

**SAN DIEGO
COUNTY WATER AUTHORITY**



FORTY-FIFTH ANNUAL REPORT

1991

SAN DIEGO COUNTY WATER AUTHORITY
Organized June 9, 1944

FORTY-FIFTH ANNUAL REPORT

of Authority Operations
for Fiscal Year Ending June 30, 1991

Lester A. Snow
General Manager

SAN DIEGO, CALIFORNIA
1991



San Diego County Water Authority

3211 Fifth Avenue • San Diego, California 92103-5718
 (619) 297-3218 FAX 297-0511

June 30, 1991

Board of Directors
 San Diego County Water Authority

It is my pleasure to present this forty-fifth Annual Report of the San Diego County Water Authority's activities during the fiscal year ending June 30, 1991.

The Authority met serious challenges this year in providing the San Diego County region with a reliable supply of water. A fifth consecutive year of drought threatened major economic dislocation as state water supplies dwindled. The Authority created policies to cope with the drought that stressed fairness for all member agencies and classes of water users.

After state reservoirs reached record low levels by early 1991, a mandatory conservation program was enacted by the Authority's supplier of imported water, the Metropolitan Water District. To lessen the severity of the reductions, additional supplies were obtained from a state water bank, which transferred northern agricultural water to hard-hit agricultural and urban areas throughout the state. Local storage was also drawn upon to offset the shortage and a requirement was made to reduce water use by 20 percent.

While ensuring that immediate supply needs were met, the Authority continued progress on its capital improvement program, designed to increase locally available storage capacity and improve the capacity and efficiency of existing transport facilities. The program involved several large-diameter pipeline projects, and the feasibility study and site selection for a potential north county reservoir.

Water reclamation continued to make progress. By the end of the year, more than 15 major water reclamation projects had been developed in the county.

Desalination was more intensively reviewed as a possible source of locally produced water. The possibility of combining an electric power plant with a major seawater desalination facility was studied. The plant was estimated to produce about 30 million gallons of water per day (30 mgd). It would be sited within the county and teamed with a San Diego Gas and Electric power facility.

The Authority also focused on long-term conservation and demand management. Programs that were begun or continued included classroom education, incentives for the installation of water-saving toilets and shower heads, and improvements in the efficiency of large-scale water users.

The Authority participated in the "Three-Way Group", an organization of urban water agencies, agricultural interests, and environmental groups. This group was created to help find common ground on state-wide water issues that threaten the quality of life in California. The State Water Resources Control Board's Bay-Delta process, where allocation decisions for a large portion of the state's supplies are made, also continued to be a high priority.

The potential for a sixth year of drought means that the Authority must continue to work creatively and effectively to meet the water supply needs of San Diego County.

Sincerely,

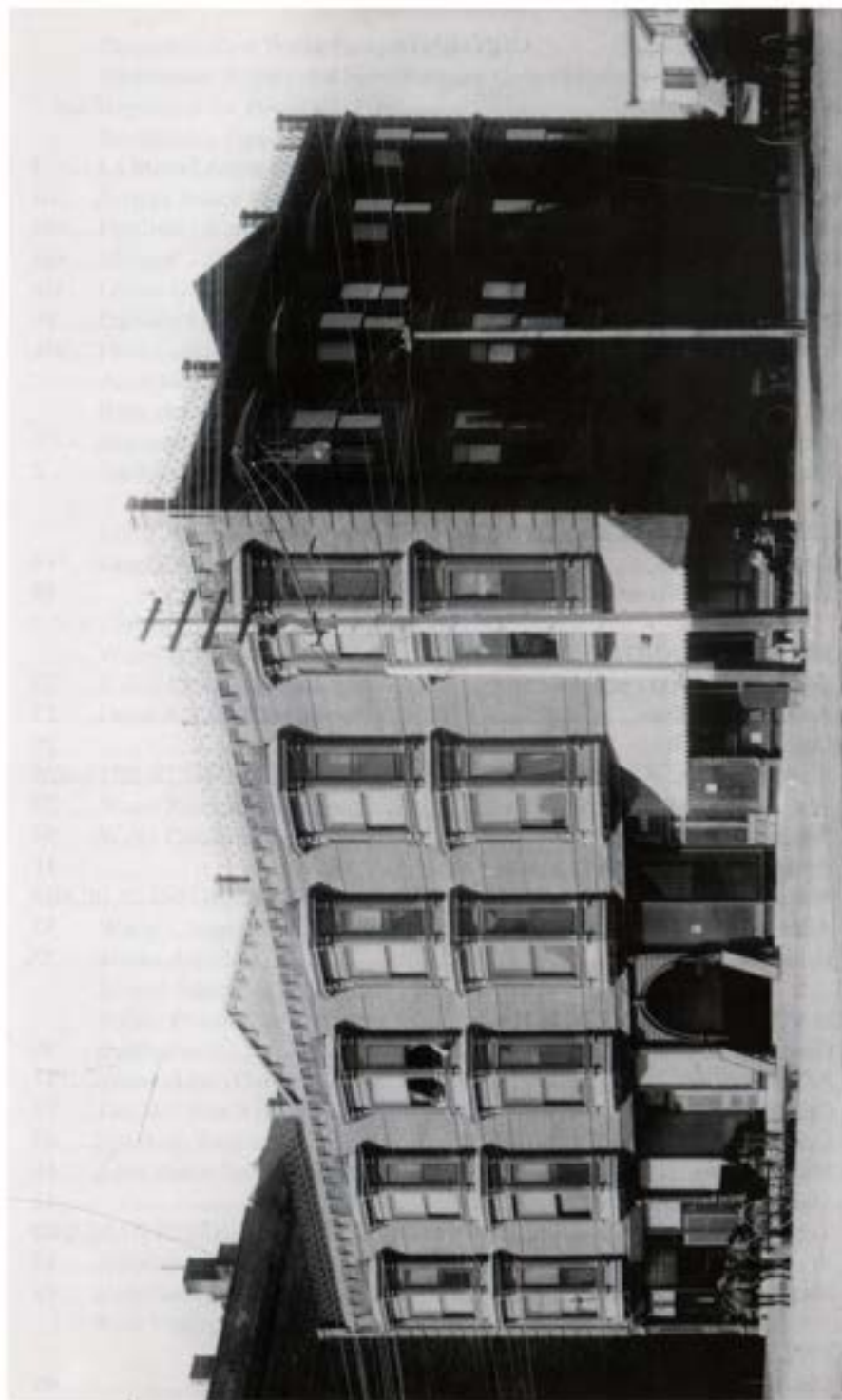


Lester A. Snow
 General Manager

MEMBER AGENCIES

- | | | | |
|---|--|--|--|
| CITIES • Del Mar • Escondido • Imperial City • Oceanside • Poway • San Diego | IRRIGATION DISTRICTS • Santa Fe • South Bay | COUNTY WATER DISTRICT • California | MUNICIPAL WATER DISTRICTS • Bakersfield • Burbank • Carlsbad • Chico • De Luz Heights • El Cajon • Escondido • Escondido • Imperial • Imperial • Palmdale • San Diego |
| COUNTY • San Diego (see above) | WATER DISTRICTS • Hahn • Ohio • San Diego | PUBLIC UTILITY DISTRICT • California | • Redlands • Riverside • San Bernardino • San Bernardino • San Gabriel • San Gabriel • San Jacinto • San Jacinto • San Juan • San Juan • San Marcos • San Marcos • San Ramon • San Ramon • San Ysidro • San Ysidro • Tustin • Tustin |
| | | FEDERAL AGENCY • Hamilton Military Reservation | |

SAN DIEGO COUNTY WATER AUTHORITY



San Diego Flume Co. - San Diego Water Co. - Circa 1896
 1170 5th Street, San Diego, CA
 San Diego Historical Society - Tabor Collection

CONTENTS

| Chapter | Page |
|---|------|
| General Manager Letter | i |
| Member Agencies..... | vii |
| Directors..... | viii |
| MWD Representatives..... | xiii |
| Authority Management..... | xiv |
| Members of Standing Committees..... | xv |
| Report of Activities..... | xix |
| 1. BOARD OF DIRECTORS | |
| General | 1 |
| Major Board Actions..... | 2 |
| 2. WATER AUTHORITY COMPOSITION | |
| General and Area | 19 |
| Population and Assessed Valuation..... | 19 |
| 3. WATER SUPPLY AND CONSUMPTION | |
| Source and MWD Facilities..... | 23 |
| Authority Facilities..... | 23 |
| Deliveries and Rates..... | 25 |
| Ramona Storage Agreement..... | 26 |
| Water Use by Member Agencies..... | 29 |
| Water Quality..... | 30 |
| Agricultural Water Use..... | 31 |
| Water Treatment..... | 31 |
| Allocation of Water to Member Agencies..... | 32 |
| Future Supplies..... | 32 |
| 4. OPERATIONS AND MAINTENANCE | |
| General..... | 36 |
| Administration..... | 37 |
| Operations..... | 37 |
| Operational Activities..... | 40 |
| Maintenance..... | 41 |
| Maintenance Activities..... | 42 |
| Technical Services..... | 42 |
| Warehouse..... | 43 |
| Shop..... | 43 |
| 5. ENGINEERING DEPARTMENT | |
| General..... | 46 |

| | |
|--|----|
| Escondido Raw Water Pump Station..... | 46 |
| Sweetwater Bypass and Flow/Pressure Control Facility..... | 46 |
| Repairs of the Pomerado Pipeline..... | 49 |
| San Marcos Pipeline..... | 53 |
| La Mesa/Lemon Grove Pipeline and Cowles Mountain Tunnel..... | 53 |
| Scripps Ranch Pipeline..... | 53 |
| Pipeline 2A and Pump Station..... | 54 |
| Mission Trails Pipeline..... | 54 |
| Lower Otay Pipeline..... | 57 |
| Pipeline 6..... | 57 |
| Flow Control Facilities..... | 57 |
| Aqueduct Control System..... | 59 |
| Remodel of the Escondido Building..... | 59 |
| Remodel of the San Diego Headquarters Third Floor..... | 59 |
| Study of the Effects of Sand Mining on the San Luis Rey River Aqueduct Crossings..... | 60 |
| Right of Way Management..... | 60 |
| Other Projects..... | 61 |
| 6. WATER RECLAMATION DEPARTMENT | |
| Water Reclamation Projects..... | 62 |
| Policy Development..... | 62 |
| Other Accomplishments..... | 64 |
| 7. WATER RESOURCES PLANNING DEPARTMENT | |
| Water Resources Planning..... | 65 |
| Water Conservation..... | 68 |
| 8. PUBLIC INFORMATION | |
| Water Conservation Information..... | 70 |
| Media Activity..... | 70 |
| School Education Program..... | 73 |
| Public-Private Partnerships..... | 75 |
| Publications..... | 76 |
| Water (Less) Garden Awards Contest..... | 76 |
| Del Mar Fair Xeriscape Garden Contest..... | 77 |
| Speakers Bureau..... | 77 |
| Joint Public Information Council..... | 77 |
| 9. HUMAN RESOURCES | |
| Employment..... | 78 |
| Employee Relations..... | 78 |
| Risk Management..... | 79 |

SAN DIEGO COUNTY WATER AUTHORITY

| | |
|--|----|
| 10. TREASURER'S REPORT | 83 |
| 11. LEGAL DEPARTMENT | 85 |
| Routine Matters | 85 |
| Water Distribution Plan | 85 |
| Litigation | 85 |
| Emergency Repairs | 86 |
| Search for In-House General Counsel | 86 |
| Legislative Highlight | 86 |
| Drought Conditions | 87 |
| MWD Matters | 88 |
| Legislation Sponsored by The Authority | 88 |
| 12. METROPOLITAN WATER DISTRICT MEMBERSHIP | 89 |
| Water Sales and Tax Rate | 92 |
| 13. COLORADO RIVER BOARD MEMBERSHIP | 95 |

SAN DIEGO COUNTY WATER AUTHORITY

CONTENTS

| No. | | Page |
|--------|---|------|
| TABLES | | |
| 1. | Statistical Summary - Authority 1990-91 | 96 |
| 2. | Population Growth-Authority and County Through 1991 | 97 |
| 3. | Area-Authority Member Agencies 1990-91 | 98 |
| 4. | Water Use and Authority Storage 1990-91 | 100 |
| 5. | Assessed Valuation and Tax Collections 1990-91 | 102 |
| 6. | Water Use - Authority Member Agencies 1981-91 | 104 |
| 7. | Water Sales By Authority 1947-91 | 105 |
| 8. | Sales of Imported Water-Fiscal Year 1990-91 | 106 |
| 9. | Assessed Valuation and Tax Rates-Authority 1945-91 | 108 |
| 10. | Revenue Dedicated to Finance Capital Improvement Program Fiscal Year 1990-91 | 110 |
| 11. | Chemical Characteristics and Analysis of Colorado River Water Year ending June 30, 1991 | 111 |
| 12. | Chemical Characteristics and Analysis of Blended Water at Lake Skinner Year Ending June 30, 1991 | 112 |
| 13. | Assessed Valuation and Tax Rates of Metropolitan Water District of Southern California 1929-91 | 113 |
| 14. | Annexation Charges and Balances by Metropolitan Water District on Authority Areas through June 30,1991 | 114 |
| 15. | Water Sales by Metropolitan Water District 1941-91 | 115 |
| 16. | Water Deliveries and Local Supplies - Metropolitan Water District Constituent Area 1990-91 | 116 |

FIGURES

| | | |
|-----|--|-----|
| 1. | Authority Organization Chart | xxi |
| 2. | Authority Area, Population and Assessed Valuation 1990-91 | 21 |
| 3. | Authority Summary of Water Rates 1958-92 | 27 |
| 4. | Authority Water Use 1945-91 | 28 |
| 5. | Source of Water: Local, CWA And Total Supply 1982-91 | 30 |
| 6. | Rainfall Record of San Diego County | 33 |
| 7. | Water Revenue, Tax Rate, Tax Revenue 1982-91 | 34 |
| 8. | Average Reclaimed Water Use 1990-91 | 64 |
| 9. | Composition of Metropolitan Water District | 90 |
| 10. | CWA-MWD Service Area, Water Sales and MWD Water Rates 1980-91 | 91 |

MAPS

| | | |
|----|--|-------|
| 1. | Authority Service Area Within San Diego County | xviii |
| 2. | Capital Improvement Program | 52 |
| 3. | Member Agencies of MWD | 93 |

APPENDIX

| | | |
|----|----------------------------------|-----|
| A. | SDCWA Financial Statements | 117 |
|----|----------------------------------|-----|

SAN DIEGO COUNTY WATER AUTHORITY

*Member Agencies, Date of Entry and
Representative on Board of Directors on June 30, 1991*

| | |
|---|-------------------|
| CITIES | |
| Del Mar | November 23, 1962 |
| Bob Stevens | |
| Escondido | October 9, 1950 |
| David A. Drake | |
| National City | June 9, 1944 |
| Frank W. Chenelle | |
| Oceanside | June 9, 1944 |
| James F. Turner | |
| Poway | April 21, 1954 |
| Linda Brannon | |
| San Diego | June 9, 1944 |
| Dr. Charles F. Cooper, Christine Frahm, Francesca M. Krauel, John M. Leach, Michael D. Madigan, Joseph Parker, Michael E. Parrish, Philip R. Pryde, John P. Starkey, Frederick H. Thompson | |
| WATER DISTRICTS | |
| Helix | June 9, 1944 |
| Nat L. Eggen, Harry Griffen | |
| Otay | October 26, 1956 |
| Mark W. Watton | |
| San Dieguito | December 13, 1948 |
| Anne Onsted | |
| IRRIGATION DISTRICTS | |
| Santa Fe | December 13, 1948 |
| Harold K. Friedland | |
| South Bay | November 3, 1952 |
| Cary F. Wright | |
| (Includes City of Chula Vista, an independent member agency, from June 9, 1944 to November 3, 1952) | |
| MUNICIPAL WATER DISTRICTS | |
| Buena Vista | June 11, 1954 |
| William D. Taylor | |
| Carlsbad | June 16, 1954 |
| Eric Larson | |
| Oliverain | July 25, 1960 |
| William Hollingsworth | |
| Padre Dam | June 7, 1956 |
| Gerald L. Johnson | |
| (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 |
| Kenneth A. Thompson | |
| Rincon del Diablo | June 14, 1954 |
| Sherwood D. Anderson | |
| Valley Center | May 9, 1955 |
| Lewis C. Snavely | |
| Yuma | December 16, 1963 |
| Susan M. Collins | |
| PUBLIC UTILITY DISTRICT | |
| Fallbrook | June 9, 1944 |
| Gordon W. Tinker | |
| (Includes De Luz Heights M.W.D., an independent member agency, from June 28, 1967 to June 30, 1990) | |
| FEDERAL AGENCY | |
| Penleton Military Reservation | December 16, 1977 |
| Lawrence E. Carlson | |
| COUNTY WATER DISTRICTS | |
| Vallecitos | February 25, 1980 |
| Dale Mason | |
| COUNTY OF SAN DIEGO (ex officio) | |
| Susan Golding | |

OFFICERS OF BOARD OF DIRECTORS 1990-91



Chairman
MICHAEL D. MADIGAN
City of San Diego
5-79 to present



Vice Chairman
HERBERT H. STICKNEY
Rainbow
Municipal Water District
3-85 to present



Secretary
JOHN M. LEACH
City of San Diego
5-86 to present

BOARD OF DIRECTORS 1990-91



S.D. ANDERSON
Rincon del Diablo
Municipal Water District
8-78 to present



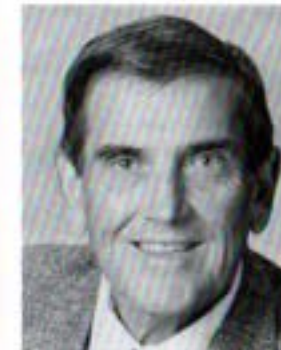
ALAN ARCHIBALD
City of Poway
10-82 to 1-91



LINDA BRANNON
City of Poway
1-91 to present



LAWRENCE E. CARLSON
Penleton Military
Reservation
12-86 to present



FRANK W. CHENELLE
City of National City
3-90 to present



SUSAN M. COLLINS
Yuma
Municipal Water District
2-91 to present

**BOARD OF DIRECTORS
1990-91**



DR. CHARLES F. COOPER
City of San Diego
4-73 to present



DAVID A. DRAKE
City of Escondido
9-89 to present



NAT L. EGGERT
Helix Water District
10-77 to present



ROLLIN P. ECKIS
Palmer
Municipal Water District
9-89 to 2-91



CHRISTINE FRAHM
City of San Diego
3-88 to present



HAROLD K. FRIEDLAND
Santa Fe
Irrigation District
3-90 to present



SUSAN GOLDING
County of San Diego
2-86 to present



HARRY GRIFFIN
Helix Water District
7-56 to present



WILLIAM HOLLINGSWORTH
Olivenbain Municipal
Water District
5-86 to present

**BOARD OF DIRECTORS
1990-91**



GERALD L. JOHNSON
Padre Dam
Municipal Water District
2-91 to present



W.E. KLOSTERMANN
Padre Dam
Municipal Water District
2-83 to 2-91



FRANCESCA M. KRAUEL
City of San Diego
7-78 to present



ERIC LARSON
Carlsbad
Municipal Water District
1-90 to present



JOHN M. LEACH
City of San Diego
5-86 to present



VERNON LEE LEMING
Ramona
Municipal Water District
2-87 to 9-90



MICHAEL D. MADIGAN
City of San Diego
5-79 to present



DALE MASON
Vallertan
Water District
3-80 to present



ANNE OMSTED
San Diego
Water District
2-87 to present

**BOARD OF DIRECTORS
1990-91**



JOSEPH PARKER
City of San Diego
3-77 to 6-83
5-86 to present



MICHAEL E. PARRISH
City of San Diego
4-89 to present



PHILIP R. PRYDE
City of San Diego
9-85 to present



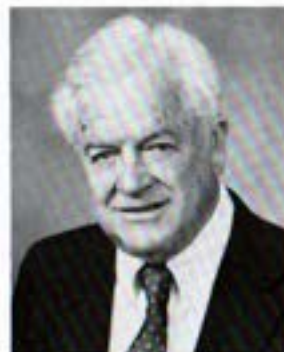
GEORGE C. SHIPPEY
De Luz Heights
Municipal Water District
12-88 to present



LEWIS C. SNAVELY
Valley Center
Municipal Water District
11-89 to present



JOHN P. STARKEY
City of San Diego
10-75 to present



BOB STEVENS
City of Del Mar
2-87 to present



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



WILLIAM D. TAYLOR
Buena Colorado
Municipal Water District
4-88 to present

**BOARD OF DIRECTORS
1990-91**



FREDERICK H. THOMPSON
City of San Diego
11-90 to present



KENNETH A. THOMPSON
Ranoma Water District
9-90 to present



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



JAMES F. TURNER
City of Oceanside
8-86 to present



MARK W. WATTON
Osay Water District
2-85 to present



CARY F. WRIGHT
South Bay
Irrigation District
11-88 to present

**DIRECTORS REPRESENTING SDWCA ON METROPOLITAN
WATER DISTRICT BOARD OF DIRECTORS
1990-91**



HARRY GRIFFIN
1-63 to present



FRANCESCA M. KRAUEL
10-83 to present



MICHAEL D. MADIGAN
7-82 to present



DALE MASON
12-86 to present



JOHN P. STARKEY
1-81 to present

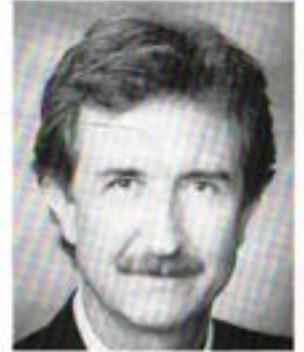


HERBERT H. STICKNEY
10-89 to present

**WATER AUTHORITY MANAGEMENT
ON JUNE 30, 1991**



LESTER A. SNOW
General Manager



ERGUN BAKALL
Chief Engineer



SHIRLEY A. JACKSON
*Assistant General Manager
Administration*



CHARLES N. RHODES
*Assistant General Manager
Water Resources*



HENRY G. LOZANO
*Director of Finance
and Treasurer*



JANET MALTMAN
Executive Secretary



PAUL D. ENGSTRAND
General Counsel



ROBERT R. CAMPBELL
Chief Financial Officer

**ROSTER OF STANDING COMMITTEES
AS OF JUNE 30, 1991**

Administrative and Legal

Michael E. Parrish, Chairman
David A. Drake, Vice Chairman
Sherwood D. Anderson
Susan M. Collins
Francesca M. Krauel
Bob Stevens
Herbert H. Stickney
Frederick H. Thompson
Gordon W. Tinker
Cary F. Wright

Engineering and Operations

Harold K. Friedland, Chairman
Kenneth A. Thompson, Vice Chairman
Frank W. Chenelle
Susan M. Collins
Christine M. Frahm
John M. Leach
Joseph Parker
Linda Brannon
Gordon W. Tinker
James F. Turner
Harry Griffen

Fiscal Policy

Christine M. Frahm, Chairman
Harry Griffen, Vice Chairman
Frank W. Chenelle
Nat L. Eggert
Susan Golding
Eric Larson
John M. Leach
Dale Mason
John P. Starkey
James F. Turner

Long Range Planning

Sherwood D. Anderson, Chairman
Anne Orsted, Vice Chairman
Lawrence E. Carlson
Charles F. Cooper
William Hollingsworth

Long Range Planning (Continued)

Michael E. Parrish
Philip R. Pryde
Herbert H. Stickney
William D. Taylor
Mark W. Watton

Public Information

Eric Larson, Chairman
William D. Taylor, Vice Chairman
David A. Drake
Gerald L. Johnson
Francesca M. Krauel
Anne Orsted
Bob Stevens
Lewis C. Snavely
Frederick H. Thompson

Water Policy

Mark W. Watton, Chairman
Cary F. Wright, Vice Chairman
Charles F. Cooper
Nat L. Eggert
Susan Golding
Harry Griffen
Francesca M. Krauel
Dale Mason
John P. Starkey
Herbert H. Stickney

Water Reclamation

Philip R. Pryde, Chairman
Joseph Parker, Vice Chairman
Linda Brannon
Lawrence E. Carlson
Harold K. Friedland
William Hollingsworth
Gerald L. Johnson
Dale Mason
Lewis C. Snavely
Kenneth A. Thompson
Harry Griffen

**ROSTER OF STANDING COMMITTEES
AS OF JUNE 30, 1991**

(Continued)

TEMPORARY (AD HOC) COMMITTEES

Audit Subcommittee

Nat L. Eggert, Chairman
Joseph Parker
William Hollingsworth

Financial Advisor

Christine M. Frahm, Chairman
John P. Starkey
James F. Turner

Encroachment Subcommittee

Anne Orsted, Chairman
Christine M. Frahm
Dale Mason
Sherwood D. Anderson
Lawrence E. Carlson

Legal Ad Hoc

Michael E. Parrish, Chairman
David A. Drake
Francesca M. Krauel
Herbert H. Stickney

IICP Subcommittee

Linda Brannon, Chairman
Anne Orsted
Joseph Parker
Kenneth A. Thompson
James F. Turner

Ad Hoc Investor Relations

John M. Leach, Chairman
Herbert H. Stickney
Mark W. Watton
Christine M. Frahm

Seawater Desalination Subcommittee

Anne Orsted, Chairman
Michael E. Parrish
Lawrence E. Carlson
Joseph Parker
Kenneth A. Thompson

Interruptible Policy Review

Dale Mason, Chairman
Francesca M. Krauel
Herbert H. Stickney

Legal Search Committee

Michael E. Parrish, Chairman
Linda Brannon
Christine M. Frahm
Francesca M. Krauel
Dale Mason
Gordon W. Tinker

**SAN DIEGO COUNTY WATER AUTHORITY
REPORT OF ACTIVITIES**

FISCAL YEAR 1990-91

The San Diego County Water Authority continues to face many challenges in providing water service to San Diego County. New demands are being made on both the quantity and quality of water that is delivered. The State of California is in its fifth year of drought and the Authority has increased its water conservation programs to offset the reduced water deliveries from MWD. The stepped-up water conservation program has been successful and conservation goals and objectives were exceeded.

During the fiscal year, water use within the Water Authority service area was 585,619 acre-feet, a decrease of 61,027 acre-feet from the previous year. Authority-supplied water decreased 61,004 acre-feet to 552,441. Population in the Authority's service area grew from 2,435,903 people in fiscal year 1990 to 2,485,692 this year. It is inevitable that water demand will eventually increase, but it will occur at a slower pace as a result of the water management plan instituted by the Authority and its member agencies.

During the year, design of Pipeline 4B, Phase I and the La Mesa/Lemon Grove Pipeline 4E, Phase I were completed. Staff completed design and awarded construction contracts for the Sweetwater Bypass and the Escondido Pump Station and conversion of the First Aqueduct. The San Luis Rey River emergency repair was completed, as well as major repairs to Pipeline No. 4 serving Scripps Ranch and the Miramar Naval lands.

The Water Resources Department is continuing its work to complete the Optimal Storage Study and the Water Resources Plan. The Department is also deeply involved in the Bay Delta Process, and coordinating San Diego responses to the draft Water Quality Control Plan. Timely progress was made in the installation of a local computer network between San Diego and Escondido.

This year the Department is working with five other entities on a study of a major power generation and seawater desalination plant, which would be located on the Pacific Coast near Tijuana, Mexico. The study will evaluate the possibility of constructing and operating a 500-megawatt electric power plant that would produce 100 million gallons of desalted seawater per day - enough water to meet the annual household needs of more than 200,000 families. Another study is examining a 10-30 mgd desalination plant that would be built in the South Bay area in conjunction with a San Diego Gas and Electric power plant.

The Water Conservation Plan has been updated to deal with a sixth year of drought. Included in the plan is a goal to have in storage at least 270,000 acre-feet of water by October 1991. During the year staff implemented the Water Authority Transportation Management Plan to comply with the City of San Diego Transportation Demand Management Ordinance to lessen traffic congestion and improve air quality as mandated by Federal and State clean air standards.

Water reclamation is becoming a vital part of San Diego County's water supply program. Fifteen major reclamation projects are being developed throughout the County as part of the effort by the Authority and other water agencies to reach a goal of 100,000 acre-feet of reclaimed water by the year 2010. The Authority approved \$200,000 worth of planning grants to six member agencies under the Water Reclamation Financial Assistance Program.

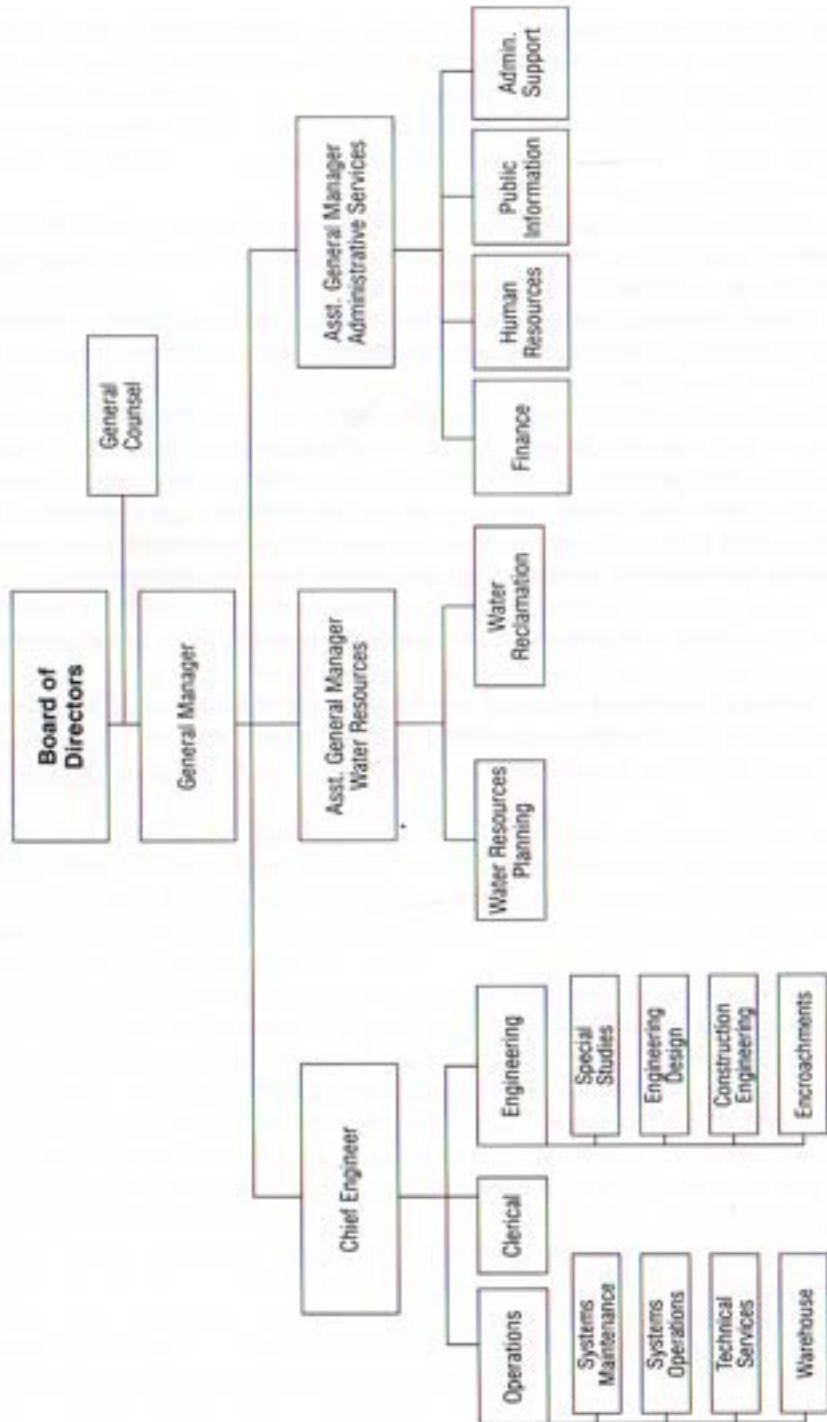
The Finance Department completed the Procurement Manual, establishing the administrative guidelines for purchasing and contracting. A capacity charge was approved and implemented during the year.

