

SAN DIEGO
COUNTY WATER AUTHORITY



THIRTY-NINTH ANNUAL REPORT
1985



A view of the First Aqueduct under construction in 1946 and looking south through the City of Escondido.



The same view looking south through the City of Escondido in 1985.

SAN DIEGO COUNTY WATER AUTHORITY

Organized June 9, 1944

THIRTY-NINTH ANNUAL REPORT

of Authority Operations
for Fiscal Year Ending June 30, 1985

Lawrence R. Michaels
General Manager and Chief Engineer

SAN DIEGO, CALIFORNIA
1985

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SAN DIEGO COUNTY WATER AUTHORITY

Member Agencies, Date of Entry and
Representative on Board of Directors on June 30, 1985

CITIES

Del Mar	Nov. 23, 1962
James A. Ferrara	
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
Alan D. Archibald	
San Diego	June 9, 1944
Craig S. Andrews, Dr. Charles F. Cooper, Janet Erickson, Lawrence Hirsch, Francesca M. Krauel, Roy W. Lessard, Michael D. Madigan, Paul A. Peterson, John P. Starkey, Dr. Alice C. Tang	

WATER DISTRICTS

Helix	June 9, 1944
Nat L. Eggert, Harry Griffen	
Otay	Oct. 26, 1956
Mark W. Watton	
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
W. E. Klostermann	

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

Rainbow	April 10, 1954
Herbert H. Stickney	
Ramona	August 27, 1957
Fred H. Reese	
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
Gordon W. Tinker	

FEDERAL AGENCY

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

COUNTY WATER DISTRICT

San Marcos	Feb. 25, 1980
Dale Mason	

OFFICERS OF BOARD OF DIRECTORS

1984-85



Chairman
NAT L. EGGERT
Helix Water District
10-77 to 6-85



Vice Chairman
FRANCESCA M. KRAUEL
San Diego
8-78 to 6-85

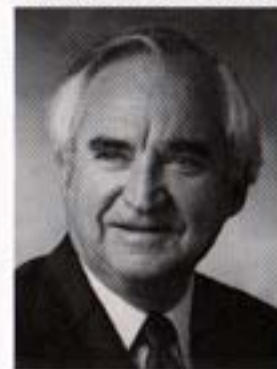


Secretary
DALE MASON
San Marcos County Water District
3-80 to 6-85

EXECUTIVE OFFICERS



LAWRENCE R. MICHAELS
General Manager and
Chief Engineer



PAUL D. ENGSTRAND
General Counsel



JANET RAVIART
Executive Secretary

BOARD OF DIRECTORS

1984-85

For Officers, see page 5



S.D. ANDERSON
*Rincon Del Diablo
Municipal Water District
8-78 to 6-85*



CRAIG S. ANDREWS
*San Diego
5-83 to 6-85*



ALAN D. ARCHIBALD
*City of Poway
10-82 to 6-85*



PAUL L. V. CAMPO
*Pendleton Military
Reservation
1-78 to 6-85*



DR. CHARLES F. COOPER
*San Diego
4-73 to 6-85*



JOHN M. CRANSTON
*Santa Fe
Irrigation District
10-64 to 6-85*



TOM CROWNOVER
*National City
6-76 to 6-85*



LAENA DASHIELL
*San Dieguito
Water District
1-78 to 6-85*



ROBERT M. DODD
*Escondido
1-70 to 6-85*

BOARD OF DIRECTORS

1984-85

(Continued)



HANS H. DOE
*Baeno Colorado
Municipal Water District
6-54 to 6-85*



MILTON R. EMERSON
*Otay
Water District
12-81 to 2-85*



JANET ERICKSON
*San Diego
2-74 to 6-85*



JAMES A. FERRARA
*City of Del Mar
9-83 to 6-85*



F. D. FITZSIMMONS
*Yuma Municipal
Water District
8-71 to 6-85*



JOHN H. FOX
*Rainbow Municipal
Water District
12-82 to 3-85*



HOWARD G. GOLEM
*Olivenhain Municipal
Water District
1-62 to 6-85*



HARRY GRIFFEN
*Helix
Water District
7-56 to 6-85*



JOHN F. HENNIGAR
*Valley Center
Municipal Water District
10-76 to 6-85*

BOARD OF DIRECTORS

1984-85

(Continued)



LAWRENCE HIRSCH
San Diego
5-73 to 6-85



W. E. KLOSTERMANN
Padre Dam Municipal
Water District
2-83 to 6-85



LLOYD L. LEE
South Bay
Irrigation District
4-61 to 6-85



ROY W. LESSARD
San Diego
5-73 to 6-85



MICHAEL D. MADIGAN
San Diego
5-79 to 6-85



FRED W. MAERKLE
Costa Real Municipal
Water District
11-78 to 6-85



PAUL A. PETERSON
San Diego
6-83 to 6-85



FRED H. REESE
Ramona Municipal
Water District
1-85 to 6-85



DAVID RORICK, JR.
Oceanside
8-73 to 6-85

BOARD OF DIRECTORS

1984-85

(Continued)



HAROLD J. SCHACHTER
Ramona Municipal
Water District
1-83 to 1-85



JOHN P. STARKEY
San Diego
10-75 to 6-85



HERBERT H. STICKNEY
Rainbow Municipal
Water District
3-85 to 6-85



DR. ALICE C. TANG
San Diego
10-79 to 6-85



GORDON W. TINKER
Fallbrook Public
Utility District
4-83 to 6-85



MARK W. WATTON
Otay Water District
2-85 to 6-85



GEORGE F. YACKEY
De Luz Heights
Municipal Water District
6-68 to 6-85

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



JOHN M. CRANSTON
12-74 to 6-85



HANS H. DOE
7-59 to 6-85



HARRY GRIFFEN
1-63 to 6-85



FRANCESCA M. KRAUEL
10-83 to 6-85



MICHAEL D. MADIGAN
7-82 to 6-85



JOHN P. STARKEY
1-81 to 6-85

ADMINISTRATIVE STAFF



ARTHUR R. BULLOCK
Assistant General Manager



ROBERT E. MELBOURNE
Assistant Chief Engineer



HENRY LOZANO
*Director of Finance
and Treasurer*



LARRY HOBSON
Project Construction Engineer



L. E. NICHOLS
Superintendent



PETE RIOS
*Director of
Public Information*

COMMITTEES OF THE BOARD

June 30, 1985

**SAN DIEGO COUNTY WATER AUTHORITY
ROSTER OF STANDING COMMITTEES**

ADMINISTRATIVE POLICY

Laena Dashiell, Chairman
Roy W. Lessard, Vice Chairman
Francesca M. Krauel, Liaison
Paul L. V. Campo
Robert M. Dodd
F. D. Fitzsimmons
Howard G. Golem
Fred W. Maerkle
David Rorick, Jr.
Herbert H. Stickney
Alice C. Tang

FISCAL POLICY

Howard G. Golem, Chairman
Janet Erickson, Vice Chairman
Dale Mason, Liaison
Craig S. Andrews
Laena Dashiell
James A. Ferrara
John F. Hennigar
W. E. Klostermann
Paul A. Peterson
Herbert H. Stickney
George F. Yackey

ENGINEERING AND OPERATIONS

Craig S. Andrews, Chairman
Hans H. Doe, Vice Chairman
Francesca M. Krauel, Liaison
Sherwood D. Anderson
John M. Cranston
Tom Crownover
F. D. Fitzsimmons
Lawrence Hirsch
Lloyd L. Lee
Fred H. Reese
Alice C. Tang
George F. Yackey

PUBLIC INFORMATION

Michael D. Madigan, Chairman
Fred W. Maerkle, Vice Chairman
Dale Mason, Liaison
Alan D. Archibald
Charles F. Cooper
Tom Crownover
Robert M. Dodd
James A. Ferrara
W. E. Klostermann
Lloyd L. Lee
John P. Starkey
Mark W. Watton

LONG RANGE PLANNING

Charles F. Cooper, Chairman
Gordon W. Tinker, Vice Chairman
Dale Mason, Liaison
Alan D. Archibald
Janet Erickson
Harry Griffen
Lawrence Hirsch
Roy W. Lessard
Paul A. Peterson
David Rorick, Jr.
Mark W. Watton

WATER POLICY COMMITTEE

John F. Hennigar, Chairman
Sherwood D. Anderson, Vice Chairman
Francesca M. Krauel, Liaison
Paul L. V. Campo
John M. Cranston
Hans H. Doe
Harry Griffen
Michael D. Madigan
Fred H. Reese
John P. Starkey
Gordon W. Tinker



San Diego County Water Authority

2750 Fourth Avenue, San Diego, California 92103-6295 (619) 297-3218

(A Public Agency Organized June 9, 1944)

Paul L. Egger, Chairman
Francesca M. Krauel, Vice Chairman
Dale Mason, Secretary
Lawrence R. Michaels, General Manager
and Chief Engineer
Paul D. Engeland, General Counsel

January 10, 1986

**Board of Directors
San Diego County Water Authority**

The Thirty-ninth Annual Report of the Water Authority, covering activities during the fiscal year ending June 30, 1985, has been prepared and is transmitted herewith.

Rainfall for 1984-1985 was nearly normal throughout the County. Water deliveries of 436,846 acre-feet were 18% over the previous year, primarily due to a 23% decrease in the local water supply. The water in storage on June 30, 1985, was 321,789 acre-feet, 82% of the June 30, 1984, amount.

Several capital improvements were completed this year that added additional flexibility and reliability to the Authority's water delivery system. Pipeline 3 rehabilitation continued with the installation of 10,700 feet of steel liners in the existing prestressed pipe. The Crossover Pipeline was modified to permit higher transfers of raw water from the Second Aqueduct to the First Aqueduct. Pipeline 4A was constructed which eliminated a restriction in the flow of raw water to the Miramar Filtration Plant. The two newly constructed hydroelectric plants were completed by the end of the fiscal year.

The Pamo Project progressed somewhat slower than expected because of federal regulatory problems. The voters approved the sale of the bonds in November 1984 and the application for Corps of Engineers "404" Permit was filed that same month. Preparation of a plan for the mitigation of the biological resources of Pamo Valley has delayed the issuance of the permit.

The Authority took a major new step in searching for new water supplies by signing an option agreement with Galloway Group, Inc., of Meeker, Colorado. The Authority would agree to purchase 300,000 acre-feet of water per year for a minimum 40-year period which would be delivered to the Authority at a price equal to 90% of the Metropolitan Water District's rate for water. Galloway Group must demonstrate the capability of delivering the water by January 15, 1987, for the option to be exercised in a final agreement.

Very truly yours,

Lawrence R. Michaels
General Manager and Chief Engineer

MEMBER AGENCIES

CITIES *Del Mar *Escondido *Imperial City *Oceanside *Poway *San Diego *San Diego City *San Diego County *San Diego State *San Marcos *Vista	IRRIGATION DISTRICTS *Santa Fe *South Bay	COUNTY WATER DISTRICT *San Marcos	MUNICIPAL WATER DISTRICTS *Buena Vista *Casta Vista *Del Mar Heights *Escondido *Folsom *Huntington *Imperial Valley *Lakeside *Marina del Rey *Mission Viejo *Newport Beach *Orange *Palmdale *Pico *Riverside *San Juan Capistrano *San Luis Obispo *Santa Ana *Santa Barbara *Santa Clara *Santa Cruz *Santa Fe *Santa Monica *San Bernardino *San Diego *San Gabriel *San Jacinto *San Jose *San Juan *San Luis Obispo *Santa Ana *Santa Barbara *Santa Clara *Santa Cruz *Santa Fe *Santa Monica *San Bernardino *San Diego *San Gabriel *San Jacinto *San Jose *San Juan *San Luis Obispo
WATER DISTRICTS *Imperial *San Diego		PUBLIC UTILITY DISTRICT *Allbrook	
		MILITARY RESERVATION *Camp Pendleton	

SAN DIEGO COUNTY WATER AUTHORITY REPORT OF ACTIVITIES

FISCAL YEAR 1984-85

San Diego depends on imported water for about 90 percent of its water needs in normal years. The San Diego County Water Authority, even under the most challenging circumstances, has been able to import enough water to meet the demand. Activities that would augment the imported water supply were among the most important during the year.

The failure of Governor Deukmejian's proposed "through delta" plan to augment the capacity of the State Water Project again emphasized the seriousness of the future water supply problem. That plan if approved would have been operational by 1998. The total new water yield to Metropolitan Water District from the Governor's plan would only have provided for the growth in water use between now and 1998. It would not have offset any of the loss of water to Arizona under the 1964 decree. Therefore, it was a very minimum approach; yet even that effort failed.

The marketing alternative, promoted by the Authority with the Galloway Group option, could provide substantial amounts of additional water. Furthermore, the water could be provided more quickly than expanding the State Water Project, even though expansion would be required ultimately. The Authority Board toured the Imperial Irrigation District facilities which also could be involved in a water market agreement with Metropolitan Water District. Additional contacts were made throughout the year with Northern California agencies and Central Valley landowners who were interested in the water marketing concept. A particularly important step was a survey taken by Assemblyman Larry Stirling of all owners of water rights in the State to see if water was available. The survey resulted in offers to sell 130,000 acre-feet per year.

Final design work on the Pamo project continued throughout the year. However, the obtaining of a Section "404" Permit from the Corps of Engineers remained a stubborn hurdle. A major biological mitigation plan to define how full mitigation could be accomplished was nearly completed at year's end.

A revised regional conservation plan involving all member agencies was in draft form as the year ended. A new start on water reclamation was underway as it became necessary for the Authority to include construction of the 11,000 acre-feet per year San Pasqual project as part of the Pamo Dam mitigation program.



Figure A. Authority Area Within San Diego County

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 two. Directors serve without pay from the Authority.

Officers of the Board of Directors are elected in July of even-numbered years. In July 1984, Nat L. Eggert was elected Chairman; Francesca M. Krauel, Vice Chairman; and Dale Mason, 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 six standing committees:

- | | |
|----------------------------|---------------------|
| Administrative Policy | Long Range Planning |
| Engineering and Operations | Public Information |
| Fiscal Policy | Water Policy |

Temporary Committees that existed sometime during this year were:

- | | |
|-----------------------------------|---------------------------------------|
| Pamo Dam Steering | Legislative Advocacy (dissolved) |
| Hoover Power Allocation | Independent Legal Counsel (dissolved) |
| National Water Research Center | Headquarters Office Siting |
| Selection of Pamo Dam Underwriter | |



The Board of Directors in Action - 1985.

During fiscal year 1984-85, the following Directors were presented with service emblems:

<u>Director</u>	<u>Length of Service</u>
Hans H. Doe	30 years
Janet Erickson	10 years
Sherwood D. Anderson	6 years
Paul L. V. Campo	6 years
Laena Dashiell	6 years
Francesca M. Krauel	6 years

During the year the following Directors were seated or reelected:

<u>Date</u>	<u>Director</u>	<u>Agency</u>	<u>Term Expires</u>
July 12	Sherwood D. Anderson	Rincon del Diablo M.W.D.	June 21, 1990
	Hans H. Doe	Bueno Colorado M.W.D.	June 15, 1990
August 9	Howard G. Golem	Olivenhain M.W.D.	Aug. 4, 1990
Jan. 10	John M. Cranston	Santa Fe I.D.	Dec. 13, 1990
	Fred H. Reese (replaces Harold J. Schachter)	Ramona M.W.D.	Oct. 2, 1987
Feb. 14	Laena Dashiell Mark W. Watton (replaces Milton R. Emerson)	San Dieguito W.D. Otay W.D.	Dec. 21, 1990 Sept. 10, 1989
March 14	Herbert H. Stickney (replaces John H. Fox)	Rainbow M.W.D.	Feb. 14, 1991
April 11	Michael D. Madigan	City of San Diego	Jan. 30, 1991
June 13	Charles F. Cooper	City of San Diego	March 5, 1991
	John P. Starkey	City of San Diego	March 5, 1991



SIGNIFICANT BOARD ACTIONS

July 12, 1984

- Motion: Elected the following new officers for a two-year term:
Nat. L. Eggert, Chairman
Francesca M. Krauel, Vice Chairman
Dale Mason, Secretary
- Motion: Adopted a salary and fringe benefit package for 1984-85 authorizing salary increase of 5.2%, of which 3.5% would be Authority payment of employee Public Employee Retirement System contribution; an increase in life insurance benefit for up to \$50,000 for each employee and \$5,000 for spouses and dependents; and a new Blue Shield health insurance plan.
- Resolution: Appropriated \$224,500 from the Capital Outlay Fund to shift treated water to Pipeline 3 from Pipeline 4 south of the Diversion Structure.
- Motion: Rehired the accounting firm of Peat, Marwick, Mitchell as the Authority's 1984-85 auditors.
- Motion: Employed the law firm of Orrick, Herrington and Sutcliffe as bond counsel on the \$7 million Section 8 financing.
- Resolution: Reduced the 1984-85 budget appropriation from \$101,490,962 to \$92,690,962 to allow for agricultural and interruptible water credits.
- Motion: Gave final approval to the 1984-85 budget.
- Resolution: Honored Evan L. Griffith upon his retirement as the General Manager of the Metropolitan Water District.

August 9, 1984

- Resolution: Honored Roy W. Lessard for outstanding service as Chairman of the Board (1982-84).
- Resolution: Established vote of the member agencies based on assessed valuation for the fiscal year 1984-1985.
- Resolution: Provided for temporary borrowing to transfer funds by wire to the Metropolitan Water District.
- Resolution: Fixed the 1984-85 tax rate.
- Motion: Resolved to take no action to hinder the ongoing negotiations between the Metropolitan Water District and the Imperial Irrigation District and that no amicus brief be filed by the Authority in support of either the Department of Water Resources or the Imperial Irrigation District in the matter of the Department of Water Resources Decision 1600.

- Motion: Engaged the law firm of Orrick, Herrington and Sutcliffe as Authority bond counsel on the Pamo Project at a rate of 1/10 of 1% of the amount of bonds sold but not to exceed \$82,000.
- Resolution: Called for special revenue bond election and requested the San Diego County Board of Supervisors to consolidate the special election with the November general election.

August 29, 1984

- Motion: Authorized the Chairman of the Pamo Dam Steering Committee, together with the General Manager and the General Counsel, to prepare a rebuttal to the ballot argument against the Pamo Project.
- Resolution: Authorized the execution of an option agreement between the Galloway Group, Ltd., and the Authority for the delivery of water.

September 13, 1984

- Resolution: Authorized the execution of a contract with Hood Corporation for Pipeline Three Rehabilitation, approved Revision 6 to Work Order 1-17, and appropriated \$1,365,000 from the General Fund.
- Resolution: Opposed Proposition 36 (Jarvis IV Initiative).
- Resolution: Authorized the execution of an agreement to deliver treated water from the City of Poway to the Authority.
- Resolution: Authorized the execution of a contract with Hunter Corporation to modify the crossover and the terminal metering facilities.
- Resolution: Authorized execution of securities purchase agreement for the 1984 Contract of Indebtedness.
- Resolution: Urged member agencies to support Proposition B, the Pamo Project Bond issue.

September 20, 1984 (Adjourned Meeting)

- Discussion: Reviewed Galloway proposal and option agreement.
- Motion: Requested the Metropolitan Water District and the Colorado River Board make an *objective* study of the Galloway proposals; that the General Manager and General Counsel proceed with the redrafting of the Galloway Agreement, and seek up to ninety days of additional time to exercise the agreement with the Galloway Group.
- Motion: Ask the Metropolitan Water District staff to propose a thorough and objective report dealing with preferential rights and their effect on the San Diego County Water Authority.

October 11, 1984

- Motion: Directed staff to investigate a joint-use facility with the City of San Diego at Lake Miramar for a new San Diego headquarters.
- Motion: Accepted the Galloway Group's offer to extend the Authority's option on the agreement to deliver Yampa River water to the Authority for an additional ninety days to January 15, 1985.

November 8, 1984

- Resolution: Consented to reappointment of Directors Griffen, Krauel and Starkey to the Metropolitan Water District Board of Directors.
- Resolution: Authorized a supplemental medical self-insurance and an Administrative Agreement with Financial Administrators, Inc.
- Motion: Approved a change in the Authority's operational structure to create the new position of Director of Operations who would report to the Assistant Chief Engineer.
- Resolution: Approved Preliminary Official Statement for \$7 million Section 8 Contract of Indebtedness.
- Resolution: Directed the staff to continue to refine the terms of the proposed Galloway agreement and process the Environmental Assessment on the project. The Authority will continue to rely on the Galloway Group to secure the necessary consents and rights pursuant to the "Law of the River," and no further steps will be taken in connection with the Galloway proposal until positive evidence of their ability to implement their plans is furnished.

December 4 and 5, 1984

- Field Trip: A tour of the Mexican aqueduct system from Mexicali to Tijuana, and a review and inspection of the facilities of the Imperial Irrigation District.

December 20, 1984

- Motion: Approved a negative environmental impact declaration for Colorado River Basin Purchase and Transportation Agreements.
- Resolution: Confirmed canvass of votes cast in the Special Revenue Bond Election for the Pamo Project consolidated with the General Election held on November 6, 1984. (354,322 "yes" votes; 290,789 "no.")

