizing execution of an agreement between the San Diego County Water Authority, City of San Diego, and the County of San Diego for joint development of water reclamation projects.

Also, a resolution was adopted at this same meeting by the Board of Directors setting the debt service tax levy for fiscal year 1981-82 at 1 cent per \$100 of assessed valuation on property within the Water Authority's service area.

At the adjourned meeting of December 17, 1981, the Board adopted a resolution to amend a resolution adopted during the November 12, 1981 meeting. The amended resolution defines a Water Authority employee's highest salary year rather than the average of his or her three highest years to determine base salary for retirement benefits.

During the March 11, 1982 meeting, the Board adopted a resolution to amend Section 11.2 of the Administrative Code to adjust the surcharge raw water rate and the treated water rate.

At the April 28, 1982 adjourned meeting, the Board of Directors adopted a resolution to execute a 1982 Contract of Indebtedness, a Purchase Agreement relating to the Contract of Indebtedness, and the Official Statement relating to the Contract of Indebtedness as a result of construction costs, repairs, and maintenance of the San Diego Aqueduct system.

The Board also adopted a resolution at the April 28, 1982 adjourned meeting authorizing the Controller to sign the Municipal Bond Insurance Agency application and make arrangements with Bank of America to act as Paying Agent for the San Diego County Water Authority indebtedness.

A resolution was adopted by the Board of Directors during the May 13, 1982 meeting approving and establishing a San Diego County Water Authority budget of \$61,885,831 for fiscal year 1982-83.

At the June 10, 1982 meeting, the Board adopted a resolution to amend Article 10 (Purchasing Procedures), Article 11 (Water Rates), and Article 18 (Authority Representatives at the Metropolitan Water District).

The Board adopted a resolution at the same June 10, 1982 meeting to amend Article 2, Section 2.2(J), adding to the description of the responsibilities of the Long Range Planning Committee.

**Administration**

**Executive Officers**

Linden R. Burzell	General Manager and Chief Engineer
Paul D. Engstrand	General Council

**Administrative Staff**

Buckley L. Ogden	Assistant Chief Engineer
Henry G. Lozano	Director of Finance
Irwin E. Nichols	Superintendent
Pete Rios	Government/Community Affairs Officer
Janet M. Raviart	Executive Secretary

Administrative offices of the Authority are located at 2750 Fourth Avenue, San Diego. Field headquarters are at the Fred A. Heilbron Operations Center, 610 West Fifth Avenue, Escondido.

At the end of the fiscal year, the Authority had 48 employees: 47 full-time and one temporary.

**WATER AUTHORITY COMPOSITION**

**Area**

The Authority encompasses 898,758 acres (1,404.3 square miles), a net increase of 32 acres during the fiscal year.

Area changes, addition of member agencies, and percentage of area each member agency serves are contained in Table 3. The City of San Diego is the largest area with 204,945 acres; the smallest area is the City of Del Mar consisting of 1,159 acres.

Each calendar year the Authority is required by state law to file a Statement of Change of Boundary. This statement was filed with Metropolitan Water District, the San Diego County Assessor, and the State Board of Equalization on December 30, 1981.

The statement for calendar year 1981 contained several annexations and deannexations which did change the Authority and MWD boundary, in addition to annexations and detachments that affected the area of these agencies.

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 on June 30, 1982 was estimated to be 1,924,700 people of which 98 percent live within the Authority service area. The average annual growth rate within the Authority service area for the period from 1946 to 1982 was 9.1 percent. The population within the Authority service area

was estimated to be 1,889,365 persons on June 30, 1982, increase of 25,075 or 1.345 percent from June 30, 1981 estimate of 1,864,290. Population statistics are contained in Table 2.

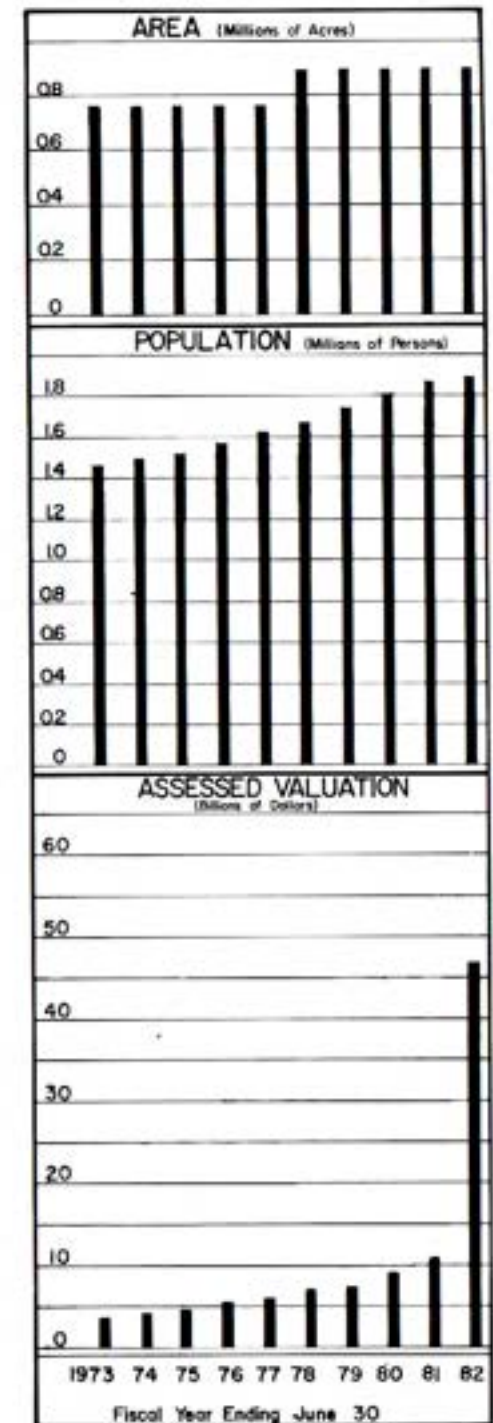
The City of San Diego, largest member agency of the Authority in area, leads the member agencies in population with 897,600 persons, approximately 48 percent of the Authority total. De Luz Heights Municipal Water District has the smallest population with 250 persons and the lowest density with 0.02 persons per acre. The highest average population density within an identifiable political entity is 8.83 per acre in the City of National City.

The average population density of the Authority increased during the fiscal year from 2.08 to 2.10 persons per acre or 1,344 persons per square mile.

**Assessed Valuation**

The assessed valuation of taxable property within the Authority, both secured and unsecured, and the Authority's debt service 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 each member agency. The valuations are determined by the San Diego County Assessor who collects these taxes for the Authority.

Total assessed valuation of taxable property within the Authority for 1981-82, according to the County Auditor's certification, was \$46,889,681,868, an increase of \$5,371,856,888 or 12.9 percent from the 1980-81 certified valuation of \$41,517,825,980.



The average assessed valuation of property within the Authority service area increased from \$46,196 per acre in 1980-81 to \$52,172 per acre in 1981-82. This increase was the result of higher value of secured and unsecured property in the Authority service area.

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

## WATER SUPPLY AND CONSUMPTION

### Source

The Metropolitan Water District of Southern California (MWD) is the sole source of water to the Authority. The member agencies of the Water Authority used approximately 31.2 percent of MWD's supply in 1981-82.

### MWD Facilities

Metropolitan Water District supplies a blend of Colorado River water and State Project water. Water from the Colorado River is diverted at Lake Havasu and is carried through the Colorado River Aqueduct to the terminus at Lake Mathews in Riverside County. Supplies for San Diego are diverted from the 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 State Water Project water is delivered to MWD at Lake Perris, terminus of the 444-mile California Aqueduct. From there, it flows through the Lakeview Pipeline to the San Diego Canal into Lake Skinner. A portion of the water from Lake Skinner flows directly into Pipeline 3 while another portion is processed through the Skinner Filtration Plant before entering Pipeline 4. By the end of June 1982, the blend in Lake Skinner was 57 percent Colorado River water and 43 percent State Water Project 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 elevation for storage is 1,479 feet above sea level. The Skinner Treatment Plant, located at the reservoir, has a treatment capacity of 240 million gallons per day (mgd).

### Authority Facilities

The Authority takes delivery of water from MWD in the four pipelines of the San Diego Aqueducts near 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 LaMesa-Sweetwater Branch extends from the First Aqueduct at Slaughterhouse Canyon

through Lakeside and El Cajon to Sweetwater Reservoir. The two pipelines of the First Aqueduct share common tunnels and inverted siphons and are operated as a single unit.

The two pipelines of the Second Aqueduct (Pipelines 3 and 4), 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.

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. Treated water is chlorinated during the treatment process at the Skinner Plant, and water in Pipeline 3 is chlorinated at the Rainbow Chlorination Station.

Design capacity of the First Aqueduct, Pipelines 1 and 2 combined, 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 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 San Diego in the amount of \$2.20 per af for the maximum amount of water in storage each year.

In addition, the Authority pays the City of San Diego \$1.00 per af for pumping water from storage into the City's system. The agreement also provides that the first water which may be lost over the spillway is that stored by the Authority.

During the fiscal year, water was placed in storage at San Vicente Reservoir by the Authority for the account of member agencies. San Vicente storage statistics are shown in Table 4.

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. No storage is provided for member agencies. The City is paid \$1.00 per af for the maximum storage in any twelve-month period subject to a minimum annual fee of \$1,000. The Authority also pays pumping charges which vary from \$1.50 to \$2.25 per af depending on water elevation.

Supervision and control of the San Diego Aqueduct 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. Communication with operating and maintenance field staff and with MWD's East Valley Operations Section at Lake Skinner is by two-way radios.

**Deliveries and Rates**

The San Diego County Water Authority aqueducts delivered 418,162 af during the fiscal year. Untreated water accounted for 281,475 af, and the balance of 136,687 af of water was treated at the Robert A. Skinner Treatment Plant in Riverside County. This total flow of 418,162 af was 42,743 af more than the previous fiscal year which represents an 11.4 percent increase.

The lowest flow rate averaged 263 cfs in January 1982. The highest average delivery of 805 cfs occurred during August 1981. The average for the entire year was 577.6 cfs.

Water deliveries to member agencies and others during the fiscal year are shown in Table 8. Purchases by member agencies totalled 403,602.2 af, and no water was delivered to Tijuana at the International Border.

Storage in member agencies' reservoirs at the end of the fiscal year was 387,930 af which is approximately 67 percent of total capacity compared with 371,171 af for the previous year. This increase amounts of 16,759 af or 4.5 percent from the previous year.

Annual water sales to individual agencies for the eight-year period 1974-75 through 1981-82, total water sales from 1947-74, and total water sales from 1947-82, are shown on Table 7. The sales during fiscal year 1981-82 are 111.1 percent of the previous fiscal year which is an increase of 42,743 af.

The operations and maintenance of the Authority is financed by a surcharge rate of \$5 per af on water delivered to its member agencies plus other miscellaneous general fund revenues.

Capital costs for the First and Second Pipelines have been financed by the United States Government. The Third and Fourth Pipelines were financed from the sale of General Obligation Bonds. The debt service on this voter-approved debt is funded by an ad valorem tax on all property within the San Diego County Water Authority service area.

Construction of the Fifth Pipeline is being financed through a borrowing from California First Bank under Section 8 of the Water Authority Act and accrued reserves from general purpose revenues including property tax allocation from the County of San Diego from the 1 percent general purpose levy.

The debt service on borrowings under Section 8 of the County Water Authority Act are funded by a surcharge rate of \$4 per af.

Under this Section of the Act, an additional borrowing of six million in May of 1982 took place. The Water Authority marketed "Contracts of Indebtedness" through the E. F. Hutton network at an effective interest rate of 9.986 percent. The

debt service on these instruments, which are fully registered, will be funded by increasing the surcharge rate under Section 8 from \$4 per af to \$5 per af effective July 1, 1982.

The tax revenues from assessed valuations of property within the Authority for fiscal year 1981-82, as determined by the County Assessor, was set at 1¢ per \$100 of assessed valuation for retirement of voter-approved bonded indebtedness.

The Metropolitan Water District generally announces water rates two years in advance. Since 1975, water rates have been increased yearly from \$67.00 an acre foot to \$121.00 an acre foot in fiscal year 1981-82 because of the higher cost of energy for pumping and an increase in the proportion of the bond service cost being financed through water sales. These rates are in accordance with the City of Los Angeles-MWD agreement which was the result of a lawsuit between these two parties.

The MWD rate for untreated water for municipal and industrial use was \$96.00 per acre foot for fiscal 1981-82 to which was added the Authority's surcharge of \$9.00 per acre foot. Treatment charges by MWD at the Skinner Treatment Plant were \$25.00 per af for the same period. 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 treatment facilities. The commodity charge for treatment of water as of July 1, 1981 was \$33.00 per af which remained in effect the entire fiscal year.

The following is a partial summary of past and future MWD rates to the Authority and Authority surcharge rates:

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

From	To	MWD	Authority	Total	Agricultural Rebate	Resulting Agricultural Rate	Municipal and Industrial Interruptible Water Rate
7/01/58	1/01/61	15.00	2.00	17.00	3.00	14.00	-
1/01/61	1/01/62	17.00	2.00	19.00	4.25	14.75	-
1/01/62	1/01/63	19.00	2.00	21.00	5.50	15.50	-
1/01/63	1/01/64	21.00	2.00	23.00	6.75	16.25	-
1/01/64	7/01/64	24.00	2.00	26.00	9.00	17.00	-
7/01/64	9/01/64	25.00	2.00	27.00	9.75	17.25	-
9/01/64	7/01/65	25.00	1.25	26.25	9.75	16.50	-
7/01/65	7/01/66	28.00	1.25	29.25	12.00	17.25	-
7/01/66	7/01/67	31.00	1.25	32.25	14.00	18.25	-
7/01/67	7/01/68	34.00	1.25	35.25	16.00	19.25	-
7/01/68	7/01/69	37.00	1.25	38.25	18.00	20.25	-
7/01/69	7/01/70	40.00	1.25	41.25	20.00	21.25	-
7/01/70	7/01/71	44.00	1.25	45.25	23.00	22.25	-
7/01/71	7/01/72	48.00	1.25	49.25	26.00	23.25	-
7/01/72	8/13/73	52.00	1.25	53.25	28.50	24.75	-
8/13/73	7/01/75	56.00	1.25	57.25	31.00	26.25	-
7/01/75	7/01/76	58.00	1.25	59.25	33.00	26.25	-
7/01/76	7/01/77	62.00	2.00	64.00	33.00	31.00	-
7/01/77	7/01/78	67.00	2.00	69.00	34.00	35.00	-
7/01/78	1/01/79	74.00	2.50	76.50	34.00	42.50	-
1/01/79	7/01/79	79.00	3.00	82.00	34.00	48.00	-
7/01/79	7/01/80	79.00	5.00	84.00	34.00	50.00	-
7/01/80	7/01/81	90.00	9.00	99.00	39.00	60.00	-
7/01/81	7/01/82	96.00	9.00	105.00	35.00	70.00	70.00
7/01/82	7/01/83	114.00	10.00	124.00	35.00	89.00	89.00

NOTE: The above summary of water rates shows prices for untreated Colorado River and State Project water: \$13.00/af for the period 7/01/76 to 7/01/77; \$17.00/af for the period 7/01/77 to 7/01/78; \$21.00/af for the period 7/01/78 to 7/01/79; \$25.00/af for the period 7/01/79 to 7/01/82; and \$26.00 for period 7/01/82 to 7/01/83 must be added to the above rates for treated water deliveries to Authority from MWD.

As shown in the summary above, MWD now gives encouragement to better local control and management of water supplies through lower prices. To obtain the interruptible rebate, the Authority certifies the quantities of water in storage which qualify as interruptible water to MWD. Rebates are shared with member agencies in proportion to the interruptible water they have in storage.

**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 24 member agencies of the Authority is shown in Table 4. During 1980-81, the total water production was 528,461.1 af. The water production for the current year 1981-82 is 499,387.0 af which is a decrease of 29,074.1 af or 5.5 percent. The highest monthly production occurred during July 1981 when 65,412.9 af of water were used. This was higher than the previous high during July 1980 when 61,469.2 af were used. The lowest monthly production occurred during January 1982 when 22,240.6 af of water were used. The Authority supplied 75.0 percent of the water production during the maximum month of July 1981 and 76.5 percent of the production for the fiscal year 1981-82.

The winter of 1981-82 produced 11.49 inches of rainfall at Lindbergh Field, 117.5 percent of normal; 39.81 inches at Lake Cuyamaca, 105.4 percent of normal; and 33.16 inches at Lake Henshaw, 127.8 percent of normal.

Local water runoff stored in local reservoirs increased from 371,171 af on June 10, 1981 to 387,930 af on June 30, 1982 which is an increase of 4.5 percent.

The City of San Diego maintains the most extensive system of impounding reservoirs in the Authority service area. This system produced 62,697 af of water during the fiscal year of which agencies outside of the Authority area received 5,657 af. Helix Water District produced 10,571 af from Lake Cuyamaca and its wells in the El Monte Basin. The Vista Irrigation District (part of Bueno Colorado Municipal Water District) produced 5,794 af from Lake Henshaw and the Warner Ranch wells. The City of Escondido produced 6,686 af from the Henshaw-Wolford system, and 1,293 af were produced within Yuima Municipal Water District from the Pauma Valley wells. Sweetwater Authority produced 22,894 af for use in National City and South Bay Irrigation District.

Eleven of the 24 member agencies are 100 percent dependent on imported water. The thirteen remaining agencies vary from 99 percent (Valley Center Municipal Water District) to 0 percent (Pendleton Military Reservation) 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 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 Municipal Water District, Valley Center Municipal Water District, and Olivenhain Municipal Water District, is approximately the same but per capita use is considerably higher.

Average daily per capita consumption of municipal and industrial water for fiscal year 1981-82 was 181 gallons which is down from 189 gallons per day during the previous year and up from 178 gallons per capita per day two years ago.

It is estimated that the Authority serves approximately 45% of the geographical area within its boundaries.

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.