The Human Resources Department has implemented a major recruiting program to staff the Engineering Department, which must meet its commitment to complete the Capital Improvement Plan.

Faced with a fifth year of drought, the Public Information Department expanded its information and education programs. The Waterhog campaign has been featured extensively in the electronic and print media, promoting water conservation. The six-minute film "Waterhog Haven" was unveiled at the February board meeting. The Authority joined forces with the San Diego County Hotel-Motel Association to educate visitors on the region's water shortage and provide water-saving suggestions.

The school education resource program continues the effort to reinforce water conservation to students with year-round classroom presentations about water conservation.

The number of employees increased from 95 at the end of fiscal year 1990 to 108 as of June 30, 1991. The Authority organization chart appears in figure 1.



San Diego County Water Authority Organization Chart
Figure No. 1



Phil D. Swing - 1929
 Author - County Water Authority Act
 May 17, 1943
 Incorporating General Counsel
 San Diego County Water Authority 1944 - 1948
 San Diego Historical Society
 San Diego Union - Tribune Collection



*Senator Ed Fletcher – 1940
 Sponsor – County Water Authority Act
 May 17, 1943
 San Diego Historical Society
 San Diego Union – Tribune Collection*

BOARD OF DIRECTORS

General

The San Diego County Water Authority is comprised of 23 member agencies and the County of San Diego as an ex officio member. Each member agency is represented by at least one director. A member agency is entitled to one additional representative for each full five percent of total assessed valuation contained within its boundaries, as determined by the Assessor's Office of the County of San Diego. These representatives are appointed by the chief executive officer of the respective agencies with approval of the agencies' governing bodies. During the year, only two agencies were represented by more than one representative: the City of San Diego had 10 representatives and the Helix Water District had two.

Officers of the Board of Directors begin service in July of even-numbered years. In June, 1990, Michael D. Madigan was elected Chairman; Herbert H. Stickney, Vice Chairman; and John M. Leach, 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 seven standing committees:

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

Temporary committees that existed during this year were:

- | | |
|--|------------------------------------|
| Audit | Investor Relations |
| Encroachment | Legal Issues |
| Financial Advisor | Public Information Goals & Mission |
| General Manager Evaluation | Seawater Desalination |
| Incremental Interruption & Conservation Plan | Special Counsel |
| Interruptible Policy Review | Touche Ross Study |

SAN DIEGO COUNTY WATER AUTHORITY

During fiscal year 1990-1991, the following Directors were presented with service emblems:

| <u>Director</u> | <u>Length of Service</u> |
|---------------------|--------------------------|
| Lawrence E. Carlson | 3 years |
| Vernon L. Leming | 3 years |
| Anne Omsted | 3 years |
| Bob Stevens | 3 years |
| Herbert H. Stickney | 5 years |
| Mark W. Watton | 5 years |
| Dale Mason | 10 years |

During the year, the following Directors were seated or reseated:

| <u>Term Date</u> | <u>Director</u> | <u>Agency</u> | <u>Expires</u> |
|------------------|-----------------------|-----------------------|----------------|
| 8/9/90 | William Hollingsworth | Olivenhain MWD | 8/4/96 |
| 9/13/90 | William D. Taylor | Bueno Colorado MWD | 6/30/96 |
| 9/13/90 | Kenneth Thompson | Ramona MWD | 9/8/94 |
| 10/11/90 | Eric Larson | Carlsbad MWD | 6/17/96 |
| 11/8/90 | Frederick Thompson | City of San Diego | 10/27/94 |
| 12/13/90 | Harold Friedland | Santa Fe I.D. | 12/13/96 |
| 1/10/91 | S.D. Anderson | Rincon del Diablo MWD | 6/21/96 |
| 1/10/91 | Linda Brannon | City of Poway | 4/22/96 |
| 2/14/91 | Anne Omstead | San Dieguito WD | 12/21/96 |
| 2/14/91 | Herbert Stickney | Rainbow MWD | 2/14/97 |
| 2/14/91 | Susan Collins | Yuima MWD | 1/13/92 |
| 2/14/91 | Gerald Johnson | Padre Dam MWD | 7/7/92 |

MAJOR BOARD ACTION

July 3, 1990

- Resolution: Honored George Shippey upon his retirement from the Board of Directors.
- Resolution: Adopted Negative Declaration re: Sweetwater Bypass and Flow Control Facility.
- Resolution: Adopted Negative Declaration and Capacity Charges for Fiscal Year 1990-91.
- Resolution: Adopted revision of Administrative Code - Review of Duties and Responsibilities of Standing Committees.

BOARD OF DIRECTORS

- Resolution: Adopted merger of De Luz Heights Municipal Water District and Fallbrook Public Utility District.
- Motion: Awarded contract to chlorine bidder.
- Motion: Authorized the General Manager to sign an agreement with City of Poway for delivery of treated water.
- Motion: Authorized the General Manager to sign an agreement with Ramona Municipal Water District to allow the Authority storage rights in Lake Ramona.

August 9, 1990

- Motion: Reseated Director William Hollingsworth, representing Olivenhain Municipal Water District.
- Motion: Authorized the General Manager to enter into an agreement with Mission Resource Conservation District.
- Motion: Approved the payment of credits to member agencies of \$237 per AF of excess evaporation resulting from the carryover of drought-related storage, up to a maximum total expenditure of \$500,000.
- Motion: Recommended that the representatives of the Authority on the Clean Water Program Governance Advisory Group, Directors Madigan and Leach, be directed to seek membership for the Authority on the governing body with voting power weighted in some appropriate and equitable manner.
- Resolution: Added Section 3.1.2 to the Administrative Code -Emergency Authority.
- Motion: Approved the Agreement for Legal Services by Mr. Engstrand.
- Resolution: Established vote representation of member agencies as determined by assessed valuations for fiscal year 1990-91.
- Resolution: Fixed the tax rate for fiscal year 1990-91.
- Resolution: Established the amount due from the City of San Diego for the fiscal year 1990-91 for the in lieu charge as a condition for providing water service.

SAN DIEGO COUNTY WATER AUTHORITY

- Ordinance: Fixed the water availability standby charge of fiscal year 1990-91.
- Motion: Awarded Financial Advisory Contract to Rauscher Pierce Refsnes, Inc.
- Motion: Authorized the General Manager to award and execute an agreement with P & D Technologies to provide environmental consulting services for Pipeline 2A and Pump Station for a not-to-exceed amount of \$73,500.
- Motion: Appointed Janet Maltman to Executive Secretary for the Board of Directors.

September 13, 1990

- Resolution: Honored Vernon Leming upon his retirement from the Board of Directors.
- Motion: Reseated Director William D. Taylor, representing Bueno Colorado Municipal Water District.
- Motion: Accepted the credentials of Kenneth Thompson, representing Ramona Municipal Water District.
- Motion: Accepted staff recommendation in Governance Advisory Group memo and instructed the General Counsel to review the Draft of the language for the Special Act District.
- Resolution: Adopted position opposing Proposition 128 - the Environmental Protection Act of 1990 (Big Green Initiative).
- Motion: Approved the standard terms and conditions for annexation to the Authority and authorized the General Manager to request informal terms and conditions for annexation to Metropolitan Water District.
- Resolution: Authorized bank signatures.
- Resolution: Authorized the Treasurer to open a securities purchase account with Smith Barney.
- Motion: Authorized the General Manager to execute a contract revision with James M. Montgomery Consulting Engineers for revisions to the Optimal Storage Study.

BOARD OF DIRECTORS

- Motion: Authorized the General Manager to negotiate and execute a contract with Black and Veatch to evaluate the feasibility of incorporating a seawater desalination plant into San Diego Gas and Electric's proposed coastal power plant sites. The Authority's share of the contract is not to exceed \$88,400.
- Motion: Authorized the General Manager to enter into Joint Participation Agreements with Vista, Ramona, Carlsbad, Helix, City of San Diego and San Diego County.
- Motion: Approved staff recommendation to conclude an agreement with ADC Stoorza whereby Stoorza would handle all arrangements with potential users of Waterhog materials. ADC Stoorza would promote the availability of materials and provide the Authority with an annual independent audit of the program and financial transactions. The Authority will receive 40 percent of all proceeds and have final approval of material quality control. All proceeds received by the Authority will be used to develop water conservation education, public information and advertising materials.
- Motion: Approved award of contract for construction of Pipeline 5 Extension, Phase I, to Kiewit Pacific Company in the amount of \$75,776,000 and authorized the General Manager to execute the contract.
- Motion: Waived the irregularity in the bid submitted by Edmond J. Vadnais Corporation and Vadnais Corporation, a joint venture; approved the award of the contract for construction of the Sweetwater Bypass and Flow/Pressure Control Facility to Edmond J. Vadnais Corporation and Vadnais Corporation, a joint venture, in the amount of \$1,393,420; and authorized the General Manager to execute the contract.
- Motion: Authorized the General Manager to do those things necessary, including but not limited to entering into contracts as appropriate to prevent the unnecessary demolition of newly constructed public improvements, provided that the manager's actions do not increase the cost to the Authority for the Construction of the facilities.

October 11, 1990

- Motion: Reseated Director Eric Larson, representing the City of Carlsbad.
- Motion: Authorized the General Manager to enter into a Joint Participation Agreement between the Metropolitan Water District and the City of Oceanside for the development and utilization of reclaimed water.

SAN DIEGO COUNTY WATER AUTHORITY

- Motion: Authorized the General Manager to enter into the amended Joint Participation Agreement with the Metropolitan Water District and the City of San Diego for development and utilization of reclaimed water.
- Resolution: Supported the water reclamation benefits associated with the Clean Water Program of Greater San Diego.
- Resolution: Certified completion of addendum Environmental Impact Report for Pipeline 4B, Phase I and approved pipeline alignment.
- Motion: Acknowledged and allowed the General Manager to serve as Co-Trustee of the Hans and Margaret Doe Charitable Trust.
- Resolution: Amended Article 25, Encroachment Permits, of the Administrative Code.
- Resolution: Amended Section 3.6, Administrative Support Manager; Section 6.1, Administrative Support Department - General; Section 6.2, Activities; Section 6.3, Duties of Administrative Support Manager as Executive Secretary to the Board; Section 6.4, Additional Duties of the Administrative Support Manager of the Authority's Administrative Code.
- Resolution: Amended Section 8.2, Public Information Activities, and Section 10.2, Water Resource Planning Activities, of the Authority's Administrative Code.
- Motion: Approved the procedure for Waiver of Notice of Special Meeting and directed staff to prepare an amendment to the Administrative Code.
- Resolution: Amended Article 5, Engineering Department - Duties, Section 5.2 (b,g) Activities, of the Administrative Code.
- Motion: Authorized staff to negotiate and execute a contract with Multi Image Productions, Inc. of San Diego to produce the Waterhog film.
- Motion: Authorized the General Manager to negotiate and execute agreements relative to the residential showerhead retrofit project: (1) with SDG&E to specify responsibilities in planning and operation of the project, and (2) for the Roberts Company to operate the installation project at a total cost not to exceed \$155,700.
- Resolution: Supported Proposition 148, Water Resources Bond Act of 1990.

BOARD OF DIRECTORS

- Motion: Approved an amendment to the agreement with Boyle Engineering for the design of Pipeline 4B, Phase I with a new not-to-exceed contract amount of \$1,852,670.
- Motion: Authorized the General Manager to execute an agreement with Boyle Engineering Corporation to perform engineering services for the relocation of the Second Aqueduct pipelines at State Route 52 for a fee of \$116,400.
- November 8, 1990**
- Motion: Selected environmental consultants for Pipelines 4B2 and 4E2 and awarded contract.
- Motion: Selected survey consultant for Pipeline 5E.
- Motion: Approved new appraisal on Pipeline 4E, Phase I Right of Way.
- Motion: Selected consultant for biological services - San Marcos Pipeline Phase I.
- Resolution: Elected to receive allocation of taxes pursuant to provisions of the Community Redevelopment Law for the Southwest Redevelopment Project.
- Resolution: Elected to receive allocation of taxes pursuant to provisions of the Community Redevelopment Law for the City Heights Redevelopment Project.
- Motion: Adopted submittal of a City of Escondido Proposal for Water Conservation Credits Program funding.
- Resolution: Revised Article 14.3 of the Administrative Code - Professional and Technical Consultants.
- Motion: Referred the NWRA Pledge Agreement for increasing Washington DC representation to the Water Policy Committee meeting in December.
- Motion: Adopted ACWA Survey for Refinancing Options for the ACWA building with a limit of \$25,000.
- Motion: Reaffirmed the Board's position on North County landfills.

SAN DIEGO COUNTY WATER AUTHORITY

December 13, 1990

- Resolution: Found that there was no substantial evidence that the proposed Escondido Raw Water Pump Station and modifications to the First San Diego Aqueduct would have a significant effect on the environment and approved a Negative Declaration for such project.
- Motion: Reseated Director Harold K. Friedland, representing Santa Fe Irrigation District.
- Motion: Authorized the General Manager to award and execute an agreement with EMA Services, Inc. to perform engineering services for the design of improvements to the aqueduct control system for a not-to-exceed amount of \$159,000.
- Motion: Authorized the General Manager to execute an agreement with LeRoy Crandall and Associates to provide engineering, geotechnical, and inspection services for the Las Posas Tunnel construction for Pipeline 5 Extension, Phase I for a not-to-exceed amount of \$300,000.
- Motion: Authorized the General Manager to execute an agreement with ASL Consultants Incorporated to provide preliminary engineering services for Pipeline 4 Extension, Phase II for a not-to-exceed amount of \$438,000.
- Motion: Relieved Empire and Associates, the low bidder, from its bid due to a mistake in filling out their bid proposal, that their bidders bond be returned, and that the General Manager be authorized to award and execute a contract with CGC Construction, Inc., the next low bidder, for \$260,574 to remodel the third floor of the San Diego office.
- Motion: Relieved WIER Construction Company, the low bidder, from its bid due to a mistake in filling out their bid proposal and authorizing the General Manager to award and execute a contract with John Carey Construction Company, Inc., the next low bidder, in the amount of \$663,000 for remodeling the Escondido office.
- Resolution: Accepted and approved the appraisal report for the Escondido Pump Station site by J.P. Meek Company, and authorized staff to make an offer to property owner based on the appraisal and notice the Authority's intent to declare a Resolution of Public Necessity for the Escondido Pump Station rights-of-way.

BOARD OF DIRECTORS

- Motion: Authorized the General Manager to execute an agreement with PSG Corrosion Engineering, Inc. to provide corrosion engineering services for the Second Aqueduct from Miramar to Shepherd Canyon for a fee not-to-exceed \$70,000.
- Motion: Considered groundwater threats on a case-by-case basis.
- Motion: Adopted the Desalination Subcommittee's Goals and Objectives.
- Motion: Sent \$250 to the NWRA to increase Washington D.C. representation.
- Resolution: Provided for the implementation of the incremental interruption and conservation plan.

January 10, 1991

- Resolution: Adopted Resolution of Necessity for Escondido Raw Water Pump Station.
- Motion: Reseated Director S. D. Anderson, representing Rincon del Diablo Municipal Water District.
- Resolution: Honored W. E. "Baron" Klostermann upon his retirement from the Board of Directors.
- Resolution: Honored Alan Archibald upon his retirement from the Board of Directors.
- Resolution: Appointed Dale Mason and Herbert Stickney to the Board of Directors of the Metropolitan Water District.
- Resolution: Appointed Mike Madigan to the Board of Directors of the Metropolitan Water District.
- Motion: Authorized the General Manager to execute an agreement with Moore and Taber to provide geotechnical, concrete, and asphalt inspection services for the construction of Pipeline 5 Extension, Phase I for a fee not-to-exceed \$450,000.
- Motion: Authorized staff to proceed with the design and construction of the portion of Pipeline 5E, Phase II located within the State Route 56 right of way.

SAN DIEGO COUNTY WATER AUTHORITY

- Motion: Authorized staff to proceed with the design and construction of a protective concrete encasement for Pipeline 3 and 4 within the right of way of State Route 56.
- Motion: Authorized the General Manager to award and execute an agreement with Keller Environmental Associates, Inc. to perform environmental services for selection of alternative alignments for Pipeline 6 and the preparation of documentation required by the California Environmental Quality Act for a not-to-exceed amount of \$642,500.
- Motion: Authorized the General Manager to award and execute a contract with Quality Chevrolet for the purchase of eleven light duty and utility vehicles as bid.
- Motion: Authorized the General Manager to award and execute a contract with Contractors Equipment Company for the purchase of a truck-mounted crane as bid.
- Motion: Approved the establishment of the in-house General Counsel position and directed staff and the Legal Ad Hoc Committee to prepare a Request for Proposal for an executive search firm to assist in the recruitment of qualified individuals for the position of General Counsel.
- Resolution: Revised section 19.1 of the Administrative Code to add the Water Education Foundation to approved memberships and approved the expenditure of \$894 for the 1991 membership.
- Resolution: Authorized the General Manager to quitclaim easements which are no longer required for the purposes of the Authority, in specified circumstances, and to accept real property on its behalf.
- Motion: Declined to take a position with respect to the San Marcos Landfill Expansion.
- Motion: Authorized the use of the \$100,000 drought contingency fund to expand the Authority's water education advertising program to emphasize the importance of conservation during this critically dry period.
- Motion: Approved ADC Stoorza as the advertising agency of record for the increased public information/education program through June 30, 1991, and directed staff to negotiate and execute the contract.

BOARD OF DIRECTORS

- Motion: Authorized staff to proceed in developing state legislation to require plumbing fixture replacement on resale of real estate property.
- Motion: Dropped the goal of setting water rates from the responsibilities of the Water Policy Committee.
- Motion: Authorized staff to execute the Advance of Dues Deposit Agreement and forward it to ACWA with a check in the amount of \$25,000.
- Resolution: Amended section 15.2 and section 15.3 of the Administrative Code modifying water rates effective July 1, 1991, and finding such action exempt from the California Environmental Quality Act.
- Motion: Established March 14, 1991 as the date for a public hearing for the Capacity Charge to comply with the California Environmental Quality Act and direct staff to post and publish as required by law.
- Motion: Awarded the Personal Computer Bid by authorizing the General Manager to execute a purchase agreement with Personal Computer Center in the amount not-to-exceed \$195,000.

February 14, 1991

- Motion: Reseated Director Anne Omsted, representing San Dieguito Water District.
- Motion: Reseated Director Herbert Stickney, representing Rainbow Municipal Water District.
- Resolution: Honored Rollin Eckis upon his retirement from the Board of Directors.
- Motion: Changed the May Board from May 9 to May 16 due to a conflict with the ACWA Conference.
- Motion: Authorized Director Griffen to miss the March and April Board meetings.
- Motion: Authorized the General Manager to award and execute an Amendment to the Agreement with James M. Montgomery Consulting Engineers to perform preliminary design services for Pipeline 4B, Phase II for \$61,300 for a total not-to-exceed fee of \$107,300.

SAN DIEGO COUNTY WATER AUTHORITY

- Motion: Approved the award of contract for the construction of the Escondido Raw Water Pump Station and modifications to the First San Diego Aqueduct to Papac Corporation in the amount of \$1,242,949; and authorized the General Manager to execute the contract.
- Motion: Authorized the General Manager to execute an agreement with Boyle Engineering to provide preliminary engineering services for the Pipeline 6 Feasibility Study for a not-to-exceed amount of \$400,000.
- Motion: Authorized the General Manager to execute a contract with Stoorza, Ziegus and Metzger in an amount determined by the Public Information Committee for the public relations program outlined by Stoorza.
- Motion: Approved the following basic guidelines: 1) No direct endorsement of an organization or brand name product is made. 2) Profit or goodwill that the private organization may gain is secondary to the primary objective of conservation. 3) Printed messages which a private organization may sponsor do not integrate the Authority name or logo or any Authority trademark or copyright into a location that suggests the private corporation or brand name is endorsed by the Authority.
- Motion: Participated in the annual Del Mar Fair flower shows Xeriscape category as outlined beginning in 1991. Decided to include participation in the Public Information budget on an annual basis.
- Motion: Co-sponsored the International Desalination Association seawater desalination seminar and provided \$5,000 to help cover the costs for providing speakers.
- Motion: Authorized the General Manager to execute an agreement with Bechtel Power Corporation, Coastal Pan America Corporation, Metropolitan Water District, Los Angeles Department of Water and Power, and Southern California Edison Company for study of the Baja Desalination Project, substantially in accordance with the terms outlined in this letter including funding in the amount of \$100,000 by the Authority, such agreement to be in a form approved by the General Counsel.
- Resolution: Adopted the revised California Environmental Quality Act Guidelines.

BOARD OF DIRECTORS

- Resolution: Added Article 27, CEQA, to the Authority's Administrative Code.
- Resolution: Amended the Water Resource Planning Department Duties, of the Authority's Administrative Code.
- Resolution: Amended Article 19.1 of the Authority's Administrative Code to include membership in the Association of Metropolitan Water Agencies (AMWA).
- Resolution: Authorized bank signatures and instructed the Secretary of the Board of Directors of the San Diego County Water Authority to certify such signatures to the banks.
- Motion: Adopted the Authority's Drought Response Plan.
- Motion: Authorized the General Manager to (1) submit an ultra low flush toilet rebate program proposal to MWD, and (2) develop and execute an agreement for operation of the program, at a total cost not-to-exceed \$2,130,750.
- Motion: Took a position of support for AB 13 , Water Reclamation Bonds, and the proposed amendments.
- Motion: Took a position of support for AB 24 - Filante and AB 88 - Kelly, regarding Water Reclamation Bonds.
- Motion: Reviewed and commented on the San Diego Area Wastewater Management District Act as it relates to the Authority's participation.
- Motion: Took a position of support for AB 174 - Water Reclamation.
- Motion: Added \$100,000 to the Clean Water Program (CWP) through the Financial Assistance Program for each of the North, Central and South portions of the CWP service area.
- Motion: Approved the Financial Assistance Program Funding applications, and authorized the General Manager to enter into a joint participation agreement with the agencies in the amounts indicated as follows: Fallbrook PUD - \$8,000, City of Escondido (Implementation Program) - \$50,000, City of Escondido (Avocado Pilot Study) - \$50,000 and San Elijo JPA - \$33,300.

SAN DIEGO COUNTY WATER AUTHORITY

March 14, 1991

Ordinance 91-1: Declared a Water Shortage Emergency.

Resolution: Adopted Negative Declaration for Capacity Charge for Fiscal Year 1991-92.

Motion: Recommended that the reclaimed water producers prioritize reclaimed water user agreements in a manner that would minimize the loss of jobs and economic damage associated with the drought. Top priority should be given to essential public works projects and the maintenance of the health, safety and welfare of the region. If a particular use is not a high priority and the reclaimed water is available, the producer should consider making water available to that user on a temporary basis.

Motion: Authorized the General Manager to enter into an agreement with the SWRCB that such an agreement be in a form approved by the General Counsel.

Motion: Adopted the Transportation Management Program.

Motion: Authorized the General Manager to execute a time and materials agreement with Walls Inspection Service to provide pipe plant fabrication inspection services for the construction of Pipeline 5 Extension, Phase I for a fee of \$30.00 per hour plus mileage up to a maximum limit of \$300,000.

Resolution: Established the Pay-as-you-go Capital Facilities Account.

Resolution: Fixed a public hearing on April 11 at 4:00 p.m. in the Board Room of the Authority Headquarters.

Resolution: Created an emergency supply augmentation fund within the general unrestricted funds of the San Diego County Water Authority.

Motion: Authorized the General Manager to (1) submit a residential interior plumbing retrofit program proposal to MWD, and (2) extend the existing contract with the Roberts Company, at a cost not to exceed \$482,391.

Motion: Authorized the General Manager to transfer up to \$350,000 from the conservation and storage fund and use it for the purchase of water conserving showerhead kits.

BOARD OF DIRECTORS

April 11, 1991

Resolution: Hearing regarding opportunity for the public to appear and be heard re adoption of Negative Declaration for Water Authority Standby Charge for Fiscal Year 1991-92 resolution.

Resolution: Hearing regarding opportunity for the public to appear and be heard re adoption of Negative Declaration for the construction of the combined Otay 5/San Diego 13 flow control facility resolution.

Resolution: Hearing regarding opportunity for the public to appear and be heard re adoption of Helix 3 flow control facility and transmission pipeline resolution.

Motion: Approved the Reclaimed Water Development Fund Guidelines.

Motion: Approved the funding request and authorized the General Manager to enter into an agreement with Rainbow Municipal Water District.

Motion: Approved inclusion of an impartial, non-binding Disputes Review Board as a requirement in Specification 421, Pipeline 4 Extension, Phase I, Cowles Mountain Tunnel, to resolve major disputes of over \$25,000 during the course of the tunneling contract.

Motion: Authorized the General Manager to execute a purchase order to provide sufficient funds to reimburse SDG&E for their actual costs in relocating existing SDG&E facilities that conflict in plan and/or profile with the construction of Pipeline 4 Extension, Phase I.

Resolution: Approved the appraisal of J.P. Meek Company, authorizing the purchase of properties and authorizing the notice of intent of the Board of Directors of the San Diego County Water Authority to adopt a Resolution of Necessity to acquire property by eminent domain.

Motion: Authorized the General Manager to enter into a lease/purchase agreement with Case Power and Equipment Company for the sum of \$99,452.22 for the use and possible purchase of a crawler excavator Model 125B.

Motion: Approved the firm of Stoorza, Ziegeaus and Metzger/ADC Stoorza as the public relations/advertising agency of record for fiscal year 1991-92.

SAN DIEGO COUNTY WATER AUTHORITY

- Motion: Designated the Long Range Planning Committee to conduct all relevant public hearings to receive public comments for Authority projects requiring Negative Declaration document under CEQA.
- Motion: Authorized the General Manager to provide, as appropriate, a car allowance not-to-exceed \$400 per month to employees who are eligible to be assigned an Authority vehicle.
- Motion: Authorized staff to write a letter regarding the hardship claim of property owner in Moosa Canyon stating the Authority's position.
- Motion: Approved public distribution of the Draft Environmental Impact Report (DEIR) for the San Diego County Water Authority Pipeline 4B, Phase II and public notice and scheduled a public hearing for May 16, 1991.
- Motion: Approved the distribution of the Draft Environmental Impact Report for Pipeline 2A and Pump Station Project, authorizing staff to file a notice of completion in the prescribed manner. Established May 9, 1991 as the date for a public hearing to receive comments on the DEIR and directed staff to notice the hearing as required by law.
- Motion: Authorized staff to negotiate a final scope of work and execute a contract with Pacific Southwest Biological Services for an amount not-to-exceed \$120,000.
- Motion: Denied the appeal from Denial of Protest to Payment of Capacity Charges.
- Motion: Authorized the General Manager to enter into an agreement with the San Diego Wild Animal Park and that such agreement be in form approved by General Counsel.
- Motion: Supported HR 225, Groundwater Management and Water Quality Control Act of 1990, and directed staff to instruct legislative contacts to pursue support on behalf of the Authority.
- Motion: Opposed SB 552 - Rogers - Water softeners.
- Motion: Supported SB 1223 - Killea - Water Softeners.
- Motion: Supported AB 1698 - Filante - Reclaimed Water For Toilet Flushing.

BOARD OF DIRECTORS

- Motion: Authorized contract amendment with ASL Consultants to provide final design engineering services for Pipeline 4 Extension, Phase II for an additional not-to-exceed amount of \$1,462,000 (\$1,271,000 plus 15%). The total contract price for preliminary and final design of Pipeline 4 Extension, Phase II would be \$1,900,000.
- Ordinance 91-2: Rescinded Ordinance 91-1 and established rules, regulations and restrictions on water use.
- Ordinance 91-3: Fixed capacity charges on ultimate users of water from the San Diego County Water Authority.
- May 16, 1991**
- Resolution: Amended section 27.3 and RESOLUTION NO. 91-24 - CEQA Implementation Guidelines - of the Administrative Code.
- Resolution: Amended sections 12.1 through 12.3 - Classified Positions - of the Administrative Code.
- Motion: Opposed AB 1794 - Moore - amending the Metropolitan Water District's Act to restrict the Board's discretion in fixing water rates and maintaining reserves.
- Motion: Supported AB 573 - Kelly - supporting the MWD proposed amendments and seeking clarifications on the terms used in the amendments.
- Motion: Authorized the expenditure of \$700,000 to replace portions of the Pomerado Pipeline that were exhibiting signs of corrosion and authorized the General Manager to execute contracts for the purchase of material, equipment and labor to perform the replacement.
- Motion: Deferred 1991/1992 10-Year Capital Improvement Program item to the June meeting.
- Motion: Authorized the General Manager to execute an agreement with MWD to purchase water from the 1991 Critical Needs Water Bank.
- June 13, 1991**
- Resolution: Certified Final EIR, Approval of Project, and Adoption of Mitigation Monitoring Program for Pipeline 2A.
- Resolution: Adopted Necessity for Pipeline 4B, Phase I Properties.

- Resolution:** Authorized the Design and Construction of a Temporary Connection to the Raw Water Pipeline #4 of the Second San Diego Aqueduct.
- Motion:** Appointed Robert Campbell Chief Financial Officer, as the Alternate Representative to the Joint Powers Insurance Authority pending Henry Lozano's retirement.
- Motion:** Supported SB 1087 - Thompson, authorizing financing of desalination facilities through general obligation bonds.
- Motion:** Opposed AB 2111 - Polanco, creating the Desalination for Assured Water Policy Act in Division 6 of the Water Code.
- Motion:** Recommended that the Authority not provide funding for the City of San Diego's proposed retroactive ULFT rebate program.
- Motion:** Authorized variation of Public Facilities Retrofit Program for Fiscal Year 1991.
- Motion:** Authorized the General Manager to (1) Amend the Authority's ULF toilet rebate program proposal to MWD and (2) amend the agreement for operation of the program not to exceed \$4,440,000 contingent on approval of the Fiscal Year 1992 budget.
- Motion:** Supported AB 2090 - Katz - Water Transfers, as amended.
- Motion:** Recommended that the General Manager be authorized to award the 1991-92 chlorine contract to Continental Chemical Co.
- Resolution:** Adopted the Right of Way appraisal Report for Pipeline 4 Extension, Phase I (La Mesa/Lemon Grove Pipeline).
- Motion:** Authorized the General Manager to execute a \$97,930 purchase order to SDG&E for their actual costs in the protection and temporary removal/replacement of SDG&E utilities along the P4EI alignment.
- Motion:** Selected James M. Montgomery Engineers as the design consultant for Pipeline 4B, Phase II.

WATER AUTHORITY COMPOSITION

General

The San Diego County Water Authority includes six cities, three water districts, two irrigation districts, nine municipal water districts, one public utility district, one federal agency, one county water district, and the County of San Diego as an ex officio member. 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 cities of Chula Vista, Coronado, National City, Oceanside, and San Diego, the Fallbrook Public Utility District, the Lakeside Irrigation District, the La Mesa, Lemon Grove and Spring Valley Irrigation District, and the Ramona Irrigation District.

The organization was created to import Colorado River water to San Diego, augmenting local water supplies that were rapidly becoming inadequate.