January 10, 1985

- Resolution: Amended Article 16 of the Administrative Code to lower mileage reimbursement for Directors and staff from 25¢ to 20-1/2¢ per mile.
- Motion: Engaged an archaeological consultant to prepare a research design and to assist in obtaining a memorandum of understanding with the Native Americans regarding Pamo Dam.
- Motion: Instructed the General Manager to accept the offer of the Galloway Group to extend the option agreement two years to January 15, 1987.

February 14, 1985

- Motion: Approved an executive leave benefit of one to 5 days per year to be granted at the discretion of the General Manager.
- Resolution: Authorized \$7 million Contract of Indebtedness and other agreements, contracts, statements, and bond insurance connected therewith.
- Resolution: Set forth the policy on the investment of Authority public funds and the approved government securities pledged as collateral for deposit of these funds.
- Motion: Requested that Authority delegates to the Metropolitan Water District support General Manager Boronkay's recommendation for a minimum enlargement of the East Branch facility and that they request that Metropolitan continue the aggressive pursuit of any and all possible Colorado River water enhancements.
- Motion: Retained the firm of McDonough, Holland & Allen as special legal counsel under the terms of their February 14, 1985, letter and that they be advised to do no work until so instructed by the Board.

March 14, 1985

- Resolution: Amended the Administrative Code to reflect the raising of the treated water rate from \$38 to \$39 per acre foot effective July 1, 1985.
- Motion: Approved lower floater bonds to finance the Pamo Project and instructed the General Manager to solicit proposals from potential underwriters and select three or four firms for consideration by the Committee and Board.
- Motion: Hired Mr. Ben Clay as Legislative Advocate for the Authority under the direction of the General Manager.

Motion: Instructed Special Counsel Martin McDonough to study and render an opinion on three questions relating to the purchase of water from the Imperial Irrigation District, and on the allocation of water by the Metropolitan Water District in the event of a shortage.

April 11, 1985

Motion: Instructed staff and General Counsel to draft and seek legislative approval of necessary amendments to the County Water Authority Act to allow the authority to use variable rate financing for voter-approved projects such as Pamo Dam.

Motion: Hired Lois A. Brozey, CPA, as the Authority auditor for the 1985-86 fiscal year.

Resolution: Amended Section 11.5 of the Administrative Code which eliminates the three-year limit on allowable credits carried forward by member agencies.

Motion: Authorized Chairman to write to the California Senators and San Diego County Congressmen requesting (1) their support of HR 1246, the Colorado River Floodway Protection Act, and (2) additional funds for the Colorado River Basin Salinity Control Program.

Resolution: Asked Congress to continue funding the Soil Conservation Snow Survey.

April 14-16, 1985

Field Trip: A three-day tour that included the facilities of the State Water Project and a stop at the Kesterson Wildlife Refuge. Meetings were held with San Diego area legislators, state and federal water officials, and officials of the Westlands Water District.

April 25, 1985

Field Trip: Annual tour of some of the Authority's facilities that is sponsored by the Engineering and Operations Committee, featured the nearly completed Miramar and Alvarado hydroelectric plants.

May 16, 1985

Motion: Authorized staff to update the 1974 Filtered Water Distribution Study.

Motion: Approved the General Manager's expenditures to date and authorized a total expenditure of \$89,900 for biological mitigation design for Pamo Dam.

June 13, 1985

Motion: Approved a 4% cost of living increase, an eye care insurance program, and reimbursement for employee physical examinations.

Resolution: Established the 1985-86 budget and appropriated \$96,958,521 for expenditures thereunder.

Motion: Hired the First Boston Corporation as the Authority underwriter for the Pamo Project financing program.

Resolution: Approved Revision to Work Order 11-39 appropriating \$905,000 from the capital Outlay Fund, and authorized General Manager to proceed with the project.

Administration

Executive Officers

Lawrence R. Michaels	General Manager and Chief Engineer
Paul D. Engstrand	General Counsel
Janet M. Raviart	Executive Secretary

Administrative Staff

Arthur R. Bullock	Assistant General Manager
Robert E. Melbourne	Assistant Chief Engineer
Henry G. Lozano	Director of Finance
Larry G. Hobson	Project Construction Engineer
Irwin E. Nichols	Superintendent
Pete Rios	Government/Community Affairs Officer

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.

Employee Relations

On June 30, 1985 the Authority had 50 employees. Eighteen were employed in the San Diego office and thirty-two worked out of the Fred A. Heilbron Operations Center in Escondido. The longevity of the employees is as follows:

Years of Service	Number of Employees
over 25	5
over 20	0
over 15	13
over 10	8
over 5	6
under 5	18

In July the Board of Directors honored James R. Johnson upon his retirement after thirty years of Authority service.

The Authority is a member of the Public Employees Retirement System of the State of California. Contributions to the system are made by the employee and the Authority, and the plan is coordinated with Social Security. The Authority pays for the employee's P.E.R.S contribution except for the older employees. The basic formula provides for retirement at age 60 based upon 2% of the highest annual salary for each year of service. Social Security benefits will be received as well.

Other benefits the employees receive are a Blue Shield administered health plan, a California Dental Service dental plan, eye-care insurance program, and a long-term disability plan with up to \$50,000 in life insurance.

The Administrative Code provides for vacation leaves of twelve working days for the first five years of service and increases to 20 days of vacation after 20 years of service. The Authority recognizes eleven paid holidays each year. Sick leave is granted on the basis of twelve days per year of service and can be accumulated. The Code provides for partial payment of unused sick leave upon retirement.

The employees, through their Employees' Association, express their position as to salaries, fringe benefits and working conditions. The Association organizes a summer picnic, a Christmas party and other occasional functions for the employees.

WATER AUTHORITY COMPOSITION

General

The San Diego County Water Authority consists of six cities, three water districts, two irrigation districts, ten municipal water districts, one public utility district, one federal agency, and one county water district. It was organized on June 9, 1944, under the "County Water Authority Act" of 1943. The act was requested by San Diego City and County officials, prepared by the distinguished water attorney, Phil D. Swing, and introduced by Senator Ed Fletcher. The measure was approved by the Governor on May 17, 1943.

The original incorporators of the Water Authority were the City of Chula Vista, City of Coronado, City of National City, City of Oceanside, City of San Diego, Fallbrook Public Utility District, Lakeside Irrigation District, La Mesa, Lemon Grove and Spring Valley Irrigation District, and Ramona Irrigation District.

Such an organization was needed for the prime purpose of importing Colorado River water to San Diego in order to augment local water supplies which were rapidly becoming inadequate.

Area

The Authority encompasses 902,702 acres (1,410.5 square miles), a net increase of 478 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 210,442 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 31, 1984.

The statement for calendar year 1984 contained one annexation which changed the Authority and MWD boundary, in addition to annexations and detachments that affected the area of the Authority's member 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, 1985, was estimated to be 2,083,359 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 1985 was 4.02 percent. The population within the Authority service area was estimated to be 2,047,000 persons on June 30, 1985, an increase of 40,761 or 2.0

percent from the June 30, 1984, estimate of 2,006,239. Population statistics are contained in Table 2 and Table 3.

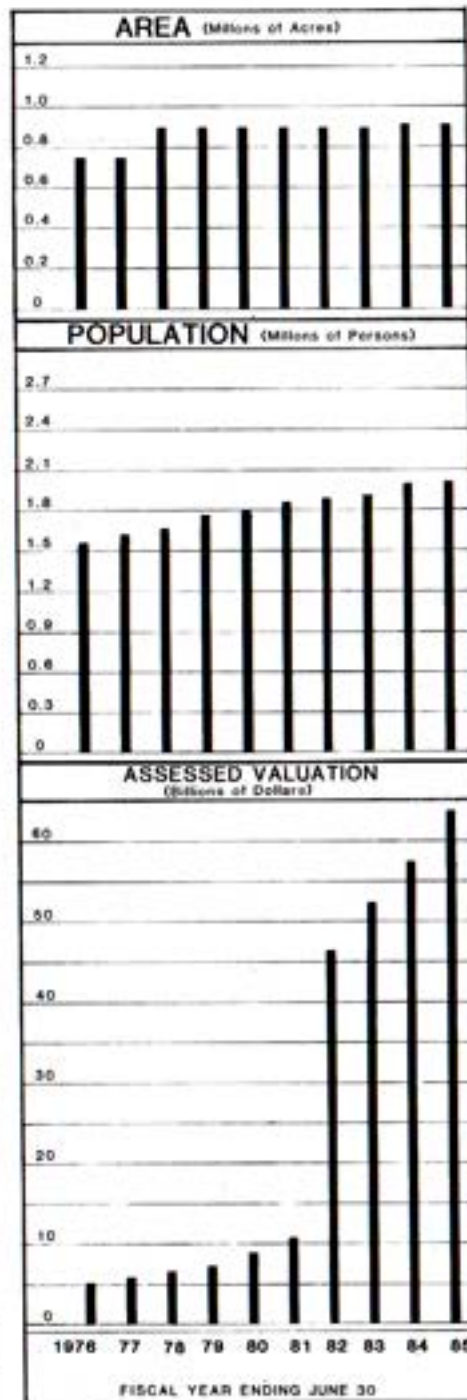
The City of San Diego, largest member agency of the Authority in area, leads the member agencies in population with 978,900 persons, approximately 48 percent of the Authority total. De Luz Heights Municipal Water District has the smallest population with 260 persons and the lowest density with 0.02 persons per acre. The highest average population density within an identifiable political entity is 9.13 persons per acre in the City of Lemon Grove.

The average population density of the Authority increased during the fiscal year from 2.22 to 2.27 persons per acre or 1,451 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 1984-85, according to the County Auditor's certification, was \$63,831,825,500, an increase of \$6,307,763,913 or 11.0 percent from the 1983-84 certified valuation of \$57,524,061,587.



The average assessed valuation of property within the Authority service area increased from \$63,758 per acre in 1983-84 to \$70,712 per acre in 1984-85. 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 San Diego County is contained in Table 5.

WATER SUPPLY AND CONSUMPTION

Source

The Metropolitan Water District of Southern California (MWD) is the sole source of supplemental water to the Authority and provides an average of 90% of its water. The member agencies of the Water Authority used approximately 27.6 percent of MWD's supply in 1984-85. The Authority has a preferential right to 11.23 percent of MWD's total supply, but MWD has never invoked preferential rights as a basis for curtailment of water deliveries.

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 where it is blended with Colorado River water which then flows into Lake Skinner. A portion of the water from Lake Skinner flows directly into Pipelines 3 and 5 while another portion is processed through the Skinner Filtration Plant before entering Pipeline 4. By the end of June 1985, the blend in Lake Skinner was 55 percent Colorado River water and 45 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, had a treatment capacity of 240 million gallons per day (mgd) and has been expanded to 340 mgd in 1985.

Authority Facilities

The Authority takes delivery of water from MWD in the five pipelines of the San Diego Aqueducts approximately six miles south of the Riverside-San Diego County line.

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

The three pipelines of the Second Aqueduct (Pipelines 3, 4, and 5), 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. One untreated water pipeline ends at the City of San Diego's Alvarado Treatment Plant near Lake Murray. The terminus of Pipeline 5, the other untreated pipeline, is the crossover diversion structure at San Marcos. The Tri-Agencies Pipeline, a branch line that extends about 4.4 miles westerly from San Marcos, delivers treated water to service areas of Buena Colorado Municipal Water District, the Costa Real Municipal Water District, and the City of Oceanside at an elevation that previously would require pumping.

To maximize the flexibility of the system, several crossover connections have been constructed in the last 20 years. One such facility is the pipeline from the Second Aqueduct at the diversion structure in Twin Oaks Valley to the First Aqueduct in 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 raw water in Pipeline 3 is chlorinated at the Rainbow Chlorination Station.

The design capacities of the Authority pipelines at the point of delivery from the Metropolitan Water District are:

Pipeline 1 and 2 combined	196 cubic feet/second
Pipeline 3	250 cubic feet/second
Pipeline 4	380 cubic feet/second
Pipeline 5	450 cubic feet/second

One cubic foot equals 7.48 gallons. One cubic foot per second flowing twenty-four 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 \$4.00 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.

On July 1, 1985, two hydroelectric plants were nearly ready for continuous operation. The Miramar Plant has two turbine/generator units with a name plate generating capacity of 400 kilowatts per unit. The Alvarado Plant has two units with generator ratings of 1,050 kilowatts per unit.

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

Deliveries and Rates

The San Diego County Water Authority aqueducts received 436,846 af from MWD during the fiscal year. Untreated water accounted for 291,289 af, and the balance of 145,557 af of water was treated at the Skinner Treatment Plant in Riverside County. This total flow of 436,846 af was 66,615 af more than the previous fiscal year which represents an 18.0 percent increase. The lowest flow rate averaged 192 cubic feet per second (cfs) in December 1984. The highest average delivery of 810 cfs occurred

during July 1984. The average for the entire year was 603.4 cfs. Water deliveries to member agencies and others during the fiscal year are shown in Table 8. Purchases by member agencies totaled 436,201 af, of which 159,161 af was treated water from the Skinner plant and treatment plants owned by member agencies. Annual water sales to individual agencies for the eight-year period 1977-78 through 1984-85, and total water sales from 1947-85, are shown on Table 7.

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 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 was 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 is funded by a surcharge rate of \$5 per acre foot which is included in the total surcharge of \$10 per acre foot. The tax revenues from assessed valuations of property within the Authority for fiscal year 1984-85, as determined by the County Assessor, was set at seven-tenths of a cent 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 when water was \$58 an acre foot, water rates have been increased yearly to \$197 an acre foot in fiscal year 1983-84. For the year 1984-85, the rate remained the same at \$197 an acre foot due to the leveling off of inflation and the cost of energy for pumping.

The MWD rate for untreated water for municipal and industrial use was \$197 for fiscal 1983-84 to which was added the Authority's surcharge of \$10 per acre foot. Treatment charges by MWD at the Skinner Treatment Plant were \$32 per acre foot 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, 1984, was \$38 per acre foot which remained in effect the entire fiscal year.

The following is a partial summary of past and future MWD rates to the Authority and the 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
7/01/83	12/31/84	144.00	10.00	154.00	44.00	110.00	110.00
1/01/84	7/01/84	197.00	10.00	207.00	44.00	163.00	163.00
7/01/84	7/01/85	197.00	10.00	207.00	44.00	163.00	163.00
7/01/85	7/01/86	192.00	10.00	202.00	44.00	158.00	158.00

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; \$26.00 for period 7/1/82 to 7/1/83; and \$28.00 for the period 7/1/83 to 7/1/84; and \$32.00 for the period 7/1/84 to 7/1/86 must be added to the above rates for treated water deliveries to the Authority from MWD.

As shown in the summary above, MWD now gives encouragement to better local control and management of water supplies through an interruptible water rate. 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. The total storage that qualified for the municipal and industrial interruptible rate was 100,000 acre feet.



Laying 40-foot lengths of Pipeline 4A. This is 72-inch diameter mortar lined and coated steel pipe with each joint completely welded in the field.



Crossing below the City of San Diego's 66-inch water line that supplies the northern half of the city. The solid rock beneath the city pipeline had to be broken hydraulically.

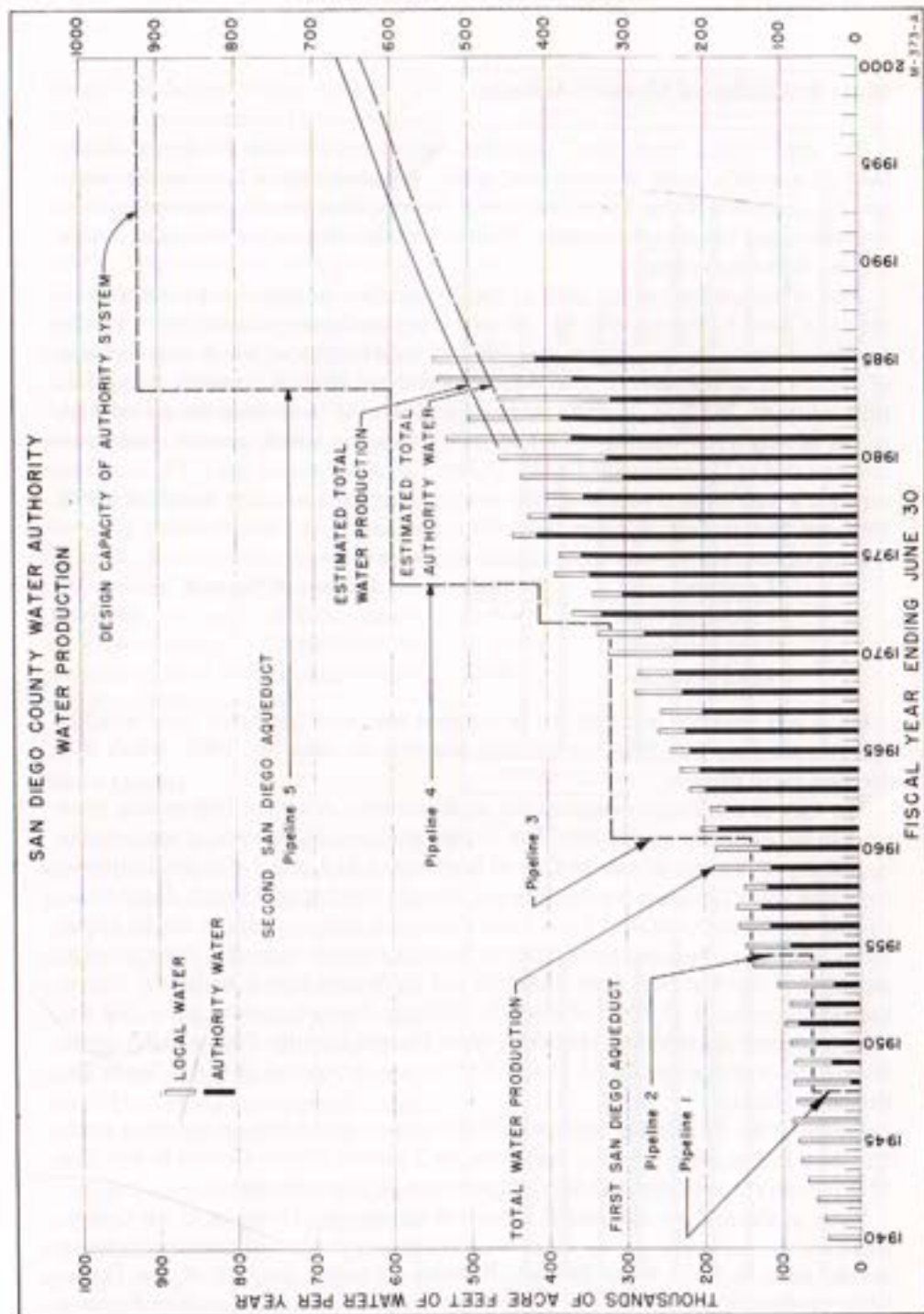


Figure B. Water Production of Authority Member Agencies

Water Production of Member Agencies

The term "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 1983-84, the total water production was 540,261.7 af. The water production for the current year 1984-85 is 545,213.8 af which is an increase of 4,952.1 af or 0.9 percent. The highest monthly production occurred during July 1984 when 65,263.7 af of water were used. This was more than the record high month of July 1981 when 64,873.4 af were used. The lowest monthly production occurred during December 1984 when 23,395.3 af of water were used. The Authority supplied a high of 88.5 percent of the water production during the month of March 1985 and 75.6 percent of the production for the fiscal year 1984-85.

Rainfall for 1984-85 was about normal as shown below:

Location	Rainfall	Percent of Normal
Lindbergh Field	9.65 in.	99%
Lake Cuyamaca	37.91 in.	100%
Lake Henshaw	27.96 in.	100%

Local and imported water stored in regional reservoirs decreased from 378,723 acre-feet on June 30, 1984, to 307,561 acre-feet on June 30, 1985, which is a decrease of 19 percent.

The City of San Diego maintains the most extensive system of impounding reservoirs in the Authority service area. This system produced 71,467.9 af of water during the fiscal year, and out of this the City of San Diego sold 4,492.3 af to the California-American Water Company for delivery to Coronado and Imperial Beach. Helix Water District produced 5,064.8 af from Lake Cuyamaca and its wells in the El Monte Basin. The Vista Irrigation District (part of Bueno Colorado Municipal Water District) produced 11,160.5 af from Lake Henshaw and the Warner Ranch wells. The City of Escondido produced 10,329.9 af from the Henshaw-Wolford system, and 1,504.6 af were produced within Yuima Municipal Water District from the Pauma Valley wells. Sweetwater Authority produced 21,458.4 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 99.2 percent (Valley Center) to less than 17.8 percent (Sweetwater Authority) 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 De Luz

Heights Municipal Water District is similar to more urbanized areas but per capita use is considerably higher.