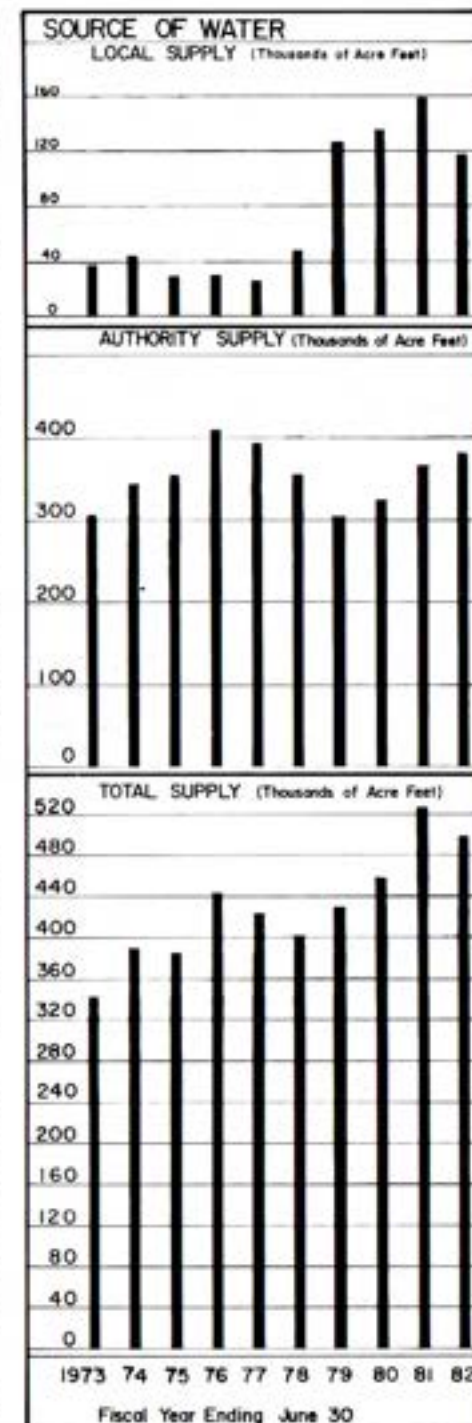
Present transmission facilities are adequate to meet water production demands until approximately 1983. Operational requirements for the delivery of treated, as well as untreated, water will require Pipeline 5 to be operational by that date.

**Water Quality**

The general quality of water entering the Authority system continues to improve. Seasonal high algae still occurs which causes variable turbidity. Turbidity at Miramar Treatment Plant ranged from 1.7 Turbidity Units (TU) to a high of 14 units reported in January and July 1981 respectively.

Algae growth in Authority pipelines is controlled through a program of continuous chlorination. The rate of chlorine applied during the year was 1.00 parts per million (ppm) to flows in Pipelines 1, 2, and 3 at the Rainbow Chlorination Station. This program has effectively controlled the residual algae from the Colorado River Aqueduct.

During the fiscal year, all treated water delivered to the Authority was



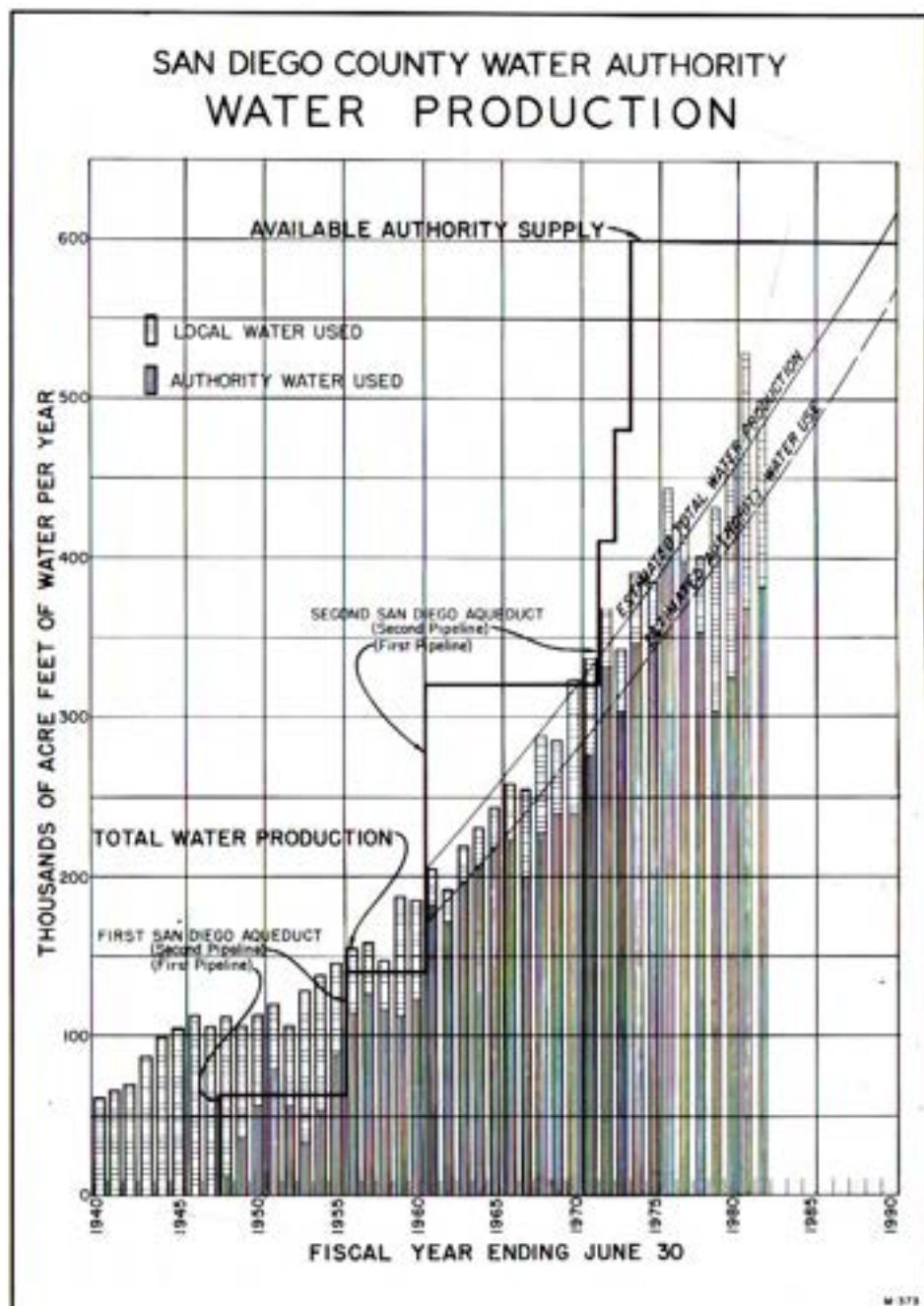


Figure B. Water Production of Authority Member Agencies

treated at the Robert A. Skinner Treatment Plant. This treatment includes chlorination as well as filtration.

The continuous chlorination of untreated water from Lake Skinner is performed by the Authority at the Rainbow Chlorination Station.

Chemical constituents of the dissolved solids in the Colorado River 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 336 milligrams per liter (mg/l) to a low of 319 mg/l. Water temperature varied from a high of 27.5°C (81.5°F) in July 1981 to a low of 12.0°C (53.6°F) reported in January 1982.

The chemical constituents of the dissolved solids of treated, blended water at Lake Skinner are shown in Table 12. Total hardness ranged from a high of 273 mg/l to a low of 171 mg/l. Water temperature ranged from a high of 26.1°C (79.0°F) recorded in August 1981 to a low of 11.6°C (52.9°F) in January 1982.

#### Agricultural Water Use

Agricultural water use by member agencies of the Authority during 1981-82 was 114,888 af of which is 17,300 less than the previous year's use of 132,188 af. The percentage of agricultural water to the total water production was 23 percent. This is a decrease from 25 percent in 1980-81.

The percentage of agricultural water use from the Authority is considerably higher, 93.4 percent, than the percentage of total water production of 76.5 percent because agencies with a high percentage of agricultural water, in many cases, have no local water production. Several agencies, such as Helix Water District and the City of San Diego, have very low percentages of agricultural use and high percentages of local water production. A complete summary of agricultural water use is contained in Table 4.

#### 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). A 90 mgd expansion of the plant was completed and in operation by May 1979. This expansion, together with the current 100 mgd Skinner No. 2 Plant construction, will provide sufficient treated water to satisfy the demand of 11 agencies requiring treated water for several years.

Member agencies of the Authority that 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, City of Poway, and Sweetwater Authority (operating agency for South Bay Irrigation District and National City). The cost of all treated water delivered by the Authority to its member agencies is the same regardless of the treatment source.

Several agencies on the First Aqueduct still use Colorado River water with dual chlorination as the only treatment provided. The Authority provides the first chlorine



Growth rates within the Authority's service area have indicated 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.

As has been previously noted, the Water 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.

In June 1982, voters rejected Proposition 9 thereby eliminating early construction of the Peripheral Canal and other features of the State Water Project. The State of California, Metropolitan Water District, and the Water Authority are working on alternatives to assure adequate supplies until cross Delta facilities are constructed. Population forecasts indicate that MWD's population will increase from the present 12 million to 20 million, and the Authority's population will increase from 1.9 million to 2.66 million persons sometime after the year 2000.

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 a loss of over half 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 per year. Annexations and other changes have increased that MWD-State contract to 2,011,500 af per year.

The California Aqueduct, a key water supply feature of the State Water Project, was completed in 1973. MWD takes delivery of State Project water 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 Colorado River water at the existing canal turnout for the Second San Diego Aqueduct. It then flows south into Lake Skinner.

Additional water resources must be developed during the 1980's as a result of the failure of the voters to approve Proposition 9. The Authority, MWD, the State of California, various federal agencies, and many private organizations are presently conducting investigations of probable alternate water sources. The potentials of the undeveloped rivers of Northern California, the Columbia River, rivers in Canada and Alaska, waste water reclamation, weather modification, geothermal water development, seawater conversion, and other possibilities are being given careful consideration.

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

## PUBLIC INFORMATION

The San Diego County Water Authority must import approximately 90 percent of the water used in San Diego County for all consumptive purposes. Most experts agree that imported water will continue to be the principal source of water in the San Diego area for several decades.

Formidable natural and societal obstacles are continually threatening the flow of this needed water. It is deemed important that San Diegans be kept informed of this ever present danger.

Ever since the San Diego County Water Authority was organized on June 4, 1944, the Board of Directors of the Water Authority has maintained a policy to keep the public advised of its operations, programs, and issues.

Achieving this effort has been complicated by the fact that the Water Authority rarely has contact with retail water consumers. Recognizing the need to reach a diverse community, the Board of Directors has expanded its public information programs.

### Community Relations

**School Program** - The educational school program, which is offered to elementary schools, junior and senior high schools, colleges, and adult education classes, continues to be one of the mainstays of the program. Presentations were made to over 20,000 students at all levels of the educational community during this last fiscal year. The study units used in the school program are being updated to maximize efficiency and to prepare for expansion of the program.

**Speakers Bureau** - This activity was on-going throughout the year. Plans are being developed to expand the program in fiscal year 1982-83.

**Display Program** - Requests for display units were at an all-time high during this year. The units were located in various areas including shopping centers and public, private, and government institutions. A new display unit has been constructed and placed into service.

**Low-Water Use Garden** - A total of three gardens were developed and placed on exhibition by the end of fiscal year 1981-82. One is located on the grounds of the Costa Real Municipal Water District Headquarters in Carlsbad; another serves as landscape for the Senior Citizens Center in the City of Vista; and the third garden is on exhibit at the Del Mar Fairgrounds. It is anticipated that several new gardens will be established during the coming year.

**Publications** - Four new publications were introduced this past fiscal year: "The Dry Garden" which includes information on plant material suitable for Southern California climate, a film library pamphlet listing educational films on water, "The Running Toilet" booklet which is a comprehensive maintenance manual for homeowners, and a table tent card which is used in restaurants to promote water conservation.

**Awards** - The Water Conservation Award Program has been designed to give public recognition to San Diegans for their efforts to conserve water. The 1981-82 personal award was presented to Mr. George L. Bond of San Diego and Mrs. Eleanor Yachwan of Imperial Beach. The public sector award went to the County of San Diego and the San Diego Wild Animal Park.

**Media Program** - The result of a public survey conducted by the Social Science Research Bureau, San Diego State University, to evaluate the perceived awareness of water issues in San Diego County provided conclusive evidence that mass media

was needed to supplement the Water Awareness Program managed by the Water Authority staff.

The Board of Directors authorized the General Manager to contract the services of a public relations consultant to assist in developing a program designed to reach larger segments of the community. It was decided that television and radio was the media to achieve this goal. The Media Program will be expanded to include transit advertising and a newsletter in fiscal year 1982-83.

Public service announcements, special water programs, and the local media in general played a major role in disseminating information to the public. Area newspapers provided hundreds of column inches of print to report water-related issues effecting our quality of life. Radio and television interviews were at an all-time high during this fiscal year.

Special Projects - A water report appears monthly in The San Diego Union. This report includes regional water use in the County of San Diego.

The Girl Scouts San Diego-Imperial Council has assisted the Water Authority in promoting its Restaurant Water Conservation Program. They personally delivered thousands of cards to area restaurants.

Water Conservation - Water Conservation is not identified as an individual issue. Every program of public awareness designed by the Water Authority has a visible and effective water conservation message.

Thousands of brochures and pamphlets have been distributed at home shows, fairs, gardens, through the speakers bureau, and other publicly supported community activities.

The 1982-83 Public Awareness Program will be expanded to include programs directed at the tourist community, nurseries, apartments, and condominiums. A newly-designed Water Conservation Handbook will be available for distribution in the early part of 1983.

#### Government Relations

An integral part of public relations activity has been to maintain a close relationship with federal, state, and local legislators as well as departments of government whose operations are specifically related to the work of the San Diego County Water Authority.

Water Authority staff attends meetings and participates in seminars and conferences of mutual interest. Technical assistance and coordination is provided to other governmental agencies.

During the year, members of the Board of Directors and staff of the Water Authority were involved with other public agencies throughout the State of California in promoting a better understanding of the water needs in San Diego. Many hours were devoted to testifying before legislative bodies on water issues and projects of benefit to San Diego.

## METROPOLITAN WATER DISTRICT MEMBERSHIP

Due to the close relationship between the Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority, readers of this report are given the following brief description of MWD's organization and operations.

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 by the Legislature permitted annexation of water districts also, and MWD's membership now includes 13 original cities, one city added in 1971, 12 municipal water districts, and the San Diego County Water Authority.

The Authority joined MWD on December 17, 1946, the most recent of the 27 member agencies of that District. The two agencies have been working closely together since their association began.

The MWD Act and the County Water Authority Act are very 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 or she represents with approval from its legislative body. Under present MWD policy, 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 23 years and is a member of the Water Problems Committee, the Organization and Personnel Committee, and the Special Committee on Energy.

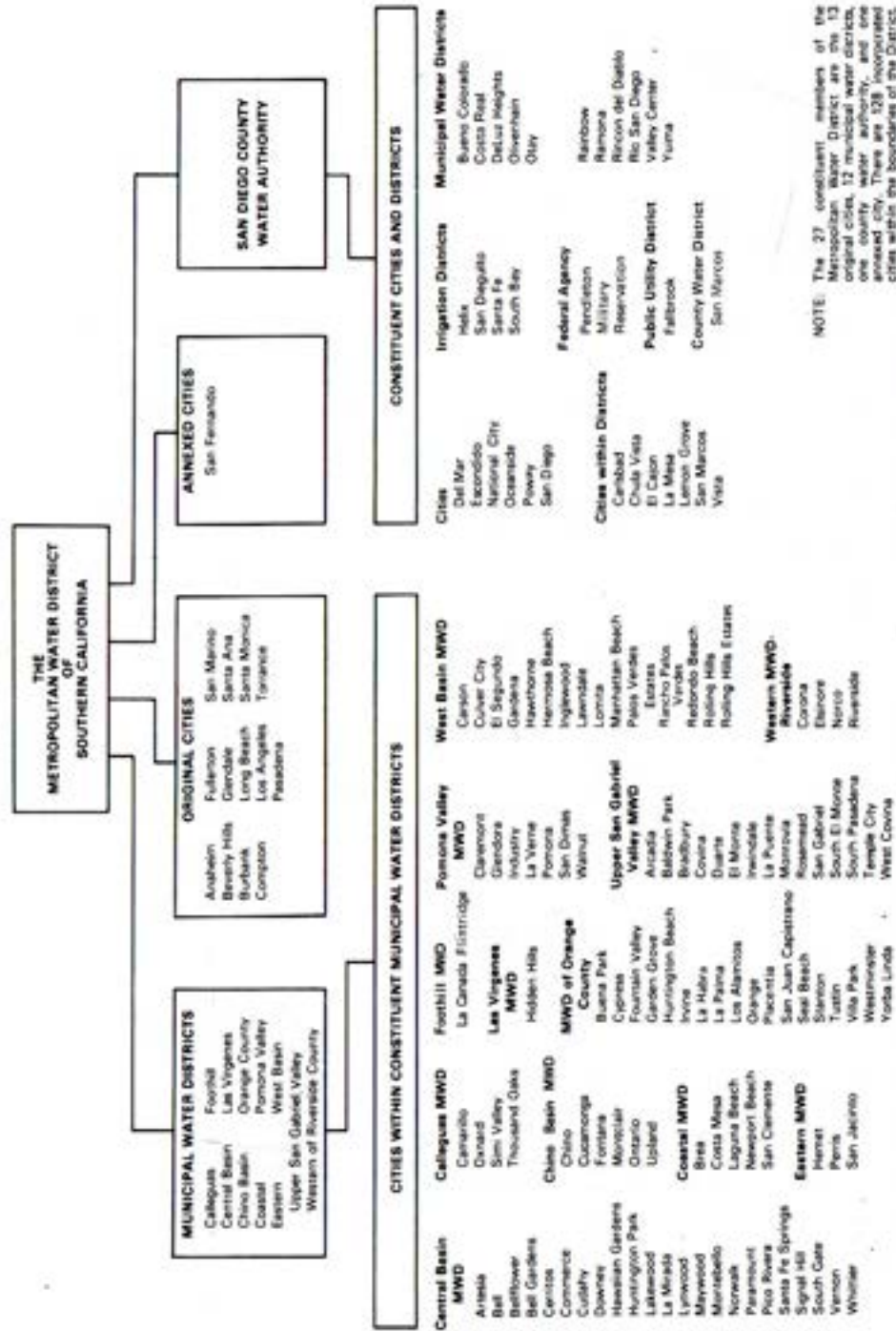
Harry Griffen has served on the MWD Board for 19 years and is Vice Chairman of that Board. He is a member of the Executive and Finance and Insurance Committees; Chairman of its Audit Subcommittee; and a member of the Water Problems Committee and the Special Budget Committee.