Area

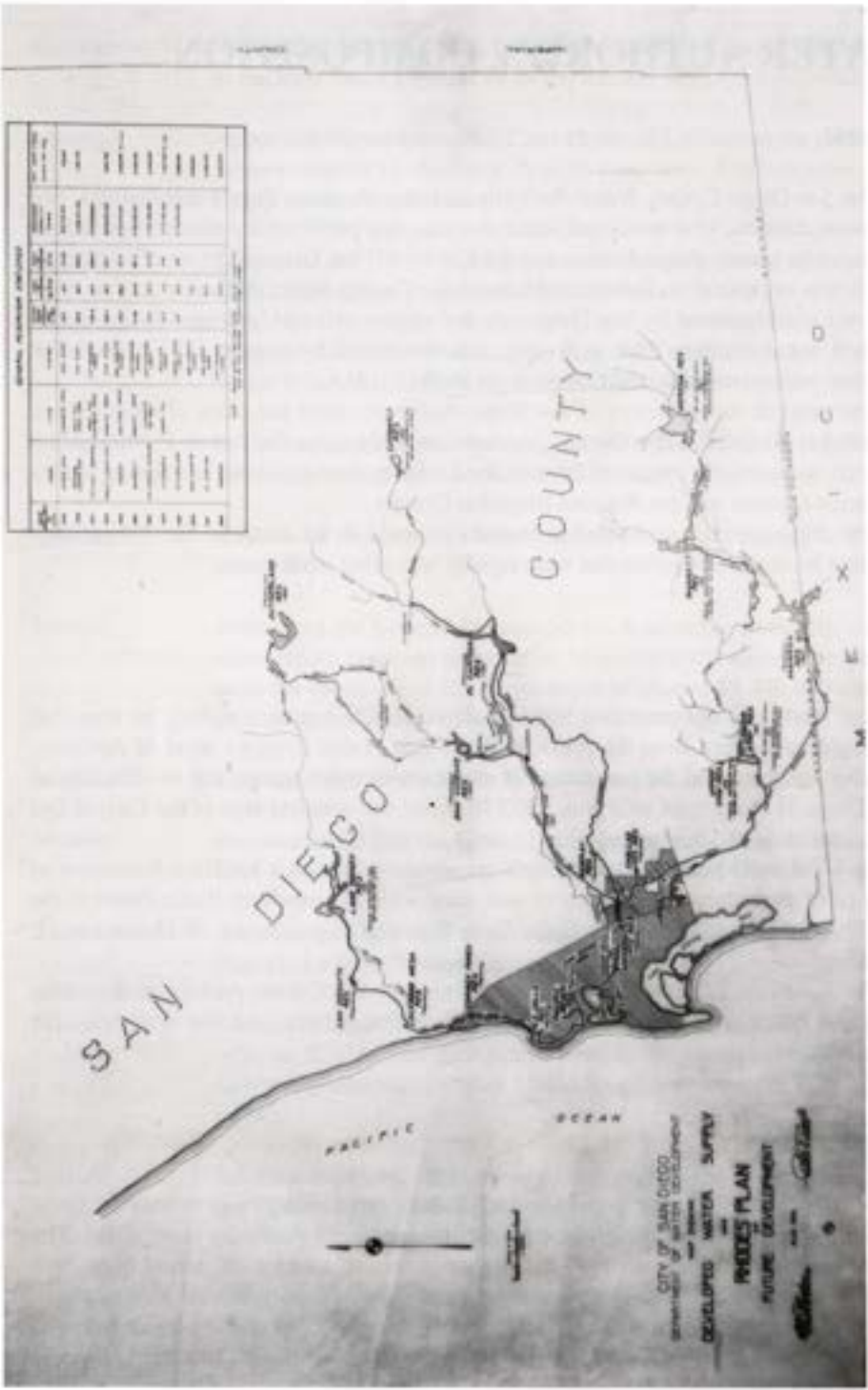
The Authority encompasses 908,945 acres (1,420.3 square miles), an area that remained unchanged from the previous fiscal year. Table 3 shows areas of Authority member agencies, and the percentage of area each member agency serves. The City of San Diego is the largest area with 210,626 acres; the smallest 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. The statement was filed with Metropolitan Water District, the San Diego County Assessor, and the State Board of Equalization on December 31, 1990.

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

On April 1, 1991, the population of San Diego County was estimated to be 2,548,733. About 98 percent of these people live within the Authority service area. The average annual growth rate within the Authority service area for the period from 1946 to 1991 was 3.92 percent. The population within the Authority service area was estimated to be 2,485,692 on April 1, 1991, an increase of 49,789 or 2.0 percent from the April 1, 1990 estimate of 2,435,903. Population statistics are contained in Tables 2 and 3.



City of San Diego Water Supply Map - 1926
San Diego Historical Society - Tisor Collection

The City of San Diego leads all member agencies in population, with 1,137,767 persons, which is about 46 percent of the total population. The Yuima Municipal Water District has the smallest population with 1,820 and the lowest density of 0.14 persons per acre. National City has the highest population density, with 9.25 persons per acre.

The average population density of the Authority increased during the fiscal year from 2.68 to 2.73 persons per acre or 1,750 persons per square mile.

Assessed Valuation

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

Total assessed valuation of taxable property within the Authority for 1990-91, according to the County Auditor's certification, was \$117,128,102,257, an increase of \$13,441,849,417 or 13.0 percent from the 1989-90 certified valuation of \$103,686,252,840.

The average assessed valuation of property within the Authority service area increased from \$114,073 per acre in 1989-90 to \$128,862 per acre in 1990-91. 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.

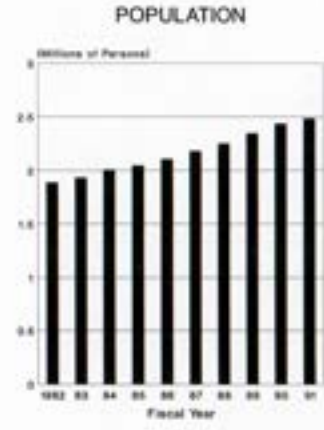
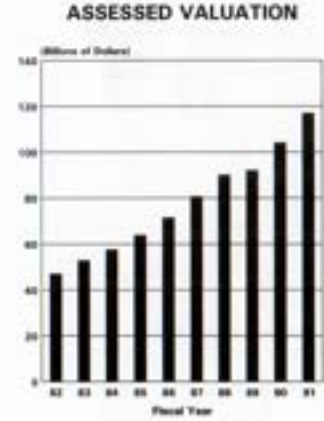
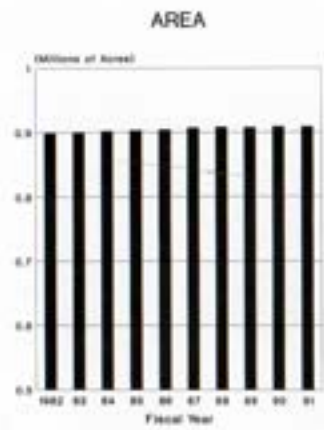
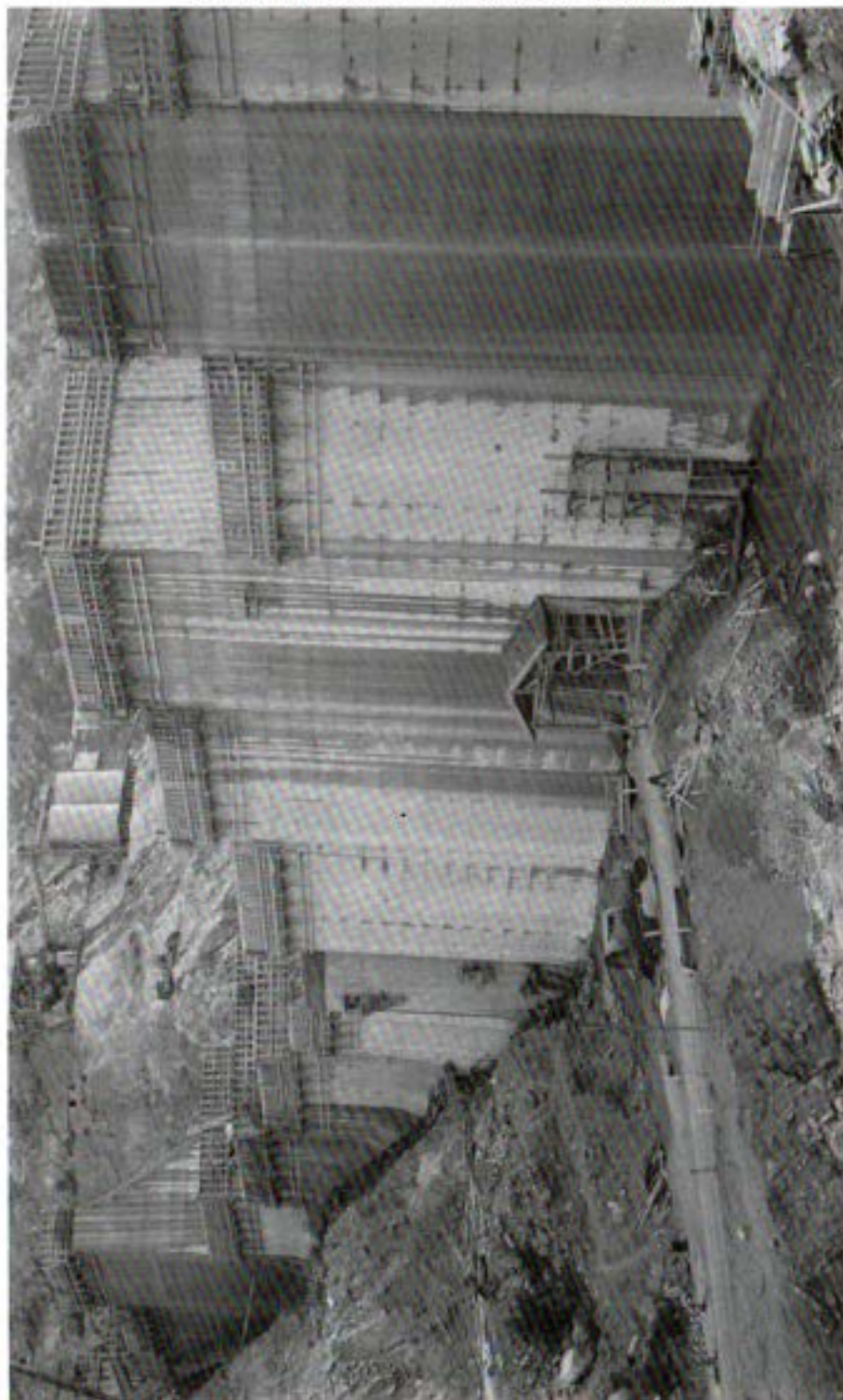


Figure No. 2



*San Vicente Reservoir Construction - 1941
San Diego Historical Society - Teor Collection*

WATER SUPPLY AND CONSUMPTION

Source

The Metropolitan Water District of Southern California (MWD) is the sole source of supplemental water to the Authority. The member agencies of the Water Authority used 24.8 percent of MWD's supply in 1990-91. The Authority has a preferential right to only 12.23 percent of MWD's total supply but MWD has never invoked preferential rights as a basis for curtailment of water deliveries.

MWD Facilities

The Metropolitan Water District supplies a blend of water from the Colorado River and State Water Project. Colorado River water is carried from Lake Havasu through the Colorado River Aqueduct to its 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.

State Water Project water is delivered to MWD at Lake Perris, the terminus of the 444-mile California Aqueduct. From there, it normally flows through the Lakeview Pipeline to the San Diego Canal, where it is blended with Colorado River water, and 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. Because of the drought and reduced State Water Project supplies, Lake Skinner was 100 percent Colorado River water by the end of June 1991.

Lake Skinner is the major storage facility for the San Diego Aqueduct and has a maximum capacity of 44,000 acre-feet of storage. The maximum water elevation for storage is 1,479 feet above sea level. The Skinner Treatment Plant, located at the reservoir, has a treatment capacity of 340 million gallons per day (mgd). These facilities are located in Riverside County south of Winchester.

Authority Facilities

The Authority takes delivery of water from MWD in the five pipelines of the San Diego Aqueducts, located about 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 about 12.5 miles of this branch from Rainbow to Morro Reservoir. The two pipelines of the First

Aqueduct share common tunnels and inverted siphons and are operated as a single unit. The La Mesa-Sweetwater Branch extends from the First Aqueduct at Slaughterhouse Canyon through Lakeside and El Cajon to Sweetwater Reservoir.

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 ends at Lower Otay Reservoir. One of the untreated water pipelines 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 the Bueno Colorado Municipal Water District and the City of Oceanside. The 8-mile Ramona Pipeline was completed in 1990, and delivers water from the Second Aqueduct to the Olivenhain Water District, City of San Diego, and the Ramona Municipal Water District.

To maximize the flexibility of the system, several crossover connections have been constructed since 1965. 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 Diversion is an interconnection which permits the transfer of flows both ways between Pipeline 3 and Pipeline 4. 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 capabilities of the Authority pipelines at the point of delivery from the Metropolitan Water District are:

| | |
|----------------------------|-----------------------|
| Pipelines 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 is equivalent to 7.48 gallons. One cubic foot per second flowing for 24 hours will produce nearly two acre-feet. An acre-foot contains about 326,000 gallons.

The Authority does not own or operate any storage facilities. However, it does have the contractual right to store up to 40,000 acre-feet in San Vicente Reservoir. An agreement with the City of San Diego, which owns the reservoir, provides for payment to the City of San Diego \$2.20 per acre-foot for the maximum amount of water in storage each year. In addition, the Authority pays the City of San Diego \$4.00 per acre-foot for any Authority-owned water pumped from storage into the City's system. The above storage charges may be adjusted once per year to reflect the cost of operating the reservoirs or changes in electric rates. The agreement also provides that the first

water which may be lost over the spillway is that stored by the Authority. No water was spilled during the fiscal year. San Vicente storage statistics are shown in Table 4, including the amounts of storage placed in the reservoir for member agencies other than San Diego. The agreement with the City also permits storage of up to 20,000 acre-feet in other City-owned reservoirs, subject to approval of the City Manager.

The Miramar Plant has two turbine/generator units with a nameplate 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 Authority's Fred A. Heilbron Operations Center in Escondido. It is here that delivery requests from member agencies are received, and aqueduct flows and deliveries are monitored and controlled through a computer and telemetering system. Operating and maintenance field staff communicate with MWD's East Valley Operations Section at Lake Skinner by two-way radio.

Deliveries and Rates

The San Diego County Water Authority aqueducts received 566,047 acre-feet from the Metropolitan Water District (MWD) during the fiscal year. Untreated water accounted for 381,172 acre-feet, and the balance of 184,875 acre-feet of water was treated at the Skinner Treatment Plant in Riverside County. The total flow was 81,434 acre-feet less than the previous fiscal year, which represents a decrease of 12.6 percent.

This decrease was the result of a mandatory conservation program known as the Incremental Interruption and Conservation Plan (IICP). The MWD Board adopted the IICP in November 1990 to allocate limited water supplies in 1991. Under this plan, agencies were allocated monthly amounts of water, based on deliveries of water made during the designated base year of 1989-90. Allocations were adjusted for growth, water conservation activities, and reductions in local supplies. Allocations were based on need rather than preferential rights.

Aided by rainfall, water demand from MWD member agencies fell off significantly during the period February through June 1991. While MWD called for conservation of about 31 percent, its member agencies reduced adjusted base year deliveries by 39 percent. MWD paid out about \$18 million in incentive payments during this period, of which the Authority received about \$3.1 million. From February through June 1991, the Authority reduced its demand from MWD about 30 percent.

The lowest flow rate averaged 175 cubic feet per second (cfs) and occurred in March 1991. The highest average delivery of 1,192 cfs occurred during July 1990. The average for the entire year was 771 cfs. Water deliveries to member agencies and others during the fiscal year are shown in Table 8. Purchases by member agencies totaled 553,715 acre-feet. Annual water sales to individual agencies for the eight-year period 1983-84 through 1990-91 and total water sales from 1947-1982 are shown in Table 7.

Capital costs for the First and Second Pipelines were financed by the United States Government. The Third and Fourth Pipelines were financed by the sale of general obligation bonds. This voter-approved debt is funded by an ad valorem tax on all prop-

SAN DIEGO COUNTY WATER AUTHORITY
WATER USE

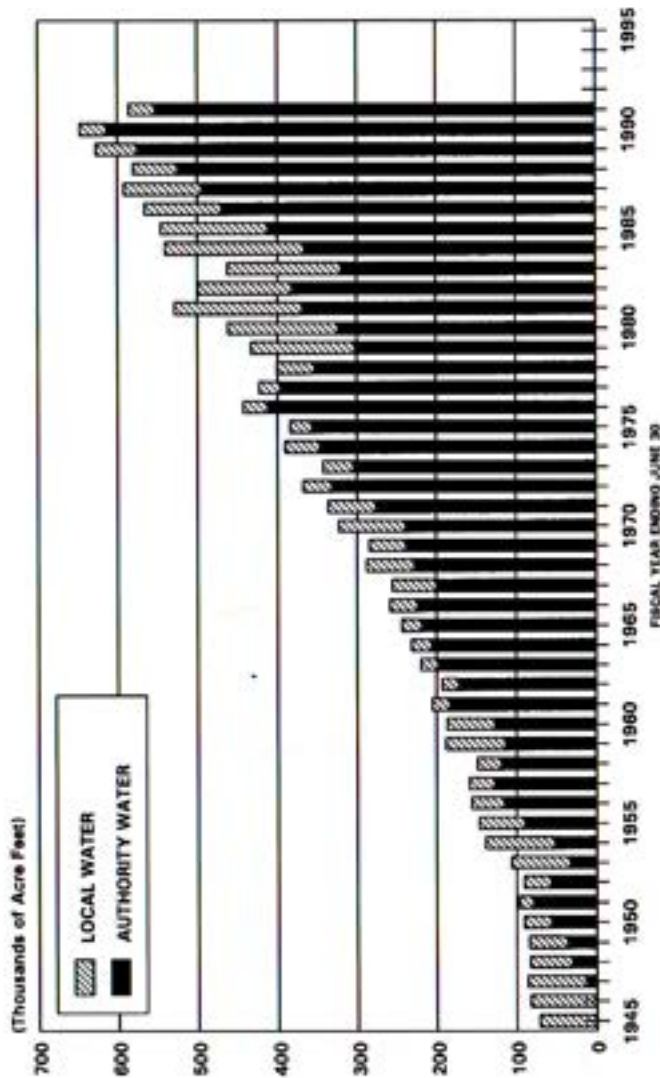


Figure No. 4. Water Use of Authority member Agencies

meet maximum day demands by agencies in the south county. Under this agreement, payment for water purchased and placed into storage is deferred until the water is removed from storage. Payment for all water is at the untreated rate, and payment on all water remaining in storage on September 30 is due, with interest, in October. In 1990-91, this program placed 8,309.1 acre-feet of water into storage.

Water Use by Member Agencies

The term "water use" describes the quantity of water an agency obtains from all sources to meet its consumers' needs. Water use includes losses between the source and the consumer. These losses may result from pipeline breaks, evaporation from regulating reservoirs, and metering discrepancies. Sources for this water include reservoirs, wells, and the Authority system.

The total water use of each Authority member agency is shown in Table 4. Water use for 1990-91 was 585,618.7 acre-feet, which is a decrease of 61,026.5 acre-feet, or 9.4 percent, from the previous year. Most of this reduction is attributable to conservation programs that were enacted from February through June 1991.

The highest monthly use during 1990-91 occurred during July 1990 when 71,921.4 acre-feet were used. The lowest monthly use occurred during March 1991 when 22,714.1 acre-feet were used. The Authority supplied a high of 96.7 percent of the water used during the month of December 1990 and 94.3 percent of the use for the fiscal year.

Rainfall for 1990-91 was as shown below:

| Location | Rainfall | Percent of Normal |
|-----------------|--------------|-------------------|
| Lindbergh Field | 10.54 inches | 113% |
| Lake Cuyamaca | 32.90 inches | 87% |
| Lake Henshaw | 30.58 inches | 118% |

Local and imported water stored in regional reservoirs increased 23 percent from 271,513 acre-feet on June 30, 1990, to 332,736 acre-feet on June 30, 1991.

The City of San Diego maintains the most extensive system of impounding reservoirs in the Authority service area. This system produced 16,232.8 acre-feet during the fiscal year, and out of this, the City of San Diego sold 6,416.6 acre-feet to the California-American Water Company for delivery to Coronado and Imperial Beach.

Helix Water District produced 1,714.8 acre-feet from Lake Cuyamaca and its wells in the El Monte Basin. The Vista Irrigation District (part of the Bueno Colorado Municipal Water District) produced 4,754.7 acre-feet from Lake Henshaw and the Warner Ranch wells. The City of Escondido produced 4,184.7 acre-feet from the Henshaw-Wolford system, and 2,019.3 acre-feet were produced within Yuima Municipal Water District from the Pauma Valley wells. Sweetwater Authority produced 2,025.1 acre-feet from the Sweetwater system and wells for use in National City and South Bay Irrigation District.

Eleven of the 23 member agencies are completely dependent on imported water. The remaining 12 agencies varied in the fiscal year from 99.9 percent dependent on

Authority-supplied water (Ramona Municipal Water District) to 52.6 percent dependent (Yuima Municipal Water District). It is estimated that the Authority serves about 53 percent of the geographical area within its boundaries.

Water use per unit area is generally highest in the urbanized portions of the County. However, these areas have a lower per capita use of water. Average daily per capita consumption of municipal and industrial water for fiscal year 1990-91 was 168 gallons per day. This decrease, down from 192 gallons per capita per day last fiscal year, is because of conservation programs that were in place from February through June 1991.

The combined water use of Authority member agencies is shown in Figure 4. The unshaded area indicates the proportion obtained from local sources compared with that supplied by the Authority.

Water Quality

Water entering the Authority delivery system remained of generally good quality. Variation in raw water turbidity exists because of seasonally high algae levels. This is serious only for users of Colorado River water that is not filtered prior to distribution.

Algae growth in Authority pipelines is controlled through a program of chlorination. The rate of chlorine applied at the Rainbow Chlorination Station during the year was 1.00 parts per million (ppm) to flows in Pipelines 1 and 2, and 0.75 (ppm) in Pipeline 3. 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

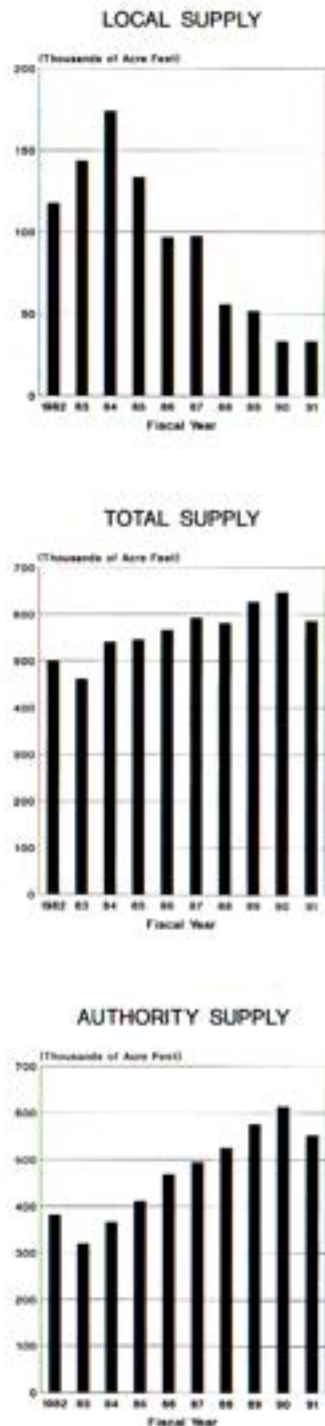


Figure No. 5

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 11. The analyses are based on samples taken from the West Portal of San Jacinto Tunnel and treated by MWD. Total hardness ranged from a high of 309 milligrams per liter (mg/l) to a low of 292 mg/l. Water temperature varied from a high of 79 degrees F (26 degrees C) in August and September 1990 to a low of 50 degrees F (10 degrees C) reported in January 1991.

The chemical constituents of the dissolved solids of treated, blended water at Lake Skinner are shown in Table 12. Total hardness ranged from a high 311 mg/l to a low of 196 mg/l. Water temperature ranged from a high of 79 degrees F (26 degrees C) recorded in July and August 1990 to a low of 52 degrees F (11 degrees C) in January 1991.

Agricultural Water Use

Member agencies of the Authority used a total of 118,933.2 acre-feet of agricultural water during 1990-91, which is 3,363.6 acre-feet less than the previous year's use of 122,296.8 acre-feet. The percentage of agricultural water to the total water use was 20.3 percent, an increase from 18.9 percent in 1989-90. About 97 percent of water used for agricultural purposes is supplied by the Authority while 94 percent of the total amount of water used is from the Authority. 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 began operation in May 1979. This expansion, together with the 100-mgd Skinner No. 2 Plant completed in 1985-86, provides 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 (joint ownership), Helix Water District, and Sweetwater Authority (operating for South Bay Irrigation District and National City). The Authority purchases treated water from Helix and Poway to supply Otay Water District, 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 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. The enlarged Skinner Treatment Plant and the Auld Valley pipeline

connection to the First Aqueduct will provide treated, blended water in these pipelines in 1992. This treated water is disinfected by the chloramination method which introduces ammonia and chlorine into the water and reduces the formation of trihalomethanes (THMs).

The Water Authority measures and reports aqueduct water turbidity to meet the California Safe Drinking Act daily monitoring requirements. Additional water quality sampling and measurement is done by Authority member agencies and collected for a more complete daily water quality record.

Allocation of Water to Member Agencies

Water allocations to member agencies came under increased scrutiny in February 1991. Authority member agencies were required to conserve water based on percentage target reductions of deliveries in the designated base year of 1989-90 under an MWD program called the Incremental Interruption and Conservation Plan (IICP).

The IICP featured six stages of conservation targets, which depended upon availability of supplies. The targets ranged from voluntary conservation efforts (Stage 1) to a mandatory 50-percent reduction (Stage 6). Financial incentives and disincentives were created to reward agencies that conserved beyond requested levels and penalize those that did not meet the targets.

The IICP began in November 1990 at Stage 1, a voluntary request for conservation. But the water supply outlook worsened during the dry winter, and a Stage 3 mandatory 15-percent reduction began February 1, 1991. Drought conditions eventually became so severe that a 50-percent Stage 6 reduction was planned to begin April 1, 1991. However, a series of heavy storms in March 1991 permitted MWD to settle on a 31-percent Stage 5 reduction, and that level of conservation was still in effect at the end of the year.

The Authority's conservation allocation policies emphasized providing for the greatest public interest and benefit. Using this guideline, the Authority placed equal conservation target levels on firm (domestic and municipal) and non-firm (agricultural) classes of water users. The Metropolitan Water District reduced non-firm supplies to the Authority at a greater rate than firm supplies.

Future Supplies

The Authority has the responsibility to provide all the supplemental water required by its member agencies to meet the needs of their consumers. Nevertheless, the Authority recognizes it also has responsibilities 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.

San Diego Association of Governments (SANDAG) projections 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 meet-

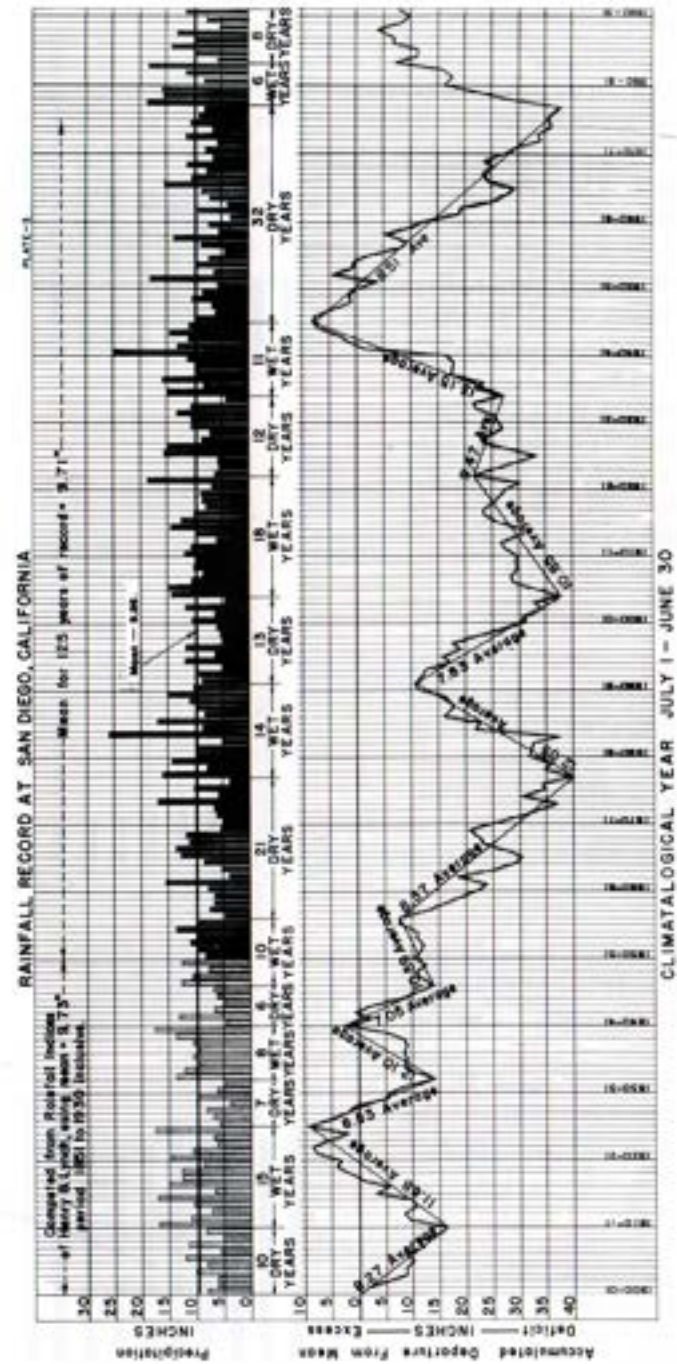


Figure No. 6 Rainfall Record at San Diego, California

ing future needs. The Water Authority obtains all of the water it distributes from the Metropolitan Water District of Southern California (MWD), 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 14.9 million to 16 million, and the Authority's population will increase from the present 2.45 million to 2.70 million 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 acre-feet because of the U. S. Supreme Court's decision in *Arizona vs. California* in 1964, MWD amended its contract with the State to provide an additional 500,000 acre-feet per year. Annexations and other changes have increased that MWD-State contract to 2,011,500 acre-feet 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 the 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.

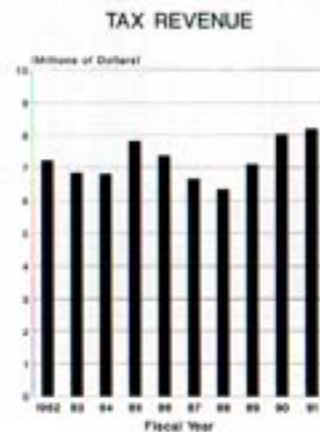
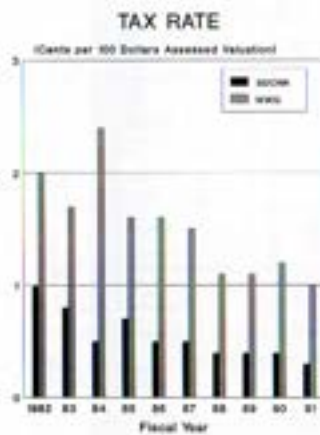
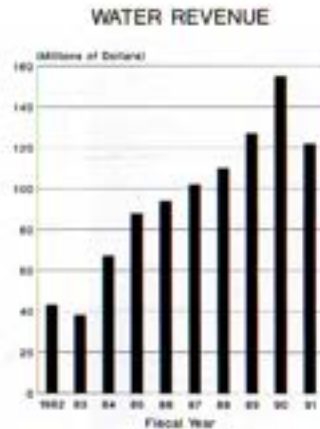


Figure No. 7

Additional water resources continue to be examined. The Authority, MWD, the State of California, various federal agencies, and many private organizations are conducting investigations of feasible alternate water sources and ways to increase the present yield of the State Water Project.