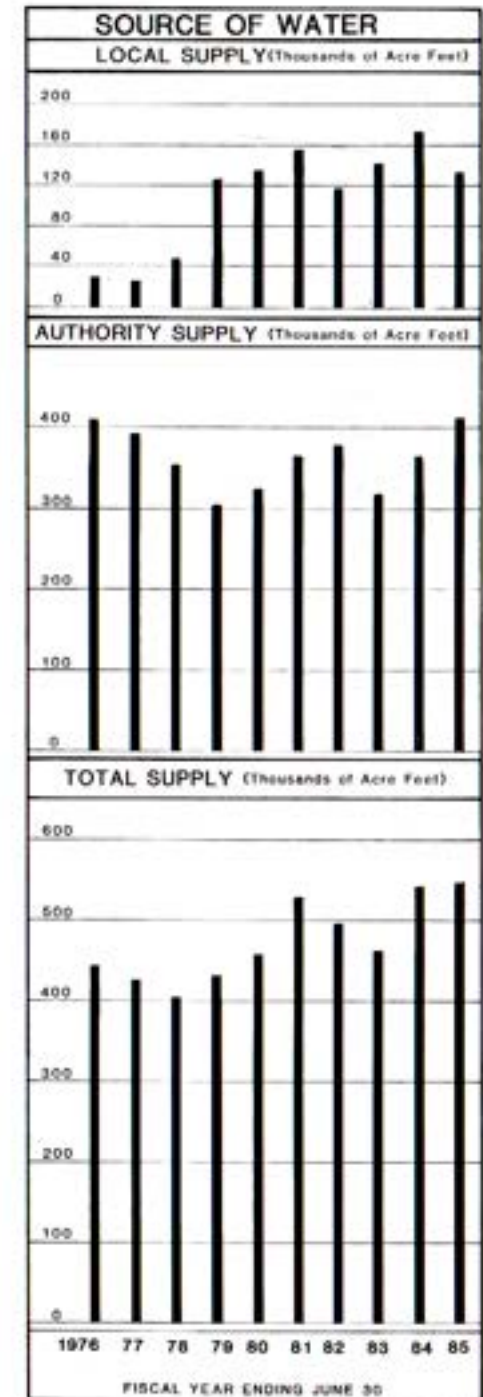
Average daily per capita consumption of municipal and industrial water for fiscal year 1984-85 was 189 gallons per day. This is up from 185 gallons per day during the previous year and 169 gallons per capita per day two years ago and reflects the very dry spring weather in 1985. It is estimated that the Authority serves approximately 47% 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. Present transmission facilities are adequate to meet water production demands until the year 2000.

Water Quality

The general quality of water entering the Authority system continues to improve. However, some variation in raw water turbidity still occurs due to seasonally high algae levels. This is serious only for users of Colorado River water which is not filtered prior to distribution. Turbidity at Miramar Treatment Plant ranged from 1.0 Turbidity Units (TU) in December 1984 to a high of 7.6 units reported in September 1984.

Algae growth in Authority pipelines is controlled through a program of chlorination. The rate of chlorine applied during the year was 0.75 parts per million (ppm) to flows in Pipelines



1, 2, and 3 at Rainbow Chlorination Station. This program has effectively controlled the residual algae from the Colorado River Aqueduct and provides continuous chlorination of untreated water in Pipeline 3 from Lake Skinner. Pipeline 5 is chlorinated periodically at Lake Skinner to control the algae inside the pipe. Treated water is delivered to the Authority from the Robert A. Skinner Treatment Plant where it is chlorinated and filtered.

Chemical constituents of the dissolved solids in the Colorado River water are shown in Table 10. 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 316 milligrams per liter (mg/l) to a low of 290 mg/l. Water temperature varied from a high of 77.9°F (25.5°C) in July and August 1984 to a low of 53.6°F (12.0°C) reported in January and February 1985.

The chemical constituents of the dissolved solids of treated, blended water at Lake Skinner are shown in Table 11. Total hardness ranged from a high of 290 mg/l to a low of 184 mg/l. Water temperature ranged from a high of 78.8°F (26.0°C) recorded in July and August 1984 to a low of 51.8°F (11.0°C) in January and February, 1985.

Agricultural Water Use

Agricultural water use by member agencies of the Authority during 1984-85 was 111,883 af which is 11,984 af less than the previous year's use of 123,867 af. The percentage of agricultural water to the total water production was 20.5 percent, a decrease from 22.9 percent in 1983-84. About 91 percent of the water used for agricultural purposes is supplied by the Authority while only 76% of the total amount of water produced is from the Authority. This occurs because agencies with a high percentage of agricultural water have little or no local water production. For example, Rainbow Municipal Water District uses approximately 87 percent of its water for agricultural purposes but it has no local production. While on the other hand, the City of San Diego uses less than 1 percent of its water for agricultural purposes but its local production is 32.4 percent of its total water needs. 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 put into operation in May 1979. This expansion, together with the 100 mgd Skinner No. 2 Plant now completed, will provided treated water to 13 agencies within the Water Authority requiring treated water.

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

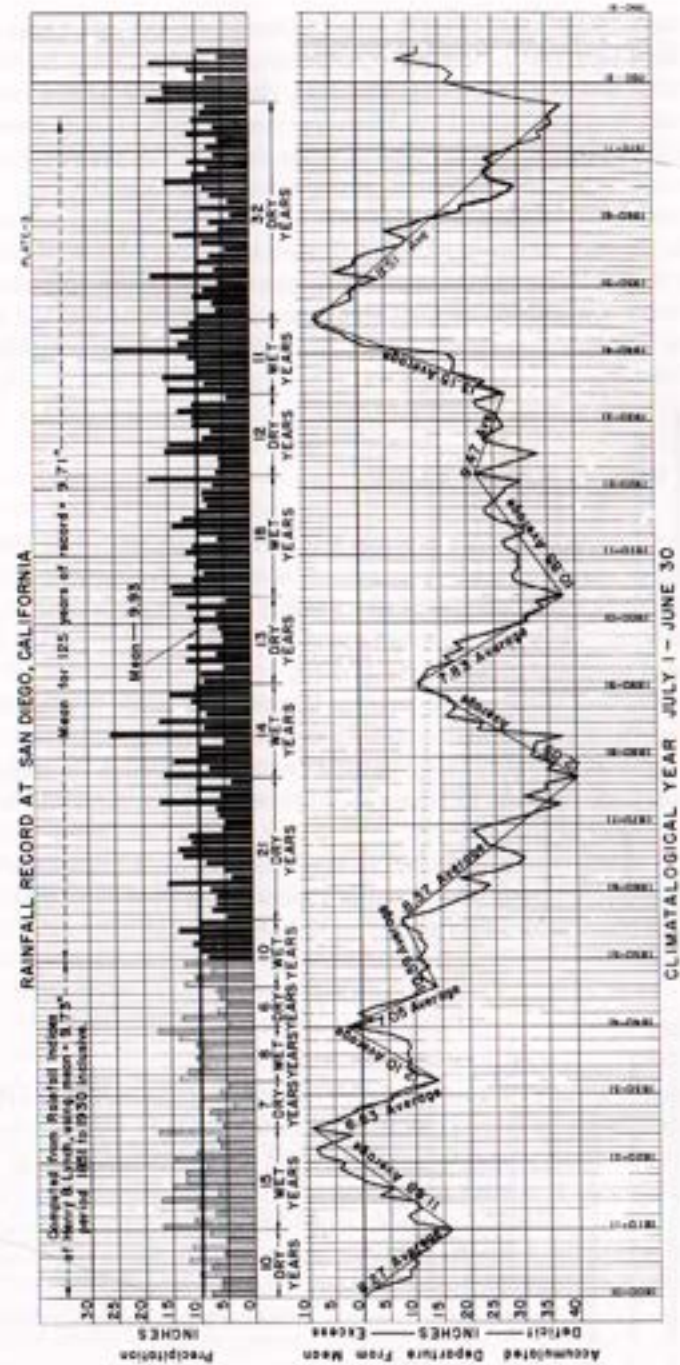


Figure C. Rainfall Record at San Diego, California

(joint ownership), Helix Water District, City of Oceanside, City of Poway, Ramona Municipal Water District, and Sweetwater Authority (operating agency for South Bay Irrigation District and National City). The Authority purchases treated water from Helix and Poway to supply Padre Dam Municipal Water District and Ramona Municipal Water District. 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 application in its pipelines, and the agencies are responsible for the second chlorination after delivery. Completion of the Skinner No. 2 Treatment Plant and the Auld Valley pipeline connection to the First Aqueduct will provide treated, blended water in these pipelines.

Allocation of Water to Member Agencies

The County Water Authority Act (Section 5.11) provides a preferential entitlement for the purchase of water by each of the Authority member agencies. This preferential right is established by the proportion of all payments by each agency to the Authority to meet capital costs, including the annexation fees, taxes and that portion of water purchases related to capital expenditures.

Voluntary agreement between the member agencies has made it unnecessary to invoke these provisions when shortages have developed. When water and capacity are available, agencies are permitted to purchase without restriction. In addition, the California Water Code (Section 350 through 358) contains procedures which may be followed should water shortages occur.

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

Future Supplies

It is the responsibility and the policy of the Authority to provide all the supplemental water required by its member agencies to meet the needs of their consumers. It is recognized that this policy must be tempered by an obligation to encourage prudent conservation practices. It is also recognized that there are certain acts of nature against which there is no defense available within reasonable economic bounds.

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.

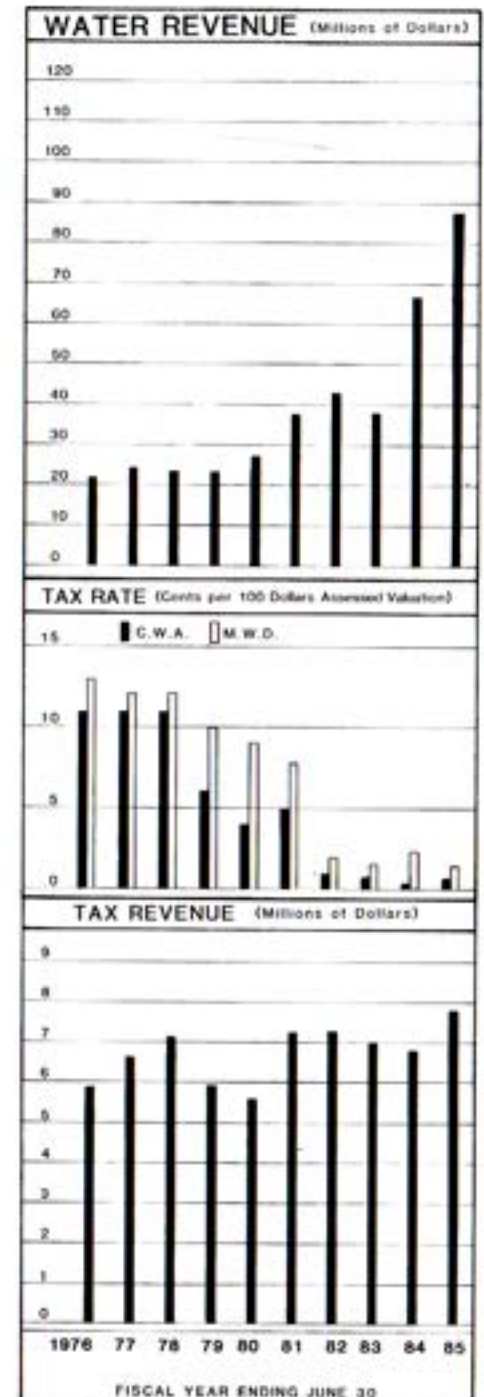
The Water Authority obtains all of the water it distributes from the Metropolitan Water District of Southern California which has two sources of supply: The Colorado

River and the State Water Project. Population forecasts indicate that MWD's population will increase from the present 13 million to 16 million, and the Authority's population will increase from the present 2 million to 2.71 million persons by the year 2000.

The MWD Board has adopted a policy to provide additional water and/or facilities, as needed, to meet the 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* in 1964, 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 turnout for the San Diego Canal. The blended water 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 the completion of the State Water Project. The Authority, MWD, the State



of California, various federal agencies, and many private organizations are presently conducting investigations of probable alternate water sources. The Board of Directors of the San Diego County Water Authority authorized the General Manager to prepare a comprehensive study of alternative water resources including conservation, reclamation, desalination, additional emergency and impounding storage, and groundwater development. The Board has also supported local projects of member agencies such as the City of San Diego's Aquaculture Project and the Santa Margarita Project to serve Fallbrook and Camp Pendleton.

The Pamo Project, which would add reliability to the Authority's system and provide for the delivery of water to the northerly half of the City of San Diego and to other agencies in the event of an emergency, is well along on its final design and awaiting issuance of the Corps of Engineers' "404" permit.

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

PUBLIC INFORMATION

The public information program has the responsibility to make people in the San Diego region aware of the value of water and, at the same time, the severe limits of this resource. Encouragement of the wise use of water is the basis of the long-term conservation effort rather than an unnecessary reduction in use. Authority programs are coordinated with member agency efforts to avoid duplication of effort while utilizing all opportunities to inform the public.



Community Relations

A school program on water has been offered free of charge since 1975 to elementary, junior and senior high schools, colleges, universities, and adult education classes. The subject matter is variable enough to relate to fields of study such as government, history, geography, the environment, biology, chemistry, physics, mathematics and economics. The program is managed by three full-time educational resource specialists. During the 1984-85 fiscal year over 20,000 students were addressed in this program.

During the year speakers from the Water Authority addressed over 4,000 members of community, professional and service organizations, and educational institutions. Staff and board members appeared on television and radio programs to present current water issues to a wider audience. A special water seminar on state issues affecting the San Diego region was jointly sponsored by the Authority and the San Diego Association of Governments. Water leaders from many areas of California were invited to express their views on water before the people of San Diego.

A newsletter, "Inside Water — The Chairman's Report," is published periodically to inform community leaders and other interested persons about timely water matters. Over 50,000 booklets and brochures were distributed throughout the county by the Authority and its member agencies.

The Authority began a major update of the region's water conservation plans which were originally prepared in 1981 for each member agency, city and the county. The effort was in response to AB 797 mandating water management plans for each agency in the state. The Authority's role was intended to produce a consistent effort throughout the region. Completion and adoption of the plans is required prior to the end of 1985.

Water displays have been used to effectively impart information on a one-to-one basis at home and trade shows and professional conferences. Displays were made available to member agencies, military commands, community organizations and local governments for use in their water and energy awareness activities.

Since half of the residential water used is for landscaping, low-water use gardens have been emphasized in 1984-85. The Board adopted a policy in October 1984 to support member agency development of demonstration gardens by paying landscape consultant fees to a maximum amount of \$2,000 each. A permanent garden, featuring low-water use plants and shrubs and good water management practices, is located at the Southern California Exposition Grounds at Del Mar and has been operated by the Authority since 1981. Other gardens are maintained by Costa Real Municipal Water District, the Helix Water District, the Sweetwater Authority, San Marcos County Water District, Vista Irrigation District, and the County of San Diego. The City of San Diego has completed plans for two gardens.

The Water Authority presents annual awards in recognition of exemplary efforts to conserve water. The best water-saving ideas are selected and plaques are presented at the Del Mar Fair. This year the awards were presented in three categories: the government award to Encino Water Pollution Control Facility; the education award to Weber Nursery; and the business award to Pardee Construction Company.

The Authority continued a television water awareness program under the theme "Let that soak in." Television spots emphasized the extensive system that supplies the region and the need for using the resource wisely. Media time was purchased on three major television stations to show 62 commercials, each 10-30 seconds in length.

Over 400 newspaper articles were written to provide information on activities of the Authority and its member agencies. These articles often were a result of Board actions and were prepared with staff assistance.

Government Relations

The Authority continued to maintain close contact with the area's state and federal legislators and other water policy makers. Since San Diego is so distant from the center of state government, the Board authorized the hiring of Mr. Ben Clay as a legislative advocate to represent the interests of the Authority in Sacramento.

During the year the Board of Directors went on record supporting the following measures.

H.R. 1246 — Colorado River Floodway Protection Act.

Colorado River Basin Salinity Control Program.

Continued funding of the Soil Conservation Snow Survey.

Assembly Bill 1012 — the International Border Wastewater and Toxic Cleanup Bond Act.

Assembly Bill 1029 — the Water Conservation and Reclamation Project Act of 1985.

Proposition "B" — authorizing the bonds to finance the Pamo Project.

The Board by resolution opposed Proposition 36, the Jarvis IV Initiative.

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 Operations Center, 610 West Fifth Avenue, Escondido, California. The Authority's operation and maintenance force of twenty-five people 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 seven people in aqueduct operations, which include two systems technicians, serve as system operators and also maintain all meters, telemeters, recorders, process control, and water disinfection equipment. The maintenance force of sixteen includes a warehouseman, two shop mechanics and a construction crew.

The Fred A. Heilbron Operations Center occupies one city block with five major buildings. The main building houses the main aqueduct computerized telemeter

control system and offices for operation, maintenance, construction, and field engineering. A shop building has facilities for the repair and service of all Authority vehicles and heavy equipment, and a small machine shop, meter shop and equipment maintenance office. Materials, supplies, tools and small equipment are stored in the warehouse, which provides security parking for equipment and contains the valve repair and carpentry shops. A new training center building contains two classrooms equipped for waterworks technology training. An on-site residence gives added security, 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 radio system using two different radio relay sites on Palomar Mountain and touch-tone call, connects the Authority base stations at the Operations Center and the San Diego office with Metropolitan Water District's Robert A. Skinner Treatment Plant in Riverside County, and twenty-five Authority mobile radios with nearly all the major San Diego County water purveyors. If either or both relay stations failed, the relays can be bypassed and radio units can be contacted directly.

A standby generator supplies emergency power for the Fred A. Heilbron Operation Center's system control room, as well as the offices and shops.

Rainbow #10 service connection on the First Aqueduct was put into service for the first time during June.

Six thousand seven hundred (6,700) feet of 72 inch pipe, designated the 4A pipeline, was added to the aqueduct system this year, which eliminated a Second Aqueduct restriction north of the Miramar Treatment Plant.



Operations

The Operations Center control room is staffed every day, including weekends and holidays from 7:30 to 4:00 p.m. During off-hours a duty systems operator equipped with an Authority interagency mobile radio answers Authority phone calls at his home. A pager will notify the duty operator of any phone calls not received by him. In emergencies the duty operator is assisted by the superintendent and chief operator who also have interagency radios for quick response and field coordination with other agencies.

Of the five pipelines presently serving the Water Authority, #1, #2, #3 and #5 carry untreated water. Three of the four raw water pipelines receive a continuous injection of chlorine from the Authority's Rainbow chlorine station. Chlorine is used to control algae and asiatic clams in the pipelines and also provides the first of a required dual chlorination for First Aqueduct agencies that deliver Colorado River water without full sedimentation and filtration treatment. Water in the treated waterline is disinfected with chloramines (chlorine and ammonia) by M.W.D. at the Robert A. Skinner Treatment Plant.

The Water Authority serves as agent of the First Aqueduct north county water districts by measuring and reporting aqueduct water turbidity to meet daily monitoring requirements of the Safe Drinking Water Act. Results of water quality sampling and measurement by both Authority forces and member agencies' treatment plants are compiled for a more complete water quality record.

Charts of 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. Meter accuracy is also checked at any time requested by a member agency.

Flow changes in both the treated and raw water aqueducts are controlled either locally or remotely by the Metropolitan Water District at the Robert A. Skinner Treatment Plant Operations Center. The plant's operation room is manned around the clock, and flow changes can be requested and made at any time in an emergency; but, normally, they 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 controlled and displayed on the Authority's operation center automatic computerized control system. The computer warns the daytime operator of problems by alarm displays and a synthesized voice, and the night-time duty operator by telephone. The duty operator may also interrogate the computer control system by telephone.

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. The computer and a large aqueduct flow status board show when too little or too much water is available to meet the member agencies' needs. Each pipeline's current flow, in and out, requested flows, meter sizes, maximum allowable and capacity flows, critical pipeline flows and valve information are displayed on the status board, and computer terminals.

For operational emergencies a van used for aqueduct operations and as a mobile electronic repair facility is equipped to be used as an emergency operations center where radio, telephone, and telemeter functions can be monitored.

Authority water is stored in several reservoirs by other water agencies, but principally by the City of San Diego at 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.

There are three pumps at the Authority's Miramar Pump Station available to pump high flows of treated water from the City of San Diego's Miramar Treatment Plant into the aqueduct. These flows are normally available only if additional untreated water can be delivered from the aqueduct to the plant because of limited storage capacity at Lake Miramar.

The Authority's Miramar Pump Station can also be used to deliver aqueduct treated water by reverse flow directly into the Miramar Treatment Plant's clearwell treated water storage bypassing the treatment plant.

Facsimile transceivers (electronic mail) were installed at both Water Authority offices for rapid transmission of printed information.

During the pipeline rehabilitation project it was necessary to extend the Operation Center hours from eight to fourteen, and sometimes up to twenty hours per day for safety while workmen were inside the pipe.

While the two hydroelectric plants were constructed by contract, Authority forces were used to design and install automatic control equipment as well as debug the new plants.

Capacity tests proved that 53 cfs could be delivered at San Diego #7 service connection and 85 cfs at the combination of Valley Center #5 and #6 services.