John M. Cranston, who has been an MWD Director for seven years, is Chairman of the Legal and Claims Committee and a member of the Engineering and Operations Committee and the Special Nominating Committee.

Ralph E. Graham represented the Authority on the Metropolitan Board for three years from 1971 to 1974 and was reappointed on July 5, 1979. He is a member of the Engineering and Operations Committee, Land Committee, Special Committee to Review Public Information Programs, the Special Committee on Energy, and Special Committee to Review Emergency Water Exchanges.

As of January 13, 1981, John Starkey was seated as a Metropolitan Director representing the San Diego County Water Authority. Mr. Starkey serves on the Finance and Insurance Committee and Lands Committee.

As of June 30, 1982, the Authority representatives had a total of 4,471 votes out of 30,091 or 14.86 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.



COMPOSITION OF THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA June 30, 1982

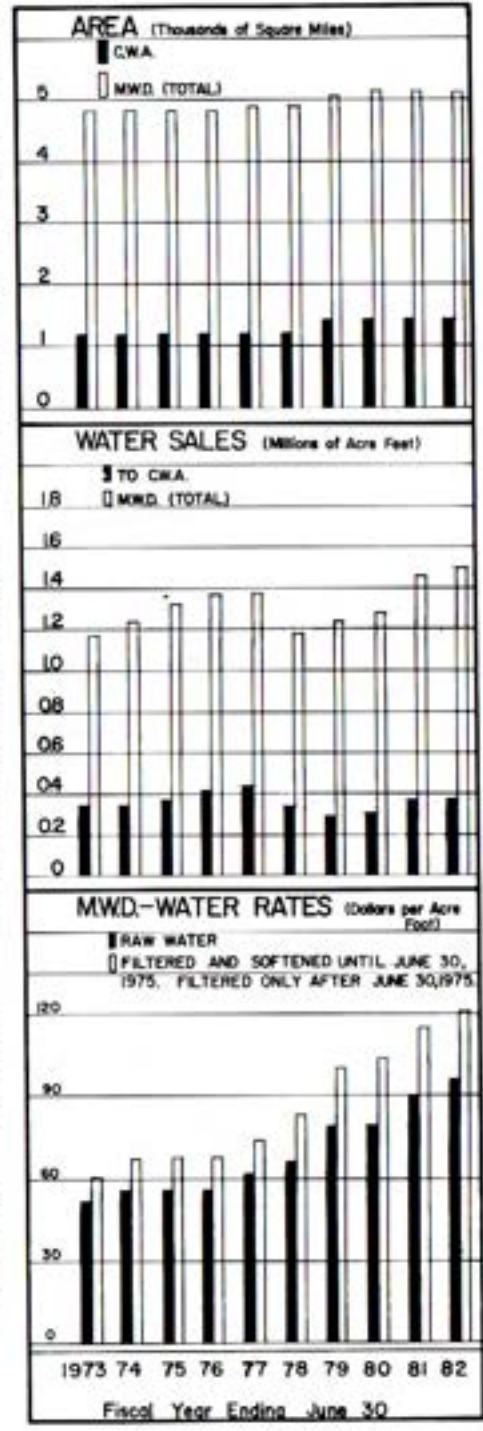
The Metropolitan Water District's aqueduct and distribution system and its service area are shown in Figure E. Also shown is the Authority's system (shown in greater detail in Figure A). Approximately 12 million people living within portions of Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties are served by MWD. There are 128 incorporated cities and many large unincorporated communities and areas within the District. MWD's service area contains 3,273,337 acres (5,114.59 square miles) which is an increase of 656 acres during the fiscal year. Of this, 898,758 acres (1,404.3 square miles), or 27.4 percent, lie within the Authority's boundaries.

Total assessed value of taxable property lying within the boundaries of Metropolitan Water District was \$314,726,857,882. Assessed value is determined by the assessors of the counties served for use in levying 1981-82 taxes. These valuations were increased \$37,165,657,806, or 13.4 percent, above the previous year's valuation of \$277,561,200,076. An amount of \$5,371,856,888 or 14.4 percent of this increase occurred within the Authority's boundaries. Assessed valuation within the Authority is 14.90 percent of the MWD total.

**Water Sales**

MWD delivered 1,333,613 acre feet of water during fiscal year 1981-82. Delivery to the Authority of 415,655 acre feet represented 31.2 percent of MWD's total deliveries.

MWD had four filtration plants in operation at the start of the fiscal year. The Skinner Filtration Plant serves a portion of the treated water requirements of the Authority. The capacity of the present plant is 240 mgd.



COLORADO RIVER AQUEDUCT SYSTEM  
AND AREAS SERVED BY  
METROPOLITAN WATER DISTRICT AND SAN DIEGO COUNTY WATER AUTHORITY

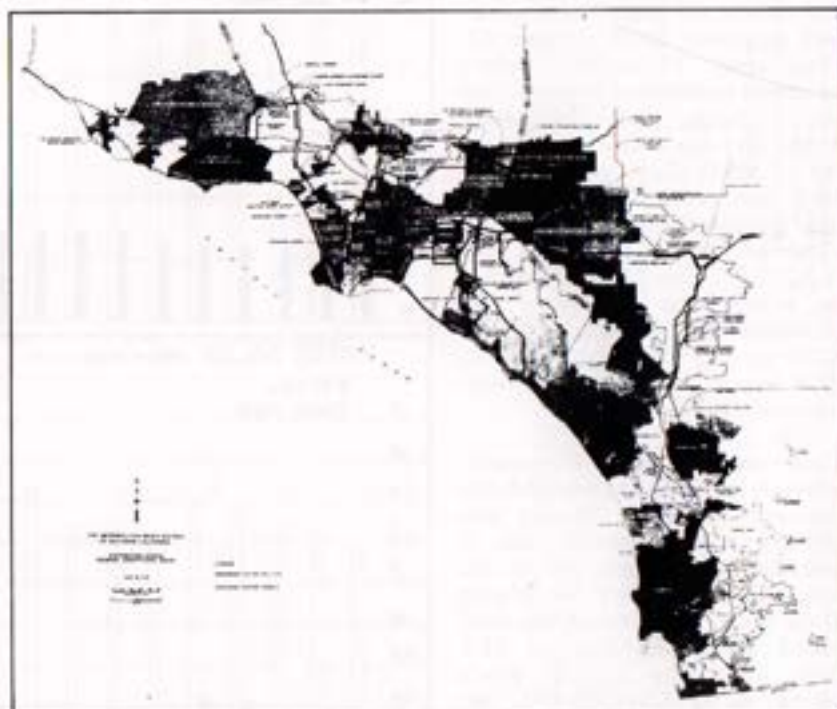


Figure E. Water Systems of Metropolitan Water District and San Diego County Water Authority.

Three other plants, none of which can serve the Authority, are operated by MWD: F. E. Weymouth Memorial Filtration Plant at La Verne, Robert B. Diemer Filtration Plant at Yorba Linda, and Joseph Jensen Filtration Plant at Granada Hills. Each of these plants has a 400 mgd rated capacity. The Jensen Plant can be supplied water only from the West Branch of the California Aqueduct.

#### Tax Rate

During fiscal year 1981-82, MWD set its tax rate at 0.0198 percent 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 13. The total MWD tax levy during the report year, including regular and special taxes, was approximately \$67,076,806 of which \$9,772,957, or 14.6 percent, was levied against property within the Authority.

## 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.

The Board members were originally selected by the Governor from a list of persons submitted by each of the six agencies that depend on Colorado River water.

However, the Board was reorganized in April 1977 pursuant to legislation enacted in 1976. The revised act provides that the Governor shall appoint both a member and an alternate member to the Board from a list of at least three nominees designated by each of the six agencies.

Two State officers, the Director of the Department of Fish and Game and the Director of the Department 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. John M. Cranston represents the Authority on the Board.

Once fully financed by the State, the Board now receives only one-third of its support from that source. The six agencies provide the balance of the required financial support for the Board.

## OPERATION AND MAINTENANCE

### General

Operation and maintenance of the Water Authority's Aqueduct facilities and equipment is directed by the Superintendent from the Fred A. Heilbron Operation Center, 610 West Fifth Avenue, Escondido, CA. The Authority's operation and maintenance force of 22 persons operates the Aqueduct system and normally performs all maintenance and repair of the Aqueducts as well as construction and modification of metering and control buildings.

The six people in Aqueduct operations, which includes two Systems Technicians, serve as System Operators and also maintain all meters, telemeters, recorders, process control, and water disinfection equipment. The maintenance force of 15 includes a warehouseman, two shop mechanics and a three man construction crew.

The Fred A. Heilbron Operation Center occupies one city block with four major buildings. The main building contains the Aqueduct Operation along with the main Aqueduct telemeter and control panel, offices for operation, maintenance, construction and field engineering; and a multipurpose room equipped for public tours, employee meetings and training facility. A shop building has facilities for repair and servicing of all Authority vehicles and heavy equipment, plus a machine shop, meter shop and equipment maintenance office. Materials, supplies, and tools are stored in the warehouse which also contains the valve repair and carpentry shops and provides security parking for certain key equipment. An on site residence gives added security, evening checks of the offices and other buildings, night time assistance to the Aqueduct system operators, reduction of response time by having equipment ready for the emergency response crews and off hour radio monitoring.

A new radio system was installed this year using two different radio relay sites on Palomar Mountain and touch tone call. This radio network connects the Authority base stations at the Operation Center and San Diego office with Metropolitan Water District's Robert A. Skinner Treatment Plant in Riverside County, 25 Authority mobile radios and with nearly all major San Diego County water purveyors. Other radio frequencies allow any other radio unit to be contacted directly if either or both relay stations failed.

A standby emergency generator also installed this year supplies emergency power for the Fred A. Heilbron Operation Center's telemeter panel, offices and shops.

#### Operations

The Operations Center is staffed everyday, including weekends and holidays, from 7:30 AM to 4:00 PM. Nighttime Authority phone calls are transferred to the home of the duty systems operator who is equipped with an Authority mobile radio unit. A pager will notify the duty operator if any phone calls are missed. In emergencies the duty operator is assisted by the Superintendent, Senior Systems Operator and Senior Systems Technician who also have mobile units with radios for quick response.

Three of the four pipelines presently serving the Water Authority carry untreated water and these pipelines receive a continuous injection of chlorine from the Authority's Rainbow chlorine station. This chlorine is used for control of algae and asiatic clams in the pipelines and also provides the first of a required dual chlorination for First Aqueduct agencies delivering Colorado River water without full treatment. Water in the treated water line is chlorinated by M.W.D. at the Robert A. Skinner Treatment Plant and boosted with chlorine injected as the pipeline passes the City of San Diego's Miramar Treatment Plant.

The Aqueduct water quality is continuously monitored and recorded. Results of daily monitoring of Aqueduct water performed at member agency's treatment plants is also collected for a more complete water quality record. The Water Authority serves as agent of the north county first Aqueduct water districts by measuring turbidity to meet Safe Drinking Water Act daily monitoring requirements.

Charts on the service connection meters are changed each week. Flow charts and meter readings are compared for indications of inaccuracies. The calibration of each active meter is checked at least every three months. The Water Authority and the Metropolitan Water District of Southern California use similar meter maintenance programs. The difference between the Authority's and Metropolitan Water District's water metered into and out of the San Diego Aqueduct System was 0.6% for the year.

Flow changes from Metropolitan Water District in both the treated and raw water Aqueducts are controlled locally and remotely at MWD's Robert A. Skinner Treatment Plant. Because the plant's operation room is manned around the clock, flow changes can be made at any time if necessary, but normally are made at two designated times each day for the convenience of the treatment plant operations.

Most of the metered flows in the Aqueduct system are displayed on the Authority's operation center control room telemeter/control panel. Aqueduct service connection flow changes are usually made at the control panel. The water flow through a remote valve may be controlled automatically by dialing in a desired flow rate or the operator may reposition a valve by pushing a button. Some flow changes must be made at the remote location. The telemeter panel is checked continuously during the day and at least twice each evening.

Each Aqueduct's current flows in and out, requested flows, meter sizes, maximum allowable and capacity flows, critical pipeline flows and operational valve information are displayed on a large status board. The status board also shows when too little or too much water is available to meet the member agencies' needs. Since the Aqueduct system in San Diego County has no built-in operational storage, all flow changes

must be carefully coordinated to keep the system in balance to maintain the proper flow to the service connections at or near the end of the pipeline.

A contract has been awarded to Systems Integrated of Tustin and San Diego, California, for \$330,229 to provide a computerized replacement for the current telemeter/control panel. This project was later enlarged to include placing micro computer controllers at twenty remote sites where more control or security was needed, bringing the total for the computer control to about \$450,000. Completion of this project, including an operational test period is expected near the end of the 1982 calendar year.

For operational emergencies a van used for Aqueduct operations and as a mobile electronic repair facility is so equipped that it might also be used as an emergency operation center where radio, telephone, and telemeter functions could be monitored.

Authority water is stored in several reservoirs by other water agencies, principally the City of San Diego's San Vicente Reservoir. Except in minor amounts these water storage facilities cannot return this stored water to the Aqueduct for use elsewhere.

During periods of high water demand or low availability, there are connections through which small flows of treated water are put into the Aqueduct from the Bueno Colorado Water District, the Helix Water District and the City of San Diego.

Three of the four pumps at the Authority's Miramar Pump Station are available to pump high flows of treated water from the City of San Diego's Miramar Treatment Plant into the Aqueduct. The largest of the four pumps has not yet been tested.

On August 27th the Authority reached a new high flow of 382 cfs at the treated water point of delivery from MWD. This meter is beyond service connections for Rancho California, De Luz Heights MWD, Fallbrook Public Utility District and Rainbow MWD.

The high flow for the year was 860 cfs total for all San Diego Aqueducts, which does not include flow going to Rancho California and Santa Rosa Rancho Water Districts.

The raw water pipelines ran at maximum capacity for nearly 5 months of the year. The maximum flows would have been for a longer time except that at MWD's request the Aqueduct flow to San Diego was reduced from maximum by 130 cfs on September 17th because of reduced pumping of Colorado River water and reduced SWP water delivery due to taste and odor problems at Lake Perris.

A test by MWD obtained a maximum flow of 614 cfs on the Lakeview pipeline between Perris Reservoir and Lake Skinner. The previous test high was 500 cfs. The State Project water in Perris Reservoir serves as a backup for Lake Skinner and substitutes for a Colorado River supply.

During a shutdown for repairs of the City of San Diego's raw water pipeline to the Miramar Treatment plant, treated Aqueduct water was delivered to the treatment plant clear well by reverse flow through the Authority pump station. The maximum reverse flow was 73 cfs, gradually dropping to 57 cfs as the clear well reservoir filled.

The Ramona #1 service connection was switched from the City of Poway's treated water back to untreated water from the Aqueduct.

Padre Dam MWD service connections #3 and #5 on the Authority's Lakeside raw water extension were shut down and returned to emergency standby service. This area north of Lakeside is served with treated water from the Helix Water District's R. M. Levy Treatment Plant through a new pipeline replacing one which had been washed out by the San Diego River floods of three years ago.

#### Shutdowns

The treated water pipeline #4 was shut down for four days, January 5 through 8, to accommodate a connection by the Authority's Pipeline 5 contractor to the #4 pipeline. During this shutdown untreated water was delivered to the City of Ocean-side with the approval of the State of California's Public Health Service. Treated water was pumped into the Aqueduct from San Diego's Miramar Treatment Plant to serve the needs of all service connections south of Miramar.

Pipeline #4 was taken out of service again from Skinner Filtration plant to Miramar Filtration plant for scheduled maintenance on March 29th and placed back in service on April 1st.

The treated water pipeline south of Mission Gorge was taken out of service 4 times in April, May and June to complete rehabilitation of 1600 feet of pipe north of Sweetwater Lake compound. Total shutdown time was about 16 days.

The raw water third pipeline and Crossover line were shut down for 5 days on April 18th so that MWD could set a connection in Rancho California and the Authority's contractor, Genstar, could tie the 5th pipeline to the Crossover. Also during this shutdown additional repair work was done to the Crossover pipeline valves.

Otay #8 and Padre Dam #6 were shut down so that a valve in the Helix Water District's 54" pipeline at Otay #8 could be replaced.

A pipeline rupture south of Sweetwater Lake on May 27, 1982 caused a 52 hour shutdown.

#### Maintenance

The Authority maintenance yard is located at the Fred A. Heilbron Operation Center in Escondido. All maintenance and force account construction is based at this yard. For distant major projects a field office may be established in an Authority office trailer or a large combination service trailer which also includes work benches and a locked storeroom. The Operations Center maintenance yard is located near the center of the aqueduct system with some aqueduct facilities being about 60 highway miles away.

Maintenance activities include servicing, repair and maintenance of Authority buildings, pipelines, roads and equipment. The facilities and equipment maintained include the Fred A. Heilbron Operation Center buildings, shops and yard, about 210 miles of major pipelines, 130 miles of rights-of-way, about 109 miles of Authority roads, 63 buildings housing meters and control equipment, an 8000 pound per day chlorine station, a pump station with four pumps with motors up to 1,000 horsepower, and over 900 underground valve structures. All vehicles, trucks, light and heavy equipment, valves, meters, telemeters and control equipment are serviced and repaired in Authority shops or by specially equipped service trucks.

Maintenance equipment includes two motor graders, a bulldozer, two skidloaders, backhoe, 5 and 25 ton cranes, two forklifts, 8" dewatering pump as well as dump trucks, truck tractors and equipment trailers, compressors, generators, pumps and welders. All pickups have mobile radios and most other trucks are equipped so that a radio can quickly be slipped in as needed for efficiency and quick response.

During the year delivery was taken on one compact stationwagon, two replacement ½-ton pickups ordered the previous year and four additional pickups purchased during this fiscal year. To continue fuel conservation efforts by the Authority, smaller engine diesel powered vehicles were purchased which improved the fuel mileage to about 190% of the replaced vehicles mileage.

Other equipment purchased this year include a 15 ton forklift, a truck tractor for substitute duty and an 11 passenger van all of which were used and procured through the State of California surplus equipment program.

To take advantage of the longer daylight hours and reduce travel time, the maintenance crew is on a ten hour, four day work week schedule for about 8 months of the year. The vehicle shop is open up to two hours after the crews leave to allow for minor repairs and servicing.