Water reclamation and water conservation are being aggressively pursued as both an alternative water source and a means of augmenting current water supplies. The Board of Directors of the San Diego County Water Authority supports local projects of member agencies, such as supplying reclaimed water to irrigate parks, golf courses, and open spaces in planned residential developments.

Figure 4 shows the increase in water requirements within the Authority since 1945.

OPERATIONS AND MAINTENANCE

General

Operation and Maintenance of the Authority's aqueduct facilities and equipment is directed by the Operations Superintendent from the Operations Center, 610 W. Fifth Avenue, Escondido, California. The Authority's Operation and Maintenance force of 36 employees operates the aqueduct system and performs all maintenance and repair of the aqueducts and related structures and processes.

During the fiscal year, the operations staff consisted of three assistant superintendents for operations, technical support, and maintenance; one warehouse supervisor; seven system operators; six system technicians; one shop supervisor; two mechanics; and eleven maintenance technicians. The Maintenance section is organized into three subsections: Equipment Operation, Mechanical Services, and Structure Maintenance. A three-member secretarial/clerical group supports all engineering, construction, operation, and maintenance activities.

The Escondido Operations Center occupies one city block with five major buildings: administrative, shop, warehouse, training center, and an on-site residence. The administrative building, which houses both the aqueduct computerized control system and offices for Operations, Maintenance, Technical Service, and Engineering, was completely remodeled and increased in size by 2,983 square feet. In addition, architectural consultants were selected to design drought-tolerant landscaping around the complex and the warehouse expansion.

The shop building has facilities for repairing and servicing all Authority vehicles and heavy equipment. This building contains a small machine shop, meter shop, and an equipment maintenance office. The warehouse stores materials, supplies, tools, small equipment, and vehicles. It also contains the valve service repair shop and carpentry shop.

The training center building is no longer used for employee assemblies or in-house training, because the administrative building remodel has provided for this. Water technology training will be transferred to the Palomar College campus in 1992. The space freed from having this structure removed will be used for operations and maintenance activities.

The residence building, previously used for site security, is scheduled for removal to make room for the warehouse expansion. Security has been improved with the installation of a new electronic security system in the buildings and within the yard area.

A dual radio system connects the Authority base stations at the Operations Center with the San Diego office, Authority mobile units, Metropolitan Water District's (MWD) Robert A. Skinner Treatment Plant, Member Agency Radio System (MARS), all of the major San Diego County water purveyors, all treatment plants connected to the aqueducts, and the San Diego County Office of Disaster Preparedness Emergency Operations Center.

This system has several frequencies and uses two radio relay sites on Palomar

Mountain. If one or both relay stations were to fail, the relays could be bypassed and radio units contacted directly. A touch-tone call system can call up a specific interagency radio independently and key employees are equipped with mobile telephones for greater range and flexibility of communications.

A new, more powerful standby generator was installed at the Escondido complex. This generator has the capacity to power all buildings and functions within the Operations Center. In addition, the aqueduct computer control system, telephones, and radios have a secondary backup generator as well. Independent telephone lines and radio systems were installed in the new Escondido Emergency Operations Center (EOC) for greater reliability and operation during a major emergency.

Administration

Major work has been accomplished in the area of Emergency Preparedness with the installation of status boards in the Emergency Operations Center, coordinated communication drills with the County of San Diego and other agencies, and the establishment of the member agency Emergency Preparedness Committee.

The Committee has developed a draft Member Agency Communications Manual to address both emergency and standard procedures for interagency communications. Seismic anchorage for the emergency power system to the Emergency Operations Center and Control Center has been reviewed and recommendations for additional bracing are under consideration.

Operations

The Systems Operation section operates the Authority's water delivery system, which has five major pipelines, ranging in size from 48 to 96 inches. The present capacity of the system is more than 750 million gallons per day (mgd). The Systems Operations is divided into Control Room Operations and Field Operations.

Authority operators control water flows to member agencies by using telemetry and computer control systems. The system supplies raw and treated water. All Operation personnel are certified for water distribution by the American Water Works Association (AWWA) and for water treatment by the State of California Health Department.

Field Operations personnel make daily checks, and perform minor repairs and calibrations as required on all meters, pump stations, pressure control stations, chlorination stations and valves located throughout the county. They are also responsible for the operation of two hydroelectric power plants. Typical duties include reading meters, changing charts, and calculating water flows.

The Operations Center Control Room is staffed daily, including weekends and holidays, from 7:30 a.m. to 4:00 p.m. During off-hours, Authority phone calls are transferred to the home of the systems operator on duty. The duty operator can respond with a utility vehicle equipped with both Authority and interagency mobile radios.



Mechanic Edwin Juarez performs a tune-up and routine service on Authority's pickup in the vehicle shop, located in the Water Authority Escondido Operations Center.



Mechanic Rich Burke and shop supervisor Bob Nielsen install a rotating beacon and check engine on new truck that will be used as a mobile unit by the maintenance mechanical service crew.



Lewis Russo (on rig) and Steve Carpenter operate the Authority's Operations and Maintenance new crawler backhoe to excavate trench for the Highway 56 encasement project for the 4th barrel of the Second Aqueduct.



Operator Will Kane acts as safety lookout while Authority crews work in trench for the Highway 56 encasement project on the 4th barrel of the 2nd Aqueduct.

A voice pager will notify the duty operator if telephone contact cannot be made.

In emergencies, the assistant superintendent of operations and the principal systems operator both have vehicles with interagency radios for quick response and field coordination with other agencies.

Charts of the service connection meters are changed weekly. Flow charts and meter readings are compared for indications of inaccuracies. The calibration of each active meter is checked at least three times per year. Meter accuracy is also checked when requested by a member agency or if accuracy is questioned.

Flow into both the treated and raw water aqueducts is controlled, either locally or remotely, by the Metropolitan Water District (MWD) at the Robert A. Skinner Treatment Plant Operations Center. The plant operates around-the-clock and can respond to requests for emergency flow changes. Normal aqueduct flow changes are made daily at 8:30 a.m. and 2:30 p.m. The Authority can shift flows from one service connection to another, with agency approval, to keep the pipeline flows in balance.

Water deliveries in the Authority aqueduct system are displayed and controlled on the Operation Center's automatic computerized control system. The computer warns the daytime operator of problems with alarm displays and a synthesized voice and the night-time operator by telephone. The night-time operator can also monitor and instruct the computer control system from home using a portable computer. A security system uses a lockout and codes to prevent the misuse of this or similar equipment.

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 and maintain the proper flow to the service connections at or near the end of the pipelines. The computer and a large aqueduct flow status board show the amount of water available to meet the member agencies needs. Each pipeline's current flow, requested flows, meter sizes, maximum allowable capacity flows, critical pipeline flows, telemeter and valve information are displayed on the status board and computer terminals.

Authority water is stored, by contract, in several reservoirs owned by member agencies, principally in the City of San Diego's San Vicente Reservoir. Except in minor amounts, these water storage facilities cannot return stored water to the aqueduct for use elsewhere. The Bueno Colorado Water District, the Helix Water District, and the City of San Diego do have service connections through which flows of treated water can be put into the aqueduct when needed.

Three pumps at the Authority's Miramar Pump Station are available to pump flows of up to 140 cubic feet per second (cfs) of treated water from the City of San Diego's Miramar Treatment Plant into the treated water aqueduct for delivery to south county member agencies. Except for short periods of time, these flows are available only when excess untreated water can be delivered from the aqueduct to the treatment plant because of limited storage capacity at Lake Miramar.

Operational Activities

The Sweetwater Filtration Plant was shut down for plant modifications from December 26, 1990 through May 30, 1991. During this time, the Authority provided

the Sweetwater service area with treated water.

Periodic MARS radio tests were coordinated with MWD to test the Authority's emergency radio response system. The tests were successful and showed that the Authority could communicate with MWD during an emergency. Communications will be essential to control flows and provide mutual aid as required in the event of an earthquake or other natural disaster.

Heavy rainfall during March 1991 caused flooding in the Operations Center and forced staff and the aqueduct control computer to be moved into a temporary trailer. Several office machines were damaged but no damage was done to the computer control system. The aqueduct control system and staff were scheduled to move into the newly remodeled Operations Center by July 1991.

On April 1, 1991 a portion of Pipeline 5, north of the Diversion Structure, was drained for a joint MWD/Authority inspection of the pipeline. The inspection was to check results of a MWD test chlorination program; it showed the pipeline was relatively clean with only minor algae growth. No interruptions to service were caused by the shutdown.

The Crossover Pipeline was taken out of service and drained to accommodate the tie-in for the Escondido raw water pump station and to permit a valve replacement at the crossover terminal structure. The line was returned to service on May 5, 1991. Member agencies suffered only minor delays in flow changes during this five-day shutdown.

On May 10, 1991, the Operations Department was placed on a 24-hour schedule for five days to monitor pressures on the Second Aqueduct/Pomerado Pipeline. The round-the-clock monitoring was necessary because of a severe corrosion problem found in the Camp Elliott area and the possibility of a pipeline failure. A call-out unit was placed at the San Diego #11 connection. After testing was completed, the 24-hour monitoring was suspended.

The Pomerado Pipeline was shut down June 2, 1991, to replace corroded sections. Emergency connections from the Helix Water District and City of San Diego were utilized to provide water to the Otay Water District during the shutdown. All repairs were completed and the pipeline was returned to service by June 10, 1991.

Maintenance

The Maintenance Department is comprised of three subsections: Structural Maintenance, Equipment Operation, and Mechanical Services.

Maintenance activities are divided into two categories: preventive and corrective. Preventive maintenance incorporates maintenance and inspection activities that are performed on a regular and scheduled basis to keep equipment or structures operating effectively and to minimize unforeseen failures.

Maintenance activities include: carpentry, painting, plumbing, and masonry work for buildings and grounds; maintaining 212 miles of dirt and asphalt roads; controlling erosion; constructing new control and metering facilities; and inspecting for hazards or potential damage to pipelines or casements.

Inspection activities include the inspection of more than 900 structures and more than 100 flow control facilities. Each structure and flow control facility has two or more valves that are serviced on a regular basis.

Corrective maintenance incorporates actions that are taken to repair or restore equipment or structures to standard operating condition. These actions may result from problems discovered during preventive maintenance or as a result of failure during operation. Actions are either scheduled and carried out as part of the normal work plan, or they are unscheduled and done immediately as emergency maintenance.

Maintenance equipment includes one motor grader, one crawler tractor, two skip loaders, one trackhoe, one backhoe, one 15-ton crane, two 5-ton cranes, two forklifts, dump trucks, truck tractors, equipment trailers, compressors, several generators, welding equipment, and portable pumps. Vehicles and other trucks are equipped with mobile radios and two cellular phones for quick and efficient response.

Maintenance Activities

January 14, 1991: excavation for a leak on the 36-inch line from the San Diego weir gate to Helix #2 connection was repaired and restored to service.

April 1, 1991: Maintenance personnel assisted MWD/Authority on a joint project to drain a portion of Pipeline 5, as part of the chlorination test program.

April 15, 1991: the State Route 56 encasement project at Salmon River Road began. This project includes the encasement of 300 feet of Pipelines 3 and 4 at the Second Aqueduct Crossing of State Route 56. The encasement will be constructed in phases to coordinate with Caltrans construction. The work should be completed by late 1991.

June 2, 1991: the Pomerado Pipeline in the Camp Elliott area was shut down to replace corroded sections. Maintenance crews drained the pipeline and returned it to service.

Maintenance crews worked with Authority personnel and contractors during the Escondido remodel.

Technical Services

Technical Services is responsible for maintenance, repair and calibration of instrumentation found in the telemetry and computerized supervisory control systems.

Additional responsibilities include: maintenance of base radio communications equipment; electrical maintenance of power systems and rotating equipment found in flow control; pump stations; medium voltage equipment maintenance in hydroelectric plants; upgrading and maintenance of office and facility power; electronic and communication systems; technical design support for engineering projects and upgrades; and routine daily inspections and maintenance to planned facilities and system upgrades.

In addition to normal activities, Technical Services accomplished the following during the year:

- Upgraded the instrumentation, control and electrical systems at four flow control

facilities: Olivenhain 3, Carlsbad 3, Vallecitos 7 and Vista Irrigation District (VID) 10.

- Supplied support for the Aqueduct Control System upgrade. The major portion of the work has relied on the performance specification written by the system technicians. The goal of the upgrade is to provide better service to the member agencies, better reliability, and ease of operator interaction.
- The emergency operations centers at both the County Office of Disaster Preparedness and the Escondido Operations Center were outfitted with emergency communications equipment. This equipment consists of conditioned phone lines, cellular telephone equipment, and a 32-channel radio system. The result is an established communications link between the Authority and affected member agencies during an emergency.
- The responsibility for the maintenance, upgrading, and programming of the Operations Center phone system was assumed by Technical Services personnel resulting in substantial cost savings.

Warehouse

The 11,250-square-foot warehouse building is located within the Operation and Maintenance center, providing a secure area for materials, tools, small equipment, and vehicles. The warehouse also contains valve repair, carpentry, welding, and fabrication shops; the warehouse office, equipment cages, and a storeroom with more than 2,000 items.

The warehouse will have a 3,000-square-foot addition, to be completed in 1992, because of the rapid growth of Operations and Maintenance. Within the expansion are the additions of locker and shower facilities, archive loft, small equipment cages, paint lockers, expanded storeroom and a central warehouse office.

Shop

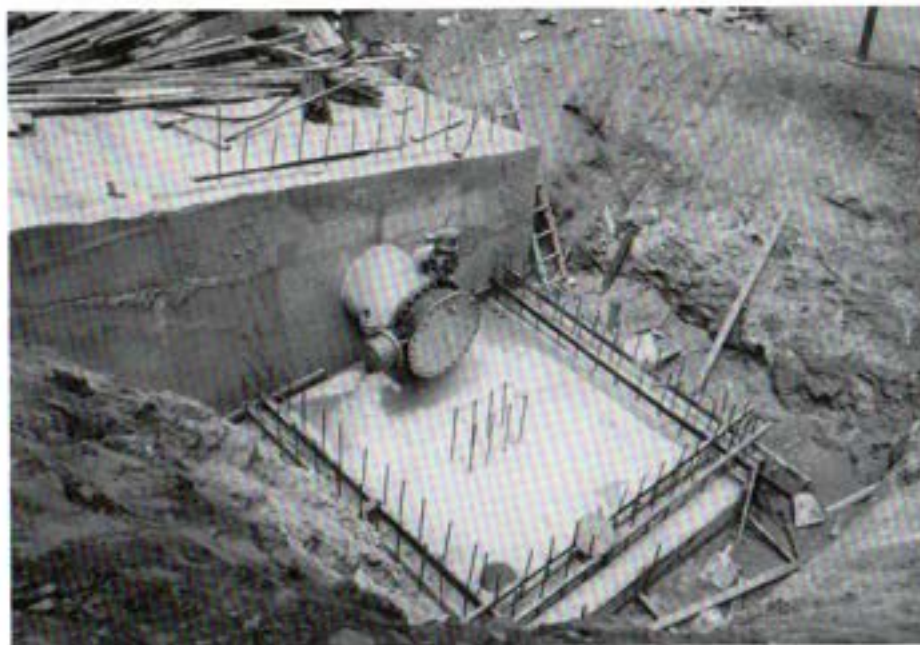
The shop maintains a wide variety of vehicles and equipment. Shop personnel are responsible for securing permits and certificates from various federal, state, and local government agencies. The shop personnel are also responsible for disposing of hazardous waste and recycling other unneeded materials.

The Authority's fleet is made up of 15 passenger vehicles, 38 light-duty utility vehicles, 10 medium - and heavy-duty trucks, 22 trailers, nine earth moving tractors, five cranes, and forklifts, welders, compressors, pumps, and generators. The shop also maintains many electrical and pneumatic tools and is involved in special fabrication projects.

SAN DIEGO WATER AUTHORITY

In an effort to update the aging fleet, 11 light-duty trucks were replaced along with a 35-year-old truck crane, a valve service truck, and an unsafe equipment trailer. Nearly all of the 25-year-old two-way radios have been replaced with multi-frequency radios capable of interagency communication. The updating program will continue next year by replacing five more light duty trucks, a 16-year-old truck tractor, and a 30-year-old forklift.

ENGINEERING DEPARTMENT



*Escondido Raw Water Pump Station, May 1991
Construction of Connection to 66-inch Crossover Pipeline*



*Completed 30-inch connection at Crossover
Pipeline for Escondido Raw Water Pump Station*

ENGINEERING DEPARTMENT

GENERAL

The Engineering Department's workload increased considerably during the fiscal year as Capital Improvement Program projects got under way. Engineering is responsible for designing and constructing new pipelines and flow control facilities, performing engineering studies, making pipeline repairs, and acquiring and managing Authority rights-of-way. The engineering staff is located at both the Authority's Escondido and San Diego offices. Major design and construction activities for the fiscal year were:

Escondido Raw Water Pump Station and Modifications to the First San Diego Aqueduct

The Authority will convert the First San Diego Aqueduct from raw Colorado River water to treated water in the spring of 1992. The First Aqueduct will continue to carry untreated water from the Crossover Pipeline south of the Terminal Structure after the conversion. In conjunction with the conversion, the City of Escondido will lose its raw water Connection No. 2 for Dixon Reservoir on the First Aqueduct. A new connection to the Crossover Pipeline and a pump station is planned to replace the lost connection. The pump station is required to pump the water to the reservoir during high flows in the Crossover Pipeline.

A professional services agreement was awarded to Black & Veatch, Engineers-Architects to provide the engineering services for the project. The scope of work for the project included improvements on the vent structures at Hubbard Hill on the First Aqueduct to separate the treated and untreated portions of the pipelines.

Preliminary design was completed in August 1990 and final design was completed in December 1990. Construction bids were opened in January 1991. A construction contract was awarded to Papac Corporation in February 1991 in the amount of \$1,292,390.

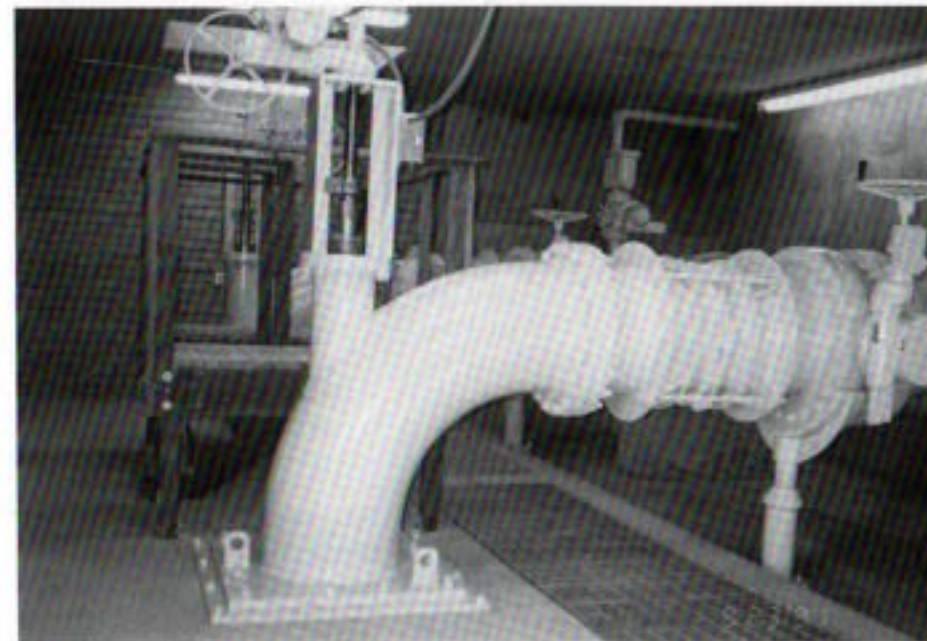
Work began in May 1991 with the construction of a new connection on the Crossover Pipeline. Construction will continue through the remainder of 1991 and the facility should be operational in March 1992 after the First Aqueduct begins to deliver treated water.

Sweetwater Bypass and Flow/Pressure Control Facility

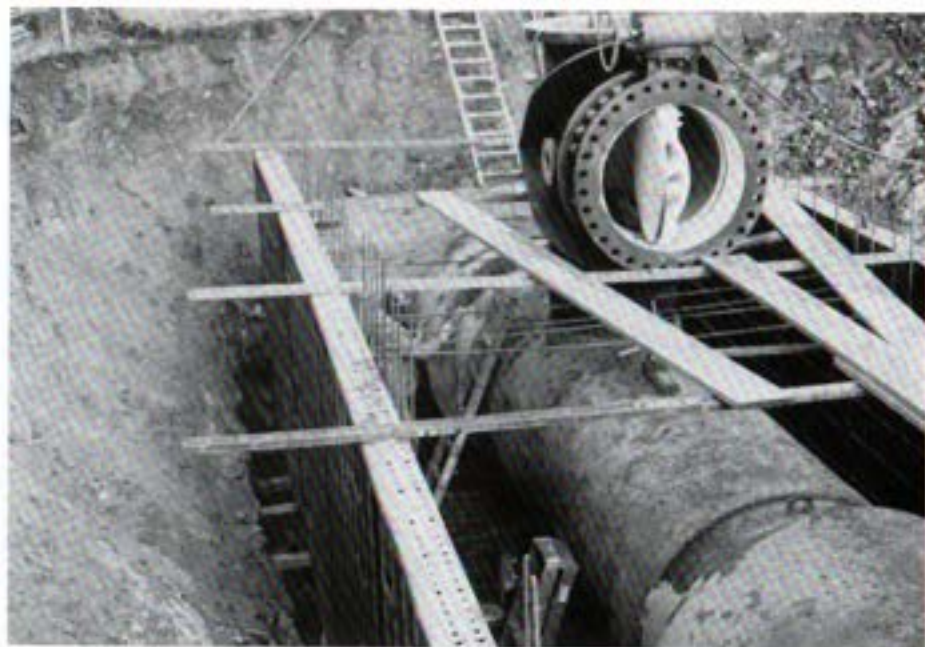
The Sweetwater Bypass and Flow/Pressure Control Facility will serve two primary purposes. First, it will allow water from Pipeline 3 to be directly discharged into Sweetwater Reservoir, allowing the Authority to deliver large amounts of water to the Sweetwater Authority during the winter and spring months.



*Construction of flow control facility
for delivery of water to Sweetwater Reservoir*



*Interior of flow control facility for the
Sweetwater Reservoir showing two 24-inch sleeve valves*



Sweetwater Bypass Project. Construction of 36-inch outlet in Pipeline 3, December 1990



Water delivery from the flow control facility to the Sweetwater Reservoir

Treated water deliveries from Pipeline 3 to Sweetwater can then be decreased during the peak summer months so that other agencies can receive additional amounts of water. This will benefit several agencies in the south county because Pipeline 3 currently operates at peak capacity for almost the entire year.

The Authority will have limited capability of delivering treated water until the completion of the Pipeline 4 Extension to Sweetwater Reservoir. The second purpose for the project is to provide pressure relief for Pipeline 3 to protect the pipeline from transient pressure surges.

The Authority awarded the construction contract to Edmond J. Vadnais Corporation and Vadnais Corporation, a joint venture, in September 1990 for \$1,393,420. Work began in December 1990 with the construction of the connection to Pipeline 3. Construction continued through the rest of the year with the installation of the 36-inch pipe and the flow/pressure control facility. The Authority provided all inspection and construction administration. The facility, which is expected to be operational in October 1991, is designed to deliver a nominal flow of 60 cubic feet per second (cfs) to the reservoir. It will also have an intermittent capacity during pressure relief of 140 cfs.

Repairs of the Pomerado Pipeline

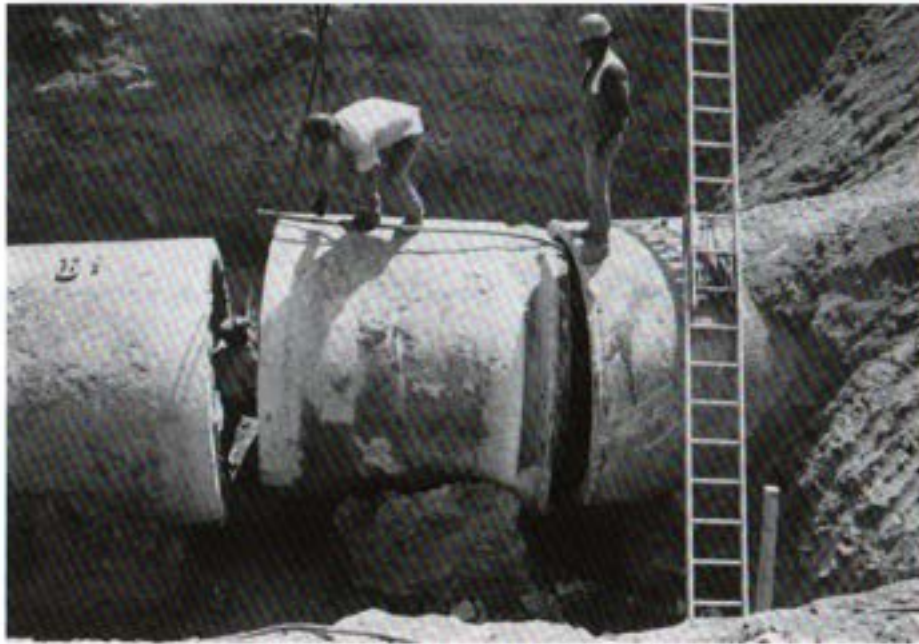
In September 1990 a leak was reported in the Scripps Ranch area along the Second Aqueduct. The Authority confirmed that the leak was from the 84-inch Pomerado Pipeline, the sole source of treated water for many of the south county agencies. Authority crews worked continuously for more than a week to repair the pipeline with new steel pipe manufactured by the Metropolitan Water District of Southern California (MWD). The failure was caused by corrosion of the prestressed concrete cylinder pipe. Two 20-foot sections of pipe were replaced during the emergency repair.

At the same time, several miles of the Pomerado Pipeline were internally inspected for additional signs of corrosion. Other suspected areas were identified and a corrosion consultant, PSG Corrosion Engineering, Inc., was retained to assist in the investigation.

During a routine maintenance shutdown of the treated water pipeline in December 1990, extensive internal inspections were performed on the Pomerado Pipeline. This information was correlated with soil resistivity and electrical continuity surveys performed in January through April 1991 on the pipeline through the Scripps Ranch and Miramar Naval Air Station areas.

In May 1991 an external inspection was conducted at one of several suspected locations. Cracks discovered in the mortar coating over the prestressing wires indicated that sections of prestressed pipe were experiencing severe corrosion.

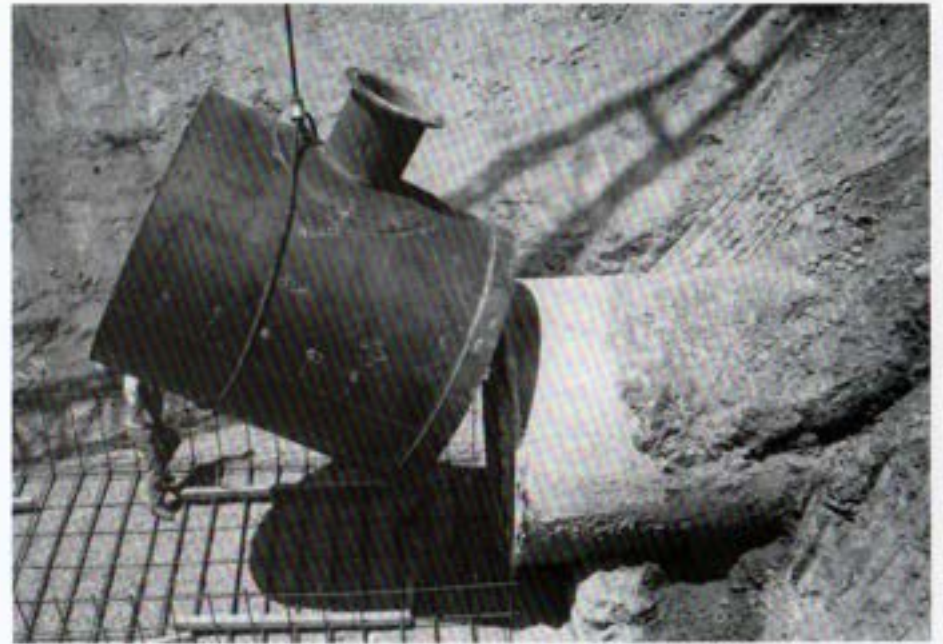
The Authority planned and carried out the replacement of six 24-foot prestressed concrete cylinder pipe sections. The corroding sections were replaced with steel pipe during a scheduled shutdown during the first week in June 1991. An additional nineteen sections of pipe were excavated for external inspection. The Authority is continuing with investigations to determine the causes of the corrosion.



*Repairs to the 84-inch Pomerado Pipeline, June 1991
Removal of corroded section of prestressed concrete cylinder pipe*



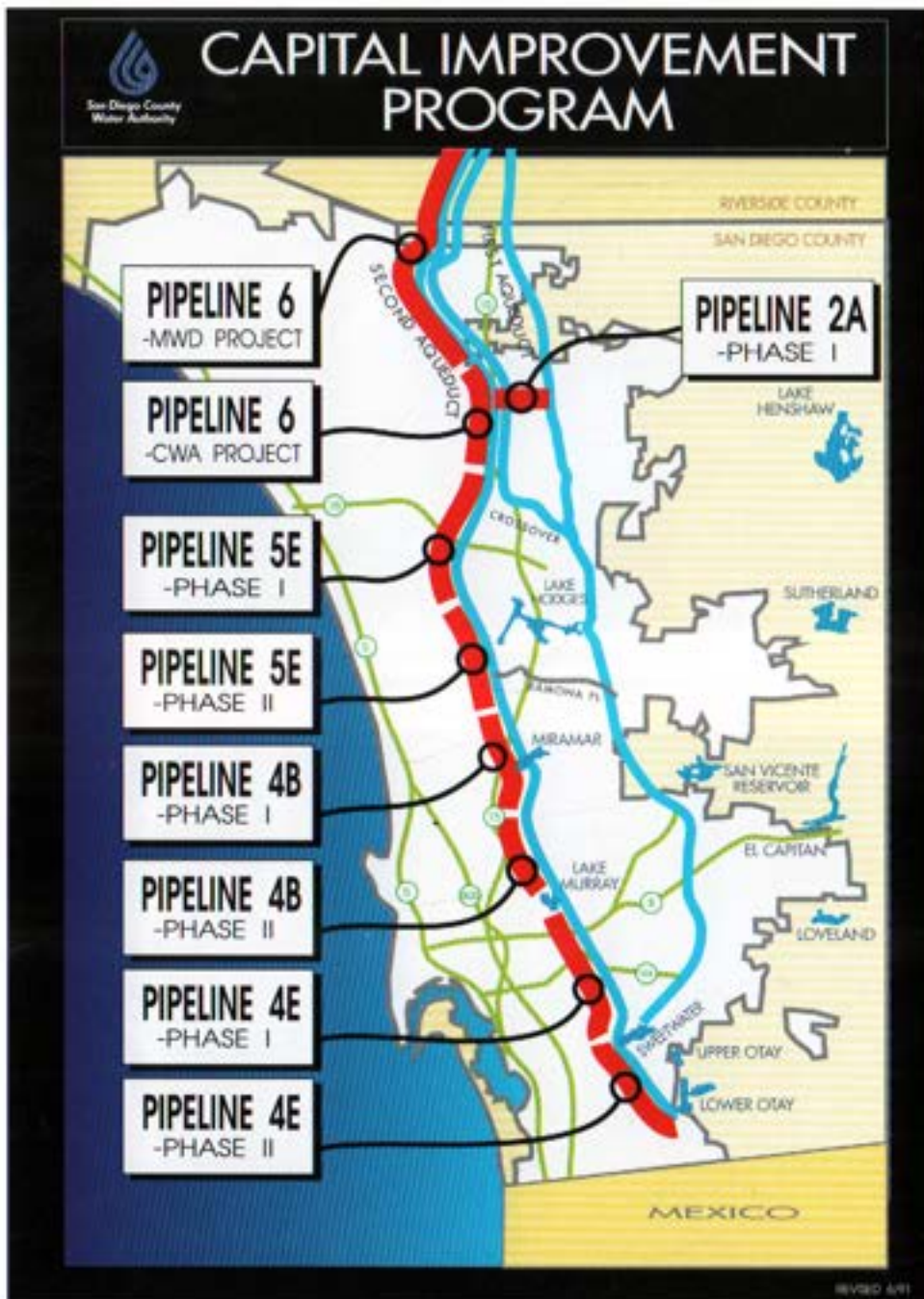
*Forming reinforced concrete encasement
for repairs of the 84-inch Pomerado Pipeline, June 1991*



*Installing steel replacement section
of pipe for the 84-inch Pomerado Pipeline.*



*The steel replacement pipe for the repair
of the 84-inch Pomerado Pipeline completely installed.*



Map No. 2. Capital Improvement Program

San Marcos Pipeline (Pipeline 5 Extension, Phase I)

This 11-mile, 108-inch diameter pipeline is the first segment of a new large-diameter pipeline that will extend the full length of the county. The project will initially allow additional treated water to be brought into the county, and will eventually be used as the major raw water pipeline in the Second San Diego Aqueduct. The project starts in the Twin Oaks Valley, north of San Marcos at the Crossover Diversion Structure, and extends south to Paint Mountain, where it reconnects to Pipeline 3.