Electric valve operators and automatic controls were added at several First Aqueduct service connections. Only Oceanside #1 and Fallbrook #1 of the major service connections lack telemetry control. The Oceanside #4 service meter was increased in size from 10 cfs to 20 cfs.

On November 5, Metropolitan Water District changed disinfection from chlorination to chloramination (chlorine plus ammonia) to prevent the development of trihalomethanes (THM). On December 20, disinfection was changed back to chlorine because of problems in San Diego and elsewhere with kidney dialysis machines. After proper instruction of medical technicians and correction of problems, it was possible to return to chloramination for disinfection. The new disinfection program shows excellent results in controlling THM and provides an additional benefit of a protective residual throughout the entire Authority aqueduct system.

The expanded facilities of Metropolitan Water District's Robert B. Skinner Treatment Plant were rushed into service just in time to meet the all-time record peak flows at the end of June.

Shutdowns

September 16 A one-day shutdown of the Fallbrook-Oceanside pipeline to repair a leak caused by corrosion.

October 3 A one-day shutdown of the Fallbrook-Oceanside pipeline to investigate a possible leak which proved to be from another nearby pipeline.

December 2 A five-day shutdown of the #3 pipeline and a six-day shutdown of the #4 pipeline to switch the raw water and the treated water pipelines south of the Twin Oaks Exchange structures and to tie in the new pipeline #4A. To make this interchange it was necessary to move all eight aqueduct service connections between the exchange structures and the Miramar control station and the Tri-Agency pipeline connection from the #4 pipeline to the #3 pipeline.

December 7 A one-day shutdown to repair a leak on the Fallbrook-Oceanside pipeline caused by farm equipment.

December 17 The new pipeline #4A and the #3 pipeline south of Lake San Marcos were shut down to repair a leak in pipeline #4A which developed from the separation of the spigot and the cylinder when subjected to additional thrust when the pipeline was returned to service.

January 2 The Crossover pipeline was shut down for modification of a vent and the control structure to increase the flow by approximately 100 cfs. After completion of pipeline modifications, the pipeline was put back in use on February 5 to serve Escondido #3 service connection while the Crossover terminal metering structure was being rebuilt. On January 7, the First Aqueduct was shut down for two days south of Escondido #2 service connection to tie-in the Crossover pipeline. The #2 pipeline of the First Aqueduct was shut down an additional six days on February 3 for piping changes related to the Crossover pipeline modification.

January 6 The treated water pipeline was shut down for seven weeks, from La Mesa south, so that crews and equipment could enter the pipeline to rehabilitate the corrosion-weakened pipe by installing a steel liner. The 10,500 feet of pipe lined this year completes a four-year project during which time steel liners were placed in nearly five miles of pipe. After five days of service to allow agencies to replenish their depleted storage, the pipeline was shut down again to repair a small leak in the gasket at the downstream closure.

January 11 Miramar station service connections were shut down for two days for tie-in of the new Miramar hydroelectric plant.

March 15 Metropolitan Water District shut down #3 pipeline for six days, but transferred the water to #5 pipeline so there was no inconvenience to San Diego County Water Authority customers.

April 19 The #5 pipeline was shut down for five days so that Metropolitan Water District could remove bulkheads in the pipeline at the new Red Mountain Hydroelectric Plant.

The Miramar Pump Station was shut down for the first half of 1985 so that the switchgear could be removed and sent by Westinghouse Corporation to Ohio for repair of damage caused by internal arcing.

Maintenance

The Authority maintenance yard is located at the Fred A. Heilbron Operations Center in Escondido where all maintenance and force account construction is based. This maintenance yard is located near the center of the aqueduct system with some facilities as much as 60 miles away. For outlying major projects, a field office may be established in an Authority office trailer or in a large combination construction trailer with work benches and a locked storeroom.

Maintenance activities include service, repair and maintenance of Authority buildings, pipelines, roads and equipment. The facilities and equipment maintained include: the Fred A. Heilbron Operations Center buildings, shops and yard; about 210 miles of major pipelines; 130 miles of rights-of-way; 109 miles of Authority roads; 66 buildings housing meters and control equipment; a large volume chlorine station; a pump station with four pumps with motors from 400 to 1,000 horsepower capable of pumping about 180 cubic feet per second; and over 900 underground valve vaults. Two hydroelectric plants, each with two turbines and generators, were added this year. 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, a backhoe, 5-ton and 25-ton cranes, two forklifts, as well as dump trucks, truck tractors and equipment trailers, compressors, generators, welders, and pumps, including an 8-inch dewatering pump. All pickups and most other trucks have mobile radios for efficiency and quick response.

The Authority maintenance force of twelve maintenance workers and general foreman, two mechanics and a warehouse supervisor normally provide all of the previously mentioned maintenance. They also construct new control and metering facilities, patrol the pipelines for encroachment and damage, and inspect construction projects near the aqueduct pipelines.

To take advantage of the longer daylight hours and reduce travel time, the maintenance crew works a ten-hour, four-day week schedule during the months of daylight savings time. The vehicle shop is open up to two hours after the normal working hours to allow for minor repairs and servicing. The shop and warehouse are open every regular working day.

The pipeline and patrol roads are normally checked every week by patrol vehicles. Twice each year the pipelines are checked by foot patrol.

About twelve control buildings and their exposed piping are painted each year. Cleaning and painting of line structure valves and piping is done on a scheduled basis. New road construction and changes in local drainage patterns required several line structures to be raised or lowered. Much of the maintenance time is spent maintaining, moving, rebuilding or replacing the 109 miles of access roads and the associated gates, drainage ditches, culverts and headwalls. Although there were some problem areas, erosion damage this year on the right-of-way was light because of the relatively low rainfall.

Shop work includes routine maintenance, service and repair of vehicles and heavy equipment as well as specialized equipment such as that used in the unique Authority pipeline rehabilitation-by-relining project. The average age of the larger Authority equipment is over 20 years. This equipment requires extra time and care to keep it in top operating condition and appearance.

The four-year pipeline rehabilitation project south of Highway 94 was completed during January and February. The principal work was done by Hood Corporation, but about 30% of the maintenance crew's time during these months was spent in support and inspection functions.

Recent unauthorized entries and thefts at the Operation Center office and shop have made increased security measures necessary. These include greater perimeter control, restricted access, increased lighting and contracting with a security patrol service.

DESIGN AND CONSTRUCTION

Pamo Project

The Pamo Project involves the construction of a 264-foot high roller-compacted concrete dam that will be capable of impounding 130,000 acre-feet of water, and 100,000 feet of 54-inch pipeline connecting this reservoir with the First and Second Aqueducts. A pipeline connection to the Sutherland-San Vicente conduit and a hydroelectric plant are also included. The reservoir location is about four miles north of Ramona, and except for three small parcels, yet to be acquired, will inundate land owned by the City of San Diego. The City purchased the property for this reservoir over the years since 1925. The pipeline will extend in a generally westerly direction following Santa Ysabel creek through the San Pasqual Valley, crossing Highway I-15 into West Bernardo Drive and terminating at the Second Aqueduct.

The following steps toward the completion of the project had been taken prior to June 30, 1985.

1. Feasibility Study Report on Pamo Dam and Reservoir, authorized by the Water Authority and the Metropolitan Water District — completed.
2. Final Environmental Impact Report and Environmental Assessment — completed.
3. Preliminary Dam Design Report — completed.

4. Voter approval of \$82 million bond issue — completed.
5. Application filed for "404" permit with Corps of Engineers — pending.
6. Archeological Mitigation:
 - (a) Memorandum of Understanding with Native Americans — completed.
 - (b) Memorandum of Agreement with the Corps of Engineers, State Historical Preservation Officer, Advisory Council on Historic Preservation, Cleveland National Forest, and the Santa Ysabel and Mesa Grande Bands of Mission Indians — document approved but not signed.
7. Final dam design and preparation of the specifications — about 75% complete.
8. Application for permit and payment of the fee made to Division of Safety of Dams — completed.
9. Biological Mitigation Plan — prepared, distributed, and waiting for comment from agencies having cognizance.
10. Appraisal of parcels of property required for the pipeline right-of-way — appraisal begun.
11. Design of pipeline — alignment flown for topographic mapping, while the plans and specifications are about 50% complete.

Pipeline 4A

Pipeline 4A, a 6,700 foot section of 72-inch pipeline that parallels the existing Pipelines 3 and 4, was completed in December 1984. The work was constructed by contractor L. H. Woods and Sons for a final contract price of \$2,486,331. Although not a large project, there were many difficulties as the trench required heavy blasting in a rapidly developing high-density residential and commercial area. The portion of the pipeline in Scripps Lake Drive required blasting around and under utilities including the 66-inch City of San Diego pipeline that serves the northern half of the City. Since the City closed Pomerado Road, all eastbound traffic was detoured through the worksite. The interconnection of pipelines 3, 4 and 4A was done during the first week in December when the aqueducts could be shut down. The contractor worked around the clock to accomplish what normally would have taken at least three weeks. This pipeline was constructed of mortar lined and coated steel pipe and all of the field joints were welded.

Alvarado and Miramar Hydroelectric Plants

The Authority's design and construction consultant for the hydroelectric plant at the Alvarado and Miramar locations was CH2M-Hill. The Axel Johnson Engineering Corporation furnished mechanical equipment. The turbines were manufactured by Boving & Co., London, England, and the generators were manufactured by Kato Engineering Co., Manakato, Minnesota. The civil work was constructed by DVY Construction of San Marcos. The site work began in June 1984 and was essentially completed in April 1985. Testing, minor modifications, and the installation of the control equipment required several months and the Alvarado hydroelectric plant

began full-time operation in July 1985. The Miramar plant followed about a month later but energy production was limited until flow in the aqueduct could be restricted by safely throttling a line valve.

Rehabilitation of Pipeline 3

In January and February 1985, 10,700 feet of Pipeline 3 was rehabilitated. This work, just south of Sweetwater Reservoir, was contracted to Hood Corporation of Whittier, California, for a final contract cost of \$1,934,123.57, or a unit cost of \$180.76/L.F. All of the work was completed in the allotted time.

This contract completes a total of 26,560 feet of rehabilitated pipeline. No additional work is contemplated at this time. Rehabilitation involves the removal of several sections of pipe for access, transporting collapsed steel liners through the pipe to the appropriate location, expanding in place, welding, grouting the annular space and applying a cement mortar lining before closing up the pipeline.

Crossover Pipeline Modifications

Under a \$396,465 contract with Hunter Corporation modifications were made to the terminal metering facilities and vent structures on the Crossover Pipeline. The purpose of these improvements is to increase the capacity of the Crossover Pipeline whereby the two pipelines of the First Aqueduct can be fully replenished and meet the raw water demand of the City of Escondido.

Other Construction Activity

In January 1985, the Authority maintenance crew constructed various modifications to Pipeline 4 to accommodate the transfer of filtered water from Pipeline 3 to Pipeline 4 south of the division structure.



Interconnection of Pipelines 4A, 4 and 3(left to right). 4A-4 ready for closure; 4-3 laying the pipe; 3-4A must wait for backfill of other connections. Looking west.



Interconnection of Pipelines 3, 4 and 4A (left to right) nearly completed. Connection 4A-4 backfilled. Connection 3-4A ready for closure. Looking east.

LEGAL DEPARTMENT

Principal responsibility for legal advice and representation comes from the General Counsel. Other members of the firm, Jennings, Engstrand & Henrikson, 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

Eight directors were reappointed (Anderson, Doe, Golem, Cranston, Dashiell, Madigan, Cooper and Starkey) and two new directors (Reese and Stickney) were appointed during the year.

Some minor litigation regarding right-of-way matters was settled. Litigation involving Metropolitan was monitored, but there was no active participation involving the Authority.

Preferential Rights (MWD)

The Authority's Report, A Study of Potential Water Supply for San Diego County, July 1983, discussed section 135 of MWD's Act (the preferential right section). It pointed out that section 134 requires that MWD's revenue from charges for water service should cover all operating and capital costs "so far as practicable." However, under section 135, only amounts paid for "tax assessments", and not payments for water purchased, are used to calculate the "preferential right to purchase." It was suggested; that a probable reason for this anomaly was that section 135 was enacted in 1931, ten years before any water was delivered for sale, and thirty years before the "so far as practicable" language was enacted in 1961. Report, pages 6-47 to 50.

The Report also discussed "Water Shortages and Allocation Procedures." Report, Pages 8-1 to 27. The conclusion was that "it is unlikely that [MWD's] Board would ever invoke the preferential rights [section 135] in a water shortage. However, if it did, it is likely that because of the conflicts with other legislation, its inherent unfairness, and the constitutional ramifications, that a court would declare it inapplicable." Report, 8-25 to 26.

An effort by Assemblyman Peace to amend AB 2619 and severely limit section 135, in the Senate in August 1984, was unsuccessful. The amendment proposed had been approved by MWD's Board but opposition from the City of Los Angeles, coming in the last days of the legislative session, was sufficient to kill it in committee. No legislation pertaining to section 135 was introduced in 1985.

In the meantime, Assemblyman Peace had secured an opinion of Legislative Counsel, dated August 16, 1984, which, in effect, was confirmatory of the opinion of General Counsel. Legislative Counsel concluded that "notwithstanding section 135 . . . [if a water shortage emergency condition existed in MWD, it [could] adopt reasonable regulations governing the allocation of its water supplies during the period of the emergency." Legislative Counsel's Opinion, 7.

In addition, the Sacramento law firm of McDonough, Holland & Allen rendered an opinion, as special counsel for the Authority, on May 8, 1985, which, in part, dealt with this subject. That opinion was also confirmatory that Water Code section 350 et. seq. "would prevail over conflicting provisions or statutes, such as section 135." It concluded that "MWD would be authorized . . . to declare a water shortage emergency and to distribute water in accordance with allocation methods . . . 'as will in the sound discretion of such governing body conserve the water supply for the greatest public benefit.'" McDonough Opinion, 6 and 7.

Although MWD continues to pursue policies consistent with its Laguna Declaration of November 16, 1952, which is a clear-cut commitment "to provide its service area with adequate supplies of water to meet expanding and increasing needs in the years ahead" (MWD Adm. Code section 301.2), this archaic statute has not been repealed. It would be preferable for MWD's Act to be updated so that needless future confrontations, in the event of an emergency shortage condition, could be avoided.

The Galloway Option

In August 1984, the Authority secured an option from a private corporation, Galloway Group, Ltd. of Colorado, to enter into a "Water Service Agreement" which contemplated the delivery of water by the company from water supplies in the State of Colorado to the Authority at the intake of the Colorado River Aqueduct at Lake Havasu, created by Parker Dam.

The form of the proposed agreement was discussed at meetings of the Water Policy Committee and the board on September 20, October 5 and 11, November 8, 1984, and January 10, 1985. On the latter date, the Board authorized the General Manager to accept an extension of the option to enter into a "Water Service Agreement" until January 15, 1987.

The agreement specifically permitted the authority to assign its rights and obligations to "MWD or one or more of its separate member agencies." Despite this provision and statements from Authority leaders that there was no intent to circumvent MWD's primary role in supplying MWD's agencies with adequate water supplies to meet all needs in the years ahead, a furor of opposition to the contemplated plan arose from MWD and some of its member agencies. The opposition centered on issues related to the so-called "Law of the Colorado River" and the potential adverse impact that the plan might have upon established rights and relationships.

The plan, as set forth in the "Water Service Agreement," required the private corporation to be completely responsible to construct all the physical works and secure all the legal rights necessary to deliver and the water to Lake Havasu. The company would agree to hold the Authority harmless from any cost or expense in connection with any actions by the company to secure or deliver the water. The Authority was to be responsible to accept delivery of the water at Lake Havasu and transport it to San Diego County.

Initial deliveries of water were to be 50,000 acre feet annually, and after construction of additional storage facilities, annual amounts between 300 and 500 thousand

acre feet were contemplated. The agreement provided that the Authority's cost for the water in San Diego County would be 90% of the average cost for untreated water from MWD. The company would have been paid the difference between that amount and the costs incurred by the Authority to store, pump and transport the water through the Colorado River Aqueduct and other MWD facilities.

Very serious questions existed at that time and still remain about the likelihood of the company being able to secure all the necessary rights and permits to develop, store and transport the water from the area of origin on the Yampa River in Colorado to Lake Havasu. In an October 4, 1984 memorandum, General Counsel opined that it was "too early to jettison the Galloway plan based upon threats by MWD's staff to oppose it. If . . . requisite consents cannot be obtained [by Galloway], the proposal will have its own ending." What progress, if any, the company has accomplished in making it feasible to implement the contemplated plan is unknown.

Water Marketing

Many events have occurred since construction of Oroville dam, the California Aqueduct, and the Edmonston pumping plant, key elements of the State Water Project, which make it imperative that existing water resources be fully and carefully utilized. The California Environmental Quality Act, Wild and Scenic River legislation, water quality legislation, instream uses, and other concerns, environmental, social and economic, are expected to force delays in development of significant new water projects until there is a clear and present danger of imminent water shortages.

The California legislature, undoubtedly cognizant of the Final Report of the National Water Commission in 1973, the other events alluded to, the drought of 1976-1977, the potential for future droughts, and the need to maximize the utilization of existing water resources, has significantly broadened the powers and responsibilities of local and regional water agencies.

In 1982, Assembly Bill 3491 [Katz] added language to the Water Code which was intended "to facilitate the voluntary transfer of water and water rights . . ." Water Code, § 1099 (a). It authorized "every local or regional public agency . . . [to] sell, lease, exchange, or otherwise transfer water that is surplus . . ." Water Code section 382. It also added section 1011(b), which provides that water which is conserved "may be sold, leased, exchanged or otherwise transferred . . ." These sections pertain to appropriative rights but not to riparian or overlying rights. Water is conserved by the "use of less water to accomplish the same purpose" or "by reason of land fallowing or crop rotation." § 1011(a).

In 1983, the "Urban Water Management Planning Act" (Stats. 1983, § 1609) was adopted to plan the "conservation and efficient use of urban water . . . [by] implementation . . . at the local level." § 10610.2. Plans were to be adopted "not later than December 31, 1985" (§ 10620(a)), reviewed "at least once every five years" (§ 10621) with "projections" (§ 10632), and "economic and non-economic evaluations" (§ 10633).

A most significant potential for the conservation of water and its transfer exists in

the Imperial Irrigation District. By a letter memo of January 10, 1985, General Counsel opined that Imperial Irrigation District could transfer "conserved water to the Authority." Memo. 7-9. In the May 8, 1985 opinion letter, special counsel McDonough agreed. He concluded that "the San Diego County Water Authority [could] make a legally enforceable agreement with the Imperial Irrigation District to purchase water from IID, [and that the] Authority [could] legally use the physical facilities of [MWD], over its objection, to transport any water purchased from IID." Opinion, 1.

General Counsel had cautioned that "an attempt by San Diego to negotiate directly might affront the institutional pride of MWD and cause resentments similar to those engendered by pursuing the Galloway proposal." Letter, January 10, 1985, 8. On June 13, 1985, the Board adopted Resolution 85-18, which recognized that "MWD is diligently pursuing substantial augmentation of its ability to secure water from the Colorado River . . . [and reiterated] its continued reliance upon the willingness and ability of MWD to fulfill its commitments to meet the needs of the Authority for imported water supplies."

Only time will tell the eventual form, nature and extent of arrangements which, hopefully, will take place to make sufficient water available from the Colorado River to fully utilize the Colorado Aqueduct whenever needed to meet water demands of MWD's service area on the South Coastal Plain of California. Both diligence and patience will be required to overcome the doubts, suspicions and inertia which continue to frustrate implementation.

Section 8 Financing

Section 8 of the County Water Authority Act provides unique flexibility for the Board in its financial planning. Originally, it allowed the Board to incur indebtedness of \$1 million. In 1976, it was amended to permit creation of indebtedness up to 1/10 of 1% of its assessed valuation upon a 3/4 affirmative vote of the Board. Senate Bill 1884, Stats. 1976, c. 1457. In 1981, it was amended to make clear that the term "assessed valuation" meant the full cash value as defined in section 135 of the Revenue and Taxation Code. Senate Bill 1163, Stats. 1981, c. 874. It became law without the Governor's approval.

In 1985, Assembly Bill 1893 was introduced. Former section 8 was renumbered (a) and a section (b) was added. It would permit the Authority to issue indebtedness, in lieu of revenue bonds, if a proposition to issue revenue bonds under the 1941 Revenue Bond Law had been approved by a majority of the electors.

Since the voters approved a proposition to issue \$82 million of revenue bonds under the 1941 Revenue Bond Law for the Pamo Dam Project at the November 1984 election, legislative approval of A.B. 1893 would give the Board additional flexibility for financial planning purposes.

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, and in savings accounts.

A monthly report is presented to the Board of Directors that shows monthly activity consistent with investment policy. The report outlines investments by amount, type, rate, institution, number of days invested and maturity date. As part of the monthly report to the Board of Directors, each investment during the month is listed showing the referenced information together with list of institutions bidding for the funds and the rates quoted.