During the last year, 13 out of 66 control buildings were painted, 14 others had touchup or piping painted. Six line structures were also painted.

Fifteen line structures had to be raised because of grade changes due to silting or construction. Some of the structures had filled with sand and some were buried.

Vandalism remains a problem with most of the damage confined to doors, locks and gates.

Much of the maintenance time is spent maintaining, moving or rebuilding the 109 miles of access roads and the associated gates and culverts. Several roads were reopened which had been closed off due to the heavy rains in recent years.

The pipeline and patrol roads are normally checked at least once each week and twice each year the pipelines are checked by foot patrol.

After 15 or more years all of the major buildings at the Fred A. Heilbron Operations Center were reroofed. The newer metal warehouse did not require a new roof.

A second major failure of Pipeline 3 occurred at about 7:45 AM May 27, 1982. The location was in a very sparsely populated area south of Sweetwater River. Very little damage was noted with the exception of horse corrals that were flooded and silt deposited on the golf course westerly of the site.

The 5-foot square rupture was caused by massive corrosion of the prestressing wires similar to the prior failure.

All valves were exercised and flushed and lubricated. Control valves were serviced at least once each month. Other valves are on a longer maintenance cycle.

A 14" cavitated control valve at Fallbrook #3 service connection was replaced with a rebuilt valve. The damaged piping downstream of the valve was also replaced.

Cavitation which caused a leak at the Bueno #1 service connection was repaired.

Certain line structures were double valved for better maintenance of the valves in area of high use.

The Crossover Diversion sluice gate on the #3 pipeline is inoperative because of a failure which allowed the gate stem to turn. During an Aqueduct shutdown the problem within the diversion structure was corrected, but inactivity had caused the gears in the operator head to fuse together. This can be repaired at a later convenient date, since a second valve has been installed in the pipeline which can be used to shut off the Crossover pipeline if necessary.

The faulty underground phone cable to the Bueno #8 service connection on the Tri-Agency pipeline was replaced. Installation of power and phone cables to Costa Real #3 was started.

After the City of San Diego repaired a leak in the treatment plant clearwell, it became possible to start cleanup of the large Miramar valve vault which has remained full of water. The wiring and light fixtures were replaced. All piping was scraped and painted.

The Bueno #9 control building was flooded. Most electrical equipment and wiring in the building had to be replaced.

A 50-foot antenna tower was built at the Operation Center to improve radio communications.

A whirlwind destroyed the roof over the Operation Center gasoline fueling island.

Cypress trees were planted at the pump station and elsewhere to block facilities from view of nearby residents.

#### Construction

Underground power and telemeter lines were added to the already completed San Diego #10 control house.

Rainbow #10, a new service connection, was built on the first Aqueduct.

New piping and a second meter was added at the Valley Center #1 service connection.

The Otay #5 meter was enlarged from 10 cfs to 22 cfs.

The temporary chlorination station at Auld Valley was stripped, with reusable equipment refurbished and put into stock. The metal building is being dismantled.

A wooden vault built to compare a sonic meter in series with the Olivenhain #1 venturi meter, is no longer needed and was removed.

#### Miscellaneous

In order to receive additional phone system services, it was necessary to change the Fred A. Heilbron Operation Center to a different phone exchange. The new number is (619)480-1991. After-hour calls are diverted through an answering service to the duty operator.

A set of hand-held radios and insert consoles were purchased from the Yuma Municipal Water District. These radios had been loaned to the Authority by the water district for use in the pipe during the pipeline rehabilitation.

Apprehension for the First Aqueduct water supply occurred when four joints of both barrels were found fully exposed in the Pechanga Creek at the Rancho California golf course on MWD's section of the First Aqueduct. MWD's corrective work included setting large rock downstream and backfilling over each pipeline.

The Board of Director's Engineering Committee held their annual Aqueduct tour checking Pipeline 5 construction, the Pamo reservoir site and the Pipeline 3 rehabilitation project.

Several other tours of the Authority Operation Center were made by groups from local cities, service clubs and as part of tours to MWD's facilities on the Colorado River Aqueduct.

The Operation Center meeting room and information center has become a valuable aid to the local water districts training program. During the last year two chlorination workshops were held along with 4 weekly water technology classes servicing about 140 students each semester. Several waterworks committees regularly schedule their meetings to take advantage of the Operation Center facilities.

## DESIGN AND CONSTRUCTION

The \$26,534,443 contract with Genstar/CONCO-BPA, a joint venture, for the construction of Pipeline 5 continued throughout this year. This project involves the installation of 10.6 miles of 96-inch prestressed concrete pipe that joins the Metropolitan Water District's pipeline in the Pala Mesa area and extends southward to the Twin Oaks Valley. The design of this pipeline includes features to artificially raise the hydraulic grade line up to 70 feet thereby allowing about 100 cfs of additional capacity in the Crossover pipeline for replenishment of Pipelines 1 & 2 and to provide raw water to Escondido.

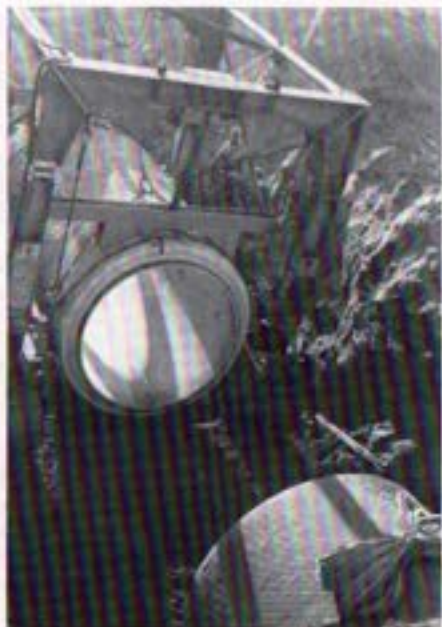
During the year \$17,841,250 of the contract was completed for a total of \$21,287,173 completed through June 30, 1982. This represents 80% of the contract amount. 74% of the allowable time for completion had elapsed.

The performance of this work has been difficult because of the rugged terrain, restrictive right of way, grove and residential development, and the large amount of earth that must be moved which changes drainage patterns and the nature of the soil. The relocation of above ground and underground utilities have been costly for the Contractor and the Authority. About 150 properties are impacted by the construction under this contract.

#### Rehabilitation of Pipeline 3

The extensive investigation of corrosion problems which were started as a result of the Pipeline 3 rupture on February 23, 1979 culminated in a design and installation system for internally reinforcing the pipeline in areas that are suspected or known to be damaged by corrosion.

Pipeline 5 Construction



Unusual methods for pipeline installation: Right, pipe is lowered down steep slopes using gantry crane on tracks. A very wide trench is required.



Scrapers were used to excavate trench across the San Luis Rey River and stockpile material on upstream side of the trench. A very extensive dewatering system was required.



Pressure control structure and base of rejection tower under construction.



Completed 70 foot tall rejection tower at south end of project.



Left, steep terrain in highly developed agricultural area requires constant vigil on part of Authority inspectors.



Right, pipe in highly erodible stream crossings are placed well below zone of potential damage.

The basic design consists of a steel cylinder of adequate strength to carry the internal pressure, relying on the concrete to support the cover loads. The steel cylinder is inserted in a collapsed condition, about six inches in diameter less than the pipe in which it is being inserted, expanded in place to about 1-inch outside diameter less than the pipe, and a longitudinal structural weld with a circumferential seal weld at the joint between sections made in place. Grout is then pumped into the void between the outside of the cylinder and the interior of existing pipe; cement mortar lining is then applied to the inside of the cylinder. The reduction in the size of the pipe is from 66-inch finished inside diameter to 63.5-inch inside diameter, approximately an 8% area reduction.

A test reach was installed in April 1982, utilizing Authority forces for all work except welding of cylinders, grouting the space between pipe and cylinders, and the cement mortar lining. This test reach proved quite successful and the procedure will be used on an additional 20,000 feet in the next 2 or 3 years.

## 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 Mr. Ronald L. Endeman handles condemnation matters.

### Routine Matters

One new director (Emerson) and two reappointed directors (Wilson and Tripp) were seated during 1981-82.

### Section 8 Financing

S. B. 1163, authored by Senator Craven, became effective, without Governor Brown's signature on September 27, 1981. It clarified Section 8 of the County Water Authority Act so that the Board of Directors can create contracts of indebtedness, with a three-fourths vote, equal to one-tenth of one percent of the full assessed value of taxable property within the Authority. The Authority created \$9 million of debt with California First Bank pursuant to this section in 1980. Five principal payments are due between 1984-1988.

In May 1982, the Authority embarked on another unique use of Section 8 financing. A 1982 Contract of Indebtedness of \$6 million was created with the principal payments due in 1988-1990. Contract notes in denominations of \$5,000 each evidencing ownership in the \$6 million contract were issued to E. F. Hutton & Company, Inc., which sold these notes in the securities market. The law firm of Orrick, Herrington & Sutcliffe, San Francisco, assisted General Counsel in preparing the required legal documentation.

With the \$15 million outstanding debt under Section 8, there remains available for the Board about \$32 million of new debt which could be created. The flexibility provided by Section 8 for financing needed replacements and improvements to the Authority's water system makes financial planning by the Board more stable and certain.

### Pamo Project

At the request of the City of San Diego, the Authority completed in April 1981 a feasibility study concerning the construction of a dam on City-owned land northwest of Ramona in the San Dieguito River system. The staffs of the City and Authority have discussed provisions for a contract whereby the Authority would undertake the responsibility to finance, construct, and operate a dam and reservoir at the site. A final proposal from the Authority was presented to the Public Service and Safety Committee of the San Diego City Council, but that committee had not completed its study of the proposal.

The proposal contemplates transference of the City-owned land to the Authority, construction of a 130,000 acre foot reservoir, utilization of 30,000 acre feet to regulate the local supply and 100,000 acre feet for storage of emergency imported water with financial involvement by the Metropolitan Water District, power generation, and allocation of benefits from local water developed to the City after all debt is retired.

It is expected that these plans may be finalized in the coming fiscal year.

### Proposition 9

Senate Bill 200, which was signed into law in July 1980 but was the subject of a successful referendum petition in October 1980, became Proposition 9 at the June 8, 1982 election. It was strongly supported by the Authority and most water interests in Southern California. It would have provided for construction of the Peripheral Canal and for feasibility studies for other features of the State Water Project. Although San Diego County gave 73.4 percent support for SB 200, it was rejected state-wide by a 62 percent margin.

The failure of SB 200 will require new efforts to forge another approach to the construction of facilities and development of water sources which will make it possible for the state to fulfill its contractual obligations to furnish water through the State Water Project aqueduct to the Metropolitan Water District. Both candidates for Governor, Messrs. Bradley and Deukmejian, supported SB 200. It is hoped that whoever is chosen Governor will lead in efforts to forge the necessary consensus and develop a workable plan to do what is necessary to avoid the severe adverse effects which a water shortfall would cause.

### Litigation

There was no significant litigation directly involving the Authority during the year. Right of ways for completion of Pipeline 5 and for making repairs to Pipeline 3 in the Otay Municipal Water District area were the subject of pending litigation. Most all right of ways were acquired through negotiation.

## TREASURER'S REPORT

Henry G. Lozano, the San Diego County Water Authority Treasurer, is responsible for all funds not immediately required for the conduct of business. Funds are invested under Board policy in interest bearing bank time deposits, in direct obligations of the Federal Government, in Federal agency obligations, in savings account,

and under specific guidelines in repurchase agreements.

The Administrative Code requires the Treasurer to report a summary of his financial transactions monthly and for each fiscal year-end. For fiscal 1981-82, the Statement of Earnings is as follows:

For the fiscal year ending June 30, 1982, total Water Authority income was \$54,220,943. Total disbursements during the year were \$43,074,475. At the fiscal year end, the Treasurer had control of funds and investments totaling \$24,920,565.

STATEMENT OF EARNINGS

Income was as follows:	1981	1982
Water sales	\$37,814,073	\$43,190,662
Taxes	7,248,156	7,231,207
Interest on investments	3,595,398	4,130,445
Tijuana water service	33,436	131
Miscellaneous	(121,632)	(331,502)
<b>Total income</b>	<b>\$48,569,431</b>	<b>\$54,220,943</b>

Disbursements were as follows:	1981	1982
Water purchases	\$34,392,843	\$39,162,343
Operation and maintenance	1,678,728	1,860,162
Interest expense	2,653,994	2,051,970
<b>Total disbursements</b>	<b>\$38,725,565</b>	<b>43,074,475</b>
<b>Net earnings before depreciation</b>	<b>\$9,843,866</b>	<b>\$11,146,468</b>

As of June 30, 1982, the Treasurer's cash accountability was as follows:

Demand deposits	\$ 43,711	\$ 25,565
Time deposits	\$29,480,000	24,895,000
<b>Total deposits</b>	<b>\$29,523,711</b>	<b>24,920,565</b>

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SAN DIEGO COUNTY WATER AUTHORITY

Table 1  
STATISTICAL SUMMARY

	1980-81	1981-82	Percent Change
<b>GROWTH OF AREA</b>			
Number of Agencies	24	24	-0-
Total Area - Acres	898,726	898,758	-0-
Population	1,867,271	1,889,365	+1.2
Assessed Valuation	10,379,456,495	46,889,681,868	+12.9*
<b>OPERATIONS</b>			
Water Imported by Authority-ac. ft.	375,419	418,162	+11.4
Water Production of Agencies-ac. ft.	528,543	499,387	-5.5
Local Water Used-ac. ft.	159,178	117,550	-26.2
Authority Water Used-ac. ft.	369,365	381,837	+3.4
Miles of Pipe Line	210	210	-0-
Miles of Patrol Roads Maintained	105	105	-0-
Number of Service Connections	72	74	+2.8
<b>FINANCIAL</b>			
Revenues:			
Water Revenue	37,814,073	43,190,662	+14.2
Other Revenue	3,473,766	3,798,943	+9.4
Taxes	7,248,156	7,231,207	-0.2
Tijuana Water Service	33,436	131	-99.6
Expenditures:			
Operation and Maintenance	1,678,728	1,860,162	+10.8
Purchase of Water	34,392,843	39,162,343	+13.9
Payments on Outstanding Debt	2,642,554	2,395,525	-9.3
Total Investment in Plant:			
Total Fixed Assets	252,881,553	281,640,749	+11.4
Long-Term Debt	72,959,957	76,497,715	+4.8

\*Assumes 1980-81 A.V. is one-fourth of market value as reported for 1981-82.

TABLES

Table 2  
POPULATION GROWTH-COUNTY AND AUTHORITY AREA  
1910 to 1982

Year (as of April 1)	(Includes Resident Military Personnel)				Percent of County Population in Authority
	COUNTY		AUTHORITY		
	Total Population (1)	Annual Growth	Total Population	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	53,450	(5) 1,665,200	93,537	97
1979	(7) 1,767,450	40,750	(5) 1,758,737	47,298	99
1980	(7) 1,808,200	24,700	(5) 1,806,035	25,075	99
1982	(7) 1,924,700		(5) 1,889,365		98

- (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.

SAN DIEGO COUNTY WATER AUTHORITY

Table 3  
AREA - AUTHORITY MEMBER AGENCIES

Member Agencies	Area Within Authority			Percent of Total Authority Area 6/30/82
	As of 6/30/81 (acres)	Changes During Year (acres)	As of 6/30/82 (acres)	
Bueno Colorado M.W.D. (2)	19,998	-134	19,864	2.21
In City of Vista	(9,715)	(+1,171)	(10,886)	(1.21)
Costa Real M.W.D. (3)	20,369	-0-	20,369	2.27
In City of Carlsbad	(20,000)	(-980)	(19,020)	(2.12)
Del Mar, City of (16)	1,082	+77	1,159	0.13
De Luz Heights M.W.D.	11,830	-0-	11,830	1.32
Escondido, City of (12)	14,014	+623	14,637	1.63
Fallbrook Public Utility District	16,014	-0-	16,104	1.79
Helix Water District (4)	31,663	-0-	31,663	3.52
In City of El Cajon	(9,094)	(-0-)	(9,094)	(1.01)
In City of La Mesa	(5,800)	(-40)	(5,760)	(0.64)
In City of Lemon Grove	(2,435)	( 3)	(2,432)	(0.27)
National City (1)	5,479	-0-	5,479	0.61
Oceanside, City of	25,593	+96	25,689	2.86
Olivenhain M.W.D. (5)	27,367	-0-	27,367	3.04
Otay W.D. (6)	64,798	-0-	64,798	7.21
Padre Dam M.W.D. (8)	54,082	-0-	54,082	6.02
Pendleton Military Res	134,625	-0-	134,625	14.98
Poway, City of	22,089	-0-	22,809	2.54
Rainbow M.W.D. (10)	46,487	-0-	46,487	5.17
Ramona M.W.D.	46,939	-0-	46,939	5.22
Rincon del Diablo M.W.D. (7)	15,732	-597	15,135	1.68
San Diego, City of	204,945	-0-	204,945	22.80
San Dieguito Water District	5,637	-0-	5,637	0.63
San Marcos C.W.D. (15)	28,594	+12	28,606	3.18
In City of San Marcos	(13,120)	(+1,600)	(14,720)	(1.64)
Santa Fe Irrigation District (17)	10,200	-45	10,155	1.13
South Bay Irrigation District (9)	15,505	-0-	15,505	1.73
In City of Chula Vista	(12,801)	(+1,785)	(14,586)	(1.62)
Valley Center M.W.D. (11)	62,061	-0-	62,061	6.90
Yuima M.W.D.	12,813	-0-	12,813	1.43
Total Authority Area	898,726	+32	898,758	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 2,902 acres overlapping in City of Oceanside, and 27 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 11,545 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 673 acres overlapping in National City.
- (10) Does not include 701 acres overlapping in City of Oceanside.