In September 1990, a construction contract was awarded to Kiewit Pacific Company of Vancouver, Washington, for \$75,776,000. Authority staff and various specialty consultants are providing construction management services. A groundbreaking ceremony was held in April 1991. Construction will continue until late 1992.

La Mesa/Lemon Grove Pipeline and Cowles Mountain Tunnel (Pipeline 4 Extension, Phase I)

This 12-mile, 96- and 108-inch diameter pipeline will provide treated water capacity to the south county area, and will allow operational flexibility and reliability. The project will extend Pipeline 4 from Mission Gorge Road (City of San Diego) through the cities of San Diego, La Mesa, and Lemon Grove and will terminate at Sweetwater Reservoir. A 7,000-foot hard rock tunnel will be bored through Cowles Mountain in the Mission Trails Regional Park.

Plans and specifications were prepared for this project by James M. Montgomery Consulting Engineers. Authority staff is reviewing construction documents, meeting with agencies affected by the project, and acquiring rights of way. Because of the project's size and complexity, construction documents were prepared as four separate contracts.

The first contract for the Lemon Grove and San Diego County section of the pipeline will be completed and advertised for construction bids by the summer of 1991. The three remaining contracts will be bid by the end of 1991. Construction is scheduled to begin in late 1991, and is anticipated to be completed by the fall of 1993.

Scripps Ranch Pipeline (Pipeline 4B Phase I)

The Scripps Ranch Pipeline project consists of nearly 8.5 miles of 96- and 108-inch diameter pipeline extending from north of Mira Mesa to east of Tierrasanta. The Scripps Ranch Pipeline includes the Pipeline 4B Phase I project and portions of the Pipeline 4B and Pipeline 5 Extension Phase II projects. These portions of other projects were added to the Scripps Ranch Pipeline to address both engineering and environmental impacts.

The pipeline route traverses the communities of Mira Mesa and Scripps Ranch, and the Miramar Naval Air Station. The pipeline will be located in both existing and new pipeline rights of way, and within City of San Diego street rights of way. Initially, the

pipeline will be connected to Pipeline 3 and convey treated water to a new connection to Pipeline 4 in Tierrasanta. When the Capital Improvement Program is completed, the Scripps Ranch Pipeline will become part of a new 96-inch pipeline providing 420 cfs (270 million gallons per day) of treated water capacity to the Second San Diego Aqueduct.

The Scripps Ranch Pipeline also includes the relocation of existing pipelines at the crossing of State Route 52, about 0.7 mile of 48-inch diameter pipeline connecting the Scripps Ranch pipeline to the Miramar Pump Station and Filtration Plant, and crossover piping to exchange the flows between Pipelines 3 and 4, thereby increasing the raw water delivery capacity to the South County.

The project design was completed by Boyle Engineering Corporation in June 1991. The project will be advertised for construction bids during the Summer of 1991. Construction should be completed by mid-1993. Boyle Engineering will provide construction administration services.

Pipeline 2A and Pump Station

The Water Distribution Plan identified Pipeline 2A and its associated pump station as a required project to supplement the treated water demands north of Escondido along the First Aqueduct. The project is being designed to connect Pipeline 4 of the Second Aqueduct with the First Aqueduct in the Valley Center area. The project will increase the reliability of the treated water system during an emergency.

Preliminary design work continued through the year with the consulting engineer, Engineering-Science. An alignment study analyzed 15 different alignments for the pipeline and recommended three principal alignments for further study. A draft Environmental Impact Report for the three alignments was prepared by P&D Technologies and was available for review in April 1991. At the June 1991 Board meeting, the Authority certified the final environmental impact report and approved the Pipeline 2A alignment along Nelson Way. Final design will begin on the selected alignment in the Fall of 1991.

Mission Trails Pipeline (Pipeline 4B, Phase II)

Located in the City of San Diego's Mission Trails Regional Park, this project includes two miles of 96-inch diameter pipeline and an underground 18-million-gallon flow regulatory structure that will allow the new treated water pipeline from Shepherd Canyon to Lower Otay Reservoir to be pressurized.

Design activities were complicated by the presence of naval ordnance on the project site and by several environmental issues. Consultant agreements were executed with Brian F. Mooney Associates to prepare an Environmental Impact Report, and with James M. Montgomery Consulting Engineers to perform preliminary and final design services. The design is expected to be completed by the Spring of 1992, and construction is anticipated to be completed by the Fall of 1993.



*Senator Ed Fletcher
At El Capitan Dam Site - 1930
Sponsor - County Water Authority of 1943*

Lower Otay Pipeline (Pipeline 4 Extension, Phase II)

This eight-mile, 72-inch diameter pipeline will extend Pipeline 4 from Sweetwater Reservoir to Lower Otay Reservoir. The pipeline will traverse through open country and rural streets in both the City and County of San Diego and the City of Chula Vista. The project includes four flow control facilities to deliver water to member agencies, with a pressure relief outlet at each connection.

Professional services agreements were awarded to Brian F. Mooney Associates to prepare an Environmental Impact Report, and to ASL Consultants, Inc. to perform preliminary and final design services. In addition to administering consultant contracts, Authority staff began right of way acquisitions and consulted with member agencies to determine their needs relative to four relocated flow control facilities. It is expected that the design will be completed by the Spring of 1992, and construction of the pipeline and related facilities should be completed by the Fall of 1993.

Pipeline 6

Pipeline 6 is a new raw water conveyance facility that will extend from Lake Skinner in Riverside County to the existing Diversion Structure north of San Marcos. This pipeline project, which is 33 miles in length, is a joint undertaking between the Authority and MWD.

The Pipeline 6 project is needed to meet projected future water demands as identified in the Authority's 1987 Water Distribution Study. The Authority and MWD have retained Keller Environmental Associates, Inc. to prepare a single environmental document for the entire pipeline project. The Draft Environmental Impact Report (EIR) will be released in early 1992, and the Final EIR completed by late 1992. The Authority has retained Boyle Engineering Corporation to prepare a Feasibility/Alignment Study that will identify potential pipeline routes south of the San Luis Rey River. This study will also provide engineering criteria for evaluating pipeline alignments carried through the EIR process. Pipeline construction is anticipated to be completed by late 1998.

Flow Control Facilities

The Rincon No. 3 flow control facility, located north of Escondido, provides service to the Rincon del Diablo Municipal Water District from the First Aqueduct's Pipeline 1. Construction was completed and the facility was put into operation in October 1990.

The design of the Oceanside No. 5 flow control facility was completed by Boyle Engineering Corporation. This facility will provide raw water from Pipeline 5 to the City of Oceanside's Robert A. Weese Water Filtration Plant. The City prepared environmental documents and is working on rights of way acquisitions. Construction of the facility is expected to begin in early 1992 and is anticipated to be completed within one year.

*First Flow of Colorado River Water
San Vicente Tunnel - 1947
San Diego County Water Authority - Photograph Collection*



*Blast set off to open cut at North
Portal Lilac Tunnel - 1947
San Diego County Water Authority - Photograph Collection*

In June 1991, the Olivenhain Municipal Water District (OMWD) requested a temporary raw water service connection to Pipeline 4. The Olivenhain No. 4 flow control facility, located north of Artesian Road, is being designed by OMWD's consultant, Boyle Engineering Corporation. Design work and construction documents are being finalized for review and approval of the Authority.

Aqueduct Control System

The present aqueduct control system consists of a central computer at the Escondido Operation Center and remote terminal units located at each flow control facility. The present system was installed in 1981 and had a useful life of ten years. It is being upgraded to provide increased operational speed and efficiency, to accommodate expansion of the aqueduct system, to reduce maintenance, and to enhance reports, displays and archiving of historical data.

A professional services agreement was executed with EMA Services, Inc. to prepare an implementation plan and the design for an upgraded Aqueduct Control System. The system is planned to be installed and operational by early 1993.

Remodel of the Escondido Building

The Authority's Escondido office was enlarged to accommodate the increased staff of the Engineering, Operations, and Maintenance Departments as needed for the Capital Improvement Program. Planning and architectural services of the building remodel were performed by the firm of Westburg and White. A contract was awarded to John Carey Construction Company. Construction is expected to be complete by July 1991.

Remodel of the San Diego Headquarters Third Floor

Growth within all the departments of the Authority created a need for additional office space in the San Diego headquarters. The San Diego Engineering staff and a portion of the Public Information Department relocated to the vacant third floor. Tectonics, an architecture and engineering firm, was retained to design new third floor offices, a library, and work and storage areas. A construction contract was awarded in December 1990 to CGC Construction, Inc. of San Marcos for \$260,544. The new offices were ready for occupancy in May 1991.

Study of the Effects of Sand Mining on the San Luis Rey River Aqueduct Crossings

The First and Second Aqueducts cross the San Luis Rey River in areas where there is extensive sand mining. Staff presented the results of the study prepared by Nolte and Associates and Dr. Howard Chang to the Board in February 1991. The study concluded that the pipeline crossings of the San Luis Rey River are threatened by sand mining along the river. The most significant threat is to the Second Aqueduct where the pipelines could be exposed by erosion caused by a 10-year flood event. The First Aqueduct is less severely threatened, but the pipelines could be exposed during a series of floods.

The results of the study were proven accurate during the rains of February and March 1991, when cover over the Second Aqueduct was eroded to within three feet of the top of the pipe. These storms were estimated to be 10- to 20-year events. The Authority contracted with Vadnais Corporation to install a steel sheet pile and rip-rap grade control structure downstream of the pipelines to stabilize the river bed.

Staff continued to work with the County of San Diego in reviewing new applications for mining permits and urging the development of a Mineral Resource Management Plan so that the cumulative impacts of existing and future mining can be identified. The Board approved a project to design additional permanent protection for the pipelines against the effects of erosion along the river.

Right of Way Management

The provisions of Article 25, Encroachment Permits, of the Administrative Code were enforced by staff through patrolling, responding to inquiries and "tagging" unauthorized encroachments discovered in progress. Having an approved policy allowed staff to distribute the current standard Application for Encroachment Permit and Guidelines for Encroachments on numerous occasions. This not only benefitted the property owner in expediting their planning and preparing an encroachment application, but also provided staff better applications for reviewing, processing and documenting in the event encroachments proceeded without a permit.

Enforcement of Article 25 resulted in two law suits: San Diego County Water Authority v Kerr, regarding the removal of a fence and gate on a right of way; and Glendinning v San Diego County Water Authority, regarding the Authority's refusal to grant an appeal to an Encroachment Permit denial for a fence on a right of way blocking maintenance access. Continued enforcement of Article 25 will result in further legal actions as anticipated and included in Code Sec. 25.4 (d), (i) and (ii).

Other Projects

Some of the other important engineering activities for the fiscal year were:

- Negotiations continued with Padre Dam Municipal Water District to construct a bypass pipeline around the proposed Helix Water District Grossmont Pump Station. The pipeline is required to maintain treated water service to Padre Dam's Connection No. 6.
- Helix Water District has been supplying treated water to the Authority for use by the Padre Dam and Otay water districts. To meet the projected demands through 2010, the Water Distribution Plan recommended increasing the capacity of the R.A. Levy Water Treatment Plant from the current 67 million gallons per day to 100 million gallons per day. Negotiations continued with Helix to participate in the expansion of the plant.
- Because of the additional external loads imposed by the extension of State Route 56 over the existing Second San Diego Aqueduct, Pipelines 3 and 4 will be encased in concrete. The design, prepared by Authority staff, utilized a sequential construction method to permit continuous operation of the pipelines during the encasement process. The Authority's Maintenance Department began construction in the Summer of 1991, and coordinated construction activity with CalTrans.

WATER RECLAMATION DEPARTMENT

Fiscal year 1991 saw the continued progress of the Water Reclamation Department in its goal of expanding the use of reclaimed water. Recognizing the need for policy direction and funding to further the water recycling effort, the Board of Directors acted upon a number of related recommendations of the Water Authority Reclamation Advisory Committee (WARAC). WARAC advises the Authority on water reclamation matters and is comprised of members representing water and wastewater entities, state and local regulatory agencies, and potential reclaimed water users.

Water Reclamation Projects

Eleven water reclamation projects, with a combined reuse potential of over 23,000 acre-feet per year, were approved to receive funding from the Authority's Financial Assistance Program in the amount of \$328,000 for planning and development. The Clean Water Program for Greater San Diego continues to represent the most significant planning effort, with an ultimate water reuse potential of 70,000 acre-feet per year.

In Chula Vista, the EastLake master planned community began taking delivery of reclaimed water for use on its golf course. Construction of the EastLake community-wide reclaimed water system is continuing, as is the Aviara development in Carlsbad. Service will be provided to schools, parks, playgrounds, golf courses, and common-area residential landscaping.

Reclaimed water use within the Authority service area for fiscal year 1991 is summarized in Figure 8. These deliveries have been listed by production facility, member agency and corresponding reclaimed water use. Uses are categorized as municipal and industrial (M&I), agricultural, and groundwater replenishment.

Policy Development

The Board of Directors continued to establish regional policies and procedures to further the water reclamation goal. Among the policies and procedures that have been developed and implemented in fiscal year 1991 is the Reclaimed Water Development Fund. Through this program, the Authority provides up to \$100 per acre-foot for reclaimed water used when an equivalent demand on the Authority's potable water supply is offset and a need for additional funding can be demonstrated.

The Authority was an active participant in several legislative efforts focused on promoting reclaimed water use. Staff participated in the lengthy Bay-Delta proceedings and assisted in state-wide reclamation efforts.



Aviara Oaks Elementary School is using reclaimed water provided by the Carlsbad Municipal Water District for landscape purposes.



Aviara is the first master planned community in North County to use reclaimed water for all its irrigation needs.

Other Accomplishments

Staff acted in many areas to promote water reclamation. These activities included developing a model document of Rules and Regulations For Reclaimed Water Service, coordinating efforts for temporary use of reclaimed water during declared drought emergency conditions, assisting with a state-wide reclamation planning document, and initiating efforts to coordinate groundwater development projects within the service area. Staff assisted reclamation agencies in securing state funding in a total amount of \$13.7 million.

RECLAIMED WATER USE
In SDCWA Service Area
Fiscal Year 1990-1991
(Acre-Feet)

| Location | Treatment Facility | M&I | Ag. | Ground Water Replenishment | Total |
|-------------------|----------------------|-------|-------|----------------------------|-------|
| Carlsbad MWD | Meadowlark | 126 | | | 126 |
| City of Escondido | Hale Ave | 5 | | | 5 |
| City of Oceanside | Fallbrook SD | 212 | 4 | | 216 |
| Olivenhain MWD | Fairbanks Ranch | | | 146 | 146 |
| Olivenhain MWD | Whispering Palms WRF | | 86 | 68 | 154 |
| Otay WD | Jamacha Basin | 456 | | | 456 |
| Padre Dam MWD | Santee WRF | 376 | | | 376 |
| Pendleton | Pendleton | 432 | | 3,513 | 3,945 |
| Ramona MWD | Santa Maria | | 626 | | 626 |
| Ramona MWD | San Vicente | | 388 | 141 | 529 |
| City of San Diego | Aquaculture Plant | 12 | | | 12 |
| City of San Diego | Wild Animal Park WRF | 14 | | | 14 |
| Santa Fe WD | Rancho Santa Fe WPCF | | | 243 | 243 |
| Valley Center MWD | Lower Moosa Canyon | | | 253 | 253 |
| Valley Center MWD | Skyline | | | 29 | 29 |
| TOTAL: | | 1,633 | 1,104 | 4,393 | 7,130 |

Figure No.8

WATER RESOURCES PLANNING DEPARTMENT

The Water Resources Planning Department focused most of its efforts on managing water shortages created by the fifth consecutive year of drought in California. As supplies from the State Water Project were reduced by up to 90 percent, the Department worked closely with the Metropolitan Water District (MWD) and the Authority's member agencies in developing methods and policies for allocating water.

The MWD water allocation program, called the Incremental Interruption and Conservation Plan, became a major part of the Department's activities. The Department analyzed various drought management proposals by MWD, and ensured that the Authority's unique needs and concerns were recognized in the administration of the program.

The Department also studied the needs of the Authority's member agencies, and worked to develop policies that were equitable to all water users. The governing philosophy reflected that of the County Water Authority Act, allocating available supplies among member agencies for the greatest public good and benefit. The Department helped craft a series of ordinances, ending with Ordinance 91-4, to enable all member agencies to survive the drought with the minimum economic and personal disruption.

The MWD's Incremental Interruption and Conservation Plan (IICP) began in November 1990 and at first required only voluntary conservation. By year's end, the Authority was required to reduce its deliveries from MWD by about 30 percent from the designated base year of 1989-90. Using purchases from a state water bank and local storage, the Authority was able to reduce the conservation demand on its member agencies to 20 percent.

One of the effects of the drought was to underscore the need for future long-term reliable supplies. Studies continued for supply projects that could alleviate future droughts and lessen dependence upon imported supplies, which may be uncertain in times of shortage. These projects include two proposed desalination plants, one located in the South Bay area and the other in Baja California. These are large-scale projects, with the Baja California plant to produce 100 million gallons per day (100 mgd) and the South Bay project designed to be from 10-30 mgd. Both of the projects would be combined with electric power generation facilities to maximize efficiency and reduce costs.

The need for increased local water storage was also emphasized during the drought, highlighting the Optimal Storage Study being conducted by James M. Montgomery Consulting Engineers. This project involves planning for Authority-owned storage, either as a surface reservoir, groundwater basin or combination of the two. Eight surface sites and four groundwater basins were selected for intensive review. Criteria for judging the potential sites included costs, environmental and regulatory concerns, engineering feasibility and capacity. Hearings were held and Department staff met with various community groups and representatives to keep the public informed about the project and resolve potential problems. The ultimate goal of this project is to construct



Sea Water Conversion Plant - Point Loma 1961

The plant was dismantled in 1964 and reassembled in Guantanamo Bay, Cuba to serve desalinated sea water to the U.S. Naval Base there. The plant has been serving the Guantanamo Bay military installation for over 27 years.

The San Diego Historical Society

San Diego Union - Tribune Collection

water storage sufficient to meet the emergency and seasonal needs of the Authority until the year 2030.

The Department continued its other major responsibilities, providing computer services, managing and maintaining the physical plant and facilities, ensuring compliance with environmental regulations, generating water billing information, providing database management, and producing the Annual Report. To accomplish these activities, the Department's staff increased by three positions during the year.

Progress was made on the installation of a computer network between the Escondido and San Diego offices. The network will provide improved communications and allow data sharing between computer users in each office, and also between the two offices.

The Department reviews the environmental impacts of the Authority's Capital Improvement Program, which is constructing several large-diameter pipelines in the county. One of the important roles of the Department is to ensure that these projects and other Authority activities meet the requirements of the California Environmental Quality Act (CEQA) and other environmental regulations. Environmental impact reports and statements were prepared or reviewed for projects where required, and the effects of non-Authority projects, such as proposed landfills and roadways, were reviewed for potential environmental impacts to facilities the Authority either owns or plans to construct.

As water shortages became more severe during the year, it became imperative to know the Authority's position and status with respect to water use and conservation. The Department developed the ability to track deliveries from MWD and to its member agencies on a daily basis. This provided early warning for times when the Authority or its member agencies were in danger of exceeding monthly allocations.

Most of the data related to water sales, deliveries and use are generated and stored by the Department. This function of the Department is responsible for preparing water bills, administering the IICP, seasonal storage and other MWD-sponsored programs, and tracking conservation efforts. Other statistical data relating to water are compiled and analyzed, including local, state and federal storage, forecasts for precipitation and runoff, water quality, and projections of future supplies and demands.

Other ongoing projects and duties of the Department include the development of the Water Resources Plan, participation in the State Water Resources Control Board's Bay-Delta process and staying abreast of water-related activities at the state and federal levels.

WATER CONSERVATION

A major increase of activity in long-term water conservation occurred as the Authority began its five-year long-term water consumption plan. The conservation section's goal was to develop and institute programs for both short- and long-term water savings. During the fiscal year, an estimated total water savings of about 875 acre-feet was realized as these programs got under way.

The conservation staff increased from one to three persons shortly before drought conditions created the possibility that the Authority would have supplies reduced by up to 50 percent of the designated base year 1989-90.

The groundwork developed in the five-year plan last fiscal year enabled staff members to rapidly institute planned conservation programs. Staff was also able to assist in rapidly writing new emergency ordinances (91-1, 91-2, 91-4) to cope with the changing drought situation.

Legislative activity was prominent in the conservation section activities. Staff represented the State's urban water agencies on a state task force charged with developing a model State Water Conservation in Landscape ordinance. The Authority also sponsored SB 1224, carried by Senator Lucy Killea, which would require retrofit of water conserving plumbing upon resale.

One of the most important activities the staff engaged in was the State Water Resources Control Board Bay/Delta Process. Two and one half years of negotiations resulted in development of a series of Best Management Practices in urban water conservation. These Best Management Practices will provide guidance to water agencies as they implement long-term water conservation programs in California for many years to come.

A number of programs developed for long-term management were expedited in response to the drought. The first programs to be developed targeted the residential sector. The most prominent was the Ultra-Low-Flow Toilet Rebate Program, which gave a rebate of up to \$100 to homeowners who install ultra-low-flow (ULF) toilets. Funding was provided by the Metropolitan Water District, the Authority and participating member agencies.

The program was operated by Volt Energy Systems in close cooperation with the funding agencies. Free showerheads were also installed in a cooperative effort with SDG&E and member agencies in a number of communities. These programs were an overwhelming public success. In a combined effort with the public information department, thousands of packets of literature were distributed.

Assistance was also provided to member agencies through a number of workshops. Topics included general water conservation techniques, water rate structures, water rationing plans, energy/water partnerships and drought updates. The positive atmosphere of the workshops enabled the member agencies and Authority staff to learn from one another and to develop strong working relationships. These relationships will help implement future Authority-member agency conservation programs.

Another major conservation effort focused on public facilities and commercial/industrial groups. A survey of public facilities was conducted to determine

the needs of this sector. Funds for replacing sprinkler heads and toilet retrofit devices were provided to a number of schools and parks as a result.

Workshops were held for commercial and industrial water users, including cooling tower operators, the hotel/motel industry and the military community. The workshops, conducted by Department of Water Resources staff, Black & Veatch engineers and Authority staff, were well attended by the public facility and commercial sectors. Water use surveys were conducted by Black & Veatch at San Diego State University and a large Navy industrial complex. The purpose of the workshops and surveys was to educate the participants concerning the various opportunities to conserve water.

The Authority continues to actively support landscape and agricultural programs through two local Resource Conservation Districts (RCD). The Mobile Irrigation Water Management Program at Mission RCD is funded by the Department of Water Resources and the Authority. The Mobile program continues to serve the irrigation needs of both agriculture and turf areas.

Beginning in June 1991, the Large Turf Water Management Program was initiated as a research project to determine how much water might be saved by audit programs. This program, funded in part by MWD, operates from the Mission and Greater Mountain Empire RCDs and performs turf water audits on sites two acres or larger. About 675 acre-feet of water was estimated to have been saved using this program.

Also new this year is the Agricultural Water Management Program jointly funded by the Authority, the Fallbrook Public Utility District, and the Rainbow and Valley Center municipal water districts. This program, which also operates out of the Mission RCD office, addresses the irrigation needs of the agricultural community only. All three programs strongly emphasize education and follow-up assistance.

PUBLIC INFORMATION

Water shortages caused by a fifth year of drought dominated the Public Information Department's efforts in fiscal year 1991.

The department used a wide variety of methods to inform county residents about how they could conserve water and why they should do so, as well as what the Authority is doing to avert future shortages and restore the reliability of the region's water supply. These communication methods included advertising, media relations, speaking engagements, video, live theater, brochures and school education.

The department also maintained the Authority as the county's authoritative source of information for the media and public about water-use cutbacks and conservation.

The department won many awards for its communication programs. Awards went to the department's advertising, "Waterhog Haven" video, publications, crisis communications during the Pipeline 4 break and news releases.

Water Conservation Information

When it became apparent that the drought would extend into a fifth year, the department stepped up its programs to educate the public about water conservation. Two major advertising campaigns on radio and in the print media informed the public about the drought, conservation methods and water reliability issues. One set of ads highlighted conservation efforts by a local family, a private business and a public institution. Three new versions of the "Don't Be A Waterhog" jingles were created, using different musical styles. Operatic, county-western and jazz styles were utilized.

The conservation education strategy also encompassed production of new brochures, buttons and stickers. A two-color conservation brochure was produced; 500,000 copies were distributed through the Authority, its member agencies and many other outlets. Fifty-thousand buttons, 30,000 information slide rules and 100,000 window signs were produced using the "I'm a Water-Saver" theme.

The public's response to the need for conservation was overwhelming. Thousands of county residents called the Authority with questions about the drought and requests for conservation information and water-saver kits. Two temporary employees were hired to assist staff in handling the deluge of calls and to mail information and kits.

Media Activity

The department was busy issuing news releases, answering phone calls and arranging interviews regarding the drought, pipeline repair work and many other topics.

The drought clearly attracted the most attention from the media. Interest peaked early in 1991, when it appeared that stringent countywide water-use restrictions would be implemented because of a projected 50 percent water shortage. Hundreds of stories were printed and aired regarding the drought and the Authority's response to it. The



The Authority's activities drew much media coverage during fiscal 1991, especially when it appeared that San Diego County might need to cut its water use in half. Here, General Manager Lester Snow is interviewed in the Authority board room.



A San Diego TV news photographer gets the picture at Lake Oroville during the Water Authority's media tour of the State Water Project. Reporters learned first-hand about the state's vast water-distribution system and saw the effects of the drought.

department served as the chief source in the county for information about the Incremental Interruption and Conservation Program as it was developed and put into place.

The department arranged two special events to educate the media about the drought. More than 60 reporters and editors attended a two-hour "Drought 101" briefing that was conducted in the board chambers by General Manager Snow and representatives of the state Department of Water Resources and Metropolitan Water District. Among the topics covered were the drought, San Diego's water sources, supply issues and the Authority's future plans. A group of media personnel toured the State Water Project facilities during a two-day tour organized by the department. The tour informed participants about the complex nature of San Diego's water sources and resulted in much positive coverage in newspapers and on television.

Also of particular interest to the media were the break of Pipeline 4 in late September and early October 1990 and the scheduled Pomerado Pipeline repair work in late May and early June 1991. In the case of the Pipeline 4 break in Scripps Ranch, the department responded with immediate notification of the media and several news releases and briefings that kept reporters informed during the repair process. Similar communication took place with the affected member agencies. Staff also established communication with people living adjacent to the repair site. After the pipeline was repaired, "Thank You" ads were prepared and published and letters were sent to nearby residents.

The Pomerado Pipeline repair work on Naval Air Station Miramar property involved a similar effort, although it was not an emergency. Once notified that immediate repairs were necessary, the department notified the media and the affected member agencies. Staff also worked with Miramar personnel to facilitate media access to the repair site. Several media briefings were held and regular news releases were issued to update the press and, through it, the public on the progress of work.

In addition, the department supported the capital improvement program with many news releases and interviews about pipeline projects and the need for increased storage space in the county.

In the interest of promoting positive, productive relations between the local water industry and the media, the department conducted a series of media training sessions. Staff and directors from the Authority and member agencies attended the seminars and received practical tips for working with the media.

Major articles were prepared for the opinion sections of The San Diego Union and San Diego Tribune, the Greater San Diego Chamber of Commerce's Business Action publication and the Colorado River Association newsletter. Numerous letters to the editor were prepared for publication in most of the county's newspapers.

School Education Program

The school education program expanded the scope of its operations in fiscal year 1991, using a theater production and a videotape in addition to its more traditional methods of disseminating information to the county's students.



Laura Preble, left, and Judy Milstein are the actresses behind "Who Wasted the H2O?", the Water Authority's theatrical presentation for county school children. Some 77,500 students saw the play in the 1990-91 school year.

Two education specialists continued to offer free classroom presentations to fourth-grade students throughout San Diego County. About 14,000 students heard the presentations during the 1990-91 school year. The education specialists discuss the origin of San Diego's water, the water cycle, the water treatment process and the need for conservation. The overall message is that children can make a positive impact through wise water use. To reinforce the message, students received Waterhog buttons, magnets, stickers and bags.

The specialists also conducted "in-service" training sessions for many area educators interested in presenting water information to their students. A new science kit for high school students was introduced.

In addition, the department contracted with the San Diego Repertory Theatre to develop a theatrical production that would educate students about water and the need to conserve. A two-person troupe staged the 35-minute play, "Who Wasted the H2O?", which uses dialogue, song and audience participation to involve students. It was presented to 77,500 students in the 1990-91 school year.

The department also produced a live-action video for use in the county's schools and distribution through libraries. "Waterhog Haven" is a six-minute, live-action film made by Multi-Image productions for the Authority. The storyline involves the effects of water-wasting on a small town. Copies of the video were placed in approximately 200 schools.

Department staff was active in several organizations, especially the San Diego Energy Education Committee, the San Diego Environments Project and the State Water Education Advisory Committee. The department co-sponsored "Water Wonders," a traveling science display, and distributed Authority literature at the Reuben H. Fleet Space Theater. It also participated in numerous fairs and conferences, including Earth Day and the Energy Education Science Fair.

Public-Private Partnerships

The department established many partnership arrangements to promote conservation. Several television stations aired public service announcements promoting water-wise behavior. Several local stores distributed thousands of pieces of Authority literature at "water stations." Among those participating were Home Depot, Target, Dixieline Lumber and the Price Club. Dixieline Lumber and the San Diego Union-Tribune teamed up to sponsor several conservation-oriented newspaper advertisements.

All 47 county Blockbuster Video outlets distributed copies of the "Waterwise Gardening" video free of charge. The Authority and San Diego State University co-sponsored a "water conservation night" during one of the SDSU football games, handing out SDSU-County Water Authority bumperstickers and highlighting water-saving tips on the stadium scoreboard during the game. San Diego Gas & Electric printed 50,000 copies of a conservation brochure in Spanish for circulation in the Hispanic community.