The Administrative Code requires the Treasurer to report a summary of financial transactions monthly and for each fiscal year-end. For fiscal 1984-85, the Statement of Earnings is as follows:

For the fiscal year ending June 30, 1985, total Water Authority income was \$97,725,372. Total disbursements during the year were \$87,781,112. At the fiscal year end, the Treasurer had control of funds and investments totaling \$24,875,292.

STATEMENT OF EARNINGS

Income was as follows:	1984	1985
Water sales	\$67,058,369	\$87,790,084
Taxes	6,811,121	7,833,156
Interest on investments	1,961,079	2,179,920
Miscellaneous	(198,061)	(77,788)
Total income	\$75,632,508	\$97,725,372
Disbursements were as follows:		
Water purchases	\$63,322,563	\$83,350,122
Operation and maintenance	2,280,373	2,492,275
Interest expense	3,031,174	1,938,715
Total disbursements	\$68,634,110	\$87,781,112
Net earnings before depreciation	\$6,998,398	\$9,944,260

As of June 30, 1984 and 1985, the Treasurer's cash accountability was as follows:

Demand deposits	\$36,028	\$10,292
Time deposits	22,575,000	24,865,000
Total deposits	\$22,611,479	\$24,875,292

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, 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, one 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 represented 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 full 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 has six representatives on the Metropolitan Board of Directors. All are members of the Authority Board. Director Hans H. Doe has served on the MWD Board for twenty-six years and is Vice Chairman of the Water Problems Committee, and a member of the Organization and Personnel Committee, and the Executive Committee.

Harry Griffen has served on the MWD Board for twenty-two years. He is a member of the Finance and Insurance Committee, Chairman of its Audit Subcommittee, a member of the Special Budget Committee, Nominating Committee, and Water Problems Committee.

John M. Cranston, who has been an MWD Director for ten years, is a Vice Chairman of the Board of Directors, and Vice Chairman of the Executive Committee. He is also a member of the Legal and Claims Committee, and the Engineering and Operations Committee.

John Starkey has been a member of the Board for five years. He serves on the Finance and Insurance Committee, the Land Committee, and the Audit Committee.

Michael D. Madigan, who has been an MWD Director for three years, serves on the Engineering and Operations Committee, Land Committee, is Chairman of the Special Committee for Communication Study, and is a member of the Energy Subcommittee of the Engineering and Operations Committee, and the Special Committee on Completion of the State Water Project.

Francesca Krauel was appointed to the Metropolitan Water District Board of Directors on October 13, 1983, to fill a new directorship position. Ms. Krauel serves on the Organization and Personnel Committee and Land Committee.

The assessed valuation of MWD established for 1985-86 is \$458,782,059,816, which includes \$71,011,705,587 for the Authority's valuation.

Water Sales

MWD delivered 1,574,806 acre feet of water during fiscal year 1984-85. Delivery to the Authority of 434,172 acre feet represented 27.6 percent of MWD's total deliveries.

MWD has five filtration plants in operation. The Skinner Filtration Plant with a capacity of 340 mgd serves a portion of the treated water requirements of the Authority.

The other plants operated by MWD, none of which can serve the Authority, are: F. E. Weymouth Memorial Filtration Plant in La Verne; Robert B. Diemer Filtration Plant near Yorba Linda; Joseph Jensen Filtration Plant at Granada Hills; and the Henry J. Mills Filtration Plant near Riverside. The Jensen Plant can only receive water from the West Branch of the California Aqueduct.

Tax Rate

MWD set its tax rate at 0.0156 percent of assessed valuation for the 1984-85 fiscal year. When the Authority annexed to MWD in 1946, the tax rate was 50 cents per \$100 assessed valuation. The tax rate for each year from that time is shown in Table 12. The total MWD tax levy during the 1984-85 fiscal year, including regular and special taxes, was approximately \$77,064,064 of which \$10,826,904, or 14.05 percent, was levied against property within the Authority. The estimated tax levy for the 1985-86 fiscal year is \$80,568,936 for MWD as a whole and includes \$12,192,951 for the Authority's service area.

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 P. Starkey represents the Authority on the Board, and John M. Cranston serves as alternate.

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.

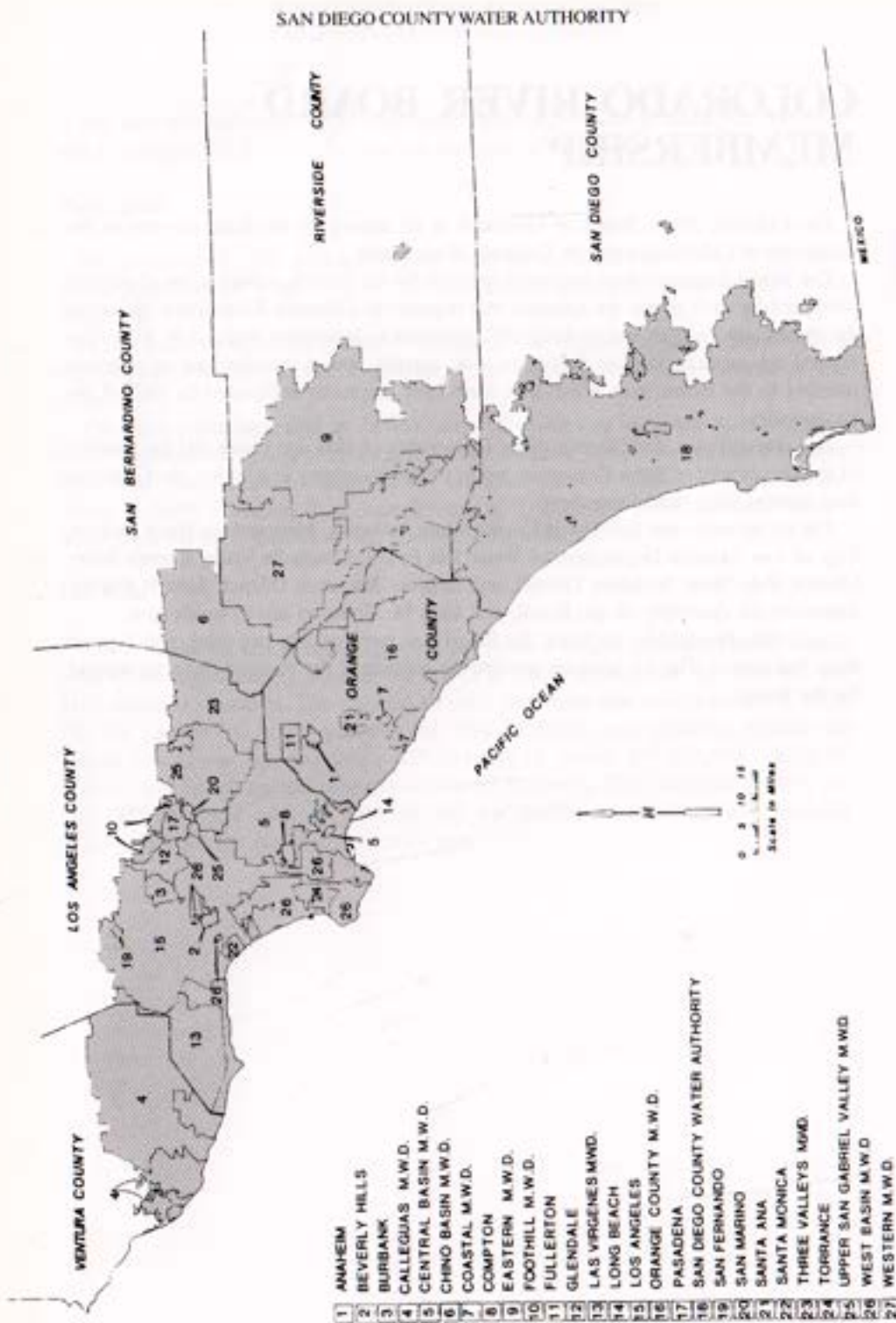


Figure E. Member Agencies of Metropolitan Water District

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Table 1
STATISTICAL SUMMARY

	1983-84	1984-85	Percent Change
GROWTH OF AREA			
Number of Agencies	24	24	-0-
Total Area — Acres	902,224	902,702	+ 0.1
Population	2,006,239	2,047,000	+ 2.0
Assessed Valuation	57,524,061,587	63,831,825,500	+ 11.0
OPERATIONS			
Water Imported by Authority-ac. ft.	370,231	436,846	+ 18.0
Water Production of Agencies-ac. ft.	540,262*	546,756*	+ 1.2
Local Water Used-ac. ft.	173,932*	133,634*	- 23.2
Authority Water Used-ac. ft.	368,024*	413,122*	+ 12.3
Miles of Pipeline	221	222	+ 0.5
Miles of Patrol Roads Maintained	106	106	-0-
Number of Service Connections	74	74	-0-
FINANCIAL			
Revenues:			
Water Revenue	67,058,369	87,790,084	+ 30.9
Other Revenue	1,763,018	2,102,132	+ 19.2
Taxes	6,811,121	7,833,156	+ 15.0
Expenditures:			
Operation and Maintenance	2,280,373	2,492,275	+ 9.3
Purchase of Water	63,322,563	83,350,122	+ 31.6
Payments on Outstanding Debt	3,589,575	4,699,575	+ 30.9
Total Investment in Plant:			
Total Fixed Assets	125,794,871	135,473,441	+ 7.7
Long-Term Debt	57,587,935	59,888,360	+ 4.0

*Does not include Pendleton Military Reservation

Table 2
POPULATION GROWTH — COUNTY AND AUTHORITY AREA

1910 to 1985
(Includes Resident Military Personnel)

Year (as of April 1)	COUNTY		AUTHORITY		Percent of County Population in 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	1,310,800	49,850	(5) 1,255,000	54,500	96
1975 (6)	1,560,038	49,632	(5) 1,527,520	54,027	98
1980	1,808,200	91,800	(5) 1,797,655	66,635	99
1981 (7)	1,900,000	44,00	(5) 1,864,290	25,075	98
1982 (7)	*1,944,000	42,035	(5) 1,889,365	45,222	97
1983 (7)	1,986,035	54,853	(5) 1,934,587	71,652	97
1984 (7)	2,040,888	42,471	(5) 2,006,239	40,761	98
1985 (7)	2,083,359		(5) 2,047,000		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.

*Corrected estimated by Integrated Planning Office, San Diego County.

Table 3
AREA — AUTHORITY MEMBER AGENCIES

Member Agencies	Area Within Authority			Percent of Total Authority Area 6/30/85
	As of 6/30/84 (acres)	Changes During Year (acres)	As of 6/30/85 (acres)	
Bueno Colorado M.W.D. (2)	19,831	+7	19,838	2.20
In City of Vista	*(9,352)		(10,196)	(1.13)
Costa Real M.W.D. (3)	20,369	-0-	20,369	2.26
In City of Carlsbad	(19,018)		(22,710)	(2.52)
Del Mar, City of	1,159	-0-	1,159	0.13
De Luz Heights M.W.D.	11,789	-0-	11,789	1.31
Escondido, City of (12)	16,149	+407	16,556	1.83
Fallbrook Public Utility Dist.	16,150	+24	16,174	1.79
Helix Water District (4)	31,663	-0-	31,663	3.51
In City of El Cajon	(9,052)		(9,052)	(1.00)
In City of La Mesa	(5,762)		(5,762)	(0.64)
In City of Lemon Grove	(2,515)		(2,432)	(0.27)
National City	5,479	+45	5,524	0.61
Oceanside, City of	25,689	+5	25,694	2.85
Olivenhain M.W.D. (5)	27,157	+139	27,296	3.02
Otay W.D. (6)	66,808	-3950	62,858	6.96
Padre Dam M.W.D. (8)	54,118	-0-	54,118	6.00
In City of Santee	(10,574)		(10,880)	(1.21)
Pendleton Military Res	134,625	-0-	134,625	14.91
Poway, City of	22,809	-0-	22,809	2.53
Rainbow M.W.D. (10)	46,882	-24	46,858	5.19
Ramona M.W.D.	46,929	-0-	46,929	5.20
Rincon del Diablo M.W.D. (7)	14,759	-1406	13,353	1.48
San Diego, City of	206,175	+4267	210,442	23.31
San Dieguito Water District	5,639	-0-	5,639	0.62
San Marcos C.W.D. (15)	27,492	+987	28,479	3.15
In City of San Marcos	(14,000)		(14,092)	(1.56)
Santa Fe Irrigation District	10,153	+22	10,175	1.13
South Bay Irrigation District	15,523	-4.5	15,478	1.71
In City of Chula Vista	(15,878)		(16,214)	(1.80)
Valley Center M.W.D. (11)	62,064	-0-	62,064	6.88
Yuima M.W.D.	12,813	-0-	12,813	1.42
Total Authority Area	902,224	+478	902,702	100.0
San Diego County	2,725,100		2,725,100	

- (1) Includes San Marcos C.W.D. which became a member agency of Authority on February 25, 1980.
 (2) Does not include 2,806 acres overlapping in City of Oceanside, and 37 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 25 acres overlapping in City of San Diego.
 (6) Does not include 4,682 acres overlapping in City of San Diego.
 (7) Does not include 13,356 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 718 acres overlapping in National City.
 (10) Does not include 701 acres overlapping in City of Oceanside.

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

Population — U.S. Census					Density of Population 1985	
1970 (13)	1980 (13)	Decade Increase 1970-80 Percent	1985 Estimate (14)	Annual Increase 1984-85 Percent	Per Acre	Per Sq. Mile
39,000(1)	51,000	31	58,488	+4.7	2.95	1,887
(24,600)	(35,800)	(46)	(44,019)	(+4.9)	(4.32)	(2,763)
15,500	31,500	103	38,000	-2.2	1.87	1,194
(14,850)	(35,000)	(136)	(44,566)	(+10.1)	(1.96)	(1,256)
3,900	5,040	29	5,162	-0-	4.45	2,850
150	225	50	260	+4.0	0.02	14
36,000	64,100	78	76,168	+1.8	4.60	2,944
12,000	18,700	56	20,293	+1.6	1.25	803
163,000	203,500	25	212,031	+1.1	6.70	4,286
(50,900)	(72,100)	(42)	(80,683)	(+0.9)	(8.91)	(5,704)
(38,800)	(45,900)	(18)	(52,156)	(-0.5)	(9.05)	(5,793)
—	(20,400)	(—)	(22,205)	(+1.8)	(9.13)	(5,843)
39,000	47,200	21	49,000	-0-	8.87	5,677
40,700	77,800	91	91,769	+5.3	3.57	2,286
2,000	23,000	1,050	31,800	+11.6	1.17	746
19,400	51,600	166	63,050	+5.2	1.00	642
46,000	89,000	93	103,869	+0.7	1.92	1,228
—	—	—	(49,523)	(+7.7)	(4.55)	(2,913)
—	33,150	—	45,000	-0-	0.33	214
14,000	*33,620	140	36,838	+0.9	1.62	1,034
4,200	7,800	86	9,000	+2.3	0.19	123
6,800	16,000	135	19,000	+7.3	0.40	259
18,900	13,800	-27	18,727	+7.1	1.40	898
675,800	849,600	26	978,900	+2.1	4.65	2,977
21,800	30,900	42	29,040	-6.8	5.15	3,296
—	24,200	—	28,450	+0.9	1.00	639
(3,900)	(16,500)	(323)	(19,816)	+4.4	(1.41)	(900)
8,600	14,700	71	16,278	+3.4	1.60	1,024
80,000	99,200	24	102,500	+1.0	6.62	4,238
(64,500)	(82,200)	(27)	(90,283)	(+1.0)	(5.57)	(3,564)
7,000	*10,200	46	11,557	+4.7	0.19	119
1,250	1,820	46	1,820	-0-	0.14	91
1,255,000	*1,797,655	43	2,047,000	2.0	2.27	1,451
1,310,800	1,808,200	38	2,083,359	2.1	0.76	489

- (11) Does not include 99 acres overlapping in City of Escondido.
 (12) Includes 99 acres overlapping in Valley Center M.W.D., 370 acres overlapping San Marcos County W.D., 37 acres overlapping Bueno Colorado M.W.D. and 13,356 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 370 acres overlapping in City of Escondido.

*Corrected figures per agencies.

Member Agencies	SOURCE OF WATER (4)				Total Water Production Ac. Ft.	Gross Area (2) Acres	Estimated Area Served by Water System Acres	Gross / Served Water System Percent	CENTRAL RESERVOIR OPERATIONS			
	Local Supply		Authority Supply						STORED WATER WITHDRAWN DURING FISCAL YEAR			Total Quantity in Storage 6/30/84 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.	11,160.5	65.7	5,826.9	34.3	16,987.4	19,838	82.2	-0-	-0-	-0-	-0-	
Costa Real M.W.D.	-0-	-0-	12,879.9	100.0	12,879.8	20,369	86.1	-0-	110.2	-0-	1503.0	
Del Mar, City of	-0-	-0-	1,097.1	100.0	1,097.1	1,159	97.5	-0-	-0-	-0-	-0-	
Del Mar Heights M.W.D.	-0-	-0-	2,373.1	100.0	2,373.1	11,789	22.0	-0-	-0-	-0-	-0-	
Escondido, City of	10,329.9	44.4	12,950.6	55.6	23,280.5	16,556	83.2	-0-	-0-	-0-	-0-	
Fallbrook P.U.D.	-0-	-0-	11,606.2	100.0	11,606.2	16,174	67.7	-0-	110.2	-0-	1503.0	
Helix W.D.	5,064.8	12.5	35,514.3	87.5	40,579.1	31,663	95.1	-0-	-0-	-0-	-0-	
National City, City of	6,041.5	82.2	1,312.7	17.8	7,354.2	5,524	90.6	-0-	-0-	-0-	-0-	
Oceanside, City of	-0-	-0-	24,114.2	100.0	24,114.2	25,694	64.2	-0-	220.1	-0-	3,006.1	
Olivenhain M.W.D.	-0-	-0-	8,233.0	100.0	8,233.0	27,296	52.2	-0-	36.7	-0-	500.9	
Otay W.D.	-0-	-0-	13,830.3	100.0	13,830.3	62,858	51.5	-0-	110.2	-0-	1503.0	
Padre Dam M.W.D.	-0-	-0-	17,027.4	100.0	17,027.4	54,118	63.8	-0-	146.8	-0-	2,003.9	
Pendleton Military Res (3)	N.R.	—	(5) 1,542.4	—	N.R.	134,625	N.A.	—	—	—	—	
Poway, City of	66.6	0.7	9,253.1	99.3	9,319.7	22,809	7.690	33.7	-0-	-0-	-0-	
Rainbow M.W.D.	-0-	-0-	29,296.9	100.0	29,296.9	46,858	17,550	37.5	-0-	36.7	-0-	
Ramona M.W.D.	921.3	9.6	8,687.7	90.4	9,609.0	46,929	11,000	23.4	-0-	146.8	-0-	
Rincon del Diablo M.W.D.	-0-	-0-	6,039.1	100.0	6,039.1	13,353	7,779	58.3	-0-	44.2	-0-	
San Diego, City of (1)	71,467.9	32.4	149,312.9	67.6	220,780.8	210,442	108,743	51.7	-0-	-0-	-0-	
San Diego W.D.	4,646.6	58.4	3,309.4	41.6	7,956.0	5,639	5,385	95.5	-0-	-0-	-0-	
San Marcos C.W.D.	-0-	-0-	10,090.3	100.0	10,090.3	28,479	21,000	73.7	-0-	36.7	-0-	
Santa Fe I.D.	6,707.1	59.9	4,487.9	40.1	11,195.0	10,175	10,175	100.0	-0-	-0-	-0-	
South Bay I.D.	15,416.9	82.3	3,320.6	17.7	18,737.5	15,478	11,451	74.0	-0-	-0-	-0-	
Valley Center M.W.D.	306.2	0.8	39,128.9	99.2	39,435.1	62,064	28,933	46.0	-0-	36.7	-0-	
Yuma M.W.D.	1,504.6	44.4	1,887.5	55.6	3,392.1	12,813	4,120	32.2	-0-	7.5	-0-	
Total and Average	133,633.9	24.4	411,579.9	75.6	545,213.8	902,702	428,923	47.5	-0-	1,042.8	-0-	

(1) Includes production by City of San Diego for areas outside City (not in Authority)

(2) Does not include overlapping areas as shown in Table 1.

(3) Water production from local sources not reported.

(4) Figures include losses from transmission and distribution system but not from reservoirs.

(5) Not included in totals.