TABLES

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

Population - U.S. Census			1982 Estimate (14)	Annual Increase 1981-82 Percent	Density of Population 1982	
1970 (13)	1980 (13)	Decade Increase 1970-80 Percent			Per Acre	Per Sq. Mile
39,000*	51,000	31	53,297	1.8	2.68	1,715
(24,600)	(35,800)	(46)	(37,740)	(-)	(3.47)	(2,221)
15,500	31,500	103	36,172	0.5	1.78	1,139
(14,850)	(35,000)	(136)	(36,172)	(-)	(1.90)	(1,216)
3,900	5,040	29	5,127	1.3	4.42	2,829
150	225	50	250	4.2	0.02	13
36,000	64,100	78	69,400	5.2	4.74	3,034
12,000	18,700	56	19,770	2.1	1.23	787
163,000	203,500	25	207,400	0.8	6.55	4,192
(50,900)	(72,100)	(42)	(75,863)	(1.5)	(8.34)	(5,338)
(38,800)	(45,900)	(18)	(50,342)	(-0-)	(8.74)	(5,594)
---	(20,400)	(-)	(20,780)	(-0-)	(8.54)	(5,466)
39,000	47,200	21	48,400	0.8	8.83	5,651
40,700	77,800	91	80,838	3.5	3.15	2,016
2,000	23,000	1,050	24,800	3.3	0.91	582
19,400	51,600	166	54,470	3.0	0.84	538
46,000	89,000	93	95,910	0.6	1.77	1,133
---	33,150	---	34,000	-0-	0.25	160
14,000	**33,620	140	34,202	0.1	1.50	960
4,200	7,800	86	8,400	2.4	0.18	115
6,800	16,000	135	16,800	1.8	0.36	230
18,900	13,800	-27	15,110	3.0	1.00	640
675,800	849,600	26	897,600	1.1	4.38	2,803
21,800	30,900	42	31,000	-0-	5.50	3,520
---	24,200	---	27,900	3.3	0.98	627
(3,900)	(16,500)	(323)	(18,300)	(-)	(1.24)	(794)
8,600	14,700	71	15,294	2.2	1.51	966
80,000	99,200	24	100,700	0.7	6.49	4,154
(64,500)	(82,200)	(27)	(86,000)	(-)	5.90	3,776
7,000	**10,200	46	10,700	1.6	0.17	109
1,250	1,820	46	1,825	0.3	0.14	90
1,255,000	**1,797,655	43	1,889,365	1.3	2.10	1,344
1,310,800	1,808,200	38	1,924,700	1.3	0.71	454

- (11) Does not include 61 acres overlapping in City of Escondido.
- (12) Includes 61 acres overlapping in Valley Center M.W.D., 22 acres overlapping San Marcos County W.D.; 27 acres overlapping Bueno Colorado M.W.D.; and 11,545 acres overlapping Rincon Del Diablo M.W.D.
- (13) Population in agencies other than cities was furnished by agencies.
- (14) Estimate by agencies.
- (15) Does not include 289 acres overlapping in City of Escondido.
- (16) Includes 45 acres overlapping in Santa Fe I.D.
- (17) Excludes 45 acres overlapping in City of Del Mar.

\*Includes San Marcos CWD which became a member agency of Authority on February 25, 1980.

\*\*Corrected figures per agencies.

SAN DIEGO COUNTY WATER AUTHORITY

WATER PRODUCTION

(Continued)

Member Agencies	SOURCE OF WATER (4)				Total Water Production Ac. Ft.	Gross Area (2) Acres	Estimated Area Served by Water System Acres	Gross Area Served by Water System Percent	RESERVOIR OPERATIONS			
	Local Supply		Authority Supply						STORED WATER WITHDRAWN DURING FISCAL YEAR			Total Quantity in Storage 6/30/82 Ac. Ft.
	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.	5,793.6	37.5	9,652.5	62.5	15,446.1	19,864	16,119	81.1	-0-	-0-	-0-	-0-
Costa Real M.W.D.	-0-	-0-	12,749.2	100.0	12,749.2	20,369	17,540	86.1	-0-	34.4	-0-	1,503.6
Del Mar, City of	-0-	-0-	1,044.7	100.0	1,044.7	1,159	1,125	97.1	-0-	-0-	-0-	-0-
De Luz Heights M.W.D.	-0-	-0-	1,794.4	100.0	1,794.4	11,830	2,500	21.1	-0-	-0-	-0-	-0-
Escondido, City of	6,685.9	29.7	15,848.1	70.3	22,534.0	14,637	12,040	82.3	-0-	-0-	-0-	-0-
Fallbrook P.U.D.	-0-	-0-	12,386.1	100.0	12,386.1	16,104	10,558	65.6	-0-	34.4	-0-	1,503.6
Helix W.D.	10,570.9	26.9	28,713.3	73.1	39,284.2	31,663	29,992	94.7	-0-	-0-	-0-	-0-
National City, City of	6,077.7	98.7	82.1	1.3	6,159.8	5,479	4,450	81.2	-0-	-0-	-0-	-0-
Oceanside, City of	-0-	-0-	21,769.6	100.0	21,769.6	25,689	16,171	62.9	-0-	68.8	-0-	3,007.2
Olivenhain M.W.D.	-0-	-0-	5,855.6	100.0	5,855.6	27,367	4,500	16.4	-0-	11.5	-0-	501.2
Otay W.D.	-0-	-0-	12,943.0	100.0	12,943.0	64,798	31,801	49.1	-0-	34.4	-0-	1,503.6
Padre Dam M.W.D.	-0-	-0-	14,907.9	100.0	14,907.9	54,082	33,966	62.8	-0-	45.9	-0-	2,004.8
Pendleton Military Res (3)	-	-	715.2	-	-	134,625	-	-	-0-	-0-	-0-	-0-
Poway, City of	405.3	5.1	7,468.0	94.9	7,873.3	22,809	7,120	31.2	-0-	-0-	-0-	-0-
Rainbow M.W.D.	-0-	-0-	28,630.1	100.0	28,630.1	46,787	16,800	36.1	-0-	11.5	-0-	501.2
Ramona M.W.D.	331.9	3.7	8,540.7	96.3	8,872.6	46,939	10,857	23.1	-0-	45.9	-0-	2,004.8
Rincon del Diablo M.W.D.	-0-	-0-	5,255.9	100.0	5,255.9	15,135	7,314	48.3	-0-	13.9	-0-	601.4
San Diego, City of (1)	62,696.9	31.6	135,585.6	68.4	198,282.5	204,945	108,586	53.0	-0-	-0-	-0-	-0-
San Dieguito W.D.	3,105.4	40.5	4,562.6	59.5	7,668.0	5,637	5,250	93.1	-0-	-0-	-0-	-0-
San Marcos C.W.D.	-0-	-0-	8,232.7	100.0	8,232.7	28,606	18,689	65.3	-0-	11.5	-0-	501.2
Santa Fe I.D.	3,506.9	39.9	5,285.1	60.1	8,792.0	10,155	10,155	100.0	-0-	-0-	-0-	-0-
South Bay I.D.	16,816.0	98.6	233.2	1.4	17,049.2	15,505	11,150	71.9	-0-	-0-	-0-	-0-
Valley Center M.W.D.	266.5	0.7	38,091.2	99.3	38,357.7	62,061	27,504	44.3	-0-	11.5	-0-	501.2
Yuima M.W.D.	1,293.2	37.0	2,205.2	63.0	3,498.4	12,813	4,120	32.2	-0-	2.2	-0-	100.2
Total and Average	117,550.2	23.5	381,836.8	76.5	499,387.0	898,758	408,307	45.4	-0-	325.9	-0-	14,234.0

- (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 1.
  - (3) Delivery of water by Coastal M.W.D. not included in Authority totals.
  - (4) Figures include losses from transmission and distribution system but not from reservoirs.
- N.A. - Not Applicable; N.R. - Not Reported

TABLES

TABLE 4  
 WATER PRODUCTION, AGRICULTURAL USE AND AUTHORITY STORAGE  
 FISCAL YEAR 1981-82  
 (Compilation of data furnished by member agencies)

Estimated Area Served by Water System Acres	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 6/30/81 Ac. Ft.	Placed into Storage During Fiscal Year Ac. Ft.	STORED WATER WITHDRAWN DURING FISCAL YEAR			Total Quantity in Storage 6/30/82 Ac. Ft.
					Ac. Ft.	Percent	Ac. Ft.	Percent					By Delivery Ac. Ft.	By Evaporation Ac. Ft.	By Spill Ac. Ft.	
					Ac. Ft.	Percent	Ac. Ft.	Percent	Ac. Ft.		Ac. Ft.	Ac. Ft.	Ac. Ft.	Ac. Ft.		
16,119	81.1	0.96	53,297	0.29	1,486.5	42.3	2,030.9	57.7	3,517.4	22.8	-0-	-0-	-0-	-0-	-0-	-0-
17,540	86.1	0.73	36,172	0.35	-0-	-0-	4,127.4	100.0	4,127.4	32.4	-0-	1,538.0	-0-	34.4	-0-	1,503.6
1,125	97.1	0.93	5,127	0.20	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
2,500	21.1	0.72	250	7.18	3.9	0.2	1,739.0	99.8	1,742.9	97.1	-0-	-0-	-0-	-0-	-0-	-0-
12,040	82.3	1.87	69,400	0.32	2,627.7	30.6	5,947.5	69.4	8,575.2	38.1	-0-	-0-	-0-	-0-	-0-	-0-
10,558	65.6	1.17	19,770	0.63	-0-	-0-	7,753.7	100.0	7,753.7	62.6	-0-	1,538.0	-0-	34.4	-0-	1,503.6
29,992	94.7	1.31	207,400	0.19	142.7	20.4	557.6	79.6	700.3	1.8	-0-	-0-	-0-	-0-	-0-	-0-
4,450	81.2	1.38	48,400	0.13	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
16,171	62.9	1.35	80,838	0.27	3.9	0.1	4,517.2	99.9	4,521.1	20.8	-0-	3,076.0	-0-	68.8	-0-	3,007.2
4,500	16.4	1.30	24,800	0.24	-0-	-0-	1,202.2	100.0	1,202.2	20.5	-0-	512.7	-0-	11.5	-0-	501.2
31,801	49.1	0.41	54,470	0.24	-0-	-0-	2,736.8	100.0	2,736.8	21.1	-0-	1,538.0	-0-	34.4	-0-	1,503.6
33,966	62.8	0.44	95,910	0.16	-0-	-0-	875.0	100.0	875.0	5.9	-0-	2,050.7	-0-	45.9	-0-	2,004.8
-	-	-	34,000	-	-	-	-	-	-	-	-0-	-0-	-0-	-0-	-0-	-0-
7,120	31.2	1.11	34,202	0.23	19.1	1.5	1,226.0	98.5	1,245.1	15.8	-0-	-0-	-0-	-0-	-0-	-0-
16,800	36.1	1.70	8,400	3.41	-0-	-0-	25,148.1	100.0	25,148.1	87.8	-0-	512.7	-0-	11.5	-0-	501.2
10,857	23.1	0.82	16,800	0.53	229.8	4.0	5,555.8	96.0	5,785.6	65.2	-0-	2,050.7	-0-	45.9	-0-	2,004.8
7,314	48.3	0.72	15,110	0.35	-0-	-0-	1,401.4	100.0	1,401.4	26.7	-0-	615.3	-0-	13.9	-0-	601.4
108,586	53.0	1.83	897,600	0.22	-0-	-0-	1,812.1	100.0	1,812.1	0.9	-0-	-0-	-0-	-0-	-0-	-0-
5,250	93.1	1.46	31,000	0.25	745.7	40.3	1,102.4	59.7	1,848.1	24.1	-0-	-0-	-0-	-0-	-0-	-0-
18,689	65.3	0.44	27,900	0.30	-0-	-0-	2,658.6	100.0	2,658.6	32.3	-0-	512.7	-0-	11.5	-0-	501.2
10,155	100.0	0.87	15,294	0.57	595.1	43.0	789.5	57.0	1,384.6	15.7	-0-	-0-	-0-	-0-	-0-	-0-
11,150	71.9	1.53	100,700	0.17	197.2	98.2	3.7	1.8	200.9	1.2	-0-	-0-	-0-	-0-	-0-	-0-
27,504	44.3	1.39	10,700	3.58	246.6	0.7	34,003.9	99.3	34,250.5	89.3	-0-	512.7	-0-	11.5	-0-	501.2
4,120	32.2	0.85	1,825	1.92	1,256.9	37.0	2,144.2	63.0	3,401.1	97.2	-0-	102.4	-0-	2.2	-0-	100.2
408,307	45.4	1.22	1,889,365	0.26	7,555.1	6.6	107,333.0	93.4	114,888.1	23.0	-0-	14,559.9	-0-	325.9	-0-	14,234.0

TABLE 5  
 ASSESSED VALUATION AND TAX COLLECTIONS  
 FISCAL YEAR 1981-1982

Member Agencies	ASSESSED VALUATION-- SECURED AND UNSECURED				Area 6/30/82  Acres	1981-82 Valuation Per Acre	Tax Assessments to Date	Adj. to Tax Assessments	Uncollected 6/30/82	Tax Collections	Interest & Penalties	Receipts in Lieu of Taxes
	1980-81  Total	*1981-82  Total	1980-81 to 1981-82 **Percent Change	*1982-83  Total								
Bueno Colorado M.W.D.	\$ 318,319,269	\$ 1,591,916,813	+25.0	\$ 1,757,817,482	19,864	\$ 80,141	\$ 2,300,051	\$ 26,227	\$ 89,117	\$ 2,237,161	\$ 9,518	\$ 7,130
Costa Real M.W.D.	326,690,554	1,498,555,071	+14.7	1,753,742,160	20,369	73,570	2,338,712	2,451	67,052	2,274,111	12,916	33,275
Del Mar, City of	49,302,738	222,523,789	+12.8	253,579,080	1,159	191,996	540,605	(274)	8,674	531,657	3,104	531
De Luz Heights M.W.D.	6,790,976	33,396,561	+22.9	38,783,874	11,830	2,823	52,500	(1,810)	1,917	48,773	424	1,000
Escondido, City of	258,543,228	1,139,806,627	+10.2	1,271,163,154	14,636	77,877	2,087,442	3,519	47,293	2,043,668	6,750	29
Fallbrook P.U.D.	101,960,494	458,568,155	+12.4	511,776,452	16,104	28,475	833,628	1,343	19,790	815,181	3,538	3,420
Helix W.D.	985,466,231	4,321,468,738	+ 9.6	4,635,342,990	31,663	136,483	9,333,001	13,372	163,876	9,182,497	25,629	4,931
National City, City of	131,536,948	568,425,061	+ 8.0	608,157,467	5,479	103,746	1,635,927	1,058	11,477	1,625,508	3,654	6,828
Oceanside, City of	343,557,888	1,581,916,065	+15.1	1,771,748,419	25,689	61,580	2,572,435	15,069	75,397	2,512,107	10,311	2,601
Olivenhain M.W.D.	198,567,754	942,744,863	+18.7	1,103,285,954	27,367	34,448	943,017	(830)	63,834	878,352	7,219	1,250
Otay W.D.	295,887,402	1,327,012,120	+12.1	1,460,050,033	64,798	20,479	1,760,759	2,084	77,390	1,685,453	7,888	4,455
Padre Dam M.W.D.	362,130,621	1,621,573,742	+12.0	1,801,244,162	54,082	29,984	2,470,337	2,653	77,617	2,395,372	15,124	878
Pendleton Military Res.	241,154,092	1,258,625,267	+30.5	1,664,602,719	134,625	9,349	805,083	43,847	178,074	670,855	-	-
Poway, City of	198,287,368	900,395,185	+13.5	981,195,087	22,809	39,475	1,185,902	604	46,832	1,139,674	9,743	15
Rainbow M.W.D.	117,951,051	541,360,192	+14.7	596,376,119	46,487	11,645	882,091	(439)	27,464	854,189	10,279	23,680
Ramona M.W.D.	114,604,942	511,852,059	+11.7	566,560,620	46,939	10,905	729,372	(57,123)	(45,243)	717,492	5,637	5,400
Rincon Del Diablo M.W.D.	191,063,920	864,001,569	+13.1	971,223,754	15,136	57,083	1,310,310	1,677	49,594	1,262,393	5,863	58,801
San Diego, City of	4,896,934,488	22,048,874,449	+12.6	24,887,567,567	204,945	107,584	48,250,750	170,212	(718,103)	16,320,736	32,399	32,161,707
San Dieguito W.D.	175,323,512	782,342,137	+11.6	864,191,659	5,637	138,787	1,357,600	2,422	37,130	1,322,893	4,026	5,426
San Marcos C.W.D.	202,491,052	830,527,744	+ 2.5	989,571,993	28,606	29,033	1,186,636	(20,265)	18,795	1,147,576	4,123	3,672
Santa Fe I.D.	211,723,853	968,995,413	+14.4	1,112,948,557	10,155	95,421	1,511,935	2,214	48,740	1,465,410	5,251	2,893
South Bay I.D.	497,440,856	2,190,901,461	+10.1	2,417,699,041	15,505	141,303	5,102,244	(107,180)	(185,221)	4,637,614	9,506	629,977
Valley Center M.W.D.	133,131,151	594,720,190	+11.7	664,247,461	62,061	9,583	861,933	10,528	36,974	835,487	7,408	1,011
Yuima M.W.D.	20,596,107	88,998,577	+ 8.0	96,049,082	12,813	6,946	207,001	(1,515)	3,697	201,789	855	1,500
Total Authority	10,379,456,495	46,889,681,868	+12.9	52,778,924,886	898,758	\$52,172	\$90,259,271	\$109,845	\$202,166	\$56,805,949	\$201,170	\$32,962,536
San Diego County (1)	\$10,818,354,075	\$48,827,114,685	+12.8	\$54,937,677,472	\$2,725,100							

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

\* Market value as determined by County Assessor.

\*\* Assessed value assumed to be one-fourth of market value for comparison of percentage increase from 1980-81 to 1981-82.