The public-private partnership concept involved many other businesses and institu-

tions as well. The San Diego Zoological Society distributed 50,000 copies of the "24 Ways to Conserve Water" sheet to people who visited the Zoo and Wild Animal Park. The society also offered a two-for-one admission program to county residents who reduced water use by 10 percent.

In addition, many of the county's top 100 employers participated in a program to disseminate conservation information to their employees. Some 175,000 payroll staffers containing water-saving hints were distributed to employees. Department staff wrote articles on conservation topics that were printed in various company employee newsletters.

The San Diego County Restaurant Association facilitated distribution of 72,000 "water on request" table tents that were produced and printed by the Public Information Department. This continued a program begun in fiscal 1990. In a new program, the department worked with the Hotel and Motel Association of San Diego County to get a drought information card placed in every hotel room in the county.

Publications

The department's two publications were released on a regular schedule during the fiscal year.

WaterTalk, published quarterly, keeps community leaders and interested private citizens informed about the Authority's activities. All four issues featured special themes. The themes were: the need for water-use cutbacks and steps the Authority is taking to alleviate future shortages; local water conservation efforts; the Sacramento River; and the Sacramento-San Joaquin River Delta.

Connections, the monthly employee newsletter, continued to keep personnel up to date about Authority plans and policies, major water-related developments and interesting activities of their fellow employees. In early and mid-1991, staff used Connections to give employees the latest information about the Authority's drought response plans.

Water(Less!) Garden Awards Contest

In conjunction with San Diego Home/Garden magazine, the department sponsored the second annual Water(Less!) Garden Awards contest. The contest is a way to bring the principles of Xeriscape — the use of drought-tolerant plants and efficient garden design and maintenance techniques — into the mainstream of gardening.

A variety of landscape professionals and weekend gardeners entered the competition. Winning entries in seven categories received engraved old English watering cans and were recognized at the spring Home/Garden Show. Among the winners were two entries from member agencies — Helix Water District and Santa Fe Irrigation District.

Del Mar Fair Xeriscape Garden Contest

The department sponsored a new Xeriscape category in the Del Mar Fair's annual garden contest, and it was an immediate success. Sixteen gardeners entered, making it the most popular category. Five entries won prizes of \$1,000 apiece. In addition, staff put up a display on the "Seven Steps of Xeriscape" at the fair and distributed a special Xeriscape brochure.

Speakers Bureau

The department coordinated the Speakers Bureau, through which Authority representatives made presentations to a variety of service, community and special interest groups throughout San Diego County. Interest in speakers was especially keen during the early months of 1991. Group members primarily were interested in the region's water supply situation, what they could do to help conservation efforts and how water-use cutbacks would affect them.

The department also sponsored a speakers training workshop that was conducted by Metropolitan Water District representatives. More than 35 staff members and directors from the Authority and member agencies attended.

Joint Public Information Council

The Joint Public Information Council, comprising public information personnel from the Authority and its member agencies, met several times during the fiscal year to discuss activities. The council was particularly active because of drought-related activities.

Through JPIC, the department worked closely with public information personnel from other member agencies to develop individual public information campaigns. Staff provided other agencies with literature and conservation kits and provided information on activities of the Authority and Metropolitan Water District. Much interaction between representatives of various agencies took place.

Also through JPIC, member agency participation in the co-op advertising program was significantly expanded.

An informal newsletter was established to further increase communication between JPIC members and announce upcoming meetings.

HUMAN RESOURCES

The Authority's Personnel Department is a full-service human resources department that has a mission of providing personnel-related support services. These services enhance the Authority's ability to achieve its organizational goals.

During the fiscal year, the Personnel Department was staffed by a director, two personnel analysts, and one personnel assistant. This staff provided support services for the Authority's eight departments and 117 budgeted positions.

Employment

As of July 1, 1990, the Water Authority had 95 employees. By June 30, 1991, the number had increased to 108. During this period, the Personnel Department's recruitment program assisted in hiring 21 new employees and promoting 18 employees. One employee retired and seven employees terminated their services during the year.

The following list indicates the positions filled during the year, by division:

Administrative Services Division

| | |
|--------------------------------|-------------------------------|
| (2) Administrative Secretaries | Library Specialist |
| Chief Financial Officer | Public Information Specialist |
| Education Resources Supervisor | Senior Secretarial Specialist |
| Executive Secretary | Student Intern |

Water Resources Division

| | |
|-------------------------------|---------------------------|
| Administrative Secretary | Water Resource Specialist |
| (2) Water Resource Assistants | Water Resource Supervisor |
| Assistant Civil Engineer | |

Engineering, Operations, and Maintenance Division

| | |
|-------------------------------|---------------------------------|
| Administrative Secretary | (2) Resident Construction Insp. |
| Assistant Civil Engineer | (2) Secretarial Specialists |
| (3) Associate Civil Engineers | (2) Senior Civil Engineers |
| (2) Engineering Technicians | (2) Sr. Maintenance Specialists |
| (4) Maintenance Specialists | (2) Sr. Maintenance Workers |
| Principal Civil Engineer | (2) Systems Operators |
| Principal Systems Operator | |

Employee Relations

The Personnel Department is responsible for administering and monitoring various personnel-related components of the employee salary and benefits package. The

Department's staff successfully coordinated the transition into the second year of the negotiated two-year agreement that ended June 30, 1991. Staff also supported the meet-and-confer process wherein the Authority successfully negotiated a three-year salary and benefits package that will end June 30, 1994.

The Personnel Department also has the responsibility to maintain the Authority's classification and compensation structure, based upon the principle of "equal pay for equal work." During this past year, staff conducted nine studies that resulted in reclassification of positions. Staff also conducted several studies that resulted in the creation of 10 new classifications, effective for fiscal year 1992. These positions are in addition to the 64 positions that currently exist in the Authority's classification plan. The new classifications are:

| | |
|---------------------------------|----------------------------------|
| Administrative Analyst | Purchasing Agent |
| Cash Management Analyst | Right-of-Way Supervisor |
| Information Systems Assistant | Warehouse Supervisor |
| Information Systems Coordinator | Warehouse Worker |
| Personnel Assistant | Water Resources Planning Manager |

Staff developed and distributed a comprehensive Personnel Policies and Procedures Manual. This manual is available to all employees, and was designed to be equitable and consistent in all its applications.

Staff also coordinated Authority-wide training efforts, such as the Management Training Program. These training programs focused on teambuilding, the Employee Performance Review Program, and safety.

The Authority encourages additional or continuing education for its employees. The cost for tuition and books is reimbursed by the Authority after employees successfully complete work-related courses of study taken on off-duty hours, at an accredited institution of learning. The Personnel Department processed reimbursements of tuition and books for 10 employees during the fiscal year.

Recognizing that a strong program of incentive awards improves both employee morale and performance, the Authority has established an incentive program that includes awards for Employee of the Quarter and Employee of the Year, and awards for suggestions and attendance.

The recipients of these awards were honored at the annual Incentive Awards Banquet, hosted by the Authority and attended by employees, spouses, and guests. The suggestion awards program resulted in 37 suggestions being submitted by employees, of which six suggestions were judged to merit cash awards.

Risk Management

The Personnel Department is responsible for ensuring optimum availability of human resources and property assets. The Department takes measures that prevent, control, reduce, or eliminate risks through the administration of safety and loss prevention programs, worker's compensation, employee benefits, and employee assistance.



Employee Association Picnic



Christmas Party

Because of escalating costs in the health insurance industry, the department reviewed new health, life, and long-term disability insurance programs. After researching and analyzing various medical insurance providers and plans, staff presented several options to Authority employees and processed the enrollments of selected medical plans.

The department also satisfactorily processed several worker compensation claims and long-term disability claims, which included extensive counselling with employees and spouses.

A comprehensive safety program was begun by preparing a priority list of safety issues. These measures were incorporated into safety policies and procedures. The department assisted inspectors from various regulatory agencies and conducted a number of safety inspections of Authority facilities and equipment, making safety recommendations where necessary.

A safety resource center was developed that contains a variety of safety reference material, video tapes, and training aids. Authority-wide safety training programs were conducted throughout the year, such as defensive driver training, earthquake preparedness, hazardous material handling, construction safety, confined space safety, CPR, and hearing protection. An effort was begun to complete a comprehensive Authority injury and illness prevention program and safety manual.



ANDY VANO
Employee of the 1st Quarter



JOAN SWIATKOWSKI
Employee of the 2nd Quarter



BILL JACOBY
Employee of the 3rd Quarter



JEFF MONCRIEF
*Employee of the 4th Quarter
and
Employee of the Year*

TREASURER'S REPORT

For the fiscal year ended June 30, 1991, total Water Authority income was \$160,319,583. Total disbursements during the year were \$120,477,018. At the fiscal year end, the Treasurer was accountable for funds and investments totaling \$185,385,172.

The Director of Finance, Robert R. Campbell, is responsible for all funds not immediately required for the conduct of business. Funds are invested under Board of Directors policy in interest bearing 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.

The Water Authority Administrative Code requires the Treasurer to report a summary of financial transactions monthly and for each fiscal year-end. For fiscal year 1990-91, the summary is as follows:

SUMMARY (Dollars in Thousands)

| | 1991 | 1990 |
|-----------------------------|-----------|-----------|
| Water sales | \$122,062 | \$154,758 |
| Cost of sales | 96,713 | 125,309 |
| Operating expenses | 10,673 | 8,552 |
| Depreciation | 4,143 | 2,229 |
| Operating income | 10,533 | 18,668 |
| Nonoperating income/expense | 29,310 | 20,970 |
| Net income | \$39,843 | \$39,638 |

As of June 30, 1991 and 1990, the Treasurer's cash accountability was as follows:

| | June 30 | |
|---|---------------|---------------|
| | 1991 | 1990 |
| Insured demand deposits | \$265,284 | \$847,911 |
| Certificates of deposit | 23,111,424 | 33,366,755 |
| U.S. Government securities | 59,453,708 | 32,633,806 |
| Guaranteed investment contract deposits | 102,554,956 | 108,955,138 |
| | \$185,385,172 | \$175,803,610 |

As of June 30, 1991 and 1990, restructured cash balances were as follows:

| | June 30 | |
|--------------------------------|---------------|---------------|
| | 1991 | 1990 |
| Guaranteed Investment Contract | \$88,554,756 | \$194,955,138 |
| Rate stabilization | 54,153,000 | 31,000,000 |
| Pay-As-You-Go | 16,690,341 | 0 |
| Debt service | 14,000,000 | 14,000,000 |
| Interest arbitrage rebate | 811,424 | 1,303,095 |
| | \$174,209,521 | \$141,258,233 |

LEGAL DEPARTMENT

The principal responsibility for legal advice and representation comes from the General Counsel, Paul D. Engstrand. Other members of the firm Jennings, Engstrand & Henrikson, provide occasional assistance. Wallace R. Peck and Gregory V. Moser generally assist in all areas, while Bruce W. Beach handles eminent domain proceedings.

Routine Matters

Routine matters included advice about Brown Act changes, disclosure statement requirements, changes in the Authority Administrative Code, documentation for levy of taxes, establishment of "in lieu" charges, capacity charges, standby charges, water rates, examination of credentials of Board members, and staff-related activities. Procedures for handling encroachment permits were established by amendments to Article 25 of the Administrative Code.

Water Distribution Plan

Work continued to implement the extensive Water Distribution Plan, adopted in August 1989. This required legal review of draft and final EIRs, contracts for engineering consultants to design pipelines and establish rights-of-way, appraisal reports, resolutions of necessity, bids and construction contracts. Major construction contracts were awarded for Pipeline 5E, Phase I (Kiewitt Pacific Company, \$75,776,000), the Sweetwater Bypass Facility (Vadnais Corporation, \$1,393,420), and the Escondido Pump Station (Papac Corporation, \$1,242,949). After these contracts were executed, work progressed and contract administration proceeded without serious disagreements.

Litigation

Between December 1, 1989 and June 30, 1991 there were 30 eminent domain actions begun to acquire necessary property interests (easements and restricted fee rights) for construction of pipelines, pump stations, appurtenances, and access in connection with the multi-million dollar capital improvement program. By the end of June 1991, 12 cases had been settled and serious negotiations were ongoing in many others. Trial dates were set, triggering settlement discussions. There were two pending cases, San Diego County Water Authority v. Kerr (No. 611965) and Glendinning v. San Diego County Water Authority (No. N48664), involving disputes about the use of Authority pipeline property interests.

Emergency Repairs

Three unusual events occurred that involved legal review and assistance. A leak in Pipeline 4 required emergency repairs in October, and erosion around Aqueducts 1 and 2 caused by flood flows on the San Luis Rey River required emergency repairs in March. In May serious cracking was discovered in the Pomerado pipeline, for which emergency repairs were begun in May.

Search for In-House General Counsel

The announcement that General Counsel Engstrand intended to retire December 31, 1991 caused the formation of a temporary committee to review the situation. In January 1991 it was decided to establish an in-house general counsel position and secure an executive search firm to assist in recruitment. The firm of Ralph Anderson and Associates was chosen to begin the search for a new general counsel.

Legislative Highlights

The Authority became an early supporter of A.B. 2090 (Katz), which proposed that water users be authorized to transfer water conserved by land fallowing or other methods, even if the transferor was not the holder of an underlying water right. As introduced, the bill would also allow transfer of groundwater and riparian water. It is expected to closely follow proposed federal legislation to permit transfers of Central Valley Project waters outside the project area. Strong opposition suggests that time and compromise will be necessary to achieve this worthwhile goal.

The Authority sponsored S.B. 1224 (Killea) to require that ultra-low flush toilets and low-flow showerheads and faucets be installed upon the resale or remodel of an existing home. This legislation followed the enactment of a law requiring all new houses built after 1992 to contain these water conservation devices. There was organized opposition to the proposed legislation and it is being revised.

As in 1989 and 1990, the Authority again opposed efforts that would restrict local controls on the regulation of self-regenerating water softeners that raise the salinity of wastewater above recyclable levels. S.B. 552 (Rogers) did not pass the Assembly, and was referred to interim hearing with the Authority-sponsored S.B. 1223 (Killea), which was designed to strengthen and broaden local regulation of this type of water softener.

A.B. 174 (Kelley), supported by the Authority, appeared destined for passage. The use of reclaimed water, previously required for such uses as landscaping and open space irrigation, would be mandated for any non-potable use if reclaimed water is available at reasonable cost and is suitable for the use.

Drought Conditions

The Authority experienced a fifth year of drought condition. As of early March 1991, deliveries from the State Water Project to the MWD had been reduced 90 percent, deliveries by the Secretary of Interior from the Boulder Canyon Project were expected to be curtailed, and deliveries from MWD to the Authority were expected to be 50 percent below the deliveries for 1989-1990. Such severe circumstances had never before been experienced by the Authority. Much study, analysis and discussion went into creating drought policies that would be fair and least damaging to the citizens and economy of the region.

Fortunately, although never before invoked, there existed (as of May 1989) a sound legal basis in the County Water Authority Act for the Board to "adopt reasonable rules, regulations, and restrictions so that the available supplies are allocated among its member agencies for the greatest public interest and benefit" in case of a water shortage. County Water Authority Act, Section 5(11). In addition to these powers delegated by the generic act, the Legislature in 1953 enacted Sections 350 through 358 of the Water Code to permit distributors of public water supplies to declare a water shortage emergency condition after holding a public hearing.

A hearing was held by the Board on March 14, which was attended by many citizens, representatives of various affected groups and interested persons who expressed their views and concerns. At the close of the hearing, after seven hours of public testimony, input from staff and discussion by Board members, Ordinance 91-1 was adopted to become effective April 1, 1991. This ordinance contained prohibitions on water uses throughout the Authority's service area and was designed to produce savings of about 30 percent. Local member agencies were expected to implement additional restrictions that would permit achieving up to 50-percent reductions consistent with estimated deliveries from MWD.

In late February weather conditions began to improve available supplies, and adjourned board meetings were held on March 21 and March 28 to monitor the supply situation. At the latter meeting, implementation of Ordinance 91-1 was delayed until April 15, 1991. At the April 11 board meeting Ordinance 91-2 was adopted. It rescinded Ordinance 91-1, established a county-wide conservation goal of 20 percent below the designated base year (1989-90), eliminated the prohibitions on use in 91-1, and provided for monthly allocations to member agencies.

Supply conditions were continually monitored and concern about a potential sixth year of drought prompted consideration of plans for carry-over storage. The redrafting of Ordinance 91-2 was studied by staff and a temporary committee of the Board and on June 25, at an adjourned board meeting, it was rescinded and replaced with Ordinance 91-4. This ordinance clarified some of the implementary language of 91-2 and continued the goal of a 20-percent reduction from the base year (1989-90) in both water usage and Authority deliveries.

There were no legal challenges to the actions by the Board, and member agencies were able to achieve the goals established by the Authority.

MWD Matters

MWD adopted its Incremental Interruption and Conservation Plan (IICP) in November 1991. It was a plan designed with flexibility to deal with various degrees of shortage and certainty in the amount of water it might be able to deliver to its member agencies. The Authority implemented MWD's policies as a pass-through to the Authority's member agencies on December 11, 1991.

On March 26, 1991 General Counsel submitted a "Memorandum Concluding That Sale Of Water By MWD For Agricultural Uses Within Its Boundaries Is Not The Sale Of 'Surplus Water'." It was prepared in part to respond to some contentions that would require either shut-off or severe reductions in deliveries by MWD for agricultural uses. However, no programs were initiated to deal with the inconsistencies between MWD's planning efforts to meet all anticipated needs by member agencies for beneficial purposes pursuant to established policies ("The Laguna Declaration," MWD, Adm. Code section 4201) and Section 135 of MWD's Act (preferential rights to purchase water based upon historic payments made to MWD by taxpayers in the respective member agencies).

Legislation**Legislation Sponsored by the Authority:**

SB 1223 Killea - Self-Regenerating Water Softening and Conditioning Devices.

This measure would authorize local agencies by ordinance or resolution to regulate the sale of self-regenerating water softening or conditioning appliances for installation within the service area of the public entity and to require the removal of those devices upon the sale or transfer of residential property.

SB 1224 Killea - Conservation Devices

This measure would authorize local agencies by ordinance or resolution to require the replacement of plumbing fixtures, including toilets, at the point of real estate transfer. The proposal would concentrate on making ultra-low-flow toilets the primary types of toilets purchased in California.

During the year the Authority opposed or supported 33 legislative measures that had a direct or indirect impact on the operations of the Authority.

METROPOLITAN WATER DISTRICT MEMBERSHIP

Because the Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority have a close relationship, readers of this report are given the following brief description of MWD's organization and operations:

State legislation in 1927 enabled the formation of the Metropolitan Water District. The original act provided membership for cities only, but the Legislature later passed an amendment that permitted annexation of water districts. The MWD has 27 member agencies, including the 13 cities that formed the original membership, one city that was added in 1971, 12 municipal water districts, and the San Diego County Water Authority, which became a member on December 17, 1946.

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, subject to approval from its legislative body.

MWD policy entitles each member 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. These district member agencies are listed in Figure 9.

The Water Authority has six representatives on the MWD Board of Directors, all of whom are members of the Water Authority Board.

Harry Griffen has served on the MWD Board for 28 years and is Vice Chairman of the Executive Committee and a member of the Finance and Insurance Committee and the Water Problems Committee. Griffen is also a member of the following subcommittees: Special Budget Committee, Audit Subcommittee, and Subcommittees on Financial Policy.

John P. Starkey has been on the MWD Board for 11 years. He serves as Chairman of the Finance and Insurance Committee, member of the Land Committee and the Water Problems Committee, and member of the following subcommittees: the Special Nominating Committee, Special Committee on Department Head Compensation, Ad Hoc Committee on Energy and Desalination, Audit Subcommittee, Subcommittee on Financial Policy, and the Subcommittee to Review Annexations.

Michael D. Madigan has been on the MWD Board for nine years. He is chairman of the Land Committee, member of the Engineering and Operations Committee, and an ex officio member of the Executive Committee. Madigan is also a member of the Special Committee for Communications Study, the Special Committee on Department Head Compensation, chairman of the Ad Hoc Committee on Energy and Desalination, the Bay Delta Political Advisory Ad Hoc Committee, and the Subcommittee on Mission Veijo.

Francesca M. Krauel has been an MWD Director for seven years, and served as both chairman and vice chairman of the Legal and Claims Committee during the year. She is an ex officio member of the Executive Committee, and a member of the Finance

SAN DIEGO COUNTY WATER AUTHORITY

levying 1990-91 taxes. These valuations were increased \$79,293,314,700, or 11.8 percent, above the previous year's valuation of \$671,699,558,661.

An estimated 16.9 percent of this increase, or \$13,441,849,417, occurred within the Authority's boundaries. The assessed valuation of the Authority is 15.6 percent of the MWD total.

The assessed valuation of MWD established for 1991-92 is \$820,543,619,722, which includes \$126,551,912,638 for the Authority's valuation.

Water Sales

The MWD delivered 2,263,749 acre-feet of water during fiscal year 1990-91. The Authority received 562,169 acre-feet, or 24.8 percent of MWD's total deliveries.

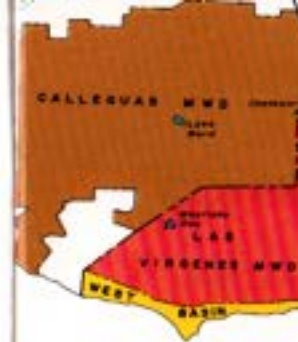
MWD has five operating filtration plants. The Lake Skinner Filtration Plant, with a capacity of 340 mgd, serves a portion of the treated water requirement of the Authority.

The other plants operated by MWD, none of which can serve the Authority, are the F.E. Weymouth Memorial Filtration Plant in La Vern; 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 receive water only from the West Branch of the California Aqueduct.

Tax Rate

MWD set its tax rate at 0.0097 percent of assessed valuation for the 1990-91 fiscal year. This rate has decreased since the Authority annexed to MWD in 1946, when the tax rate was 50 cents per \$100 assessed valuation. Tax rates for each year since 1930 are shown in Table 12.

The total MWD tax levy during the 1990-91 fiscal year, including regular and special taxes, was \$84,533,323. About 14 percent of this amount, or \$11,847,145, was levied against property within the Authority. The estimated MWD tax level for the 1991-92 fiscal year is \$84,655,901. The Authority's share of that amount is \$12,367,412.



COLORADO RIVER BOARD MEMBERSHIP

The Colorado River Board of California is a state agency with the mission of protecting California rights and interests in the water and power resources of the Colorado River system.

Board members were originally selected by the Governor from a list of persons submitted by each of the six agencies having rights to Colorado River resources. The six agencies are the San Diego County Water Authority, Metropolitan Water District of Southern California, City of Los Angeles Department of Water and Power, Coachella Valley Water District, Palo Verde Irrigation District, and Imperial Irrigation District.

The Board was re-organized in April 1977 and enlarged from six to 11 members. The five new members include the directors of the departments of Fish and Game and Water Resources, and three public Board members. Under the revised statutes, the Governor is to appoint both a member and an alternate member to the Board from a list of nominees designated by each of the six agencies.

Additional legislation was enacted in 1983 and 1984 to improve the methods of appointment and replacement of the six agencies' representatives and the selection of a Chairman. The legislation also reduced the size of the Board to 10 members, eliminating one public member. The member and the alternate representing each of the six agencies are chosen by the Governor from two lists, each containing not less than three persons, that are submitted by each of the agencies. John P. Starkey represents the Water Authority on the Board, and Herbert H. Stickney serves as his alternate.

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

SAN DIEGO COUNTY WATER AUTHORITY

Table 1
STATISTICAL SUMMARY

| | 1989-90 | 1990-91 | Percent Change |
|---|-----------------|-----------------|----------------|
| GROWTH OF AREA | | | |
| Number of Agencies | 23 | 23 | 0.0 |
| Total Area-Acres | 908,945 | 908,945 | 0.0 |
| Population | 2,435,903 | 2,485,692 | +2.0 |
| Assessed Valuation | 103,686,252,840 | 117,128,102,257 | +13.0 |
| OPERATION | | | |
| Water Imported by Authority-af | 647,481 | 556,047 | -14.1 |
| Water Production of Agencies-af | 646,645 | 585,555 | -9.4 |
| *Local Water Used-af | 33,201 | 33,179 | 0.0 |
| Authority Water Used-af | 613,444 | 552,377 | -10.0 |
| Miles of Pipeline | 222 | 229 | +3.2 |
| Miles of Patrol Roads Maintained | 105 | 112 | +6.7 |
| Number of Service Connections | 82 | 85 | +3.7 |
| FINANCIAL | | | |
| Water and Other Sales | \$ 154,758,000 | 122,062,000 | -21.1 |
| Operating Expenses: | | | |
| Cost of Sales | 125,309,000 | 96,713,000 | -22.8 |
| Depreciation and Amortization | 2,229,000 | 4,143,000 | +85.9 |
| Operations and Maintenance | 3,150,000 | 3,164,000 | 0.0 |
| Planning and Reclamation | 1,763,000 | 2,798,000 | +58.7 |
| General and Administrative | 3,639,000 | 4,711,000 | +29.5 |
| Total Operating Expenses | 136,090,000 | 111,529,000 | -18.0 |
| Operating Income | 18,668,000 | 10,553,000 | -43.6 |
| Other Revenues(Expenses): | | | |
| Property Taxes and In-lieu Charges | 8,028,000 | 8,200,000 | +2.1 |
| Water Availability Charges | 10,706,000 | 16,690,000 | +55.9 |
| Interest Expense | (10,287,000) | (8,948,000) | -13.0 |
| Interest Income | 12,523,000 | 13,368,000 | +6.7 |
| Other Income | 0 | 0 | 0 |
| Total Other Revenues | 20,970,000 | 29,310,000 | +39.8 |
| Net Income | 39,638,000 | 39,843,000 | +1.0 |
| Undesignated Retained Earnings at | | | |
| Beginning of Year | 123,199,000 | 131,837,000 | +7.0 |
| Transfer to Designated Retained Earnings | (31,000,000) | (23,153,000) | -25.3 |
| Undesignated Retained Earnings at End of Year | \$ 131,837,000 | \$148,527,000 | +12.7 |

*Does not include Pendleton Military Reservation

TABLES
Table 2
POPULATION GROWTH-COUNTY AND AUTHORITY AREA
1910 to 1991
(Includes Resident Military Personnel)

| Year (as of April 1) | COUNTY | | AUTHORITY | | Percent of County Population in Authority |
|----------------------------|---------------------|------------------|---------------------|------------------|---|
| | Total Population | Annual Growth | Total Population | Annual Growth | |
| 1910(1) | 61,665 | | | | |
| 1920(1) | 112,248 | 5,058 | | | |
| 1930(1) | 209,659 | 9,741 | | | |
| 1940(1) | 289,348 | 7,969 | | | |
| 1946(3) | 502,804 | 26,746 | (3) 440,659 | 2,807 | 88 |
| 1950(1) | 556,808 | 42,478 | (2) 451,886 | 50,083 | 81 |
| 1955(4) | 769,200 | 52,762 | (2) 702,300 | 50,820 | 91 |
| 1960(1) | 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) | 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) | 1,808,200 | 91,800 | (5) 1,797,655 | 66,635 | 99 |
| 1981(7) | 1,900,000 | 44,000 | (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 | 82,810 | (5) 2,047,000 | 58,500 | 98 |
| 1986(7) | 2,166,169 | 74,490 | (5) 2,105,500 | 75,000 | 97 |
| 1987(7) | 2,240,659 | 87,025 | (5) 2,181,000 | 72,216 | 97 |
| 1988(7) | 2,327,684 | 90,495 | (5) 2,253,216 | 92,992 | 97 |
| 1989(7) | 2,418,176 | 91,738 | (5) 2,346,208 | 89,695 | 97 |
| 1990(7) | 2,509,914 | 38,819 | (5) 2,435,903 | 49,789 | 97 |
| 1991(7) | 2,548,733 | | (5) 2,485,692 | | 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 Department of Planning and Land Use, San Diego County.

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

SAN DIEGO COUNTY WATER AUTHORITY

Table 3
AREA - AUTHORITY MEMBER AGENCIES
Area Within Authority

| | As of 6/30/90 (acres) | Changes During Year (acres) | As of 6/30/91 (acres) | Percent of Total Authority Area 6/30/91 |
|-----------------------------------|-----------------------------|--------------------------------------|-----------------------------|---|
| Bueno Colorado M.W.D. (1) | 19,760 | 8 | 19,768 | 2.17 |
| Carlsbad M.W.D. | 20,369 | 0 | 20,369 | 2.24 |
| Del Mar, City of | 1,159 | 0 | 1,159 | 0.13 |
| De Luz Heights M.W.D. | 11,789 | -11,789 | 0 | 0.00 |
| Escondido, City of (2) | 21,535 | 24 | 21,559 | 2.37 |
| Fallbrook P.U.D. | 16,199 | 11,789 | 27,988 | 3.08 |
| Helix W.D. (3) | 31,278 | 14 | 31,292 | 3.44 |
| National City | 5,574 | 2 | 5,576 | 0.61 |
| Oceanside, City of | 26,574 | 0 | 26,574 | 2.92 |
| Olivethorn M.W.D. (4) | 30,803 | 0 | 30,803 | 3.39 |
| Otay W.D. | 63,063 | -1 | 63,062 | 6.94 |
| Padre Dam M.W.D. (5) | 54,462 | 77 | 54,539 | 6.00 |
| Pendleton Military Res. | 134,625 | 0 | 134,625 | 14.81 |
| Poway, City of | 23,214 | 0 | 23,214 | 2.55 |
| Rainbow M.W.D. | 47,237 | 0 | 47,237 | 5.20 |
| Ramona M.W.D. | 46,524 | 0 | 46,524 | 5.12 |
| Rincon Del Diablo M.W.D. (6) | 10,357 | -24 | 10,333 | 1.14 |
| San Diego, City of | 210,717 | -91 | 210,626 | 23.18 |
| San Diegoito W.D. | 5,652 | 0 | 5,652 | 0.62 |
| Santa Fe I.D. | 10,179 | 0 | 10,179 | 1.12 |
| South Bay I.D. | 15,568 | -1 | 15,567 | 1.71 |
| Vallecitos W.D. (7) | 28,508 | -8 | 28,500 | 3.14 |
| Valley Center M.W.D. (8) | 60,986 | 21 | 61,007 | 6.71 |
| Yuima M.W.D. | 12,813 | -21 | 12,792 | 1.41 |
| Total Authority Area | 908,945 | 0 | 908,945 | 100.00 |
| San Diego County | 2,725,100 | 0 | 2,725,100 | |

- (1) Does not include 37 acres overlapping in City of Escondido.
- (2) Includes 1,177 acres overlapping in Valley Center M.W.D., 405 acres overlapping in Vallecitos W.D., 37 acres overlapping in Bueno Colorado M.W.D. and 16,369 acres overlapping in Rincon Del Diablo M.W.D.
- (3) Includes 13 acres overlapping in Padre Dam M.W.D.
- (4) Does not include 30 acres overlapping in City of San Diego.
- (5) Does not include 13 acres overlapping in Helix W.D.
- (6) Does not include 16,369 acres overlapping in City of Escondido.
- (7) Does not include 405 acres overlapping in City of Escondido.
- (8) Does not include 1,177 acres overlapping in City of Escondido.
- (9) Population in agencies other than cities was furnished by agencies.
- (10) Estimate by agencies.