N.A. — Not Applicable; NR — Not Reported

TABLE 4
 WATER PRODUCTION, AGRICULTURAL USE AND AUTHORITY STORAGE
 FISCAL YEAR 1984-85
 (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 6/30/83 Ac. Ft.		Placed into Storage During Fiscal Year Ac. Ft.	STORED WATER WITHDRAWN DURING FISCAL YEAR			Total Quantity in Storage 6/30/84 Ac. Ft.	
					Ac. Ft.	Percent	Ac. Ft.	Percent					By Delivery Ac. Ft.	By Evaporation Ac. Ft.	By Spill Ac. Ft.		
16,309	82.2	1.04	58,488	0.29	2,222.2	64.9	1,204.1	35.1	3,426.3	20.2	-0-	-0-	-0-	-0-	-0-	-0-	
17,540	86.1	0.73	38,000	0.34	-0-	-0-	2,784.8	100.0	2,784.8	21.6	1,545.1	68.1	-0-	110.2	-0-	1503.0	
1,130	97.5	0.97	5,162	0.21	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
2,590	22.0	0.92	260	9.13	-0-	-0-	2,310.5	100.0	2,310.5	97.4	-0-	-0-	-0-	-0-	-0-	-0-	
13,769	83.2	1.69	76,168	0.31	3,401.8	50.8	3,290.7	49.2	6,692.5	28.7	-0-	-0-	-0-	-0-	-0-	-0-	
10,956	67.7	1.06	20,293	0.57	-0-	-0-	6,964.4	100.0	6,964.4	60.0	1,545.1	68.1	-0-	110.2	-0-	1503.0	
30,114	95.1	1.35	212,031	0.19	102.3	14.7	594.7	85.3	697.0	1.7	-0-	-0-	-0-	-0-	-0-	-0-	
5,006	90.6	1.47	49,000	0.15	1.3	86.7	0.2	13.3	1.5	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
16,505	64.2	1.46	91,769	0.26	-0-	-0-	4,515.5	100.0	4,515.5	18.7	3,090.0	136.2	-0-	220.1	-0-	3,006.1	
14,250	52.2	0.58	31,800	0.26	-0-	-0-	1,315.8	100.0	1,315.8	16.0	514.9	22.7	-0-	36.7	-0-	500.9	
32,375	51.5	0.43	63,050	0.22	-0-	-0-	1,561.4	100.0	1,561.4	11.3	1,545.1	68.1	-0-	110.2	-0-	1503.0	
34,553	63.8	0.49	103,869	0.16	-0-	-0-	1,283.7	100.0	1,283.7	7.5	2,059.9	90.8	-0-	146.8	-0-	2,003.9	
N.A.	—	—	45,000	—	—	—	—	—	—	—	—	—	—	—	—	—	
7,690	33.7	1.21	36,838	0.25	5.7	0.5	1,084.7	99.5	1,090.4	11.7	-0-	-0-	-0-	-0-	-0-	-0-	
17,550	37.5	1.67	9,000	3.25	-0-	-0-	25,472.4	100.0	25,472.4	86.9	514.9	22.7	-0-	36.7	-0-	500.9	
11,000	23.4	0.87	19,000	0.51	498.7	8.9	5,122.7	91.1	5,621.4	58.5	2,059.9	90.8	-0-	146.8	-0-	2,003.9	
7,779	58.3	0.78	18,727	0.32	-0-	-0-	1,237.5	100.0	1,237.5	20.5	618.2	27.3	-0-	44.2	-0-	601.3	
108,743	51.7	2.03	978,900	0.23	-0-	-0-	2,473.3	100.0	2,473.3	1.1	-0-	-0-	-0-	-0-	-0-	-0-	
5,385	95.5	1.48	29,040	0.27	1,099.3	55.6	876.8	44.4	1,976.1	24.8	-0-	-0-	-0-	-0-	-0-	-0-	
21,000	73.7	0.48	28,450	0.35	-0-	-0-	3,084.8	100.0	3,084.8	30.6	514.9	22.7	-0-	36.7	-0-	500.9	
10,175	100.0	1.10	16,278	0.67	523.1	49.2	541.0	50.8	1,064.1	9.5	-0-	-0-	-0-	-0-	-0-	-0-	
11,451	74.0	1.64	102,500	0.18	36.7	86.6	5.7	13.4	42.4	0.2	-0-	-0-	-0-	-0-	-0-	-0-	
28,933	46.6	1.36	11,557	3.41	201.9	0.6	34,764.6	99.4	34,966.5	88.7	514.9	22.7	-0-	36.7	-0-	500.9	
4,120	32.2	0.82	1,820	1.86	1,458.2	44.2	1,842.6	55.8	3,300.8	97.3	103.1	4.6	-0-	7.5	-0-	100.2	
428,923	47.5	1.27	2,047,000	0.27	9,551.2	8.5	102,331.9	91.5	111,883.1	20.5	14,626.0	644.8	-0-	1,042.8	-0-	1,4228.0	

TABLE 5
 ASSESSED VALUATION AND TAX COLLECTIONS
 FISCAL YEAR 1984-85

Member Agencies	ASSESSED VALUATION — SECURED AND UNSECURED				Area 6/30/84 Acres	1983-84 Valuation Per Acre	Tax Assessments to Date	Adj. to Tax Assessments	Uncollected 6/30/84	Tax Collections	Interest & Penalties
	*1982-83 Total	*1983-84 Total	1982-83 to 1983-84 Percent Change	*1984-85 Total							
Bueno Colorado M.W.D.	\$1,877,874,244	\$2,091,236,875	11.4	\$2,392,025,940	19,838	\$105,416	2,959,118	(13,360)	139,446	2,806,311	20,246
Costa Real M.W.D.	1,918,749,078	2,161,100,052	12.6	2,472,996,108	20,369	106,098	3,024,479	(103,389)	55,339	2,865,749	20,906
Del Mar, City of	272,146,251	308,371,620	13.3	342,406,102	1,159	266,067	639,028	(1,342)	11,422	626,262	4,555
De Luz Heights M.W.D.	43,281,854	46,566,950	7.6	48,332,262	11,789	3,950	67,729	(1,824)	2,953	62,951	649
Escondido, City of	1,346,757,293	1,492,068,191	10.8	1,683,336,753	16,556	90,123	2,568,598	(15,662)	73,016	2,479,919	13,266
Fallbrook P.U.D.	538,254,402	589,251,066	9.5	646,182,369	16,174	36,432	1,023,913	(1,783)	31,922	990,207	5,226
Helix W.D.	4,870,077,608	5,203,170,801	6.8	5,591,798,578	31,663	164,330	11,017,103	(48,781)	236,365	10,731,956	40,430
National City, City of	640,918,086	718,607,895	12.1	746,541,158	5,524	130,088	1,833,762	6,950	17,832	1,822,879	5,051
Oceanside, City of	1,917,433,070	2,150,695,223	12.2	2,372,482,193	25,694	83,704	3,214,150	(17,316)	137,744	3,059,088	15,072
Olivenhain M.W.D.	1,199,680,406	1,372,208,259	14.4	1,680,643,767	27,296	50,271	1,371,756	(21,342)	124,221	1,226,192	11,391
Otay W.D.	1,584,622,361	1,757,423,453	10.9	2,049,808,010	62,858	27,959	2,309,990	(18,698)	135,823	2,155,468	13,227
Padre Dam M.W.D.	1,914,403,180	2,103,810,155	9.9	2,334,777,302	54,118	38,874	3,128,553	(22,903)	139,491	2,966,158	22,041
Pendleton Military Res.	2,451,994,415	2,610,324,315	6.5	2,860,158,917	134,625	19,390	1,608,150	(75,714)	478,259	1,054,176	—
Poway, City of	1,036,588,977	1,127,422,148	8.8	1,241,272,805	22,809	49,429	1,546,455	(9,613)	80,176	1,456,665	12,971
Rainbow M.W.D.	631,444,513	679,897,834	7.7	729,576,499	46,858	14,510	1,107,090	(32,329)	13,457	1,061,303	13,013
Ramona M.W.D.	599,881,518	641,771,837	7.0	701,088,562	46,929	13,675	939,591	12,602	(22,941)	975,135	8,590
Rincon Del Diablo M.W.D.	1,031,115,559	1,126,250,503	9.2	1,244,456,758	13,353	84,344	1,670,969	65,233	162,649	1,573,553	10,234
San Diego, City of	27,072,432,702	30,482,428,659	12.6	34,364,573,939	210,442	144,850	57,795,383	(41,770,157)	(1,888,431)	17,913,657	41,944
San Dieguito W.D.	935,911,104	1,035,324,539	10.6	1,165,475,356	5,639	183,601	1,687,622	(5,420)	58,673	1,623,528	6,926
San Marcos C.W.D.	1,055,972,761	1,159,884,259	9.8	1,299,442,913	28,479	40,728	1,560,244	(13,480)	38,516	1,508,248	3,773
Santa Fe I.D.	1,224,900,846	1,409,934,625	15.1	1,615,595,568	10,175	138,569	1,953,653	1,006	64,918	1,889,741	8,681
South Bay I.D.	2,553,603,199	2,703,736,889	5.9	2,907,316,021	15,478	174,683	5,923,112	652,214	(111,310)	5,382,208	14,375
Valley Center M.W.D.	705,564,091	754,119,401	6.9	787,433,532	62,064	12,151	1,110,966	790	64,848	1,046,908	10,507
Yuima M.W.D.	100,454,069	106,219,951	5.7	110,421,904	12,813	8,290	242,966	(1,234)	5,544	236,187	1,108
Total Authority	57,524,061,587	63,831,825,500	11.0	71,388,143,316	902,702	70,712	110,304,391	(42,739,988)	49,943	67,514,458	304,193
San Diego County (1)	59,839,543,777	66,347,388,592	10.9	74,138,289,435	2,725,100	24,347					

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

*Market value as determined by County Assessor.

TABLE 5
 ASSESSED VALUATION AND TAX COLLECTIONS
 FISCAL YEAR 1984-85

1983-84 Valuation Per Acre	Tax Assessments to Date	Adj. to Tax Assessments	Uncollected 6/30/84	Tax Collections	Interest & Penalties
\$105,416	2,959,118	(13,360)	139,446	2,806,311	20,246
106,098	3,024,479	(103,389)	55,339	2,865,749	20,906
266,067	639,028	(1,342)	11,422	626,262	4,555
3,950	67,729	(1,824)	2,953	62,951	649
90,123	2,568,598	(15,662)	73,016	2,479,919	13,266
36,432	1,023,913	(1,783)	31,922	990,207	5,226
164,330	11,017,103	(48,781)	236,365	10,731,956	40,430
130,088	1,833,762	6,950	17,832	1,822,879	5,051
83,704	3,214,150	(17,316)	137,744	3,059,088	15,072
50,271	1,371,756	(21,342)	124,221	1,226,192	11,391
27,959	2,309,990	(18,698)	135,823	2,155,468	13,227
38,874	3,128,553	(22,903)	139,491	2,966,158	22,041
19,390	1,608,150	(75,714)	478,259	1,054,176	—
49,429	1,546,455	(9,613)	80,176	1,456,665	12,971
14,510	1,107,090	(32,329)	13,457	1,061,303	13,013
13,675	939,591	12,602	(22,941)	975,135	8,590
84,344	1,670,969	65,233	162,649	1,573,553	10,234
144,850	57,795,383	(41,770,157)	(1,888,431)	17,913,657	41,944
183,601	1,687,622	(5,420)	58,673	1,623,528	6,926
40,728	1,560,244	(13,480)	38,516	1,508,248	3,773
138,569	1,953,653	1,006	64,918	1,889,741	8,681
174,683	5,923,112	652,214	(111,310)	5,382,208	14,375
12,151	1,110,966	790	64,848	1,046,908	10,507
8,290	242,966	(1,234)	5,544	236,187	1,108
70,712	110,304,391	(42,739,988)	49,943	67,514,458	304,193
24,347					

Receipts in Lieu of Taxes	Misc. Tax Sales	Net Total Collections	Amount Paid for Service Connections to 6/30/85	Total Amount Paid by Each Member Agency to 6/30/85
10,802	123	2,837,483	207,438	3,044,921
33,275	10	2,919,942	7,931	2,927,873
530	01	631,350	—	631,350
1,000	—	64,600	—	64,600
28	28	2,493,243	9,253	2,502,496
3,420	43	998,897	67,773	1,066,670
4,930	783	10,778,101	28,905	10,807,006
6,828	96	1,834,855	—	1,834,855
2,601	100	3,076,863	106,369	3,183,232
1,250	—	1,238,834	66,608	1,305,442
4,455	45	2,173,196	208,573	2,381,769
3,003	131	2,991,334	45,244	3,036,578
—	—	1,054,176	—	1,054,176
15	8	1,469,660	103,875	1,573,535
23,679	72	1,097,997	152,685	1,250,682
5,400	58	989,184	3,378	992,562
58,800	1	1,642,590	14,527	1,657,117
41,706,505	2,466	59,664,574	426,982	60,091,556
5,426	131	1,636,012	47,205	1,683,217
—	—	1,512,021	—	1,512,021
2,892	1,914	1,903,229	58,787	1,962,016
629,977	143	6,026,703	—	6,026,703
1,011	26	1,058,452	162,554	1,221,006
1,500	—	238,795	28,424	267,219
42,507,335	6,116	110,332,103	1,746,518	112,078,621

Table 6
WATER PRODUCTION WITHIN AUTHORITY AGENCIES — FISCAL YEARS 1975-76 to 1984-85
(All Figures in Acre Feet)

Member Agencies	From Local and Authority Supplies									
	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85
Buena Colorado M. W. D.	15,178	13,928	13,263	14,554	15,038	17,565	15,446	14,720	18,351	16,988
Costa Real M. W. D.	10,965	10,752	10,010	11,135	12,554	13,385	12,749	11,879	12,895	12,880
Del Mar, City of	1,162	918	921	1,096	999	1,075	1,045	1,055	1,235	1,097
De Luz Heights M. W. D.	362	503	612	990	1,339	1,757	1,794	1,792	2,531	2,373
Escondido, City of	21,828	19,740	19,001	20,500	22,113	26,052	22,534	20,269	24,214	23,281
Fallbrook Public Utility Dist.	13,429	12,999	11,128	11,667	12,174	14,698	12,386	10,156	12,600	11,606
Helix Water District	37,724	34,465	32,882	36,256	37,676	41,613	39,284	36,519	41,081	40,579
National City & South Bay I.D.	22,038	21,339	20,021	21,628	21,519	23,222	23,209	23,252	25,593	26,092
Oceanside, City of	17,358	16,565	15,851	18,310	19,602	22,408	21,769	19,846	22,583	24,114
Olivetham M. W. D.	4,079	3,739	4,358	4,714	5,313	6,437	5,856	6,027	7,741	8,233
Otay W.D.	12,927	11,787	11,846	11,270	11,852	13,612	12,943	11,952	13,551	13,830
Padre Dam M. W. D.	12,011	11,623	11,799	12,812	13,718	15,572	14,908	14,102	16,992	17,027
Pendleton Military Res.	—	—	—	—	—	—	—	—	—	—
Poway, City of	7,983	7,177	6,553	6,948	8,240	9,027	7,873	7,547	9,215	9,320
Rainbow M. W. D.	25,472	25,824	22,529	24,709	26,943	34,111	28,630	25,354	31,374	29,297
Ranoma M. W. D.	5,482	5,653	5,531	6,269	6,583	9,065	8,873	8,679	10,871	9,609
Rincon del Diablo M. W. D.	4,080	3,914	3,926	4,483	4,789	5,763	5,256	4,374	6,001	6,039
San Diego, City of:										
Inside City	167,392	162,003	155,226	164,934	175,668	191,713	192,626	182,873	203,642	216,289
Outside City (not in Authority)	7,887	7,367	6,023	6,866	4,480	6,964	5,657	3,723	6,149	4,492
San Diegoito Water District	7,167	7,058	6,452	7,170	7,342	8,056	7,668	7,298	7,670	7,956
San Marcos C. W. D.	5,274	5,535	5,562	6,559	6,800	8,420	8,233	7,847	9,654	10,090
Santa Fe Irrigation District	8,951	7,517	7,254	7,735	10,252	9,368	8,792	7,728	10,617	11,195
Valley Center M. W. D.	29,198	28,895	26,738	29,417	33,568	44,687	38,358	32,583	42,367	39,435
Yuima M. W. D.	4,263	3,729	3,335	2,987	2,978	3,891	3,498	2,782	3,335	3,392
Total	442,210	423,030	400,821	433,009	461,540	528,461	499,387	462,357	540,262	545,214

TABLES

Table 7
WATER SALES — 1947 to 1985
(All figures rounded to nearest whole acre foot)

Member Agencies	From Local and Authority Supplies									
	1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57
Buena Colorado M. W. D.	147,743	146,676	146,676	146,676	146,676	146,676	146,676	146,676	146,676	146,676
Costa Real M. W. D.	9,752	9,752	9,752	9,752	9,752	9,752	9,752	9,752	9,752	9,752
Del Mar, City of	1,181	1,181	1,181	1,181	1,181	1,181	1,181	1,181	1,181	1,181
De Luz Heights M. W. D.	138,749	138,749	138,749	138,749	138,749	138,749	138,749	138,749	138,749	138,749
Escondido, City of	583,073	583,073	583,073	583,073	583,073	583,073	583,073	583,073	583,073	583,073
Fallbrook Public Utility District	257,129	257,129	257,129	257,129	257,129	257,129	257,129	257,129	257,129	257,129
Helix Water District	344,593	344,593	344,593	344,593	344,593	344,593	344,593	344,593	344,593	344,593
National City & South Bay I.D.	189,998	189,998	189,998	189,998	189,998	189,998	189,998	189,998	189,998	189,998
Oceanside, City of	27,961	27,961	27,961	27,961	27,961	27,961	27,961	27,961	27,961	27,961
Olivetham M. W. D.	139,670	139,670	139,670	139,670	139,670	139,670	139,670	139,670	139,670	139,670
Otay W.D.	120,710	120,710	120,710	120,710	120,710	120,710	120,710	120,710	120,710	120,710
Padre Dam M. W. D.	—	—	—	—	—	—	—	—	—	—
Pendleton Military Res.	86,886	86,886	86,886	86,886	86,886	86,886	86,886	86,886	86,886	86,886
Poway, City of	294,981	294,981	294,981	294,981	294,981	294,981	294,981	294,981	294,981	294,981
Rainbow M. W. D.	35,385	35,385	35,385	35,385	35,385	35,385	35,385	35,385	35,385	35,385
Ranoma M. W. D.	121,085	121,085	121,085	121,085	121,085	121,085	121,085	121,085	121,085	121,085
Rincon del Diablo M. W. D.	2,780,644	2,780,644	2,780,644	2,780,644	2,780,644	2,780,644	2,780,644	2,780,644	2,780,644	2,780,644
San Diego, City of	69,706	69,706	69,706	69,706	69,706	69,706	69,706	69,706	69,706	69,706
San Diegoito Water District	55,738	55,738	55,738	55,738	55,738	55,738	55,738	55,738	55,738	55,738
San Marcos C. W. D.	75,278	75,278	75,278	75,278	75,278	75,278	75,278	75,278	75,278	75,278
Santa Fe Irrigation District	225,105	225,105	225,105	225,105	225,105	225,105	225,105	225,105	225,105	225,105
Valley Center M. W. D.	27,060	27,060	27,060	27,060	27,060	27,060	27,060	27,060	27,060	27,060
Yuima M. W. D.	5,879,103	5,879,103	5,879,103	5,879,103	5,879,103	5,879,103	5,879,103	5,879,103	5,879,103	5,879,103
Total Sales to Agencies	43,101	43,101	43,101	43,101	43,101	43,101	43,101	43,101	43,101	43,101
Total Sales to Others	+ 308,770	+ 308,770	+ 308,770	+ 308,770	+ 308,770	+ 308,770	+ 308,770	+ 308,770	+ 308,770	+ 308,770
Total to Authority Storage	- 257,761	- 257,761	- 257,761	- 257,761	- 257,761	- 257,761	- 257,761	- 257,761	- 257,761	- 257,761
Total from Authority Storage	+ 120,929	+ 120,929	+ 120,929	+ 120,929	+ 120,929	+ 120,929	+ 120,929	+ 120,929	+ 120,929	+ 120,929
Total to Metropolitan Storage	- 116,908	- 116,908	- 116,908	- 116,908	- 116,908	- 116,908	- 116,908	- 116,908	- 116,908	- 116,908
Total from Metropolitan Storage	5,977,228	5,977,228	5,977,228	5,977,228	5,977,228	5,977,228	5,977,228	5,977,228	5,977,228	5,977,228
Total Flow in Authority System	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3	487.3
Average Rate of Flow (c.f.a.)	+ 29.6	+ 29.6	+ 29.6	+ 29.6	+ 29.6	+ 29.6	+ 29.6	+ 29.6	+ 29.6	+ 29.6
To Authority Storage	- 47.7	- 47.7	- 47.7	- 47.7	- 47.7	- 47.7	- 47.7	- 47.7	- 47.7	- 47.7
From Authority Storage	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0
To Metropolitan Storage	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0
From Metropolitan Storage	469.2	469.2	469.2	469.2	469.2	469.2	469.2	469.2	469.2	469.2
Flow in Authority System	519.4	519.4	519.4	519.4	519.4	519.4	519.4	519.4	519.4	519.4
Total	413.7	413.7	413.7	413.7	413.7	413.7	413.7	413.7	413.7	413.7

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

Table 8
SALES OF IMPORTED WATER — FISCAL YEAR 1984-85
(All Figures in Acre-Feet except as noted)

Table 8 (Continued)