SAN DIEGO COUNTY WATER AUTHORITY

TABLES

TABLE 5  
ASSESSED VALUATION AND TAX COLLECTIONS  
FISCAL YEAR 1981-1982

81-82 Valuation Per Acre	Tax Assessments to Date	Adj. to Tax Assessments	Uncollected 6/30/82	Tax Collections	Interest & Penalties	Receipts in Lieu of Taxes	Misc. Tax Sales	Net Total Collections	Amount Paid for Service Connections to 6/30/82	Total Amount Paid by Each Member Agency to 6/30/82	Amount Remaining to be Paid Under Terms of Annexation	Total Contributions Paid and Contracted for
0,141	\$ 2,300,051	\$ 26,227	\$ 89,117	\$ 2,237,161	\$ 9,518	\$ 7,130	\$ 82	\$ 2,253,892	\$ 207,438	\$ 2,461,330	-0-	\$ 2,461,330
3,570	2,338,712	2,451	67,052	2,274,111	12,916	33,275	11	2,320,314	7,931	2,328,245	-0-	2,328,245
1,996	540,605	(274)	8,674	531,657	3,104	531	01	535,293	-	535,293	-0-	535,293
2,823	52,500	(1,810)	1,917	48,773	424	1,000	-	50,197	-	50,197	-0-	50,197
7,877	2,087,442	3,519	47,293	2,043,668	6,750	29	29	2,050,476	9,253	2,059,729	-0-	2,059,729
8,475	833,628	1,343	19,790	815,181	3,538	3,420	43	822,183	67,773	889,956	-0-	889,956
6,483	9,333,001	13,372	163,876	9,182,497	25,629	4,931	784	9,213,840	28,905	9,242,745	-0-	9,242,745
3,746	1,635,927	1,058	11,477	1,625,508	3,654	6,828	91	1,636,086	-	1,636,086	-0-	1,636,086
1,580	2,572,435	15,069	75,397	2,512,107	10,311	2,601	100	2,525,120	106,369	2,631,489	-0-	2,631,489
4,448	943,017	(830)	63,834	878,352	7,219	1,250	-	886,821	66,608	953,429	-0-	953,429
0,479	1,760,759	2,084	77,390	1,685,453	7,888	4,455	45	1,697,842	125,853	1,823,695	-0-	1,823,695
9,984	2,470,337	2,653	77,617	2,395,372	15,124	878	132	2,413,631	45,244	2,458,875	-0-	2,458,875
9,349	805,083	43,847	178,074	670,855	-	-	-	670,855	-	670,855	-0-	670,855
9,475	1,185,902	604	46,832	1,139,674	9,743	15	09	1,149,441	103,875	1,253,316	-0-	1,253,316
1,645	882,091	(439)	27,464	854,189	10,279	23,680	01	888,149	152,685	1,040,834	-0-	1,040,834
0,905	729,372	(57,123)	(45,243)	717,492	5,637	5,400	59	728,587	3,378	731,965	-0-	731,965
7,083	1,310,310	1,677	49,594	1,262,393	5,863	58,801	01	1,327,059	14,527	1,341,586	-0-	1,341,586
7,584	48,250,750	170,212	(718,103)	16,320,736	32,399	32,161,707	2,467	48,517,310	181,864	48,699,174	-0-	48,699,174
8,787	1,357,600	2,422	37,130	1,322,893	4,026	5,426	131	1,332,477	47,205	1,379,682	-0-	1,379,682
9,033	1,186,636	(20,265)	18,795	1,147,576	4,123	3,672	41	1,155,414	-	1,155,414	-0-	1,155,414
5,421	1,511,935	2,214	48,740	1,465,410	5,251	2,893	1,914	1,475,468	58,787	1,534,255	-0-	1,534,255
1,303	5,102,244	(107,180)	(185,221)	4,637,614	9,506	629,977	143	5,277,241	594	5,277,835	-0-	5,277,835
9,583	861,933	10,528	36,974	835,487	7,408	1,011	26	843,933	128,973	972,906	-0-	972,906
6,946	207,001	(1,515)	3,697	201,789	855	1,500	-	204,144	24,424	228,568	-0-	228,568
2,172	\$90,259,271	\$109,845	\$202,166	\$56,805,949	\$201,170	\$32,962,536	\$6,117	\$89,975,772	\$1,385,686	\$91,361,458	-0-	\$91,361,458

82.

Table 6  
WATER PRODUCTION WITHIN AUTHORITY AGENCIES - FISCAL YEARS 1972-73 TO 1981-82  
(All Figures in Acre Feet)

Member Agencies	From Local and Authority Supplies									
	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Buena Colorado M.W.D.	12,362	13,868	12,897	15,178	13,928	13,263	14,554	15,038	17,565	15,446
Costa Real M.W.D.	8,907	10,029	10,022	10,962	10,752	10,010	11,135	12,554	13,385	12,749
Del Mar, City of	850	942	893	1,162	918	921	1,096	999	1,045	1,045
De Luz Heights M.W.D.	9*	99	178	362	503	612	690	1,339	1,757	1,794
Escondido, City of	16,911	18,749	18,181	21,828	19,740	19,021	20,500	22,113	26,052	22,534
Fallbrook Public Utility District	10,790	12,198	11,424	13,429	12,909	11,128	11,667	12,174	14,098	12,386
Helix Water District	32,141	35,466	33,807	37,724	34,465	32,882	36,256	37,676	41,613	39,284
National City and South Bay I.D.	18,614	20,095	20,065	22,038	21,339	20,021	21,628	21,519	25,222	23,209
Oceanside, City of	12,575	14,519	14,817	17,358	16,565	15,851	18,310	19,602	22,408	21,769
Olivestain M.W.D.	2,265	2,857	2,697	4,076	3,339	4,358	4,714	5,313	6,437	5,856
Otay W.D.	9,643	12,043	10,970	12,927	11,787	11,846	11,270	11,852	13,612	12,943
Pacific Dun M.W.D.	8,681	10,523	10,785	12,011	11,623	11,799	12,812	13,718	15,572	14,908
Pindilton Military Res	-	-	-	-	-	-	-	-	-	-
Poway, City of	5,428	7,053	7,335	7,982	7,177	6,553	6,948	8,240	9,027	7,873
Rainbow M.W.D.	18,542	21,565	20,678	25,824	25,854	22,529	24,709	26,943	34,111	28,630
Ranomas M.W.D.	2,765	3,723	4,086	5,482	5,653	5,531	6,269	6,583	9,065	8,833
Rincon del Diablo M.W.D.	2,996	3,345	3,328	4,080	3,914	3,926	4,483	4,789	5,763	5,256
San Diego, City of:										
Inside City	138,472	153,224	167,292	162,003	162,003	155,226	164,934	175,668	191,713	192,626
Outside City (not in Authority)	6,216	6,308	6,204	7,887	7,367	6,023	6,866	4,480	6,964	5,657
San Diego Water District	5,088	5,677	5,811	7,167	7,038	6,452	7,170	7,342	8,056	7,668
San Marcos C.W.D.	3,477	4,528	4,380	5,274	5,535	5,562	6,559	6,800	8,420	8,233
Santa Fe Irrigation District	6,204	7,931	7,171	8,951	7,517	7,254	7,735	10,252	9,368	8,792
Valley Center M.W.D.	16,512	20,663	20,353	29,198	28,895	26,738	29,417	33,568	44,687	38,358
Yuima M.W.D.	3,471	4,629	4,251	3,729	3,235	2,987	2,978	2,978	3,891	3,408
Total	342,319	390,502	384,457	442,210	423,030	400,821	433,009	461,540	528,461	499,387

\*Use of imported water began this year. All other agencies' use began prior to 1972-73. See previous reports.

Table 7  
WATER SALES - 1947 to 1982  
(All figures rounded to nearest whole acre foot)

Member Agencies	WATER SALES - 1947 to 1982									
	(1) 1947-54	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	TOTAL
Buena Colorado M.W.D.	116,052	10,196	11,237	10,258	9,140	4,657	7,402	6,594	9,652	185,188
Costa Real M.W.D.	114,927	9,999	10,889	10,761	10,011	11,162	12,223	13,308	12,749	206,129
Del Mar, City of	6,778	894	1,162	918	921	1,095	1,263	1,076	1,045	15,172
De Luz Heights M.W.D.	168	178	362	533	552	627	690	1,339	1,757	7,071
Escondido, City of	93,134	10,928	17,017	17,670	11,825	6,837	8,749	12,880	15,909	195,009
Fallbrook Public Utility District	215,502	11,902	13,374	12,894	11,298	11,604	12,174	14,698	12,363	315,209
Helix Water District	487,768	32,720	29,809	37,232	28,250	19,198	19,800	24,413	29,377	708,467
National City & South Bay I.D.	289,844	18,376	19,190	13,257	4,174	3,093	4,43	3,15	365,675	708,467
Oceanside, City of	141,322	14,787	17,337	16,552	15,851	17,941	19,326	22,362	21,726	287,204
Olivestain M.W.D.	17,221	2,697	4,911	3,852	4,358	5,154	5,513	6,433	5,729	54,958
Otay W.D.	103,986	10,970	12,927	11,787	11,846	11,270	11,782	13,629	12,943	201,140
Pacific Dun M.W.D.	86,028	10,785	12,280	11,617	11,799	12,812	13,721	15,572	14,908	189,522
Pindilton Military Res (2)	-	-	-	-	-	-	-	-	-	-
Poway, City of	63,191	7,859	8,187	7,649	6,204	6,942	7,002	9,269	8,351	124,804
Rainbow M.W.D.	222,881	20,697	25,364	26,039	22,229	24,770	27,040	33,940	29,630	431,890
Ranomas M.W.D.	20,122	4,155	5,455	5,653	5,174	6,122	6,239	8,258	8,541	69,719
Rincon del Diablo M.W.D.	109,764	3,327	4,080	3,914	3,926	4,483	4,789	5,763	5,256	145,302
San Diego, City of:										
Total	2,322,256	155,139	173,863	179,387	130,150	94,280	92,986	119,890	155,743	3,373,694
San Diego Water District	50,348	2,436	6,641	7,078	6,667	4,056	5,732	5,711	4,373	95,844
San Marcos C.W.D.	39,625	5,304	5,274	5,555	6,385	6,855	6,855	8,465	8,154	91,354
Santa Fe Irrigation District	52,624	6,798	8,325	7,531	7,162	4,634	6,258	6,630	5,278	105,240
Valley Center M.W.D.	143,415	23,039	29,468	29,183	26,429	28,837	32,681	44,046	38,091	395,189
Yuima M.W.D.	19,964	2,645	2,558	1,953	1,967	1,829	1,601	2,054	2,205	36,716
Total Sales to Agencies	4,666,800	368,033	419,089	425,181	344,573	289,262	307,196	376,761	403,602	7,600,496
Total Sales to Others	17,694	8,253	8,186	9,058	8,200	1,990	2,560	658	-	56,509
Total to Authority Storage	216,250	+10,109	+35,592	+26,819	+21,411	+2,000	+2,000	-	+14,560	348,741
Total from Authority Storage	-176,719	-17,910	-37,015	-26,123	-34,531	-4,533	-2,000	-	-	-300,831
Total to Metropolitan Storage	+120,929	-	-	-	-	-	-	-	-	+120,929
Total from Metropolitan Storage	-116,908	-	-	-	-	-	-	-	-	-116,908
Total Flow in Authority Systems	4,727,956	368,485	425,851	434,945	339,653	288,719	309,756	375,419	418,162	7,708,936
Average Rate of Flow (c.f.s.)	243.1	519.7	588.6	599.8	487.3	402.3	426.7	521.3	557.5	
To Agencies and Others	+11.2	+41.6	+48.0	+27.0	+2.8	+2.8	+2.8	+2.8	+2.8	
To Authority Storage	-9.2	-24.7	-51.0	-47.7	-6.3	-2.8	-2.8	-2.8	-2.8	
From Authority Storage	+ 6.3	-	-	-	-	-	-	-	-	
To Metropolitan Storage	- 9.2	-	-	-	-	-	-	-	-	
From Metropolitan Storage	- 6.1	-	-	-	-	-	-	-	-	
Flow in Authority System	245.3	536.6	586.6	600.7	469.2	398.8	426.7	518.5	577.6	

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

(2) Pindilton military reservation deliveries not included in totals; delivered through coastal MWD facilities.

\*Corrected figure

SAN DIEGO COUNTY WATER AUTHORITY

TABLE 8  
SALES OF IMPORTED WATER - FISCAL YEAR 1981-82  
(All Figures in Acre Feet except as noted)

Member Agency	Month, 1981						Total 6 Months 1981
	July	August	Sept.	Oct.	Nov.	Dec.	
Burno Colorado M.W.D.	1,304.5	1,260.9	923.7	702.7	567.3	867.2	5,626.3
Costa Real M.W.D.	1,441.6	1,660.2	1,509.4	1,422.4	1,187.6	736.0	7,957.2
Del Mar, City of	145.5	163.8	105.2	73.8	81.4	54.7	624.4
De Luz Heights M.W.D.	273.5	279.5	270.4	171.6	170.0	96.1	1,261.1
Escondido, City of	1,739.4	1,730.3	1,896.4	1,237.7	984.4	1,222.1	8,810.3
Fallbrook P.U.D.	1,995.8	1,911.5	1,627.2	1,252.9	1,132.0	684.6	8,604.0
Helix W.D.	3,537.4	3,296.2	2,825.5	3,107.5	3,134.7	3,408.0	19,309.3
National City & South Bay I.D.	3.4	19.1	9.2	6.5	7.3	7.0	52.5
Oceanside, City of	2,552.8	2,688.8	2,462.7	2,071.7	1,856.9	1,250.9	12,883.8
Oliverhain, M.W.D.	821.9	763.0	652.4	530.8	450.3	309.5	3,527.9
Otay W.D.	1,613.7	1,824.9	1,598.0	1,346.8	1,065.3	716.6	8,165.3
Padre Dam M.W.D.	1,996.0	1,982.0	1,699.7	1,316.0	1,128.1	913.0	9,034.8
Pendleton Mil. Res.**	57.3	55.9	45.2	35.8	49.9	60.2	304.3
Poway, City of	1,285.0	1,114.6	936.5	847.2	782.5	413.8	5,379.6
Rainbow M.W.D.	4,756.2	4,498.2	4,169.1	2,904.9	2,632.4	1,701.1	20,661.9
Ramona M.W.D.	1,194.9	1,244.5	1,159.6	817.1	730.3	545.8	5,692.2
Rincon Del Diablo M.W.D.	824.5	780.7	708.2	506.7	443.4	296.0	3,559.5
San Diego, City of	13,332.0	15,314.3	11,761.8	9,849.3	11,069.6	9,876.4	71,203.4
San Dieguito W.D.	525.9	558.8	506.6	358.4	280.2	186.1	2,416.0
San Marcos C.W.D.	1,126.4	1,018.5	1,037.4	780.5	715.4	484.2	5,162.4
Santa Fe I.D.	732.0	748.5	626.9	460.0	320.0	158.2	3,045.6
Valley Center M.W.D.	6,781.8	6,200.0	6,068.7	4,019.9	3,235.9	1,985.8	28,292.1
Yuima M.W.D.	402.4	436.6	423.2	299.5	226.2	66.2	1,854.1
Total Sales to Agencies	48,386.6	49,494.9	42,977.8	34,083.9	32,201.2	25,979.3	233,123.7
Total Sales to Others*	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total Sales to Agencies & Others	48,386.6	49,494.9	42,977.8	34,083.9	32,201.2	25,979.3	233,123.7
Total to Authority Storage	-0-	-0-	-0-	-0-	4,013.5	7,260.6	11,274.1
Total From Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total Flow in Authority System	48,386.6	49,494.9	42,977.8	34,083.9	36,214.7	33,239.9	244,397.8
Total Evaporation Losses from Storage in San Vicente and Lower Otay Reservoirs	-0-	-0-	-0-	-0-	-0-	10.6	10.6
Total Evaporation Losses from Storage in Sweetwater Reservoir	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Rate of Flow (c.f.s.)							
To Agencies and Others	786.9	805.0	722.3	554.3	541.2	422.5	638.8
To Authority Storage	-0-	-0-	-0-	-0-	67.4	118.1	30.9
From Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-
In Authority System	786.9	805.0	722.3	554.3	608.6	540.6	669.7

\*To Otay for delivery to Tijuana, Mexico

\*\*Delivered through Coastal M.W.D. facilities and are not included in Authority's total.

TABLES

TABLE 8  
(Continued)

	Month, 1982						Total 6 Months 1982	Fiscal Year Total	Fiscal Year Average cfs
	Jan.	Feb.	March	April	May	June			
	582.8	549.2	682.1	589.0	792.6	830.5	4,026.2	9,652.5	13.3
	518.1	587.3	633.7	828.2	1,133.5	1,091.2	4,792.0	12,749.2	17.6
	58.0	58.4	54.6	63.6	73.9	111.8	420.3	1,044.7	1.4
	3.1	45.0	52.1	96.5	162.0	174.6	533.3	1,794.4	2.5
	738.6	787.3	856.1	1,178.7	1,661.9	1,936.3	7,158.9	15,969.2	22.1
	219.4	280.5	396.8	677.9	1,009.6	1,174.4	3,758.6	12,362.6	17.1
	2,446.3	1,086.3	1,083.3	1,012.9	1,571.2	3,067.9	10,267.9	29,577.2	40.9
	6.8	4.3	9.8	21.0	209.9	11.0	262.8	315.3	0.4
	893.5	1,013.0	1,123.3	1,563.3	2,046.6	2,202.6	8,842.3	21,726.1	30.0
	211.6	235.4	285.7	410.7	506.4	561.0	2,210.8	5,738.7	7.9
	548.2	561.1	636.8	800.6	1,085.8	1,145.2	4,777.7	12,943.0	17.9
	719.8	615.7	805.2	1,034.1	1,245.5	1,452.8	5,873.1	14,907.9	20.6
	55.9	49.8	48.4	48.7	86.0	122.1	410.9	715.2	1.0
	34.4	286.5	494.1	474.5	934.6	747.5	2,971.6	8,351.2	11.5
	552.2	477.4	963.4	1,262.8	1,997.5	2,714.9	7,968.2	28,630.1	39.5
	192.8	244.5	304.3	550.8	697.4	858.7	2,848.5	8,540.7	11.8
	160.4	179.5	191.5	306.1	401.3	457.6	1,696.4	5,255.9	7.3
	7,696.5	11,191.0	15,889.8	15,660.7	18,164.3	15,937.6	84,539.9	155,743.3	215.1
	46.0	245.7	399.0	380.5	649.2	436.3	2,156.7	4,572.7	6.3
	328.9	295.0	469.1	485.6	699.1	713.4	2,991.1	8,153.5	11.3
	29.6	203.7	314.9	366.4	792.9	524.4	2,231.9	5,277.5	7.3
	192.1	527.2	1,027.1	1,690.3	2,823.8	3,538.6	9,799.1	38,091.2	52.6
	-0-	1.9	18.4	74.7	124.7	131.5	351.2	2,205.3	3.1
	16,179.1	19,475.9	26,691.1	29,528.9	38,783.7	39,819.8	170,478.5	403,602.2	557.5
	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
	16,179.1	19,475.9	26,691.1	29,528.9	38,783.7	39,819.8	170,478.5	403,602.2	
	-0-	549.6	2,736.2	-0-	-0-	-0-	3,285.8	14,559.9	
	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
	16,179.1	20,025.5	29,427.3	29,528.9	38,783.7	39,819.8	173,764.3	418,162.1	
	24.6	24.7	37.5	75.2	72.0	81.3	315.3	325.9	
	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
	263.1	350.7	434.1	496.3	630.8	669.2	474.9	557.5	
	-0-	9.9	44.5	-0-	-0-	-0-	9.1	20.1	
	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
	263.1	360.6	478.6	496.3	630.8	669.2	484.0	577.6	