TABLES

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

| Population - U.S. Census | | | | | Density of Population 1991 | |
|--------------------------|--------------|--|-------------------------------|--|----------------------------------|-----------------|
| 1980 (9) | 1990 (10) | Decade Increase 1980-90 Percent | 1991 Estimate (10) | Annual Increase 1990-91 Percent | Per Acre | Per Sq. Mile |
| 51,000 | 76,729 | 50 | 78,727 | 2.60 | 3.98 | 2,549 |
| 31,500 | 54,400 | 73 | 56,575 | 4.00 | 2.78 | 1,778 |
| 5,040 | 5,215 | 3 | 4,860 | 6.81 | 4.19 | 2,684 |
| 225 | 390 | 73 | Annexed into Fallbrook P.U.D. | | | |
| 64,100 | 105,515 | 65 | 108,185 | 2.53 | 5.02 | 3,212 |
| 18,700 | 23,570 | 26 | 24,885 | 5.55 | 0.89 | 569 |
| 203,500 | 226,928 | 12 | 228,917 | 0.88 | 7.32 | 4,682 |
| 47,200 | 51,488 | 9 | 51,551 | 0.12 | 9.25 | 5,917 |
| 77,800 | 128,500 | 65 | 130,000 | 1.17 | 4.89 | 3,131 |
| 23,000 | 43,480 | 89 | 44,482 | 2.30 | 1.44 | 924 |
| 51,600 | 98,400 | 91 | 100,500 | 2.13 | 1.59 | 1,020 |
| 89,000 | 112,000 | 26 | 119,367 | 6.58 | 2.19 | 1,401 |
| 33,150 | 50,000 | - | 50,000 | 0.00 | 0.37 | 238 |
| 33,620 | 44,268 | 32 | 44,474 | 0.24 | 1.92 | 1,226 |
| 7,800 | 13,442 | 72 | 14,264 | 6.12 | 0.30 | 193 |
| 16,000 | 32,000 | 100 | 33,500 | 4.69 | 0.72 | 461 |
| 13,800 | 25,000 | 81 | 26,300 | 5.20 | 2.55 | 1,629 |
| 849,600 | 1,118,282 | 32 | 1,137,767 | 1.74 | 5.40 | 3,457 |
| 30,900 | 34,657 | 12 | 35,010 | 1.02 | 6.19 | 3,964 |
| 14,700 | 19,335 | 32 | 19,625 | 1.50 | 1.93 | 1,234 |
| 99,200 | 106,243 | 7 | 107,408 | 1.10 | 6.90 | 4,416 |
| 24,200 | 47,235 | - | 49,885 | 5.61 | 1.75 | 1,120 |
| 10,200 | 16,900 | 66 | 17,590 | 4.08 | 0.29 | 185 |
| 1,820 | 1,820 | 0 | 1,820 | 0.00 | 0.14 | 91 |
| 1,797,655 | 2,435,903 | 36 | 2,485,692 | 2.04 | 2.73 | 1,750 |
| 1,808,200 | 2,509,914 | 39 | 2,548,733 | 1.55 | 0.94 | 599 |

SAN DIEGO COUNTY WATER AUTHORITY

Table 4
WATER USE AND AUTHORITY STORAGE
FISCAL YEAR 1990-91
(Compilation of data furnished by member agencies)

| | SOURCE OF WATER (3) | | | | Total Water Use Ac. Ft. | Gross Area (2) Acres |
|---------------------------|---------------------|---------|-------------------|---------|----------------------------|-------------------------|
| | Local Supply | | Authority Supply | | | |
| | Amount Ac. Ft. | Percent | Amount Ac. Ft. | Percent | | |
| Bueno Colorado M.W.D. | 4,754.7 | 23.8 | 15,236.8 | 76.2 | 19,991.5 | 19,768 |
| Carlsbad M.W.D. | 0.0 | 0.0 | 16,532.7 | 100.0 | 16,532.7 | 20,369 |
| Del Mar, City of | 0.0 | 0.0 | 1,439.4 | 100.0 | 1,439.4 | 1,159 |
| De Luz Heights M.W.D. (4) | - | - | - | - | - | - |
| Escondido, City of | 4,184.7 | 15.6 | 22,628.3 | 84.4 | 26,813.0 | 21,559 |
| Fallbrook P.U.D. | 29.8 | 0.2 | 16,403.9 | 99.8 | 16,433.7 | 27,988 |
| Helix W.D. | 1,714.8 | 4.6 | 35,720.6 | 95.4 | 37,435.4 | 31,292 |
| National City, City of | 2,025.1 | 33.9 | 3,951.9 | 66.1 | 5,977.0 | 5,576 |
| Oceanside, City of | 0.0 | 0.0 | 26,491.4 | 100.0 | 26,491.4 | 26,574 |
| Olivenhain M.W.D. | 0.0 | 0.0 | 12,002.9 | 100.0 | 12,002.9 | 30,804 |
| Otay W.D. | 0.0 | 0.0 | 20,652.3 | 100.0 | 20,652.3 | 63,062 |
| Padre Dam M.W.D. | 0.0 | 0.0 | 18,242.3 | 100.0 | 18,242.3 | 54,539 |
| Pendleton Military Res. | 0.0 | - | 113.7 | - | 113.7 | 134,625 |
| Poway, City of | 50.2 | 0.4 | 12,879.4 | 99.6 | 12,929.6 | 23,214 |
| Rainbow M.W.D. | 0.0 | 0.0 | 32,030.7 | 100.0 | 32,030.7 | 47,237 |
| Ramona M.W.D. | 11.7 | 0.1 | 11,653.4 | 99.9 | 11,665.1 | 46,524 |
| Rincon del Diablo M.W.D. | 0.0 | 0.0 | 7,629.8 | 100.0 | 7,629.8 | 10,333 |
| San Diego, City of (1) | 16,232.8 | 7.5 | 200,945.4 | 92.5 | 217,178.2 | 210,626 |
| San Dieguito W.D. | 870.4 | 11.9 | 6,430.2 | 88.1 | 7,300.6 | 5,652 |
| Santa Fe I.D. | 1,284.4 | 11.3 | 10,064.2 | 88.7 | 11,348.6 | 10,179 |
| South Bay I.D. | 0.0 | 0.0 | 16,556.6 | 100.0 | 16,556.6 | 15,567 |
| Vallecitos W.D. | 0.0 | 0.0 | 12,240.3 | 100.0 | 12,240.3 | 28,500 |
| Valley Center M.W.D. | 0.0 | 0.0 | 50,354.1 | 100.0 | 50,354.1 | 61,007 |
| Yuima M.W.D. | 2,019.3 | 47.4 | 2,240.5 | 52.6 | 4,259.8 | 12,792 |
| Total and Average | 33,177.9 | 5.7 | 552,440.8 | 94.3 | 585,618.7 | 908,945 |

- (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) Figures include losses from transmission and distribution system but not from reservoirs.
 - (4) Annexed into Fallbrook 7/1/90
- N.A. - Not Applicable

| | Estimated Area Served by Water System Acres | Gross Area Served by Water System Percent | Water Use Per Acre Served Ac. Ft./Ac./Yr. | STORAGED WATER WITHDRAWN DURING FISCAL YEAR | | | Total Quantity in Storage 6/30/91 Ac. Ft. |
|--|--|--|--|---|---------------------------|---------------------|---|
| | | | | By Delivery Ac. Ft. | By Evaporation Ac. Ft. | By Spill Ac. Ft. | |
| | | | | F | P | | |
| | 16,495 | 83.4 | 1.21 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 19,625 | 96.3 | 0.84 | 0.0 | 99.1 | 0.0 | 1,506.9 |
| | 1,082 | 93.4 | 1.33 | 0.0 | 0.0 | 0.0 | 0.0 |
| | - | - | - | - | - | - | - |
| | 18,722 | 86.8 | 1.43 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 11,207 | 40.0 | 1.47 | 0.0 | 99.1 | 0.0 | 1,506.9 |
| | 30,255 | 96.7 | 1.24 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 5,090 | 91.3 | 1.17 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 20,926 | 78.7 | 1.27 | 0.0 | 198.4 | 0.0 | 3,013.7 |
| | 15,646 | 50.8 | 0.77 | 0.0 | 33.1 | 0.0 | 502.3 |
| | 38,200 | 60.6 | 0.54 | 0.0 | 99.1 | 0.0 | 1,506.9 |
| | 37,041 | 67.9 | 0.49 | 0.0 | 132.3 | 0.0 | 2,009.1 |
| | N.A. | - | - | - | - | - | - |
| | 10,621 | 45.8 | 1.22 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 17,631 | 37.3 | 1.82 | 0.0 | 33.1 | 0.0 | 502.3 |
| | 11,802 | 25.4 | 0.99 | 0.0 | 132.3 | 0.0 | 2,009.1 |
| | 8,610 | 83.3 | 0.89 | 0.0 | 39.7 | 0.0 | 602.7 |
| | 134,496 | 63.9 | 1.61 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 5,482 | 97.0 | 1.33 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 10,179 | 100.0 | 1.11 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 12,668 | 81.4 | 1.31 | 0.0 | 0.0 | 0.0 | 0.0 |
| | 13,643 | 47.9 | 0.90 | 0.0 | 33.1 | 0.0 | 502.3 |
| | 41,163 | 67.5 | 1.22 | 0.0 | 33.1 | 0.0 | 502.3 |
| | 4,140 | 32.4 | 1.03 | 0.0 | 6.6 | 0.0 | 100.5 |
| | 484,724 | 53.3 | 1.21 | 0.0 | 939.0 | 0.0 | 14,265.0 |

| Estimated Area Served by Water System Acres | Gross Area Served by Water System Percent | Water Use Per Acre Served Ac. Ft./Ac./Yr. | Estimated Population | Water Use Per Capita Ac. Ft./Cap./Yr. | WATER USED FOR AGRICULTURAL PURPOSES | | | | | Percent of Agricultural Water to Total Use | MEMBER AGENCIES' POOLED STORAGE IN SAN VICENTE RESERVOIR | | | | | |
|---|---|---|----------------------|---------------------------------------|--------------------------------------|---------|----------------|---------|---------------|--|--|--|---|------------------------|------------------|---|
| | | | | | From Local Supply | | From Authority | | Total Ac. Ft. | | Total Quantity in Storage 6/30/90 Ac. Ft. | Placed into Storage During Fiscal Year Ac. Ft. | STORED WATER WITHDRAWN DURING FISCAL YEAR | | | Total Quantity in Storage 6/30/91 Ac. Ft. |
| | | | | | Amount Ac. Ft. | Percent | Amount Ac. Ft. | Percent | | | | | By Delivery Ac. Ft. | By Evaporation Ac. Ft. | By Spill Ac. Ft. | |
| 16,495 | 83.4 | 1.21 | 78,727 | 0.25 | 647.0 | 25.7 | 1,867.8 | 74.3 | 2,514.8 | 12.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 19,625 | 96.3 | 0.84 | 56,575 | 0.29 | 0.0 | 0.0 | 1,824.9 | 100.0 | 1,824.9 | 11.0 | 1,606.0 | 0.0 | 0.0 | 99.1 | 0.0 | 1,506.9 |
| 1,082 | 93.4 | 1.33 | 4,860 | 0.30 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,722 | 86.8 | 1.43 | 108,185 | 0.25 | 1,075.0 | 15.8 | 5,719.4 | 84.2 | 6,794.4 | 25.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 11,207 | 40.0 | 1.47 | 24,885 | 0.66 | 13.5 | 0.1 | 10,462.8 | 99.9 | 10,476.3 | 63.7 | 1,606.0 | 0.0 | 0.0 | 99.1 | 0.0 | 1,506.9 |
| 30,255 | 96.7 | 1.24 | 228,917 | 0.16 | 13.6 | 3.1 | 420.4 | 96.9 | 434.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5,090 | 91.3 | 1.17 | 51,551 | 0.12 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 20,926 | 78.7 | 1.27 | 130,000 | 0.20 | 0.0 | 0.0 | 2,815.6 | 100.0 | 2,815.6 | 10.6 | 3,212.1 | 0.0 | 0.0 | 198.4 | 0.0 | 3,013.7 |
| 15,646 | 50.8 | 0.77 | 44,482 | 0.27 | 0.0 | 0.0 | 1,401.1 | 100.0 | 1,401.1 | 11.7 | 535.4 | 0.0 | 0.0 | 33.1 | 0.0 | 502.3 |
| 38,200 | 60.6 | 0.54 | 100,500 | 0.21 | 0.0 | 0.0 | 678.3 | 100.0 | 678.3 | 3.3 | 1,606.0 | 0.0 | 0.0 | 99.1 | 0.0 | 1,506.9 |
| 37,041 | 67.9 | 0.49 | 119,367 | 0.15 | 0.0 | 0.0 | 1,887.4 | 100.0 | 1,887.4 | 10.3 | 2,141.4 | 0.0 | 0.0 | 132.3 | 0.0 | 2,009.1 |
| N.A. | - | - | 50,000 | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - |
| 10,621 | 45.8 | 1.22 | 44,474 | 0.29 | 13.2 | 1.7 | 759.2 | 98.3 | 772.4 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 17,631 | 37.3 | 1.82 | 14,264 | 2.25 | 0.0 | 0.0 | 26,931.0 | 100.0 | 26,931.0 | 84.1 | 535.4 | 0.0 | 0.0 | 33.1 | 0.0 | 502.3 |
| 11,802 | 25.4 | 0.99 | 33,500 | 0.35 | 1.3 | 0.0 | 6,149.8 | 100.0 | 6,151.1 | 52.7 | 2,141.4 | 0.0 | 0.0 | 132.3 | 0.0 | 2,009.1 |
| 8,610 | 83.3 | 0.89 | 26,300 | 0.29 | 0.0 | 0.0 | 970.4 | 100.0 | 970.4 | 12.7 | 642.4 | 0.0 | 0.0 | 39.7 | 0.0 | 602.7 |
| 134,496 | 63.9 | 1.61 | 1,137,767 | 0.19 | 0.0 | 0.0 | 1,330.9 | 100.0 | 1,330.9 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5,482 | 97.0 | 1.33 | 35,010 | 0.21 | 161.8 | 11.9 | 1,193.1 | 88.1 | 1,354.9 | 18.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 10,179 | 100.0 | 1.11 | 19,625 | 0.58 | 122.9 | 10.8 | 1,015.4 | 89.2 | 1,138.3 | 10.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12,668 | 81.4 | 1.31 | 107,408 | 0.15 | 3.3 | 9.3 | 32.3 | 90.7 | 35.6 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 13,643 | 47.9 | 0.90 | 49,885 | 0.25 | 0.0 | 0.0 | 3,324.2 | 100.0 | 3,324.2 | 27.2 | 535.4 | 0.0 | 0.0 | 33.1 | 0.0 | 502.3 |
| 41,163 | 67.5 | 1.22 | 17,590 | 2.86 | 0.0 | 0.0 | 43,948.5 | 100.0 | 43,948.5 | 87.3 | 535.4 | 0.0 | 0.0 | 33.1 | 0.0 | 502.3 |
| 4,140 | 32.4 | 1.03 | 1,820 | 2.34 | 1,963.3 | 47.3 | 2,185.8 | 52.7 | 4,149.1 | 97.4 | 107.1 | 0.0 | 0.0 | 6.6 | 0.0 | 100.5 |
| 484,724 | 53.3 | 1.21 | 2,485,692 | 0.24 | 4,014.9 | 3.4 | 114,918.3 | 96.6 | 118,933.2 | 20.3 | 15,204.0 | 0.0 | 0.0 | 939.0 | 0.0 | 14,265.0 |

Table 5
 ASSESSED VALUATION AND TAX COLLECTIONS
 FISCAL YEAR 1990-91

| Member Agencies | ASSESSED VALUATION - SECURED AND UNSECURED | | | | Area 6/30/91 Acres | 1990-91 Valuation Per Acre | Tax Assessments to Date | Uncollected 6/30/91 | Tax Collections | Interest & Amount |
|--------------------------|--|----------------------|--|----------------------|------------------------------|-------------------------------------|-------------------------------|------------------------|--------------------|----------------------|
| | 1989-90 Total | 1990-91 Total | 1989-90 to 1990-91 Percent Change | 1991-92 Total | | | | | | |
| Bueno Colorado M.W.D. | \$ 4,471,133,007 | \$ 5,194,479,066 | 16.2% | \$ 5,619,814,709 | 19,768 | \$ 262,878 | \$ 5,129,119 | \$ 38,220 | \$ 5,090,898 | \$ 38,037 |
| Carlsbad M.W.D. | 4,102,706,010 | 4,652,720,181 | 13.4% | 5,053,129,184 | 20,369 | 228,422 | 5,161,644 | 32,314 | 5,129,329 | 37,277 |
| Coronado, City of (2) | 0 | 0 | 0.0% | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Del Mar, City of | 524,344,832 | 638,006,193 | 21.7% | 675,565,785 | 1,159 | 550,480 | 951,943 | 5,347 | 946,596 | 7,405 |
| Escondido, City of | 2,555,098,153 | 2,799,055,420 | 9.5% | 2,954,346,161 | 21,559 | 129,977 | 3,746,670 | 17,351 | 3,729,319 | 22,956 |
| Fallbrook P.U.D. | 1,004,425,964 | 1,153,934,239 | 14.9% | 1,266,529,552 | 27,988 | 41,230 | 1,669,764 | 9,878 | 1,659,886 | 12,393 |
| Helix W.D. | 7,292,453,070 | 7,947,335,004 | 9.0% | 8,445,086,042 | 31,292 | 254,087 | 15,172,696 | 50,193 | 15,122,503 | 71,427 |
| National City, City of | 891,693,211 | 967,927,749 | 8.5% | 1,030,740,627 | 5,576 | 173,650 | 2,280,115 | 6,913 | 2,273,202 | 8,733 |
| Oceanside, City of | 3,856,150,310 | 4,513,354,403 | 17.0% | 4,975,978,282 | 26,574 | 169,841 | 5,069,030 | 35,163 | 5,033,867 | 32,629 |
| Oliverhain M.W.D. | 3,136,390,840 | 3,730,179,953 | 18.9% | 4,154,325,941 | 30,804 | 121,098 | 2,799,670 | 26,063 | 2,773,607 | 22,864 |
| Otay W.D. | 3,984,277,437 | 4,804,072,582 | 20.6% | 5,503,790,933 | 63,062 | 76,179 | 4,188,217 | 34,947 | 4,153,269 | 34,342 |
| Padre Dam M.W.D. | 3,336,933,812 | 3,740,746,624 | 12.1% | 4,059,710,436 | 54,539 | 68,685 | 4,791,830 | 29,988 | 4,761,842 | 39,700 |
| Pendleton Military Res. | 125,869,814 | 128,761,952 | 2.3% | 134,623,606 | 134,625 | 956 | 2,302,185 | 44 | 2,302,141 | 0 |
| Poway, City of | 2,077,256,920 | 2,444,194,645 | 17.7% | 2,721,568,939 | 23,214 | 105,290 | 2,399,785 | 11,461 | 2,388,324 | 22,542 |
| Rainbow M.W.D. | 1,045,086,381 | 1,258,685,240 | 20.4% | 1,405,910,662 | 47,237 | 26,646 | 1,719,831 | 11,894 | 1,707,937 | 21,344 |
| Ramona M.W.D. | 1,045,860,862 | 1,195,491,565 | 14.3% | 1,305,695,354 | 46,524 | 25,696 | 1,574,487 | 10,552 | 1,563,935 | 17,476 |
| Rincon del Diablo M.W.D. | 2,267,339,938 | 2,619,962,830 | 15.6% | 2,848,470,159 | 10,333 | 252,965 | 2,709,181 | 19,553 | 2,689,628 | 18,712 |
| San Diego, City of (1) | 50,792,933,056 | 56,760,734,240 | 11.7% | 60,710,711,722 | 210,626 | 269,370 | 24,542,377 | 176,602 | 24,365,775 | 77,548 |
| San Dieguito W.D. | 1,779,117,955 | 1,971,595,058 | 10.8% | 2,133,562,628 | 5,652 | 348,831 | 2,679,480 | 14,447 | 2,665,033 | 15,219 |
| Santa Fe I.D. | 2,411,306,258 | 2,756,285,734 | 14.3% | 3,052,857,017 | 10,179 | 270,782 | 3,417,416 | 21,750 | 3,395,666 | 19,200 |
| South Bay I.D. | 3,600,046,541 | 3,893,135,350 | 8.1% | 4,108,276,402 | 15,567 | 250,073 | 7,569,206 | 28,898 | 7,540,308 | 27,453 |
| Vallecitos W.D. | 2,126,883,030 | 2,510,901,487 | 18.1% | 2,808,469,002 | 28,500 | 88,077 | 2,537,479 | 16,487 | 2,520,992 | 15,038 |
| Valley Center M.W.D. | 1,127,737,322 | 1,303,460,614 | 15.6% | 1,427,017,628 | 61,007 | 21,373 | 1,715,558 | 12,030 | 1,703,528 | 23,188 |
| Yuima M.W.D. | 131,208,117 | 143,082,128 | 9.0% | 155,731,867 | 12,792 | 11,167 | 329,371 | 1,455 | 327,917 | 2,143 |
| Total Authority | 103,686,252,840 | 117,128,102,257 | 13.0% | 126,551,912,638 | 908,945 | 128,862 | 104,457,051 | 611,551 | 103,845,500 | 587,628 |
| San Diego County (1) | 114,724,892,087 | 131,974,942,027 | 15.0% | 131,974,942,027 | | | | | | |

- (1) Excluding 1,450,000 acres of non-taxable land in San Diego County
- (2) Excluded from CWA
- (3) Fallbrook & De Luz Heights were combined on July 1, 1990

Table 5
 ASSESSED VALUATION AND TAX COLLECTIONS
 FISCAL YEAR 1990-91

| Area 6/30/91 Acres | 1990-91 Valuation Per Acre | Tax Assessments to Date | Uncollected 6/30/91 | Amount | | Receipts in Lieu | Miscellaneous | Net Total | Amount Paid for Service Connections | Total Paid by Each Member Agency |
|------------------------------|-------------------------------------|-------------------------------|------------------------|--------------------|------------|---------------------|---------------|--------------|---|---|
| | | | | Tax Collections | Interest & | | | | | |
| 19,768 | \$ 262,878 | \$ 5,129,119 | \$ 38,220 | \$ 5,090,898 | \$ 38,037 | \$ 10,803 | \$ 124 | \$ 5,139,862 | \$ 207,439 | \$ 5,347,301 |
| 20,369 | 228,422 | 5,161,644 | 32,314 | 5,129,329 | 37,277 | 33,275 | 11 | 5,199,893 | 7,931 | 5,207,824 |
| 0 | 0 | 0 | 0 | 0 | 0 | 187 | 0 | 187 | 0 | 187 |
| 1,159 | 550,480 | 951,943 | 5,347 | 946,596 | 7,405 | 531 | 1 | 954,533 | 0 | 954,533 |
| 21,559 | 129,977 | 3,746,670 | 17,351 | 3,729,319 | 22,956 | 29 | 29 | 3,752,333 | 9,254 | 3,761,587 |
| 27,988 | 41,230 | 1,669,764 | 9,878 | 1,659,886 | 12,393 | 4,420 | 43 | 1,676,742 | 67,773 | 1,744,515 |
| 31,292 | 254,087 | 15,172,696 | 50,193 | 15,122,503 | 71,427 | 4,931 | 784 | 15,199,644 | 28,906 | 15,228,550 |
| 5,576 | 173,650 | 2,280,115 | 6,913 | 2,273,202 | 8,733 | 6,828 | 96 | 2,288,859 | 0 | 2,288,859 |
| 26,574 | 169,841 | 5,069,030 | 35,163 | 5,033,867 | 32,629 | 2,601 | 100 | 5,069,197 | 126,369 | 5,195,567 |
| 30,804 | 121,098 | 2,799,670 | 26,063 | 2,773,607 | 22,864 | 1,250 | 0 | 2,797,721 | 89,024 | 2,886,745 |
| 63,062 | 76,179 | 4,188,217 | 34,947 | 4,153,269 | 34,342 | 4,455 | 45 | 4,192,112 | 208,574 | 4,400,685 |
| 54,539 | 68,685 | 4,791,830 | 29,988 | 4,761,842 | 39,700 | 3,003 | 132 | 4,804,677 | 45,244 | 4,849,922 |
| 134,625 | 956 | 2,302,185 | 44 | 2,302,141 | 0 | 0 | 0 | 2,302,141 | 0 | 2,302,141 |
| 23,214 | 105,290 | 2,399,785 | 11,461 | 2,388,324 | 22,542 | 15 | 9 | 2,410,889 | 103,875 | 2,514,764 |
| 47,237 | 26,646 | 1,719,831 | 11,894 | 1,707,937 | 21,344 | 23,680 | 1 | 1,752,962 | 193,484 | 1,946,446 |
| 46,524 | 25,696 | 1,574,487 | 10,552 | 1,563,935 | 17,476 | 5,400 | 59 | 1,586,869 | 3,379 | 1,590,248 |
| 10,333 | 252,965 | 2,709,181 | 19,553 | 2,689,628 | 18,712 | 58,801 | 1 | 2,767,143 | 14,527 | 2,781,670 |
| 210,626 | 269,370 | 24,542,377 | 176,602 | 24,365,775 | 77,548 | 51,680,117 | 2,467 | 76,125,906 | 610,595 | 76,736,502 |
| 5,652 | 348,831 | 2,679,480 | 14,447 | 2,665,033 | 15,219 | 5,426 | 131 | 2,685,809 | 47,206 | 2,733,015 |
| 10,179 | 270,782 | 3,417,416 | 21,750 | 3,395,666 | 19,200 | 2,893 | 1,914 | 3,419,673 | 58,787 | 3,478,460 |
| 15,567 | 250,073 | 7,569,206 | 28,898 | 7,540,308 | 27,453 | 629,977 | 143 | 8,197,881 | 0 | 8,197,881 |
| 28,500 | 88,077 | 2,537,479 | 16,487 | 2,520,992 | 15,038 | 0 | 0 | 2,536,030 | 14,769 | 2,550,800 |
| 61,007 | 21,373 | 1,715,558 | 12,030 | 1,703,528 | 23,188 | 1,011 | 26 | 1,727,754 | 162,555 | 1,890,309 |
| 12,792 | 11,167 | 329,371 | 1,455 | 327,917 | 2,143 | 1,500 | 0 | 331,560 | 28,424 | 359,984 |
| 908,945 | 128,862 | 104,457,051 | 611,551 | 103,845,500 | 587,628 | 52,481,133 | 6,117 | 156,920,378 | 2,028,116 | 158,948,494 |

SAN DIEGO COUNTY WATER AUTHORITY

TABLES

Table 6
WATER USE - FISCAL YEARS 1980-81 TO 1990-91
(All Figures in Acre Feet)

| MEMBER AGENCIES | From Local and Authority Supplies | | | | | | | | | | |
|----------------------------------|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | 1980-81 | 1981-82 | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | 1990-91 |
| Buena Colorado M.W.D. | 17,565 | 15,446 | 14,720 | 18,351 | 16,988 | 17,584 | 17,928 | 18,781 | 20,457 | 22,420 | 19,991 |
| Carlsbad M.W.D. | 13,385 | 12,749 | 11,879 | 12,895 | 12,880 | 13,686 | 14,644 | 15,146 | 16,475 | 17,844 | 16,533 |
| Del Mar, City of | 1,075 | 1,045 | 1,065 | 1,235 | 1,097 | 1,107 | 1,456 | 1,481 | 1,474 | 1,480 | 1,439 |
| De Luz Heights M.W.D. | 1,757 | 1,794 | 1,792 | 2,531 | 2,373 | 2,586 | 3,186 | 2,459 | 3,042 | 3,454 | — |
| Escondido, City of | 26,052 | 22,534 | 20,269 | 24,214 | 23,281 | 23,712 | 24,913 | 24,871 | 26,950 | 29,194 | 26,813 |
| Fairbrook P.U.D. | 14,698 | 12,386 | 10,156 | 12,600 | 11,606 | 12,270 | 12,546 | 11,766 | 12,904 | 13,787 | 16,434 |
| Helix W.D. | 41,613 | 39,284 | 36,519 | 41,081 | 40,579 | 42,056 | 42,201 | 41,863 | 44,156 | 43,616 | 37,435 |
| National City and South Bay I.D. | 23,222 | 23,209 | 23,352 | 25,593 | 26,092 | 26,854 | 26,115 | 25,504 | 26,135 | 25,872 | 22,534 |
| Oceanside, City of | 22,408 | 21,769 | 19,846 | 22,583 | 24,114 | 24,190 | 25,164 | 25,889 | 27,693 | 28,763 | 26,491 |
| Ovenbain M.W.D. | 6,437 | 5,856 | 6,027 | 7,741 | 8,233 | 9,490 | 9,739 | 10,755 | 12,565 | 13,481 | 12,003 |
| Oliver W.D. | 13,612 | 12,943 | 11,952 | 13,551 | 13,830 | 15,126 | 16,337 | 17,246 | 20,470 | 22,810 | 20,652 |
| Padre Dam M.W.D. | 15,572 | 14,908 | 14,102 | 16,992 | 17,027 | 17,966 | 18,319 | 18,121 | 20,167 | 21,068 | 18,242 |
| Pendleton Military Reservation | — | — | — | — | — | — | — | — | — | — | — |
| Poway, City of | 9,027 | 7,873 | 7,547 | 9,215 | 9,320 | 10,061 | 10,822 | 11,601 | 13,039 | 13,610 | 12,930 |
| Rainbow M.W.D. | 34,111 | 28,630 | 25,354 | 31,374 | 29,297 | 29,887 | 29,822 | 28,389 | 32,055 | 33,629 | 32,031 |
| Ranoma M.W.D. | 9,065 | 8,873 | 8,679 | 10,871 | 9,609 | 10,307 | 10,219 | 9,573 | 10,955 | 12,916 | 11,665 |
| Rincon Del Diablo M.W.D. | 5,763 | 5,256 | 4,374 | 6,001 | 6,039 | 6,383 | 6,859 | 7,189 | 8,419 | 8,741 | 7,630 |
| San Diego, City of | — | — | — | — | — | — | — | — | — | — | — |
| Inside City | 191,713 | 192,626 | 182,873 | 203,642 | 216,289 | 221,873 | 228,796 | 229,334 | 239,332 | 236,491 | 210,032 |
| Outside City (not in CWA) | 6,964 | 5,657 | 3,723 | 6,149 | 4,492 | 5,611 | 5,247 | 5,264 | 5,381 | 6,030 | 7,146 |
| San Diego M.W.D. | 8,066 | 7,668 | 7,298 | 7,670 | 7,956 | 7,904 | 8,300 | 8,205 | 8,599 | 8,599 | 7,301 |
| Santa Fe I.D. | 9,368 | 8,792 | 7,728 | 10,617 | 11,195 | 11,074 | 11,266 | 11,456 | 12,334 | 12,452 | 11,349 |
| Vallecitos W.D. | 8,420 | 8,233 | 7,847 | 9,654 | 10,090 | 10,932 | 11,161 | 11,385 | 12,742 | 13,436 | 12,240 |
| Valley Center M.W.D. | 44,687 | 38,358 | 32,583 | 42,367 | 39,435 | 41,419 | 43,791 | 40,224 | 47,243 | 52,629 | 50,354 |
| Yuma M.W.D. | 3,891 | 3,498 | 2,782 | 3,335 | 3,392 | 3,523 | 3,710 | 3,553 | 3,827 | 4,256 | 4,200 |
| Total | 528,461 | 499,387 | 462,357 | 540,262 | 544,214 | 565,601 | 582,341 | 580,035 | 626,394 | 646,488 | 585,505 |