Member Agency	Month, 1984						Total 6 months 1984
	July	August	Sept.	Oct.	Nov.	Dec.	
Buena Colorado	846.0	605.4	701.5	277.6	149.4	14.0	2,593.9
Costa Real M.W.D.	1,442.1	1,349.5	1,298.0	1,210.6	897.4	479.1	6,676.7
Del Mar, City of	144.8	128.9	98.8	85.9	79.8	60.6	598.8
De Luz Heights M.W.D.	330.5	342.3	415.9	290.4	89.3	-0-	1,468.4
Escondido, City of	1,893.5	1,715.7	2,144.2	1,128.0	624.9	31.4	7,537.7
Fallbrook P.U.D.	1,678.0	1,636.0	1,704.4	1,252.0	544.6	197.8	7,012.8
Helix W.D.	3,668.9	3,352.3	3,461.1	3,091.2	2,746.4	2,137.8	18,457.7
National City & South Bay I.D.	56.0	177.1	235.3	91.6	9.5	8.2	577.7
Oceanside, City of	2,661.4	2,593.3	2,728.3	2,170.0	1,565.9	982.4	12,701.3
Olivenhain M.W.D.	1,033.8	995.7	973.6	741.7	462.6	257.4	4,464.8
Otay W.D.	1,523.9	1,596.9	1,626.6	1,277.6	819.9	591.2	7,436.1
Padre Dam M.W.D.	2,008.4	1,943.2	1,954.4	1,500.5	1,003.0	745.2	9,154.7
Pendleton Military Res.*	148.2	146.4	131.7	116.9	109.2	126.5	778.9
Poway, City of	1,254.4	1,084.8	1,116.0	807.1	444.7	361.9	5,068.9
Rainbow M.W.D.	4,369.5	4,221.2	4,219.9	3,341.3	1,285.2	189.7	17,626.4
Ramona M.W.D.	1,314.2	1,168.9	1,326.7	1,001.5	471.7	146.7	5,429.7
Rincon Del Diablo M.W.D.	815.1	785.9	790.1	575.2	317.9	203.2	3,487.4
San Diego, City of	15,387.1	17,152.2	15,591.2	11,943.7	8,565.1	4,901.7	73,541.0
San Dieguito W.D.	528.7	455.0	429.6	254.4	198.5	(17.8)	1,848.4
San Marcos C.W.D.	1,229.2	1,159.3	1,185.1	991.5	622.9	384.3	5,572.3
Santa Fe I.D.	771.8	724.5	657.5	362.7	244.3	14.3	2,775.1
Valley Center M.W.D.	6,035.9	5,691.6	6,308.7	4,415.4	1,664.2	180.1	24,295.9
Yuima M.W.D.	328.1	308.7	326.8	201.2	46.8	0.9	1,212.5
Total Sales to Agencies	49,469.5	49,334.8	49,425.4	37,128.0	22,963.2	11,996.6	220,317.5
Total Sales to Others	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total Sales to Agencies & Others	49,469.5	49,334.8	49,425.4	37,128.0	22,963.2	11,996.6	220,317.5
Total to Authority Storage	+644.8	-0-	-0-	-0-	-0-	-0-	644.8
Total From Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total Flow in Authority System	50,114.3	49,334.8	49,425.4	37,128.0	22,963.2	11,996.6	220,962.3
Total Evaporation Losses from Storage in San Vicente and Lower Otay Reservoirs	151.4	133.3	136.2	96.8	44.7	25.2	587.6
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	804.5	802.4	830.6	603.8	385.9	195.1	603.7
To Authority Storage	+10.5	-0-	-0-	-0-	-0-	-0-	+1.8
From Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-
In Authority System	815.0	802.4	830.6	603.8	385.9	195.1	605.5

*1418.1 AF delivered through Coastal M.W.D. facilities and are included in Authority totals

Member Agency	Month, 1985						Total 6 months 1985	Fiscal Year Total	Fiscal Year Average cfs
	Jan.	Feb.	March	April	May	June			
Buena Colorado	177.4	580.9	925.0	429.6	475.0	645.1	3,233.0	5,826.9	8.0
Costa Real M.W.D.	566.8	598.3	906.1	1,160.1	1,422.8	1,497.9	6,152.0	12,828.7	17.7
Del Mar, City of	74.2	66.3	80.1	92.6	85.5	99.6	498.3	1,097.1	1.5
De Luz Heights M.W.D.	37.6	43.5	101.8	158.9	250.9	293.0	885.7	2,354.1	3.3
Escondido, City of	393.8	934.9	1,310.4	876.4	1,383.2	1,645.2	6,543.9	14,081.6	19.5
Fallbrook P.U.D.	310.4	305.0	540.0	873.5	1,180.7	1,377.1	4,586.7	11,599.5	16.0
Helix W.D.	2,299.1	2,430.2	3,329.8	3,117.8	3,288.2	3,584.2	18,049.3	36,507.0	50.4
National City & South Bay I.D.	6.4	-0-	1,472.2	658.0	954.6	1,194.4	4,285.6	4,863.3	6.7
Oceanside, City of	1,216.5	1,184.6	1,652.6	2,088.1	2,589.2	2,681.9	11,412.9	24,114.2	33.3
Olivenhain M.W.D.	329.2	345.4	530.0	666.3	883.6	1,013.7	3,768.2	8,233.0	11.4
Otay W.D.	580.9	693.5	901.5	1,091.4	1,457.2	1,669.7	6,394.2	13,830.3	19.1
Padre Dam M.W.D.	867.5	870.1	1,090.7	1,296.1	1,718.4	2,029.9	7,872.7	17,027.4	23.5
Pendleton Military Res.*	108.7	84.0	144.3	159.3	134.5	132.7	763.5	1,542.4	2.1
Poway, City of	374.0	360.5	579.5	749.8	967.3	1,213.1	4,244.2	9,313.1	12.9
Rainbow M.W.D.	499.4	539.2	1,374.0	2,606.8	2,857.6	3,656.1	11,533.1	29,159.9	40.3
Ramona M.W.D.	220.8	192.5	342.3	548.0	826.1	1,128.3	3,258.0	8,687.7	12.0
Rincon Del Diablo M.W.D.	279.2	176.2	312.2	444.0	610.0	730.1	2,551.7	6,039.1	8.3
San Diego, City of	7,275.8	11,730.3	16,586.9	17,481.0	22,264.6	21,464.6	96,803.2	170,344.2	235.3
San Dieguito W.D.	1.2	150.9	100.8	154.7	415.0	620.3	1,442.9	3,291.3	4.6
San Marcos C.W.D.	443.0	454.4	615.4	786.6	1,038.2	1,224.8	4,562.4	10,134.7	14.0
Santa Fe I.D.	(2.7)	152.0	99.7	172.8	509.6	781.4	1,712.8	4,487.9	6.2
Valley Center M.W.D.	657.5	504.5	1,571.3	2,718.2	4,143.1	5,062.7	14,657.3	38,953.2	53.8
Yuima M.W.D.	2.8	0.3	43.6	117.0	227.3	281.0	672.0	1,884.5	2.6
Total Sales to Agencies	16,719.5	22,397.5	34,610.2	38,447.0	49,682.6	54,026.8	215,883.6	436,201.1	602.5
Total Sales to Others	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Total Sales to Agencies & Others	16,719.5	22,397.5	34,610.2	38,447.0	49,682.6	54,026.8	215,883.6	436,201.1	602.5
Total to Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-	644.8	
Total From Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
Total Flow in Authority System	16,719.5	22,397.5	34,610.2	38,447.0	49,682.6	54,026.8	215,883.6	436,845.9	
Total Evaporation Losses from Storage in San Vicente and Lower Otay Reservoirs	29.0	43.5	59.2	93.0	106.5	124.0	455.2	1,042.8	
Total Evaporation Losses from Storage in Sweetwater Reservoir	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
Rate of Flow (c.f.s.)									
To Agencies and Others	271.9	403.3	562.9	646.1	808.0	908.0	601.3	602.5	
To Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-	+0.9	
From Authority Storage	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	
In Authority System	271.9	403.3	562.9	646.1	808.0	908.0	601.3	603.4	

SAN DIEGO COUNTY WATER AUTHORITY

Table 9
ASSESSSED VALUATIONS AND TAX RATES
Fiscal Years 1945-46 to 1984-85

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	1,272,506,330	201,245,370	154,989,440	1,628,741,140	0.11	0.11
1963-64	1,340,197,170	209,793,780	159,714,930	1,709,705,880	0.11	0.11
1964-65	1,423,375,590	213,352,470	151,686,520	1,788,414,580	0.11	0.11
1965-66	1,511,967,750	212,605,040	155,417,220	1,879,990,010	0.11	0.11
1966-67	1,567,290,460	212,223,550	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	450,374,627	4,775,761,282	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
1978-79	6,272,490,327	554,099,470	707,294,537	7,533,884,334	0.06	0.11
1979-80	7,624,459,863	660,454,810	837,758,367	9,122,673,040	0.04	0.06
1980-81	9,163,752,692	731,869,180	483,834,623	10,379,456,495	0.05	0.04
1981-82(4)	41,759,646,912	3,457,486,860	1,692,548,096	46,889,681,868	0.01	0.0125
1982-83	46,670,563,147	4,136,558,170	1,971,803,569	52,778,924,886	0.00817	0.01
1983-84	50,057,533,413	5,275,693,400	2,190,834,774	57,524,061,587	0.004605	0.00817
1984-85	55,587,979,549	5,666,443,560	2,577,402,391	63,831,825,500	0.007090	0.004605

- (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% assessment from the County of San Diego.
- (4) Assessed valuation 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 1984-85

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	3.32
5,336,375	5,223,483	97.88	(17,845)	76,632	5,300,115	172,522	3.23
6,012,954	5,928,085	98.59	34,543	109,718	6,037,803	182,216	3.03
7,111,999	7,083,080	99.59	(6,021)	87,193	7,170,273	117,921	1.66
5,956,033	5,802,438	97.42	—	134,444	5,936,882	137,027	2.30
5,549,222	5,420,190	97.67	(105,757)	137,072	5,557,262	23,275	0.42
7,164,231	7,076,598	97.78	181,346	137,782	7,214,380	154,472	2.16
7,150,025	6,886,178	96.31	73,743	228,215	7,114,393	213,847	3.69
6,690,619	6,634,619	99.16	197,022	164,354	6,798,973	302,515	4.52
6,588,403	6,460,324	98.06	(47,042)	178,479	6,638,803	205,073	3.11
7,239,670	7,039,608	97.24	(72,146)	283,045	7,322,653	49,944	0.69

Table 10
 CHEMICAL CHARACTER OF NATURAL COLORADO RIVER WATER
 AT WEST PORTAL OF SAN JACINTO TUNNEL
 Year Ending June 30, 1985
 Samples Taken at Entrance to San Diego Aqueduct by M.W.D.
 and Analyzed by District Laboratory

Month	Total Hardness as mg/l Ca CO ₃	Alkalinity as mg/l CaCO ₃ TOTAL	Magnesium as mg/l	(PH) Hydrogen Ion Concentration	Temperature When Sampled	
					°F	°C
July	316	130	27.0	8.36	77.9	25.5
August	302	128	26.0	8.39	77.9	25.5
September	299	130	26.0	8.25	77.0	25.0
October	302	133	26.0	8.32	68.9	20.5
November	297	133	26.0	8.30	60.8	16.0
December	293	134	24.5	8.30	57.2	14.0
January	295	136	25.0	8.28	53.6	12.0
February	293	131	25.0	8.27	53.6	12.0
March	295	130	25.5	8.29	NR	NR
April	295	131	25.0	8.30	60.8	16.0
May	293	130	25.0	8.35	68.0	20.0
June	290	131	25.0	8.37	73.4	23.0

ANALYSIS - YEAR ENDING JUNE 30, 1985
 (mg/l except PH, Conductivity and Temperature)

Constituent	Symbol	ANALYSIS		
		Average	Maximum	Minimum
Silica	(SiO ₂)	8.1	8.4	7.7
Calcium	(Ca)	77	82	75
Magnesium	(Mg)	25.5	27.0	24.5
Sodium	(Na)	82	88	79
Potassium	(K)	3.7	4.2	3.3
Carbonate	(CO ₃)	0.6	4.0	-0-
Bicarbonate	(HCO ₃)	159	166	152
Sulfate	(SO ₄)	245	266	235
Chloride	(Cl)	64	71	60
Nitrate	(NO ₃)	1.04	1.40	0.75
Fluoride	(F)	0.32	0.36	0.28
Boron	(B)	0.07	0.08	0.06
Total Dissolved Solids		587	626	568
Hardness as CaCO ₃ — Total		297	316	290
Alkalinity — Total		131	136	128
Free Carbon Dioxide	(CO ₂)	1.3	1.5	1.1
Hydrogen Ion Concentration	(PH)	8.31	8.39	8.25
Electrical Conductivity EC x 10 ³ @25°C		930	988	890
Temperature °C		19.0	25.5	12.0

Table 11
 CHEMICAL CHARACTER OF BLENDED TREATED WATER
 AT LAKE SKINNER
 Year Ending June 30, 1985
 Samples Taken by M.W.D. and Analyzed by District Laboratory

Month	Total Hardness as mg/l Ca CO ₃	Alkalinity as mg/l CaCO ₃ TOTAL	Magnesium as mg/l	(PH) Hydrogen Ion Concentration	Temperature When Sampled	
					°F	°C
July	231	102	21.5	8.06	74.7	23.7
August	257	112	23.0	8.04	78.8	26.0
September	222	109	20.0	8.03	78.8	26.0
October	269	118	23.5	8.01	69.8	21.0
November	290	130	25.5	8.09	60.8	16.0
December	283	122	24.5	8.03	53.6	12.0
January	283	124	24.5	8.03	51.8	11.0
February	286	125	24.5	8.00	51.8	11.0
March	279	123	24.0	8.02	55.4	13.0
April	241	113	21.5	8.08	59.0	15.0
May	199	101	18.0	8.09	66.2	19.0
June	184	100	17.5	8.11	71.6	22.0

ANALYSIS - YEAR ENDING JUNE 30, 1985
 (mg/l except PH, Conductivity and Temperature)

Constituent	Symbol	ANALYSIS		
		Average	Maximum	Minimum
Silica	(SiO ₂)	8.1	9.2	7.5
Calcium	(Ca)	64	74	45
Magnesium	(Mg)	22.3	25.5	17.5
Sodium	(Na)	74	83	56
Potassium	(K)	3.3	3.9	2.7
Carbonate	(CO ₃)	-0-	-0-	-0-
Bicarbonate	(HCO ₃)	140	159	122
Sulfate	(SO ₄)	205	244	135
Chloride	(Cl)	61	67	49
Nitrate	(NO ₃)	0.54	1.0	0.35
Fluoride	(F)	0.28	0.37	0.22
Boron	(B)	0.08	0.09	0.07
Total Dissolved Solids		509	584	374
Hardness as CaCO ₃ — Total		252	290	184
Alkalinity — Total		115	130	100
Free Carbon Dioxide	(CO ₂)	2.1	2.5	1.6
Hydrogen Ion Concentration	(PH)	8.05	8.11	8.00
Electrical Conductivity EC x 10 ³ @25°C		824	922	634
Temperature °C		18.0	26.0	11.0

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

Fiscal Year	Area (acres)	Assessed Valuation Total (1)	Tax Rate	
			Per \$100 Secured	Per \$100 Unsecured
1929-30	—	\$ 2,439,836,920	0.04	0.00
1930-31	—	2,431,684,250	.03	.04
1931-32	—	2,382,184,445	.03	.03
1932-33	—	1,936,051,180	.04	.03
1933-34	—	1,654,403,890	.04	.04
1934-35	—	1,587,147,565	.10	.04
1935-36	—	1,783,531,020	.20	.10
1936-37	—	1,789,160,685	.37	.20
1937-38	—	1,827,765,725	.40	.37
1938-39	—	1,896,966,255	.40	.40
1939-40	—	1,910,152,190	.42	.40
1940-41	389,588	1,841,248,450	.49	.42
1941-42	399,875	1,900,599,934	.48	.49
1942-43	400,614	2,001,924,735	.48	.48
1943-44	401,190	2,005,496,430	.48	.48
1944-45	401,536	2,109,192,795	.48	.48
1945-46	402,779	2,159,731,425	.50	.48
1946-47	501,425	2,413,186,570	.48	.50
1947-48	546,573	3,443,212,822(2)	.35	.48
1948-49	578,368	3,883,081,225	.34	.35
1949-50	585,184	4,181,812,855	.34	.34
1950-51	721,850	4,281,519,725	.31	.34
1951-52	995,130	4,674,664,040	.30	.31
1952-53	1,120,448	5,372,498,515	.28	.30
1953-54	1,368,038	6,015,691,980	.25	.28
1954-55	1,793,651	6,548,392,114	.23	.25
1955-56	1,876,256	8,514,868,335	.21	.23
1956-57	1,932,205	9,674,000,560	.19	.21
1957-58	2,046,189	11,235,906,510	.18	.19
1958-59	2,128,333	12,070,838,070	.18	.18
1959-60	2,171,290	12,714,205,470	.17	.18
1960-61	2,544,960	13,737,971,925	.16	.17
1961-62	2,647,014	14,803,202,587	.15	.16
1962-63	2,797,946	15,699,681,030	.14	.15
1963-64	2,825,306	17,261,412,395	.14	.14
1964-65	2,882,144	17,757,246,740	.14	.14
1965-66	2,890,266	19,143,157,788	.14	.14
1966-67	2,901,421	20,979,150,165	.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	3,277,011	353,335,259,307	.0166%	.0198%
1983-84	3,280,294	379,788,761,242	.0237%	.0166%
1984-85	3,537,279	419,859,047,899	.0156%	.0237%
1985-86	—	458,782,059,816	.0164%	.0156%

- (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.

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

Member Agencies	Date of Annexation	Amount of Annexation Charge	Remaining Balance 6-30-85
Annexation Charges Outstanding			
Bueno Colorado M.W.D.	6-11-54	\$ 1,072,230	\$ -0-
Costa Real MWD (formerly Carlsbad MWD)	6-16-54	548,100	-0-
Del Mar, City of	11-23-62	611,250	162,731
De Luz M.W.D.	6-28-67	2,002,000	*3,186,731
No. 1 Annexation of 1969	10-15-69	312,000	*528,745
Fallbrook P.U.D.			
No. 2 Annexation of 1958	11-24-58	50,400	6,698
Fallbrook Community Air Park	12-22-69	59,800	*88,969
Helix Water District			
El Cajon Dry Island Annexation	12-20-54	327,450	-0-
Helix-Watson Ranch Annexation	2-20-59	8,730	1,433
Helix-Sunny Slope Hts. Annexation	9-17-59	38,250	6,363
Olivenhain M.W.D.	7-25-60	83,880	15,881
No. 1 Annexation of 1965	2-11-65	512,520	187,901
No. 4 Annexation of 1967	11-13-67	74,000	69,791
Otay W.D.	10-26-56	273,000	16,489
No. 3 Annexation of 1960	10-20-60	95,100	18,912
Padre Dam M.W.D. (not including Lakeside I.D.)			
(Formerly Rio San Diego M.W.D.)	6-7-56	373,980	24,121
No. 2 Annexation of 1959	11-6-59	109,110	18,139
No. 3 Annexation of 1960	10-17-60	289,890	57,907
No. 4 Annexation of 1970	8-3-70	164,000	126,939
Poway M.W.D.	4-21-54	91,800	-0-
No. 1 Annexation of 1959	9-21-59	27,150	4,447
Rainbow M.W.D.	4-10-54	167,700	-0-
No. 1 Annexation of 1959	5-12-59	24,300	4,042
No. 3 Annexation of 1967	12-6-67	1,728,000	*3,048,565
No. 5 Annexation of 1973	11-22-73	13,200	11,652
Ramona M.W.D.	8-27-57	339,000	33,900
No. 1 Annexation of 1959	5-29-59	42,330	7,008
No. 2 Annexation of 1961	9-22-61	15,480	3,600
No. 3 Annexation of 1963	9-20-63	10,560	3,163
No. 4 Annexation of 1967	11-27-67	480,600	583,517
No. 5 Annexation of 1972	5-17-72	732,000	741,225
Rincon del Diablo M.W.D.	6-14-54	757,200	-0-
No. 4 Annexation of 1972	11-2-72	19,200	*24,905
San Dieguito Water District			
No. 1 Annexation of 1959	9-15-59	71,820	11,947
No. 2 Annexation of 1972	12-8-72	107,000	*142,577
Valley Center M.W.D.	5-9-55	205,680	6,166
No. 1 Annexation of 1960	12-12-60	23,700	4,738
No. 2 Annexation of 1967	11-29-67	22,000	28,703
No. 3 Annexation of 1967	11-30-67	502,000	656,552
Yuima M.W.D.	12-16-63	749,490	224,757
No. 1 Annexation of 1967	11-21-67	72,200	56,825
No. 2 Annexation of 1969	11-24-69	14,400	14,514
Pendleton Mil. Reservation-Nuclear			
Generating Plant	12-16-77	**2,405,229	**2,105,351
Total		\$16,077,099	12,235,550

Annexation charges received from other annexed areas not listed above having no remaining balance. \$ 18,969,397

*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.