SAN DIEGO COUNTY WATER AUTHORITY

Table 9  
ASSESSED VALUATIONS AND TAX RATES  
Fiscal Years 1945-46 to 1981-82

Fiscal Year	Secured Property	Public Utilities	Unsecured Property	Total	Tax Rate per \$100	
					Secured	Unsecured
1945-46	\$ 212,082,975	28,253,700	29,960,130	270,296,805	0.04	-
1946-47	208,715,150 (1)	29,433,450	30,665,910	268,814,510	0.04	0.04
1947-48	233,579,990	32,740,680	40,977,850	307,298,520 (2)	0.14	0.04
1948-49	254,227,570	37,482,020	47,177,300	338,886,890	0.14	0.14
1949-50	290,351,875	42,429,140	45,743,200	378,524,215	0.10	0.14
1950-51	306,104,930	43,595,730	44,717,740	394,418,400	0.10	0.10
1951-52	344,620,030	48,452,940	50,904,035	443,977,005	0.10	0.10
1952-53	382,948,860	53,208,220	63,996,330	500,153,410	0.12	0.10
1953-54	490,709,350	63,092,050	69,147,150	622,948,550	0.10	0.12
1954-55	546,272,880	69,243,550	79,629,790	695,146,220	0.10	0.10
1955-56	627,062,960	87,485,390	79,936,450	794,484,800	0.09	0.10
1956-57	680,824,400	101,224,260	97,950,800	879,999,460	0.09	0.09
1957-58	761,088,330	111,151,890	128,785,440	1,001,025,660	0.09	0.09
1958-59	865,283,080	128,479,290	128,124,720	1,121,887,090	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	1,272,306,330	201,245,370	154,989,440	1,628,541,140	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	155,417,270	1,879,990,010	0.11	0.11
1966-67	1,567,290,460	212,223,550	147,740,730	1,927,254,740	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	2,063,618,582	210,839,100	237,951,409	2,512,409,091	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	225,224,650	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	4,075,823,685	249,562,970	450,174,627	4,775,561,282	0.11	0.11
1975-76	4,629,303,071	283,156,410	503,493,823	5,415,953,304	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
1978-80	7,624,459,863	460,454,810	837,758,367	8,922,673,040	0.04	0.06
1980-81	9,163,752,697	731,869,180	483,834,623	10,379,456,500	0.05	0.04
1981-82(4)	41,759,646,912	3,437,486,860	1,697,548,096	46,894,681,868	0.01	0.025

- (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) Gross Tax Levy; Includes State Grant for Business Inventory, Homeowners Exemption, and allocation of the 1/2 assessment from the County of San Diego.
- (4) Assessed valuations changed to full market value as determined by County Assessor.

TABLES

Table 9  
Continued  
TAX LEVIES AND TAX COLLECTIONS BY FISCAL YEAR  
(Includes in Lieu of Taxes)  
Fiscal Years 1945-46 to 1981-82

Tax Levy (3)	Collection of Current Year's Taxes During Fiscal Year	Percentage of Levy 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
389,591	381,563	97.94	-	1,882	383,445	8,585	2.20
474,520	459,504	96.84	-	5,916	465,420	17,685	3.73
401,112	392,732	97.91	329	13,342	406,074	13,052	3.25
397,970	390,274	98.07	373	8,217	398,492	12,904	3.24
450,405	441,242	97.97	978	7,699	448,941	15,346	3.40
594,603	585,417	98.46	(1,140)	12,567	597,985	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	97.41	(2,099)	12,140	800,874	20,726	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
1,178,885	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)	21,501	1,607,671	50,874	3.15
1,763,785	1,718,575	97.44	(2,276)	31,477	1,750,053	62,330	3.54
1,816,449	1,775,932	97.77	(3,688)	38,134	1,814,066	61,023	3.37
1,910,019	1,862,973	97.54	(268)	36,825	1,899,799	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	101,573	4.73
2,175,276	2,129,996	97.92	(301)	64,473	2,194,470	82,078	3.77
2,110,913	2,103,601	99.65	-	55,253	2,158,854	34,136	1.62
2,182,274	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	79,655	3.25
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	125,502	3.13
4,673,400	4,597,610	98.37	(4,573)	42,611	4,640,222	154,107	3.52
5,336,375	5,223,483	97.88	(17,845)	76,632	5,300,115	175,522	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
8,549,222	8,420,190	97.67	(105,757)	137,072	8,552,562	23,275	0.42
7,164,233	7,076,598	98.78	181,346	157,782	7,234,380	154,472	2.16
7,150,025	6,886,178	96.31	73,243	228,215	7,114,393	213,847	3.09

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 6/30/82	Fiscal Year 1981-82		Remaining Balance of Annexation Charge 6/30/82
			First Year	Last Year		Special Assessments	Tax Rate \$/100	
Annexation Charges Outstanding	12/22/77	\$227,578	1978-79	1981-82	\$162,445	1.0	0	
Pendleton Military Reservation		\$227,578			\$162,445		0	
<b>Total</b>								

Table 11  
CHEMICAL CHARACTER OF NATURAL COLORADO RIVER WATER  
AT WEST PORTAL OF SAN JACINTO TUNNEL  
Year Ending June 30, 1982  
Samples Taken at Entrance to San Diego Aqueduct by M.W.D.  
and Analyzed by District Laboratory

Month	Total Hardness as mg/l CaCO <sub>3</sub>	Non Carbonate Hardness as mg/l CaCO <sub>3</sub>	Alkalinity as mg/l CaCO <sub>3</sub>		(PH) Hydrogen Ion Concentration	Temperature When Sampled		
			Total	Phenolphthalein		Magnesium as mg/l	°F	°C
July	331	202	129	1	30.0	8.43	81.5	27.5
August	321	202	119	2	30.0	8.25	NR	NR
September	329	205	124	-0-	31.5	8.28	81.5	27.5
October	319	202	117	-0-	29.5	8.27	69.8	21.0
November	320	NR	116	NR	30.5	8.28	64.4	18.0
December	325	NR	120	NR	30.5	8.32	NR	NR
January	333	NR	125	NR	30.5	8.28	53.6	12.0
February	334	NR	126	NR	31.5	8.19	55.4	13.0
March	329	NR	123	NR	29.5	8.27	60.8	16.0
April	329	NR	123	NR	29.5	8.43	62.6	17.0
May	330	NR	126	NR	28.5	8.44	71.6	22.0
June	336	NR	127	NR	30.0	8.40	73.4	23.0

ANALYSIS - YEAR ENDING JUNE 30, 1980

Constituent	Symbol	ANALYSIS		
		Average	Maximum	Minimum
Silica	(SiO <sub>2</sub> )	8.9	10.7	8.0
Calcium	(Ca)	82	85	78
Magnesium	(Mg)	30.1	31.5	28.5
Sodium	(Na)	103	107	100
Potassium	(K)	4.5	4.8	4.3
Carbonate	(CO <sub>3</sub> )	0.5	2	-0-
Bicarbonate	(HCO <sub>3</sub> )	146	155	127
Sulfate	(SO <sub>4</sub> )	294	307	287
Chloride	(Cl)	90	93	88
Nitrate	(NO <sub>3</sub> )	0.56	0.75	0.35
Fluoride	(F)	0.37	0.47	0.33
Boron	(B)	0.14	0.15	0.12
Total Dissolved Solids		689	712	675
Hardness Total	(as CaCO <sub>3</sub> )	328	336	319
Carbonate		122	129	117
Noncarbonate		205	205	202
Alkalinity - Phenolphthalein		1	2	-0-
Alkalinity - Total		123	129	116
Free Carbon Dioxide	(CO <sub>2</sub> )	1.1	1.7	0.9
Filtrable Residue		706	720	687
Hydrogen Ion Concentration	(PH)	8.34	8.44	8.19
Electrical Conductivity EC x 10 <sup>6</sup> @ 25°C		1098	1130	1072
Temperature °C		19.7	27.5	12.0

NR - Not reported

SAN DIEGO COUNTY WATER AUTHORITY

Table 12

CHEMICAL CHARACTER OF BLENDED TREATED WATER  
AT LAKE SKINNER  
Year Ending June 30, 1982  
Samples Taken by M.W.D. and Analyzed by District Laboratory

Month	Total Hardness as mg/l CaCO <sub>3</sub>	Alkalinity as mg/l CaCO <sub>3</sub>		Magnesium as mg/l	Hydrogen Ion Concentration	Percent of State Project Water	Temperature When Sampled	
		Total					"F	"C
July	211	97	21.0	8.17	46	77.9	25.5	
August	208	95	21.5	8.19	48	79.0	26.1	
September	232	101	23.0	8.18	40	78.1	25.6	
October	271	109	26.5	8.15	20	70.9	21.6	
November	273	109	27.0	8.15	20	64.8	18.2	
December	218	97	22.0	8.13	44	58.8	14.9	
January	171	87	18.5	8.11	67	52.9	11.6	
February	180	90	19.5	8.13	68	53.8	12.1	
March	197	93	20.0	8.13	60	55.8	13.2	
April	172	88	17.0	8.10	69	59.7	15.4	
May	221	100	21.5	8.10	51	64.9	18.3	
June	214	98	20.5	8.11	53	68.2	20.1	

ANALYSIS -- YEAR ENDING JUNE 30, 1982

Constituent	Symbol	ANALYSIS		
		Average	Maximum	Minimum
Silica	(SiO <sub>2</sub> )	10.3	11.7	9.0
Calcium	(Ca)	50	65	38
Magnesium	(Mg)	21.5	27.0	17.0
Sodium	(Na)	78	94	70
Potassium	(K)	3.6	4.2	3.0
Carbonate	(CO <sub>3</sub> )	-0	-0	-0
Bicarbonate	(HCO <sub>3</sub> )	118	133	106
Sulfate	(SO <sub>4</sub> )	170	238	124
Chloride	(Cl)	81	87	76
Nitrate	(NO <sub>3</sub> )	0.50	1.30	0.15
Fluoride	(F)	0.26	0.37	0.21
Boron	(B)	0.16	0.17	0.14
Total Dissolved Solids	-	476	592	400
Hardness	(as Ca CO <sub>3</sub> )	214	273	171
Alkalinity - Total	(as Ca CO <sub>3</sub> )	97	109	87
Free Carbon Dioxide	(CO <sub>2</sub> )	1.4	1.6	1.2
Hydrogen Ion Concentration	(PH)	8.14	8.19	8.10
Electrical Conductivity EC x 10 <sup>3</sup> @ 25°C		802	942	700
Temperature °C		18.6	26.1	11.6

TABLES

Table 13  
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	20,979,150,165	.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	3,268,337	53,573,470,118	.10	.12
1979-80	3,270,880	64,119,383,253	.09	.10
1980-81	3,272,679	69,390,300,019	.079	.09
1981-82	3,273,339	314,726,854,882 (3)	.0198% (3)	.0198% (3)
1982-83	-	353,335,259,307	.0166%	.0198%

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

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

(3) Effective FY 1981-82, assessed valuation reported at 100% of full value, and tax rates levied in percentage of full assessed value.

SAN DIEGO COUNTY WATER AUTHORITY

Table 14  
METROPOLITAN WATER DISTRICT ANNEXATION CHARGES  
AND BALANCES ON AUTHORITY AREAS

Member Agencies	Date of Annexation	Amount of Annexation Charge	Remaining Balance 6-30-82
<b>Annexation Charges Outstanding</b>			
Bueno Colorado M.W.D.	6-11-54	\$ 1,072,230	\$ 105,009.06
Costa Real MWD (Formerly Carlsbad MWD)	6-16-54	548,100	54,129.47
Del Mar, City of	11-23-62	611,250	234,090.46
De Luz M.W.D.	6-28-67	2,002,000	* 3,048,629.12
No. 1 Annexation of 1969	10-15-69	312,000	* 476,675.44
Fallbrook P.U.D.			
No. 2 Annexation of 1958	11-24-58	50,400	11,750.06
Fallbrook Community Air Park	12-22-69	59,800	83,836.61
Helix Water District			
El Cajon Dry Island Annexation	12-20-54	327,450	29,044.96
Helix-Watson Ranch Annexation	2-20-59	8,730	2,029.98
Helix-Sunny Slope Hts. Annexation	9-17-59	38,250	10,189.84
Olivestain M.W.D.	7-25-60	83,880	23,768.25
No. 1 Annexation of 1965	2-11-65	512,520	239,153.30
No. 4 Annexation of 1967	11-13-67	74,000	* 82,885.08
Otay M.W.D.	10-26-56	275,000	18,745.14
No. 3 Annexation of 1960	10-20-60	95,100	28,431.87
Padre Dam M.W.D. (not including Lakeside I.D.) (Formerly Rio San Diego M.W.D.)	6- 7-56	373,980	60,189.40
No. 2 Annexation of 1959	11- 6-59	109,110	29,093.21
No. 3 Annexation of 1960	10-17-60	289,890	86,940.14
No. 4 Annexation of 1970	8- 3-70	164,000	143,098.26
Poway M.W.D.	4-21-54	91,800	3,585.43
No. 1 Annexation of 1959	9-21-59	27,150	7,227.95
Rainbow M.W.D.	4-10-54	167,700	15,229.35
No. 1 Annexation of 1959	5-12-59	24,300	6,478.44
No. 3 Annexation of 1967	12- 6-67	1,728,000	* 2,793,730.90
No. 5 Annexation of 1973	11-22-73	13,200	12,821.56
Ramona M.W.D.	8-27-57	339,000	67,560.92
No. 1 Annexation of 1959	5-29-59	42,330	11,279.25
No. 2 Annexation of 1961	9-22-61	15,480	5,152.97
No. 3 Annexation of 1963	9-20-63	10,560	4,217.52
No. 4 Annexation of 1967	11-27-67	480,600	* 626,701.08
No. 5 Annexation of 1972	5-17-72	732,000	871,996.60
Rincon del Diablo M.W.D.	6-14-54	757,200	75,325.75
No. 4 Annexation of 1972	11- 2-72	19,200	* 23,266.29
San Diego Water District			
No. 1 Annexation of 1959	9-15-59	71,820	19,083.71
No. 2 Annexation of 1972	12- 8-72	107,000	* 133,895.08
South Bay Irrigation District (not including City of Chula Vista)	11- 3-52	449,370	14,532.37
Valley Center M.W.D.	5- 9-55	205,680	26,908.97
No. 1 Annexation of 1960	12-12-60	23,700	7,102.54
No. 2 Annexation of 1967	11-29-67	22,000	* 30,324.89
No. 3 Annexation of 1967	11-30-67	685,595.89	685,595.89
Yuima M.W.D.	12-16-63	749,490	299,760.47
No. 1 Annexation of 1967	11-21-67	72,200	69,946.57
No. 2 Annexation of 1969	11-24-69	14,400	* 16,374.71
Pendleton Mil. Reservation-Nuclear Generating Plant	12-16-77	**2,405,229	** 2,244,740.06
<b>Total</b>		<b>\$16,077,099</b>	<b>\$12,830,629.32</b>

Annexation charges received from other annexed areas not listed above having no remaining balance

\$14,285,776

\*Annual interest charge on outstanding balance is greater than tax levy based on maximum MWD tax rate of .1875% of assessed valuation (formerly 75¢/\$100 of A.V.).

\*\*Principal only.

TABLES

Table 15  
WATER SALES BY METROPOLITAN WATER DISTRICT

Year	Fiscal Years 1941-42 to 1981-82									
	To Member Municipalities									
	Natural Water		Treated Water		Total to Agencies	To Others	Total			
	Acres Feet	Percent	Acres Feet	Percent	Acres Feet	Acres Feet	Acres 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	115,530.6	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	45,362.9	405,206.5			
1956-57	286,059.1	60	191,110.7	40	477,169.8	60,074.1	543,243.9			
1957-58	266,024.1	57	197,900.0	43	463,934.1	75,612.8	539,546.9			
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	3,573.2	733,467.0			
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	692,846.4	59	1,175,103.3	650.0	1,175,753.3			
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*	655,058.0	52	593,180.0	48	1,248,238.0	955.0	1,249,193.0			
1974-75*	721,970.0	54	607,013.0	46	1,328,983.0	653.0	1,329,636.0			
1975-76*	735,100.0	53	653,154.0	47	1,388,254.0	994.0	1,389,248.0			
1976-77*	560,124.0	40	829,773.0	60	1,389,897.0	569.0	1,390,466.0			
1977-78*	508,036.0	40	757,270.0	60	1,265,306.0	22,019.0	1,287,325.0			
1978-79*	434,455.0	35	777,173.0	65	1,211,628.0	24,236.0	1,235,864.0			
1979-80	438,414.0	34	843,800.0	66	1,282,214.0	2,620.0	1,284,834.0			
1980-81	487,833.0	33	975,177.0	67	1,463,010.0	588.0	1,463,598.0			
1981-82	562,650.0	37	940,660.0	63	1,503,310.0	989.0	1,504,299.0			

\*Revised

SAN DIEGO COUNTY WATER AUTHORITY

Table 16  
WATER PRODUCTION - METROPOLITAN WATER DISTRICT CONSTITUENT AREAS  
Figures Furnished by Metropolitan Water District

	Total Water Production			Source of Water Produced - 1981-1982				
	(1)	(2)	Percent Increase or Decrease	(3)	(4)	(4 + 2) Percent of Total	(5)	(5 + 2) Percent of Total
	1980-81 Amount Ac. Ft.(c)	1981-82 Amount Ac. Ft.(b)						
Academics .....	63,084	60,715	- 3.8	20,430	20,430	34	40,285	66
Beverly Hills .....	14,034	13,798	- 1.7	13,798	13,798	100	-	-
Burbank .....	23,703	22,126	* 6.7	21,952	21,952	99	174	1
Calipatria M.W.D. ....	109,358	102,080	- 3.1	77,112	77,112	76	24,968	24
Central Basin M.W.D. ....	225,870	220,799	- 2.2	71,838	71,838	33	148,961	67
Chino Basin M.W.D. ....	190,188	153,571	-19.3	17,752	17,752	12	135,819	88
Coastal M.W.D. ....	38,510	36,181	- 6.0	35,430	35,430	98	751	2
Compton .....	8,784	8,695	- 1.0	2,870	2,870	33	5,825	67
Eastern M.W.D. ....	140,858(6)	128,461(4)	- 8.8	39,482	39,482	31	88,979(4)	69
Foothill M.W.D. ....	15,785	14,763	- 6.5	8,778	8,778	59	5,985	41
Fullerton .....	32,545	30,929	- 5.0	14,883	14,883	48	16,046	52
Glendale .....	27,765	26,949	- 2.9	22,703	22,703	84	4,256	16
Las Virgenes M.W.D. ....	10,282	16,251	+19.0	16,251	16,251	100	-	-
Long Beach .....	71,373	70,815	- .8	42,156	42,156	60	28,659	40
Los Angeles .....	607,160	608,332	* .2	34,437	34,437	6	573,895	94
Orange County M.W.D. ....	370,658	335,214	- 9	189,214	189,214	55	151,000	45
Pasadena .....	36,936	34,980	- 5.3	17,381	17,381	50	17,599	50
San Diego C.W.A. ....	529,829	533,205	* .6	415,655	415,655	78	117,550	22
San Fernando .....	3,474	3,241	- 6.7	33	33	1	3,208	99
San Marino .....	4,925	4,878	- .10	56	56	1	4,822	99
Santa Ana .....	42,580	42,108	- 1.1	13,909	13,909	33	28,199	67
Santa Monica .....	16,829	16,651	- 1.1	10,832	10,832	65	5,819	35
Three Valleys M.W.D. ....	96,485	91,540	- 5.1	47,896	47,896	52	43,644	48
Torrance .....	24,464	22,041	- 9.9	15,849	15,849	72	6,192	28
Upper San Gabriel Valley M.W.D. ....	239,133	226,268	- 5.3	6,825	6,825	3	219,443	97
West Basin M.W.D. ....	176,547	176,455	- 1.0	130,337	130,337	74	46,118	26
Western M.W.D. ....	214,758	214,860	+ .05	50,554	50,554	24	164,306	76
Totals .....	3,331,217	3,216,216	- 3.5	1,333,613	1,333,613	41	1,882,603	59

NOTES: (a) Includes seepage into San Jacinto Tunnel.  
(b) Does not include water delivered for replenishment use.  
(c) Includes deliveries for in-line replenishment use.

San Diego County Water Authority  
ANNUAL FINANCIAL REPORT  
YEAR ENDED JUNE 30, 1982

FINANCIAL REPORT



Peat, Marwick, Mitchell & Co.

Certified Public Accountants

1400 Central Federal Tower  
225 Broadway  
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, 1982 and 1981, and the related statements of earnings, changes in equity and changes in financial position 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, 1982 and 1981 and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Our examinations were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplementary information included in Schedule 1 is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in the examinations of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

*Peat, Marwick, Mitchell & Co.*

August 6, 1982

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Balance Sheets

June 30, 1982 and 1981

<u>Assets</u>	<u>1982</u>	<u>1981</u>
<b>Current assets:</b>		
Cash and certificates of deposit	\$ 15,732,630	18,930,425
Accounts receivable, net	4,661,862	5,474,477
Current installments of long-term receivables	-	65,134
Inventory of water in storage	1,366,464	-
Prepaid expenses	48,253	17,903
<b>Total current assets</b>	<b>21,809,209</b>	<b>24,487,939</b>
<b>Restricted assets:</b>		
<b>Debt redemption:</b>		
<b>Waterworks bonds:</b>		
Cash and certificates of deposit	1,621,668	1,824,767
Taxes and interest receivable, less allowance for delinquent taxes of \$341,726 in 1982 and \$258,516 in 1981	34,817	53,217
<b>U.S. Government contract:</b>		
Cash and certificates of deposit	2,441	78,368
Due from Metropolitan Water District	2,516,186	2,713,534
Taxes and interest receivable, less allowance for delinquent taxes of \$16,736 in 1982 and \$13,234 in 1981	2,301	4,433
<b>Capital improvements:</b>		
Cash and certificates of deposit	7,563,827	8,690,152
Unamortized issue costs	231,946	-
Investment in annuity contract	149,184	113,490
<b>Total restricted assets</b>	<b>12,122,370</b>	<b>13,477,961</b>
Property, plant and equipment, net (note 2)	113,668,855	94,443,056
Participation rights (note 2)	167,971,894	158,438,497
	<u>\$ 315,572,328</u>	<u>290,847,453</u>

See accompanying notes to financial statements.

FINANCIAL REPORT

<u>Liabilities and Equity</u>	<u>1982</u>	<u>1981</u>
<b>Current liabilities, payable from current assets:</b>		
Accounts payable	\$ 8,889,033	8,617,707
Advances and deposits by agencies	182,283	158,871
Accrued expenses	225,536	166,286
<b>Total current liabilities, payable from current assets</b>	<b>9,296,852</b>	<b>8,942,864</b>
<b>Current liabilities, payable from restricted assets:</b>		
Contracts payable	2,747,703	1,805,746
Current installments of long-term debt (note 3)	2,489,575	2,404,030
Accrued interest payable	675,889	613,000
<b>Total current liabilities</b>	<b>15,210,019</b>	<b>13,765,640</b>
Deferred compensation payable	149,184	113,490
<b>Long-term debt, excluding current installments (note 3):</b>		
General obligation waterworks bonds	41,835,000	43,955,000
U.S. Government contract	4,342,510	4,702,631
Annexation charges - Metropolitan Water District	12,830,630	12,898,296
Note payable to bank	9,000,000	9,000,000
Contract notes payable	6,000,000	-
<b>Total long-term debt</b>	<b>74,008,140</b>	<b>70,555,927</b>
<b>Equity:</b>		
Equity in property, plant and equipment (note 2)	50,001,769	34,381,395
Contributed capital (note 2)	155,141,265	145,540,201
<b>Restricted balances:</b>		
Waterworks bonds, debt redemption	1,072,725	1,264,984
U.S. Government contract, debt redemption	2,520,928	2,796,335
Capital improvements	4,955,941	6,884,406
Appropriated, long-term projects	2,556,689	442,794
Unrestricted balance	9,955,668	15,102,281
<b>Total equity</b>	<b>226,204,985</b>	<b>206,412,396</b>
	<u>\$ 315,572,328</u>	<u>290,847,453</u>

FINANCIAL REPORT

SAN DIEGO COUNTY WATER AUTHORITY

Statements of Earnings

Years ended June 30, 1982 and 1981

	<u>1982</u>	<u>1981</u>
Water sales	\$ 43,190,662	37,814,073
Cost of water sold	<u>39,162,343</u>	<u>34,392,843</u>
Gross margin from water sales	<u>4,028,319</u>	<u>3,421,230</u>
Operating expenses:		
Water treatment	132,328	121,981
Systems operations	178,795	161,467
Maintenance of structures and plant	266,676	241,334
Automotive operation, maintenance and shop expense	112,405	117,637
Depreciation	1,165,812	1,160,898
Administrative and general salaries	322,596	299,764
General expense and supplies	<u>847,362</u>	<u>736,545</u>
Total operating expenses	<u>3,025,974</u>	<u>2,839,626</u>
Net income from operations	1,002,345	581,604
Nonoperating income (expense):		
Property taxes	7,231,207	7,248,156
Interest expense (note 2)	(2,051,970)	(2,653,994)
Interest income	4,130,445	3,595,398
Tijuana water delivery fees	131	33,436
Other	<u>(331,502)</u>	<u>(121,632)</u>
Net earnings	<u>\$ 9,980,656</u>	<u>8,682,968</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, 1982 and 1981

	Total equity	Unrestricted balance
Balance July 1, 1980	\$ 188,924,592	10,477,729
Additions (deductions):		
Net earnings	8,682,968	4,621,721
Taxes and direct payments by member agencies to Metropolitan Water District for participation rights	8,576,345	-
Capital expenditures for property, plant and equipment:		
From restricted assets	-	-
From operations	-	(268,995)
From contributions by member agencies	228,491	56,500
Waterworks bonds redeemed	-	-
Payments on U.S. Government contracts	-	-
Transfers, net	-	215,326
Balance, June 30, 1981	<u>206,412,396</u>	<u>15,102,281</u>
Additions (deductions):		
Net earnings	9,980,656	6,014,252
Taxes and direct payments by member agencies to Metropolitan Water District for participation rights	9,601,064	-
Capital expenditures for property, plant and equipment:		
From restricted assets	-	-
From operations	-	(9,946,970)
From contributions by member agencies	210,869	-
Waterworks bonds redeemed	-	-
Payments on U.S. Government contracts	-	-
Increase in long-term debt	-	-
Transfers, net	-	(1,213,895)
Balance, June 30, 1982	<u>\$ 226,204,985</u>	<u>9,955,668</u>

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	Waterworks bonds	Capital improvements		
658,120	2,972,621	455,583	9,083,807	136,963,856	28,312,876
-	332,744	2,734,401	2,155,000	-	(1,160,898)
-	-	-	-	8,576,345	-
-	-	-	(4,354,401)	-	4,354,401
-	-	-	-	-	268,995
-	-	-	-	-	171,991
-	-	(1,925,000)	-	-	1,925,000
-	(509,030)	-	-	-	509,030
<u>(215,326)</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
<u>442,794</u>	<u>2,796,335</u>	<u>1,264,984</u>	<u>6,884,406</u>	<u>145,540,201</u>	<u>34,381,395</u>
-	249,168	2,765,560	2,117,488	-	(1,165,812)
-	-	-	-	9,601,064	-
-	-	(187,819)	(10,045,953)	-	10,233,772
-	-	-	-	-	9,946,970
-	-	-	-	-	210,869
-	-	(2,025,000)	-	-	2,025,000
-	(369,575)	-	-	-	369,575
<u>2,113,895</u>	<u>(155,000)</u>	<u>(745,000)</u>	<u>6,000,000</u>	<u>-</u>	<u>(6,000,000)</u>
<u>2,556,689</u>	<u>2,520,928</u>	<u>1,072,725</u>	<u>4,955,941</u>	<u>155,141,265</u>	<u>50,001,769</u>

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Statements of Changes in Financial Position

Years ended June 30, 1982 and 1981

	1982	1981
Sources of working capital:		
Net earnings	\$ 9,980,656	8,682,968
Add back depreciation which does not use working capital	<u>1,165,812</u>	<u>1,160,898</u>
Working capital provided by operations	11,146,468	9,843,866
Contributions by member agencies for property, plant and equipment	210,869	228,491
Decrease in waterworks bonds equity	192,259	-
Decrease in U.S. Government contract equity	275,407	176,286
Proceeds from contract notes payable	6,000,000	-
Decrease in capital improvements, net restricted assets applied to new construction	1,928,465	2,199,401
Decrease in long-term receivables	-	63,409
Decrease in working capital	<u>3,032,718</u>	<u>-</u>
	\$ <u>22,786,186</u>	<u>12,511,453</u>
Uses of working capital:		
Repayments of long-term debt excluding annexation charges	2,394,575	2,434,030
Capital expenditures, net of taxes and direct payments by member agencies to Metropolitan Water District for participation rights of \$9,601,064 in 1982 and \$8,576,345 in 1981 and credits for annexation charges of \$67,667 in 1982 and \$208,524 in 1981	20,391,611	4,795,387
Increase in waterworks bonds equity	-	809,401
Increase in working capital	<u>-</u>	<u>4,472,635</u>
	\$ <u>22,786,186</u>	<u>12,511,453</u>
Changes in components of working capital:		
Increase (decrease) in current assets:		
Cash and certificates of deposit	(3,197,795)	6,443,340
Accounts receivable, net	(812,615)	1,931,008
Current installments of long-term receivables	(65,134)	14,387
Inventory of water in storage	1,366,464	(158,000)
Prepaid expenses	<u>30,350</u>	<u>(10,462)</u>
	<u>(2,678,730)</u>	<u>8,220,273</u>
Increase (decrease) in current liabilities, payable from current assets:		
Accounts payable	271,326	3,781,912
Advances and deposits by agencies	23,412	(48,441)
Accrued expenses	<u>59,250</u>	<u>14,167</u>
	<u>353,988</u>	<u>3,747,638</u>
Increase (decrease) in working capital	\$ <u>(3,032,718)</u>	<u>4,472,635</u>

See accompanying notes to financial statements.

FINANCIAL REPORT

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements

June 30, 1982 and 1981

(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 and Equipment:

Property, plant and equipment are recorded at cost. Depreciation of property, plant and equipment is computed on the straight-line method over the estimated lives of the respective assets.

Participation Rights:

Participation rights represent the cumulative amount of taxes levied and collected on properties within the Authority and direct payments by member agencies to the Metropolitan Water District (MWD). The taxes are remitted directly to MWD by the County of San Diego. The Authority records the amounts received by MWD as increases in participation rights and contributed capital. Participation rights represent the right to claim water from MWD. As of June 30, 1982, the Authority had the right to claim approximately 10% of all water available from MWD. Participation rights are not amortized.

Reclassification:

For comparability, certain of the prior year figures have been reclassified to conform with the current year financial statement presentation.

SAN DIEGO COUNTY WATER AUTHORITY

2

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

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

	<u>1982</u>	<u>1981</u>
Property, plant, equipment and participation rights:		
Property, plant and equipment	\$ 106,642,405	105,322,075
Construction work in progress	<u>25,090,843</u>	<u>6,058,598</u>
	131,733,248	111,380,673
Less accumulated depreciation	<u>18,064,393</u>	<u>16,937,617</u>
Net property, plant and equipment	113,668,855	94,443,056
Participation rights in Metropolitan Water District	<u>167,971,894</u>	<u>158,438,497</u>
Net property, plant, equipment and participation rights	281,640,749	252,881,553
Less total long-term debt including current installments	<u>76,497,715</u>	<u>72,959,957</u>
Equity in property, plant, equipment and participation rights	<u>\$ 205,143,034</u>	<u>179,921,596</u>
Represented by:		
Equity in property, plant and equipment	50,001,769	34,381,395
Contributed capital	<u>155,141,265</u>	<u>145,540,201</u>
	<u>\$ 205,143,034</u>	<u>179,921,596</u>
The property, plant and equipment was financed by:		
General obligation bonds	67,797,306	67,797,306
U.S. Government contract	14,873,408	14,873,408
Current revenues	22,486,606	21,193,110
Agencies contributions	<u>1,485,085</u>	<u>1,458,251</u>
	<u>\$ 106,642,405</u>	<u>105,322,075</u>

Interest capitalized on construction work in progress totaled \$744,000 in 1982 and \$110,000 in 1981. Total interest costs incurred by the Authority was \$2,795,970 in 1982 and \$2,763,994 in 1981.

(Continued)

FINANCIAL REPORT

3

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(3) Long-Term Debt

	<u>Interest rate</u>	<u>1982</u>	<u>1981</u>
General obligation bonds:			
Waterworks bonds, 1957, maturing February 1, 1983-1994	1X-6X	\$ 20,270,000	21,670,000
Waterworks bonds, 1966, maturing October 1, 1982-2004	4.5X-5.5X	<u>23,685,000</u>	<u>24,310,000</u>
Total bonds		<u>43,955,000</u>	<u>45,980,000</u>
U.S. Government contract due February, 1995:			
Authority's share; second pipeline	2.6X	2,195,899	2,368,127
Metropolitan Water District's share; second pipeline	2.6X	<u>2,516,186</u>	<u>2,713,534</u>
Total U.S. Government contract		<u>4,712,085</u>	<u>5,081,661</u>
Note payable to bank, maturing June 25, 1984-1988	7.1X	9,000,000	9,000,000
Contract notes payable, maturing May 1, 1988-1990	9.25X-10X	6,000,000	-
Annexation charges - Metropolitan Water District		<u>12,830,630</u>	<u>12,898,296</u>
Total long-term debt		76,497,715	72,959,957
Less current installments of long-term debt		<u>2,489,575</u>	<u>2,404,030</u>
Long-term debt, excluding current installments		<u>\$ 74,008,140</u>	<u>70,555,927</u>

The Metropolitan Water District's share of the U.S. Government contract, \$2,516,186 and \$2,713,534 at June 30, 1982 and 1981, respectively, is also recorded as due from Metropolitan Water District.

(Continued)

SAN DIEGO COUNTY WATER AUTHORITY

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SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(3) Long-Term Debt, Continued

The Authority's liability, \$12,830,630 and \$12,898,296 at June 30, 1982 and 1981, 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 of its liability to MWD and an increase in its equity in participation rights.

Maturities of long-term debt excluding annexation charges for the five years subsequent to June 30, 1982 are summarized as follows:

1983	\$ 2,489,575
1984	3,589,575
1985	4,699,575
1986	4,794,575
1987	4,884,575
Thereafter	<u>43,209,210</u>
	\$ <u>63,667,085</u>

During fiscal year 1982, the Authority issued contract notes of indebtedness in the sum of \$6,000,000 to finance repairs of Pipeline No. 3. The debt is to mature as follows:

<u>Maturity date</u>	<u>Principal due</u>
May 1, 1988	\$ 1,000,000
May 1, 1989	3,000,000
May 1, 1990	<u>2,000,000</u>
Total principal	\$ <u>6,000,000</u>

The Authority uses the services of paying agents to handle payment of long-term debt maturities and interest expense. The agents held \$210,636 and \$67,500 at June 30, 1982 and 1981, respectively for the payment of matured unredeemed principal and interest on bonded debt. The amounts held by the paying agent have not been included in the financial statements.

(Continued)

FINANCIAL REPORT

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SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(4) Pension Plan

The Authority is a member of the California Public Employees' Retirement System which provided retirement benefits for all of its permanent employees. The total pension expense was \$182,476 in 1982 and \$144,948 in 1981, which included amortization of prior service costs to 1982. The Authority's contribution rate was 14.04% of annual payroll in 1982 and 13.2% in 1981.

## SAN DIEGO COUNTY WATER AUTHORITY

Schedule 1

## SAN DIEGO COUNTY WATER AUTHORITY

## Bonded Debt Maturities

June 30, 1982

Year ended June 30	Waterworks Bonds		Total principal	Total interest	Total payments
	1957 principal	1966 principal			
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	743,000	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
	\$ 20,270,000	23,685,000	43,955,000	19,190,383	63,145,383