Table 14
WATER SALES BY METROPOLITAN WATER DISTRICT

Fiscal Years 1941-42 to 1984-85

Year	To Member Municipalities				Total to Agencies	To Others	Total
	Natural Water		Treated Water				
	Acre Feet	Percent	Acre Feet	Percent			
1941-42	-0-	-0-	9,372.6	100	9,372.6	70.7	9,443.3
1942-43	-0-	-0-	14,457.8	100	14,457.8	2,626.4	17,084.2
1943-44	-0-	-0-	15,874.9	100	15,874.9	3,301.8	19,176.7
1944-45	-0-	-0-	30,591.3	100	30,591.3	1,715.7	32,307.0
1945-46	-0-	-0-	46,685.8	100	46,685.8	1,264.2	47,950.0
1946-47	-0-	-0-	59,861.8	100	59,861.8	524.0	60,385.8
1947-48	41,093.5	36	71,995.4	64	113,088.9	116.8	113,255.7
1948-49	71,642.6	49	73,237.1	51	144,879.7	128.4	145,008.1
1949-50	69,308.0	49	72,936.0	51	142,244.0	23,371.6	165,615.6
1950-51	75,000.9	54	63,493.1	46	138,494.0	26,978.6	165,472.6
1951-52	66,674.3	44	84,616.1	56	151,290.4	42,464.2	193,754.6
1952-53	30,845.3	24	99,589.6	76	130,434.9	31,682.4	162,117.3
1953-54	120,773.0	51	115,550.6	49	236,323.6	7,820.7	244,144.3
1954-55	192,544.7	59	134,923.3	41	327,468.0	58,184.5	385,652.5
1955-56	190,337.2	53	169,506.4	47	359,843.6	45,562.9	405,406.5
1956-57	286,059.1	60	191,110.7	40	477,169.8	66,074.1	543,243.9
1957-58	266,024.1	57	197,900.0	43	463,935.1	75,612.8	539,536.9
1958-59	244,354.2	46	282,248.1	54	526,602.3	74,107.1	600,709.4
1959-60	425,019.0	58	304,874.8	42	729,893.8	3,523.2	733,417.0
1960-61	594,521.1	64	335,207.2	36	929,728.3	4,099.4	933,827.7
1961-62	608,811.0	66	312,975.9	34	921,786.9	3,676.9	925,463.8
1962-63	668,881.8	66	348,092.6	34	1,016,974.4	3,677.0	1,020,651.4
1963-64	671,853.4	63	388,553.9	37	1,060,407.3	3,776.7	1,064,184.0
1964-65	645,577.3	58	471,042.0	42	1,116,619.3	5,035.3	1,121,654.6
1965-66	550,630.8	52	503,424.9	48	1,054,055.7	4,821.8	1,058,877.5
1966-67	523,141.2	50	531,659.7	50	1,054,800.9	4,513.0	1,059,313.9
1967-68	514,248.1	48	557,730.9	52	1,071,979.0	4,934.9	1,076,913.9
1968-69	455,174.3	43	599,237.7	57	1,054,412.0	2,232.4	1,056,644.4
1969-70	482,256.9	41	692,846.4	59	1,165,103.3	650.0	1,165,753.3
1970-71	520,983.9	46	612,511.6	54	1,133,495.5	150.3	1,133,645.8
1971-72	590,356.9	47	656,635.9	53	1,246,992.8	549.6	1,247,542.4
1972-73	569,290.7	48	606,120.4	52	1,175,411.1	4.3	1,175,415.4
1973-74*	655,058.0	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	24,256.0	1,235,884.0
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
1982-83	314,190.0	26	912,172.0	74	1,226,362.0	207.0	1,226,569.0
1983-84	364,608.5	26	1,062,123.5	74	1,426,732.0	1,210.0	1,427,942.0
1984-85	455,061.0	29	1,119,443.0	71	1,574,806.0**	934.0	1,575,740.0

*Revised

**Includes deliveries of reclaimed water to Las Virgenes and Coastal MWD.

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

	Total Water Production			Source of Water Produced — 1984-1985		
	(1)	(2)	(3)	(4)	(3 + 2)	(4 + 2)
	1983-84 Amount Ac. Ft.	1984-85 Amount Acres-foot	MWD Direct + Deliveries Ac. Ft.	Local Production Amount Ac. Ft.	Percent of Total	Percent of Total
Anaheim	65,830	68,934	32,673	36,261	47	53
Beverly Hills	14,654	14,869	14,869	0	100	100
Burbank	23,603	23,215	20,189	3,026	87	13
Calleguas M.W.D.	109,926	112,517	86,123	26,394	77	23
Central Basin M.W.D. a)	260,245	262,253	133,423	128,830	49	51
Chino Basin M.W.D.	175,769	181,015	29,761	151,254	16	84
Coastal M.W.D.	40,807	40,890	40,803*	87	100	2
Compton	9,730	10,072	5,734	4,338	57	43
Eastern M.W.D.	124,558	128,226	28,868	99,358+	23	78
Football M.W.D.	15,985	16,725	10,905	5,820	65	35
Fullerton	33,276	33,320	18,577	14,743	56	44
Glendale	29,138	29,829	23,570	6,259	79	21
Las Virgenes M.W.D.	12,666	15,858	15,858**	0	100	100
Long Beach	74,701	77,371	48,951	28,420	63	37
Los Angeles	651,295	674,885	46,552	628,333	7	93
Orange County M.W.D. a)	380,786	414,657	224,296	190,361	54	46
Pasadena	37,860	39,402	22,726	16,676	58	42
San Diego C.W.A.	541,179	567,806	434,172	133,634	76	24
San Fernando	3,737	3,736	57	3,679	2	98
San Marino	5,051	5,187	48	5,139	1	99
Santa Ana	46,832	48,524	15,597	32,927	32	68
Santa Monica	18,601	18,222	9,496	8,726	52	48
Three Valleys M.W.D.	108,132	118,452	54,846	63,606	46	54
Torrance	29,668	30,048	19,044	11,004	63	37
Upper San Gabriel Valley M.W.D.	179,361	179,263	10,025	169,238	6	94
West Basin M.W.D. a)	187,628	190,004	184,521	5,483	97	29
Western M.W.D.	204,144	180,018	43,122	136,896	24	76
TOTALS	3,381,162	3,485,298	1,574,806	1,910,492	45	55

NOTES: *Includes 216 AF of reclaimed water

**Includes 91 AF of reclaimed water

+ Includes San Jacinto Seepage

+ + Special contracts and reimbursable water not included

a) Includes M. W. D. replenishment deliveries that benefit other member agencies in the same groundwater basin.

SAN DIEGO COUNTY WATER AUTHORITY
Financial Statements and Schedule
June 30, 1985 and 1984
(With Accountants' Report Thereon)



Peat, Marwick, Mitchell & Co.
Certified Public Accountants
225 Broadway, Suite 1400
San Diego, California 92101

The Board of Directors
San Diego County Water Authority:

We have examined the balance sheets of the San Diego County Water Authority as of June 30, 1985 and 1984, 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 the San Diego County Water Authority at June 30, 1985 and 1984 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.

September 20, 1985

SAN DIEGO COUNTY WATER AUTHORITY

Balance Sheets

June 30, 1985 and 1984

	1985	1984	Liabilities and Equity	1985	1984
ASSETS					
Current assets:			Current liabilities, payable from current assets:		
Cash and certificates of deposit	\$ 21,094,837	17,326,499	Accounts payable	\$ 23,100,522	18,840,098
Accounts and loans receivable, net of allowance for delinquent taxes of \$95,217 in 1985 and \$12,876 in 1984	11,968,748	9,507,613	Advances and deposits by agencies	197,320	241,042
Inventory of water in storage	1,660,444	1,613,527	Accrued expenses	348,132	311,832
Prepaid expenses	44,752	41,652			
Total current assets	34,753,888	28,189,132	Total current liabilities, payable from current assets	23,645,994	19,443,072
Restricted assets:			Current liabilities, payable from restricted assets:		
Debt redemption:			Current installments of long-term debt (note 3)	4,794,575	4,899,575
Metroworks bonds:			Accrued interest payable	584,826	418,612
Cash and certificates of deposit	2,340,316	1,764,079			
Taxes and interest receivable, less allowance for delinquent taxes of \$189,561 in 1985 and \$247,503 in 1984	239,001	81,505	Total current liabilities	28,025,273	24,760,640
U.S. Government contracts:			Deferred compensation payable	321,462	354,974
Cash and certificates of deposit	218,294	212,410	Long-term debt, excluding current installments (note 3):		
Due from Metropolitan Water District (note 3)	1,826,142	2,121,490	General obligations waterworks bonds	34,860,000	37,285,000
Taxes and interest receivable, less allowance for delinquent taxes of \$9,123 in 1985 and \$9,228 in 1984	4,653	1,262	U.S. Government contracts	3,233,783	3,403,260
Capital improvements:			Notes payable to bank	13,000,000	6,000,000
Cash and certificates of deposit	1,199,542	3,408,291	Contract notes payable	4,000,000	5,000,020
Taxes and interest receivable, less allowance for delinquent taxes of \$24,624 in 1985	164,427	185,423	Total long-term debt	55,093,783	52,888,262
U.S. Government contracts	411,208	354,974	Equity:		
Unamortized lease costs	321,863	354,974	Restricted balance	8,930,245	1,341,287
Investment in annuity contracts	7,063,328	8,089,484	Restricted balances:		
Total restricted assets	135,473,441	115,794,871	Appropriated, long-term projects	2,174,267	7,406,793
			U. S. Government contract, debt redemption	2,147,091	2,335,262
Property, plant, and equipment, net (note 2)	\$ 17,297,795	\$ 65,073,587	Metroworks bonds, debt redemption	2,110,828	1,353,436
			Capital improvements	1,479,012	3,437,899
			Equity in property, plant and equipment (note 2)	75,583,281	48,226,936
			Total equity	85,615,954	46,089,492
				\$ 127,067,705	\$ 82,073,687

See accompanying notes to financial statements.

SAN DIEGO COUNTY WATER AUTHORITY
Statements of Earnings
Years ended June 30, 1985 and 1984

	1985	1984
Water sales (note 5)	\$ 87,790,084	67,058,369
Cost of water sold (note 5)	<u>83,350,122</u>	<u>63,322,563</u>
Gross margin from water sales	4,439,962	3,735,806
Operating expenses:		
Water treatment	104,082	90,507
Systems operations	322,005	219,299
Maintenance of structures and plant	629,617	357,844
Automotive operation, maintenance, and shop expense	86,455	127,660
Depreciation	1,468,287	1,523,546
Administrative and general salaries	631,810	343,570
General expense and supplies	<u>718,306</u>	<u>1,141,493</u>
Total operating expenses	3,960,562	3,803,919
Net earnings (loss) from operations	479,400	(68,113)
Nonoperating income (expense):		
Property taxes	7,833,156	6,811,121
Interest expense, net of interest capitalized of \$1,117,911 in 1985 and \$65,000 in 1984	(1,938,715)	(3,031,174)
Interest income	2,179,920	1,961,079
Other	<u>(77,788)</u>	<u>(198,061)</u>
Net earnings	\$ 8,475,973	\$ 5,474,852

See accompanying notes to financial statements.

SAN DIEGO COUNTY WATER AUTHORITY
Statements of Changes in Equity
Years ended June 30, 1985 and 1984

	Restricted balances				Equity in property, plant, and equipment
	Unrestricted Balance	Appropriated Long-term projects	U.S. Government Contract	Capital Improvements	
Balance, July 1, 1983	\$ 78,400,819	3,431,316	2,473,172	6,947,941	61,976,632
Additions (deductions):					
Net earnings (loss)	5,478,852	-	231,765	(522,292)	(1,523,244)
Capital expenditures for property, plant, and equipment	(4,105,250)	-	-	(65,000)	4,105,250
From operations	-	-	-	-	65,000
From contributions by member agencies	-	-	(389,375)	-	(3,978)
Waterworks bonds redeemed	(2,196,156)	5,078,724	-	(1,220,000)	(1,978)
Payments on U.S. Government contracts	1,251,287	7,459,793	-	-	2,220,000
Transfers, net	3,289,612	-	2,325,262	1,203,436	384,375
Balance, June 30, 1984	8,475,973	3,289,612	181,304	3,137,392	68,206,976
Additions (deductions):					
Net earnings (loss)	81,238	-	-	(1,117,911)	11,065,618
Capital expenditures for property, plant, and equipment	(19,947,708)	-	-	-	(1,230,000)
From operations	-	-	-	-	81,238
From contributions by member agencies	-	-	(369,375)	-	2,220,000
Waterworks bonds redeemed	7,347,374	(5,120,444)	-	-	384,375
Payments on U.S. Government contracts	7,050,000	-	-	-	2,000,000
Transfers, net	8,920,244	2,174,367	2,147,081	(2,016,928)	2,000,000
Increase in long-term debt	-	-	-	-	(7,000,000)
Balance, June 30, 1985	\$ 92,626,906	2,174,367	2,147,081	1,679,013	75,385,081

See accompanying notes to financial statements.

SAN DIEGO COUNTY WATER AUTHORITY
Statements of Changes in Financial Position
Years ended June 30, 1985 and 1984

	1985	1984
Sources of working capital:		
Net earnings	\$ 8,475,973	5,474,852
Add depreciation which does not use working capital	1,468,287	1,523,546
Working capital provided by operations	9,944,260	6,998,398
Proceeds from long-term debt	7,000,000	-
Contributions by member agencies for property, plant, and equipment, net of interest on deposits	81,238	(5,978)
Decrease in:		
U.S. Government contract equity	188,271	137,810
Capital improvements equity	1,798,887	3,469,942
	\$ 19,012,656	10,600,172
Uses of working capital:		
Repayments of long-term debt excluding annexation charges	4,699,575	3,589,575
Capital expenditures	11,146,857	4,164,272
Increase in:		
Waterworks bonds equity	807,392	37,520
Working capital	2,358,832	2,808,805
	\$ 19,012,656	10,600,172
Changes in components of working capital:		
Increase (decrease) in current assets:		
Cash and certificates of deposit	3,870,438	8,847,429
Accounts and taxes receivable, net	2,661,135	5,369,235
Inventory of water in storage	26,917	(12,017)
Prepaid expenses	3,264	(2,215)
	6,561,754	14,202,432
Increase (decrease) in current liabilities, payable from current assets:		
Accounts payable	4,240,424	11,198,382
Advances and deposits by agencies	(43,722)	180,658
Accrued expenses	6,220	14,587
	4,202,922	11,393,627
Increase in working capital	\$ 2,358,832	2,808,805

See accompanying notes to financial statements.

SAN DIEGO COUNTY WATER AUTHORITY

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements

June 30, 1985 and 1984

(1) Summary of Significant Accounting Policies

(a) Accounting Method:

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

(b) 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.

(c) Inventories of Water in Storage:

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

(d) 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.

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

	<u>1985</u>	<u>1984</u>
Property, plant, and equipment:		
Property, plant, and equipment	\$ 139,323,722	139,311,654
Construction work in progress	<u>18,276,108</u>	<u>7,141,320</u>
	157,599,830	146,452,974
Less accumulated depreciation	<u>22,126,389</u>	<u>20,658,103</u>
Net property, plant, and equipment	135,473,441	125,794,871
Less total long-term debt including current installments	<u>59,888,360</u>	<u>57,587,935</u>
Equity in property, plant, and equipment	\$ <u>75,585,081</u>	<u>68,206,936</u>

(Continued)

SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(3) Long-Term Debt

	<u>Interest rate</u>	<u>1985</u>	<u>1984</u>
General obligation bonds:			
Waterworks bonds, 1957, maturing February 1, 1986-1994	1½-6%	\$ 15,640,000	17,260,000
Waterworks bonds, 1966, maturing October 1, 1985-2004	4.5%-5.5%	<u>21,645,000</u>	<u>22,355,000</u>
Total bonds		<u>37,285,000</u>	<u>39,615,000</u>
U.S. Government contracts due February, 1995:			
Authority's share; second pipeline	2.6%	1,679,218	1,851,445
Metropolitan Water District's share; second pipeline	2.6%	<u>1,924,142</u>	<u>2,121,490</u>
Total U.S. Government contracts		<u>3,603,360</u>	<u>3,972,935</u>
Note payable to bank, maturing June 25, 1985-1988	7.1%	6,000,000	8,000,000
Contract notes payable, maturing May 1, 1988-1990	9.25%-10%	6,000,000	6,000,000
Bonds payable, maturing March 1, 1990-1992	5.05%-5.25%	<u>7,000,000</u>	-
Total long-term debt		59,888,360	57,587,935
Less current installments of long-term debt		<u>4,794,575</u>	<u>4,699,575</u>
Long-term debt, excluding current installments		\$ <u>55,093,785</u>	<u>52,888,360</u>

The Metropolitan Water District's share of U.S. Government contracts, \$1,924,142 and \$2,121,490 at June 30, 1985 and 1984, respectively, are 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

Maturities of long-term debt are summarized as follows:

1986	\$ 4,794,575
1987	4,884,575
1988	5,999,575
1989	6,099,575
1990	6,219,575
1991-1995	19,395,485
1996-2000	6,330,000
2001-2005	6,165,000

\$ 59,888,360

The Authority uses the services of paying agents to handle payment of long-term debt maturities and interest expense. The agents held \$410,906 and \$383,208 at June 30, 1985 and 1984, 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.

The Authority has a \$10,000,000 unused line of credit with its primary bank. If used, the borrowings would be secured by certificates of deposit held by the bank. The Authority uses this line of credit for short time periods to help coordinate the transfer of funds for monthly MWD billing payments. The line of credit bears an interest rate 1% higher than the highest rate paid the Authority on pledged certificates of deposit.

(4) Pension Plan

The Authority is a member of the California Public Employees' Retirement System which provides retirement benefits for all of its permanent employees. The total pension cost was \$265,895 in 1985 and \$237,646 in 1984, which included amortization of prior service costs. The Authority's contribution rate was 19.03% of annual payroll in 1985 and 17.65% in 1984.

In addition, beginning in 1984, the Authority paid one-half of certain employee's required contribution. This additional pension cost amounted to \$64,259 in 1985 and \$28,720 in 1984.

(Continued)

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SAN DIEGO COUNTY WATER AUTHORITY

Notes to Financial Statements, Continued

(5) Water Sales and Cost of Water Sold

Total water sales and cost of water sold has increased largely due to the increase in water rates charged the Authority by MWD which the Authority passes on to its member agencies. A summary of the rate differences from June 30, 1984 to 1985 follows:

	Rate MWD charges the Authority	Authority surcharge	Rate the Authority charges its member agencies
Treated water rate per acre foot at June 30, 1985	\$ 229.00	16.00	245.00
Treated water rate per acre foot at June 30, 1984	<u>225.00</u>	<u>17.00</u>	<u>242.00</u>
Dollar increase in rate	\$ <u>4.00</u>	<u>(1.00)</u>	<u>3.00</u>
Percentage increase in rate	<u>1.8%</u>	<u>(5.9%)</u>	<u>1.2%</u>
Untreated water rate per acre foot at June 30, 1985	197.00	10.00	207.00
Untreated water rate per acre foot at June 30, 1984	<u>197.00</u>	<u>10.00</u>	<u>207.00</u>
Dollar increase in rate	\$ <u>-</u>	<u>-</u>	<u>-</u>
Percentage increase in rate	\$ <u>-</u>	<u>-</u>	<u>-</u>

SAN DIEGO COUNTY WATER AUTHORITY

Schedule I

SAN DIEGO COUNTY WATER AUTHORITY

Bonded Debt Maturities

June 30, 1985

Year ended June 30	Waterworks Bonds		Total principal	Total interest	Total payments
	1957 principal	1966 principal			
1986	\$ 1,680,000	745,000	2,425,000	1,584,486	4,009,486
1987	1,740,000	775,000	2,515,000	1,486,521	4,001,521
1988	1,815,000	815,000	2,630,000	1,384,475	4,014,475
1989	1,880,000	850,000	2,730,000	1,277,868	4,007,868
1990	1,960,000	890,000	2,850,000	1,166,815	4,016,815
1991	2,040,000	925,000	2,965,000	1,051,020	4,016,020
1992	2,100,000	970,000	3,070,000	930,117	4,000,117
1993	2,165,000	1,015,000	3,180,000	804,537	3,984,537
1994	260,000	1,060,000	1,320,000	694,630	2,014,630
1995	-	1,105,000	1,105,000	632,747	1,737,747
1996	-	1,155,000	1,155,000	577,377	1,732,377
1997	-	1,210,000	1,210,000	519,435	1,729,435
1998	-	1,265,000	1,265,000	458,797	1,723,797
1999	-	1,320,000	1,320,000	395,465	1,715,465
2000	-	1,380,000	1,380,000	329,315	1,709,315
2001	-	1,440,000	1,440,000	260,225	1,700,225
2002	-	1,505,000	1,505,000	188,072	1,693,072
2003	-	1,575,000	1,575,000	112,612	1,687,612
2004	-	1,645,000	1,645,000	37,012	1,682,012
	\$ <u>15,640,000</u>	<u>21,645,000</u>	<u>37,285,000</u>	<u>13,891,526</u>	<u>51,176,526</u>