Table 7
WATER SALES - FISCAL YEARS 1947 TO 1991
(All Figures Rounded to the Nearest Whole Acre Foot)

| MEMBER AGENCIES | 1947-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | 1990-91 | TOTAL |
|----------------------------------|-----------------------|---------|---------|---------|---------|---------|----------|----------|----------|------------|
| | Buena Colorado M.W.D. | 187,941 | 3,463 | 5,827 | 4,473 | 5,119 | 11,678 | 12,016 | 19,084 | 15,237 |
| Carlsbad M.W.D. | 218,008 | 12,829 | 12,829 | 13,677 | 14,671 | 15,157 | 16,368 | 17,919 | 16,450 | 337,994 |
| Del Mar, City of | 16,227 | 1,235 | 1,097 | 1,077 | 1,456 | 1,481 | 1,474 | 1,450 | 1,439 | 26,966 |
| De Luz Heights M.W.D. (1) | 8,863 | 2,531 | 2,534 | 2,586 | 3,186 | 2,458 | 2,945 | 3,418 | — | 28,341 |
| Escondido, City of | 203,351 | 14,624 | 14,082 | 14,284 | 18,320 | 20,381 | 21,811 | 26,048 | 24,083 | 356,984 |
| Fairbrook P.U.D. | 325,378 | 12,600 | 12,322 | 13,555 | 11,622 | 12,932 | 13,854 | 14,423 | 16,423 | 430,286 |
| Helix W.D. | 731,365 | 24,779 | 36,507 | 37,972 | 39,732 | 37,267 | 40,642 | 45,793 | 41,278 | 1,035,335 |
| National City and South Bay I.D. | 365,807 | 87 | 4,863 | 20,817 | 16,384 | 20,514 | 19,519 | 34,183 | 23,811 | 505,985 |
| Oceanside, City of | 307,025 | 22,583 | 24,114 | 24,190 | 25,164 | 25,889 | 27,693 | 28,763 | 26,491 | 511,912 |
| Ovenbain M.W.D. | 60,672 | 7,860 | 8,233 | 9,485 | 9,739 | 10,742 | 12,595 | 13,481 | 12,003 | 144,810 |
| Oliver W.D. | 213,092 | 13,542 | 13,830 | 15,125 | 16,337 | 17,246 | 22,952 | 22,952 | 20,652 | 353,246 |
| Padre Dam M.W.D. | 203,624 | 16,992 | 17,027 | 17,966 | 18,319 | 18,121 | 20,167 | 21,068 | 18,270 | 351,254 |
| Pendleton Military Reservation | — | — | — | — | — | — | — | — | — | — |
| Poway, City of | 2,981 | 1,694 | 1,542 | 95 | 111 | 118 | 108 | 157 | 114 | 6,920 |
| Rainbow M.W.D. | 131,645 | 9,005 | 9,313 | 9,821 | 10,724 | 11,548 | 12,817 | 13,631 | 12,646 | 221,150 |
| Ranoma M.W.D. | 451,316 | 31,374 | 29,160 | 30,323 | 28,240 | 32,181 | 33,417 | 32,460 | 32,460 | 703,682 |
| Rincon Del Diablo M.W.D. | 77,811 | 10,392 | 8,688 | 9,723 | 9,943 | 9,526 | 11,985 | 14,480 | 11,393 | 163,941 |
| San Diego, City of | 149,676 | 6,001 | 6,019 | 6,383 | 6,858 | 7,188 | 8,419 | 8,740 | 7,635 | 206,939 |
| San Diego M.W.D. | 3,464,534 | 114,473 | 170,344 | 183,903 | 197,985 | 215,440 | 232,439 | 270,234 | 191,990 | 5,041,222 |
| Santa Fe I.D. | 99,854 | 4,520 | 3,291 | 3,937 | 4,381 | 5,779 | 7,466 | 6,430 | 6,430 | 138,885 |
| Vallecitos W.D. | 109,666 | 5,895 | 4,488 | 4,668 | 5,268 | 6,019 | 8,303 | 10,692 | 12,250 | 167,249 |
| Valley Center M.W.D. | 99,201 | 9,654 | 10,135 | 10,941 | 11,145 | 11,380 | 12,743 | 13,462 | 10,064 | 188,725 |
| Yuma M.W.D. | 427,772 | 38,953 | 41,055 | 43,511 | 39,937 | 39,937 | 47,105 | 52,535 | 50,354 | 783,469 |
| Total Sales to Agencies | 7,899,928 | 369,779 | 436,201 | 474,955 | 503,678 | 527,775 | 582,015 | 674,993 | 553,715 | 12,023,039 |
| Total Sales to Others | 56,509 | — | — | — | — | — | — | — | — | 56,509 |
| Total From Authority Storage | 357,841 | 452 | 645 | 13,158 | 15,849 | 3,722 | 3,651 | 2,450 | 28,332 | 426,100 |
| Total From Metropolitan Storage | (308,214) | — | — | (116) | (116) | — | (163) | (1,124) | (16,000) | (325,617) |
| Total From Metropolitan Storage | 120,929 | — | — | 230 | — | 28,899 | 31,244 | — | — | 181,302 |
| Total From Metropolitan Storage | (116,908) | — | — | (219) | — | (7,555) | (19,927) | (28,838) | — | (173,447) |
| Total Flow in Authority System | 8,010,085 | 370,231 | 436,846 | 488,124 | 519,411 | 552,841 | 597,117 | 647,481 | 566,047 | 12,188,183 |
| Average Rate of Flow (C.F.S.) | — | — | — | — | — | — | — | — | — | — |
| To Agencies and Others | 309.4 | 602.5 | 656.0 | 695.7 | 727.0 | 804.3 | 932.4 | 764.8 | — | — |
| To Authority Storage | 0.6 | 0.9 | 18.2 | 21.9 | 5.1 | 5.0 | 39.1 | — | — | — |
| From Authority Storage | — | — | — | (0.2) | 0.0 | (0.2) | (1.6) | (22.1) | — | — |
| To Metropolitan Storage | — | — | — | 0.0 | 0.0 | 39.8 | 43.2 | 0.0 | — | — |
| From Metropolitan Storage | — | — | — | 0.0 | 0.0 | (0.3) | (27.5) | (39.8) | — | — |
| Flow in Authority System | 510.0 | 603.4 | 674.2 | 717.4 | 761.5 | 824.8 | 894.4 | 781.8 | — | — |

(1) Included in the Fallbrook P.U.D. total.

SAN DIEGO COUNTY WATER AUTHORITY

Table 8
SALES OF IMPORTED WATER - FISCAL YEAR 90-91
(All Figures in Acre Feet except as noted)

| MEMBER AGENCIES | 6 MONTH TOTAL | | | | | | 1990 |
|--|-----------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|
| | JUL. | AUG. | SEPT. | OCT. | NOV. | DEC. | |
| Buena Colorado M.W.D. | 1,666.4 | 1,511.3 | 1,595.7 | 1,896.7 | 1,593.1 | 1,534.6 | 9,797.8 |
| Carlsbad M.W.D. | 1,962.2 | 1,943.6 | 1,882.7 | 1,766.0 | 1,491.8 | 1,154.9 | 10,201.2 |
| Del Mar, City of | 189.8 | 190.1 | 151.5 | 144.3 | 109.4 | 108.5 | 893.6 |
| De Luz Heights M.W.D. | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Escondido, City of | 3,529.1 | 3,372.4 | 3,175.9 | 1,811.7 | 1,299.9 | 1,901.3 | 15,030.3 |
| Fallbrook P.U.D. | 2,104.7 | 2,379.8 | 2,107.3 | 1,938.6 | 1,503.2 | 1,308.7 | 11,342.3 |
| Helix W.D. | 5,100.9 | 3,415.2 | 3,242.7 | 4,911.4 | 3,400.3 | 4,683.5 | 24,754.0 |
| National City and South Bay I.D. | 1,775.5 | 1,733.6 | 1,555.4 | 1,702.8 | 3,627.6 | 1,393.1 | 11,788.0 |
| Oceanside, City of | 3,213.3 | 3,080.8 | 2,904.5 | 2,742.9 | 2,241.6 | 2,000.5 | 16,183.6 |
| Olivewood M.W.D. | 1,624.5 | 1,572.9 | 1,436.9 | 1,303.3 | 1,002.7 | 772.9 | 7,731.2 |
| Otay W.D. | 2,600.1 | 2,582.7 | 2,524.9 | 2,148.2 | 1,755.8 | 1,331.8 | 12,943.5 |
| Padre Dam M.W.D. | 2,368.5 | 2,358.1 | 2,193.9 | 1,707.3 | 1,569.1 | 1,257.9 | 11,454.8 |
| Pendleton Military Reservation | 14.6 | 14.3 | 15.7 | 7.9 | 13.2 | 8.4 | 74.1 |
| Poway, City of | 1,717.4 | 1,611.0 | 762.5 | 1,961.5 | 1,216.4 | 892.2 | 8,161.0 |
| Rainbow M.W.D. | 4,459.7 | 4,225.6 | 4,394.4 | 4,185.0 | 2,882.3 | 2,289.3 | 22,436.3 |
| Ranoma M.W.D. | 1,129.3 | 1,088.3 | 1,104.2 | 1,052.4 | 889.4 | 830.4 | 6,094.0 |
| Rincon Del Diablo M.W.D. | 962.6 | 908.1 | 874.9 | 808.6 | 660.1 | 598.0 | 4,812.3 |
| San Diego, City of | 21,431.8 | 20,032.9 | 16,206.8 | 10,867.7 | 10,499.4 | 7,849.2 | 86,887.8 |
| San Diego's W.D. | 910.8 | 755.4 | 716.6 | 645.8 | 504.5 | 544.0 | 4,077.1 |
| Santa Fe I.D. | 1,574.9 | 1,325.4 | 1,193.6 | 1,113.1 | 839.6 | 761.4 | 6,808.0 |
| Vallecitos C.W.D. | 1,542.2 | 1,483.4 | 1,454.6 | 1,364.8 | 968.0 | 907.0 | 7,720.0 |
| Valley Center M.W.D. | 7,407.0 | 6,803.4 | 6,949.6 | 6,123.1 | 4,273.9 | 3,740.2 | 35,297.2 |
| Yuma M.W.D. | 361.9 | 275.1 | 375.7 | 306.8 | 212.7 | 247.6 | 1,779.8 |
| Total Sales to Agencies | 67,665.2 | 62,663.4 | 56,820.0 | 50,509.9 | 42,494.0 | 36,115.4 | 316,267.9 |
| Total Sales to Others | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Sales to Agencies and Others | 67,665.2 | 62,663.4 | 56,820.0 | 50,509.9 | 42,494.0 | 36,115.4 | 316,267.9 |
| Total to Authority Storage | 0.0 | 0.0 | 0.0 | 4,647.3 | 5,729.2 | 6,755.2 | 17,131.7 |
| Total From Authority Storage | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Flow in Authority System | 67,665.2 | 62,663.4 | 56,820.0 | 55,157.21 | 48,223.2 | 42,870.6 | 333,399.6 |
| Total Evaporation Losses From Storage in San Vicente | 330.1 | 282.3 | 265.2 | 195.8 | 136.7 | 75.3 | 1,285.4 |
| Total Evaporation From Seasonal Storage Program in Otay, Ranoma, San Vicente, and Sweetwater Reservoirs | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 | 22.0 | 39.9 |
| Rate of Flow to Agencies and Others | 1,100.5 | 1,019.1 | 954.9 | 821.5 | 714.1 | 587.4 | 866.6 |
| to Authority Storage | 0.0 | 0.0 | 0.0 | 75.6 | 96.3 | 109.9 | 46.9 |
| from Authority Storage | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| in Authority System | 1,100.5 | 1,019.1 | 954.9 | 897.1 | 810.4 | 697.2 | 913.5 |

TABLES

Table 8
(Continued)

| | | | | | | 6 MONTH TOTAL | | | | | | FISCAL YEAR TOTAL | FISCAL YEAR C.F.S. |
|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|------------------|-------------------|---------------|------|------|------|-------------------|--------------------|
| JAN. | FEB. | MAR. | APR. | MAY | JUN. | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 |
| 1,229.9 | 1,200.0 | 703.2 | 1,048.1 | 819.2 | 438.6 | 5,499.0 | 15,236.8 | 21.05 | | | | | |
| 1,218.8 | 818.3 | 679.7 | 916.6 | 1,320.2 | 1,294.8 | 6,248.4 | 16,449.6 | 22.72 | | | | | |
| 94.3 | 92.3 | 62.0 | 71.7 | 100.6 | 124.9 | 545.8 | 1,439.4 | 1.99 | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | | | | | |
| 1,689.7 | 2,011.7 | 554.8 | 1,136.7 | 1,910.9 | 1,748.6 | 9,052.4 | 24,082.7 | 33.26 | | | | | |
| 840.2 | 1,007.9 | 251.1 | 620.9 | 1,184.1 | 1,176.4 | 5,080.6 | 16,422.9 | 22.68 | | | | | |
| 8,843.3 | 2,771.8 | 1,608.0 | 1,606.4 | 0.0 | 1,694.1 | 16,523.6 | 41,277.6 | 57.02 | | | | | |
| 3,794.5 | 3,357.1 | 2,322.8 | 1,209.6 | 1,329.0 | 10.3 | 12,023.3 | 23,811.3 | 32.89 | | | | | |
| 1,642.9 | 1,641.7 | 1,054.1 | 1,513.0 | 2,197.8 | 2,258.3 | 10,307.8 | 26,491.4 | 36.59 | | | | | |
| 564.7 | 720.0 | 284.8 | 610.2 | 1,010.5 | 1,081.5 | 4,271.7 | 12,002.9 | 16.58 | | | | | |
| 1,212.5 | 1,266.8 | 720.3 | 1,162.9 | 1,688.3 | 1,658.0 | 7,708.8 | 20,652.3 | 28.53 | | | | | |
| 1,069.7 | 1,140.2 | 688.3 | 956.6 | 1,505.1 | 1,455.6 | 6,815.5 | 18,270.3 | 25.24 | | | | | |
| 5.0 | 3.6 | 5.6 | 4.6 | 11.3 | 9.5 | 39.6 | 113.7 | 0.16 | | | | | |
| 756.2 | 708.3 | 347.3 | 643.2 | 923.7 | 1,106.2 | 4,484.9 | 12,645.9 | 17.47 | | | | | |
| 2,073.5 | 1,889.4 | 1,57.5 | 1,196.3 | 2,353.4 | 2,393.3 | 10,023.4 | 32,459.7 | 44.84 | | | | | |
| 787.3 | 1,076.6 | 655.6 | 1,000.3 | 921.2 | 858.4 | 5,299.4 | 11,393.4 | 15.74 | | | | | |
| 460.6 | 504.3 | 219.1 | 388.4 | 619.6 | 630.3 | 2,822.3 | 7,634.6 | 10.55 | | | | | |
| 7,820.0 | 13,273.2 | 12,988.7 | 13,710.2 | 18,582.7 | 38,727.3 | 105,002.1 | 191,989.9 | 265.19 | | | | | |
| 445.5 | 468.3 | 216.8 | 395.0 | 475.0 | 352.6 | 2,353.2 | 6,430.3 | 8.88 | | | | | |
| 571.8 | 698.7 | 159.4 | 467.7 | 758.4 | 600.2 | 3,256.2 | 10,064.2 | 13.90 | | | | | |
| 840.0 | 769.9 | 389.9 | 387.2 | 941.4 | 1,002.1 | 4,530.5 | 12,250.5 | 16.92 | | | | | |
| 2,299.9 | 3,266.8 | 348.5 | 1,680.7 | 3,646.1 | 3,814.9 | 15,056.9 | 50,354.1 | 69.55 | | | | | |
| 156.3 | 109.8 | 0.0 | 0.0 | 106.0 | 89.8 | 461.9 | 2,341.7 | 3.10 | | | | | |
| 38,376.6 | 38,796.7 | 24,417.5 | 30,926.3 | 42,404.5 | 62,525.7 | 237,447.3 | 553,715.2 | 764.83 | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | | | | | |
| 38,376.6 | 38,796.7 | 24,417.5 | 30,926.3 | 42,404.5 | 62,525.7 | 237,447.3 | 553,715.2 | 764.83 | | | | | |
| 5,550.8 | 4,452.8 | 1,126.4 | 0.0 | 0.0 | 70.0 | 11,200.0 | 28,331.7 | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | (16,000.0) | 0.0 | (16,000.0) | | | | | | |
| 43,927.4 | 43,249.5 | 25,543.9 | 30,926.3 | 42,404.5 | 46,595.7 | 248,647.3 | 566,046.9 | | | | | | |
| 74.2 | 120.8 | 136.7 | 190.6 | 229.8 | 256.5 | 1,008.6 | 2,294.0 | | | | | | |
| 51.0 | 104.5 | 175.5 | 205.5 | 285.3 | 280.6 | 1,102.4 | 1,142.3 | | | | | | |
| 624.1 | 698.6 | 397.1 | 519.7 | 689.6 | 1,050.8 | 661.4 | 764.8 | | | | | | |
| 90.3 | 80.2 | 18.3 | 0.0 | 0.0 | 1.2 | 31.2 | 39.1 | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | (268.9) | 0.0 | (22.1) | | | | | | |
| 714.4 | 778.8 | 415.4 | 519.7 | 689.6 | 783.1 | 692.6 | 781.8 | | | | | | |

SAN DIEGO COUNTY WATER AUTHORITY

Table 9
ASSESSED VALUATIONS AND TAX RATES
Fiscal Years 1945-46 to 1990-91

| 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 | 32,340,680 | 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 | 48,451,940 | 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 | 143,317,290 | 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 | 151,886,520 | 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 | 1,567,290,480 | 212,223,550 | 147,740,730 | 1,927,254,760 | 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 | 210,839,109 | 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 | 231,191,301 | 306,608,099 | 3,275,533,487 | 0.10 | 0.09 |
| 1972-73 | 3,061,010,163 | 225,224,650 | 347,857,938 | 3,634,092,751 | 0.11 | 0.10 |
| 1973-74 | 3,481,734,238 | 239,346,070 | 393,300,174 | 4,114,380,482 | 0.11 | 0.11 |
| 1974-75 | 4,075,823,685 | 249,562,970 | 450,174,627 | 4,775,561,282 | 0.11 | 0.11 |
| 1975-76 | 4,629,303,071 | 283,156,410 | 503,493,823 | 5,415,953,304 | 0.11 | 0.11 |
| 1976-77 | 5,230,851,497 | 311,553,680 | 545,425,038 | 6,087,830,215 | 0.11 | 0.11 |
| 1977-78 | 6,121,864,034 | 376,899,840 | 607,393,849 | 7,106,157,723 | 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 | 883,834,623 | 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 |
| 1985-86 | 62,444,546,244 | 6,086,772,100 | 2,856,824,972 | 71,388,143,316 | 0.005310 | 0.007090 |
| 1986-87 | 70,584,788,216 | 7,095,945,340 | 2,952,629,417 | 80,633,362,973 | 0.00461 | 0.005310 |
| 1987-88 | 78,866,134,523 | 7,466,884,810 | 3,660,711,360 | 89,993,730,693 | 0.004 | 0.00461 |
| 1988-89 (5) | 87,712,729,304 | 91,081,209 | 4,189,167,191 | 91,992,977,704 | 0.00403 | 0.004 |
| 1989-90 | 98,726,472,817 | 98,088,505 | 4,861,091,518 | 103,686,252,840 | 0.00432 | 0.00403 |
| 1990-91 | 111,400,613,016 | 94,328,288 | 5,633,160,953 | 117,128,102,257 | 0.00395 | 0.00432 |

- (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.
- (5) Public utilities assessed valuation and procedures revised by State Board of Equalization.

TABLES

Table 9
(Continued)
TAX LEVIES AND TAX COLLECTIONS BY FISCAL YEAR
(Includes in Lieu of Taxes)
Fiscal Years 1945-46 to 1990-91

| Tax Levy | Collection of Current Year's Taxes During Fiscal Year | Percentage of Levy Collected During Fiscal Year | Adjustments to Prior Years' Levies | Collection of Prior Year's Taxes During Fiscal Year | Total Tax Collections | Accumulated Delinquent Taxes | Ratio |
|-----------|---|---|------------------------------------|---|-----------------------|------------------------------|-------------------------------|
| | | | | | | | Accumulated Taxes to Tax Levy |
| \$ 96,131 | \$ 94,656 | 98.47 | - | - | \$ 94,656 | \$ 1,474 | 1.53 |
| 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 | 30,874 | 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 | (2,68) | 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 | (4,753) | 42,611 | 4,640,222 | 154,107 | 2.32 |
| 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 | 176,805 | 283,045 | 7,322,653 | 298,895 | 4.13 |
| 7,181,483 | 7,092,760 | 98.76 | 40,938 | 158,696 | 7,251,456 | 269,860 | 3.76 |
| 6,269,310 | 6,053,170 | 96.55 | 53,304 | 166,944 | 6,220,114 | 372,360 | 5.94 |
| 6,309,666 | 6,057,897 | 96.01 | 95,635 | 462,995 | 6,525,892 | 251,769 | 3.99 |
| 6,044,731 | 6,106,942 | 90.84 | 380,264 | 180,037 | 6,286,979 | 389,785 | 6.44 |
| 5,153,457 | 4,720,332 | 91.60 | (149,925) | 239,860 | 5,350,208 | 433,125 | 8.40 |
| 4,223,919 | 4,112,632 | 99.30 | 177,808 | 207,775 | 4,498,215 | 265,961 | 6.30 |

SAN DIEGO COUNTY WATER AUTHORITY

Table 10
REVENUE DEDICATED TO FINANCE
CAPITAL IMPROVEMENT PROGRAM
Fiscal Year 1990-91

| MEMBER AGENCIES | Water Avail | Total | Capacity | Total |
|--------------------------|--------------------------------------|---|--------------------------------------|------------------------------------|
| | Charges Collections FY 1990-91 | Amount Paid By Each Member Agency to 6-30-91 | Charges Collections FY 1990-91 | Dedicated Revenue to 6-30-91 |
| Bueno Colorado M.W.D. | \$ 407,254 | \$ 810,803 | \$ 342,880 | \$ 1,153,683 |
| Carlsbad M.W.D. | 282,982 | 621,904 | 420,248 | 1,042,152 |
| Del Mar, City of | 21,398 | 55,506 | 15,680 | 71,186 |
| Escondido, City of | 186,414 | 371,666 | 222,880 | 594,546 |
| Fallbrook | 247,587 | 497,506 | 127,680 | 625,186 |
| Helix W.D. | 612,456 | 1,222,086 | 113,440 | 1,335,526 |
| National City, City of | 79,887 | 159,723 | 0 | 159,723 |
| Oceanside, City of | 421,976 | 851,197 | 831,536 | 1,682,733 |
| Olivenhain M.W.D. | 342,718 | 688,349 | 84,800 | 773,149 |
| Otay W.D. | 768,774 | 1,484,918 | 620,480 | 2,105,398 |
| Padre Dam M.W.D. | 601,135 | 1,220,510 | 165,760 | 1,386,270 |
| Pendleton Military Res. | 2,610 | 5,494 | 0 | 5,494 |
| Poway, City of | 264,551 | 525,644 | 209,920 | 735,564 |
| Rainbow M.W.D. | 461,726 | 922,575 | 800 | 923,375 |
| Ramona M.W.D. | 423,342 | 859,386 | 63,200 | 922,586 |
| Rincon del Diablo M.W.D. | 264,855 | 542,525 | 36,800 | 579,325 |
| San Diego, City of | 3,331,913 | 6,404,342 | 1,935,340 | 8,339,682 |
| San Dieguito W.D. | 121,682 | 242,243 | 30,080 | 272,323 |
| Santa Fe I.D. | 132,015 | 326,601 | 12,960 | 339,561 |
| South Bay I.D. | 277,562 | 556,557 | 82,560 | 639,117 |
| Vallecitos M.W.D. | 307,466 | 605,342 | 422,400 | 1,027,742 |
| Valley Center M.W.D. | 614,444 | 1,315,496 | 271,680 | 1,587,176 |
| Yuima M.W.D. | 99,925 | 205,718 | 7,840 | 213,558 |
| TOTAL | 10,274,672 | 20,496,091 | 6,018,964 | 26,515,055 |

TABLES

Table 11
SAN JACINTO TUNNEL WEST PORTAL
CHEMICAL CHARACTERISTICS OF NATURAL COLORADO RIVER WATER
Year Ending June 30, 1991
Samples Taken at Entrance of San Diego Aqueduct by M.W.D.
and Analysis by District Laboratory

| Month | Total Hardness as mg/l CaCO ₃ | Alkalinity as mg/l Total | Magnesium as mg/l | (PH) | Temperature When Sampled | |
|-----------|---|--------------------------------|----------------------|----------------------------------|-----------------------------|----|
| | | | | Hydrogen Ion Concentration | °C | °F |
| July | 297 | 134 | 28.5 | 8.41 | 25 | 77 |
| August | 292 | 130 | 28.5 | 8.33 | 26 | 79 |
| September | 297 | 127 | 28.5 | 8.35 | 26 | 79 |
| October | 295 | 130 | 28.5 | 8.27 | 24 | 75 |
| November | 299 | 132 | 29.0 | 8.26 | 19 | 66 |
| December | 304 | 133 | 29.5 | 8.26 | 15 | 59 |
| January | 304 | 134 | 29.0 | 8.27 | 10 | 50 |
| February | 304 | 135 | 29.0 | 8.23 | 12 | 54 |
| March | 305 | 134 | 28.5 | 8.26 | 15 | 59 |
| April | 304 | 132 | 29.0 | 8.39 | 18 | 64 |
| May | 309 | 134 | 29.5 | 8.33 | 20 | 68 |
| June | 309 | 136 | 29.5 | 8.34 | 23 | 73 |

ANALYSIS-YEAR ENDING JUNE 30, 1991
(mg/l Except PH, Conductivity, and Temperature)

| Constituents | Symbol | ANALYSIS | | |
|---------------------------------------|---------------------|----------|---------|---------|
| | | Average | Maximum | Minimum |
| Silica | (SiO ₂) | 9.5 | 10.7 | 8.1 |
| Calcium | (Ca) | 73 | 75 | 70 |
| Magnesium | (Mg) | 28.9 | 29.5 | 28.5 |
| Sodium | (Na) | 91 | 95 | 88 |
| Potassium | (K) | 4.3 | 4.8 | 4.1 |
| Carbonate | (CO ₃) | 0 | 2 | 1 |
| Bicarbonate | (HCO ₃) | 161 | 166 | 155 |
| Sulfate | (SO ₄) | 252 | 261 | 243 |
| Chloride | (Cl) | 7 | 85 | 75 |
| Nitrate | (NO ₃) | 0.70 | 0.90 | 0.45 |
| Fluoride | (F) | 0.30 | 0.34 | 0.27 |
| Boron | (B) | 0.02 | 0.19 | - |
| Total Dissolved Solids | | 621 | 642 | 602 |
| Hardness as CaCO ₃ - Total | | 302 | 309 | 292 |
| Alkalinity - Total | | 133 | 136 | 127 |
| Free Carbon Dioxide | (CO ₂) | 1.4 | 1.6 | 1.1 |
| Hydrogen Ion Concentration | (PH) | 8.31 | 8.41 | 8.23 |
| Electrical Conductivity umho/cm | | 985 | 1,020 | 942 |
| Temperature °C | | 19 | 26 | 10 |

SAN DIEGO COUNTY WATER AUTHORITY

Table 12
CHEMICAL CHARACTERISTICS OF BLENDED TREATED WATER
Year Ending June 30, 1991
Samples Taken at Entrance of San Diego Aqueduct by M.W.D.
and Analysis by District Laboratory

| Month | Total Hardness as mg/l CaCO ₃ | Alkalinity as mg/l Total | Magnesium as mg/l | (PH) Hydrogen Ion Concentration | Temperature When Sampled | |
|-----------|--|--------------------------|-------------------|---------------------------------|--------------------------|----|
| | | | | | °C | °F |
| July | 231 | 113 | 24.0 | 8.50 | 26 | 79 |
| August | 224 | 111 | 23.5 | 8.45 | 26 | 79 |
| September | 220 | 110 | 23.0 | 8.38 | 25 | 77 |
| October | 203 | 106 | 21.5 | 8.34 | 22 | 72 |
| November | 196 | 105 | 21.0 | 8.19 | 17 | 63 |
| December | 215 | 112 | 22.5 | 8.16 | 13 | 55 |
| January | 262 | 124 | 26.0 | 8.39 | 11 | 52 |
| February | 288 | 132 | 28.0 | 8.41 | 12 | 54 |
| March | 297 | 131 | 28.5 | 8.32 | 14 | 57 |
| April | 300 | 131 | 28.0 | 8.23 | 16 | 61 |
| May | 306 | 133 | 29.5 | 8.33 | 20 | 68 |
| June | 311 | 134 | 29.5 | 8.26 | 23 | 73 |

ANALYSIS-YEAR ENDING JUNE 30, 1991
(mg/l Except PH, Conductivity, and Temperature)

| Constituents | Symbol | ANALYSIS | | |
|--------------------------------------|---------------------|----------|---------|---------|
| | | Average | Maximum | Minimum |
| Silica | (SiO ₂) | 10.4 | 12.4 | 7.1 |
| Calcium | (Ca) | 60 | 76 | 44 |
| Magnesium | (Mg) | 25.4 | 29.5 | 21.0 |
| Sodium | (Na) | 86 | 96 | 77 |
| Potassium | (K) | 4.2 | 4.7 | 3.8 |
| Carbonate | (CO ₃) | 1 | 2 | 0 |
| Bicarbonate | (HCO ₃) | 143 | 163 | 124 |
| Sulfate | (SO ₄) | 195 | 258 | 130 |
| Chloride | (Cl) | 87 | 94 | 81 |
| Nitrate | (NO ₃) | 0.53 | 0.75 | 0.10 |
| Fluoride | (F) | 0.24 | 0.33 | 0.16 |
| Boron | (B) | 0.02 | 0.21 | - |
| Total Dissolved Solids | | 542 | 637 | 442 |
| Hardness as CaCO ₃ -Total | | 254 | 311 | 196 |
| Alkalinity-Total | | 120 | 134 | 105 |
| Free Carbon Dioxide | (CO ₂) | 1.2 | 1.6 | 0.7 |
| Hydrogen Ion Concentration | (PH) | 8.33 | 8.50 | 8.16 |
| Electrical Conductivity umho/cm | | 995 | 1,028 | 759 |
| Temperature °C | | 19 | 26 | 11 |

TABLES

Table 13
ASSESSED VALUATIONS AND TAX RATES OF THE
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

| Fiscal Year | Area (acres) | Assessed Valuation Total (1) | Tax Rate | |
|-------------|--------------|------------------------------|-------------------|---------------------|
| | | | Per \$100 Secured | Per \$100 Unsecured |
| 1929-30 | - | \$ 2,439,836,920 | 0.04 | 0.00 |
| 1930-31 | - | 2,631,684,250 | .03 | .04 |
| 1931-32 | - | 2,382,184,445 | .03 | .03 |
| 1932-33 | - | 1,936,051,180 | .04 | .03 |
| 1933-34 | - | 1,654,803,890 | .04 | .04 |
| 1934-35 | - | 1,587,147,565 | .10 | .04 |
| 1935-36 | - | 1,873,531,030 | .20 | .10 |
| 1936-37 | - | 1,789,160,685 | .37 | .20 |
| 1937-38 | - | 1,827,785,725 | .40 | .37 |
| 1938-39 | - | 1,896,966,255 | .40 | .40 |
| 1939-40 | - | 1,910,152,190 | .42 | .40 |
| 1940-41 | 589,588 | 1,841,248,450 | .49 | .42 |
| 1941-42 | 999,875 | 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 | 6,015,691,580 | .25 | .28 |
| 1954-55 | 1,795,651 | 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 | 17,757,286,740 | .14 | .14 |
| 1965-66 | 2,890,266 | 19,143,157,788 | .14 | .14 |
| 1966-67 | 2,901,421 | 20,979,150,185 | .14 | .14 |
| 1967-68 | 3,061,855 | 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 | 35,941,981,265 | .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 | 3,270,800 | 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 | 3,280,954 | 419,859,047,899 | .0156% | .0237% |
| 1985-86 | 3,282,745 | 458,782,059,816 | .0164% | .0156% |
| 1986-87 | 3,286,400 | 505,419,663,679 | .0148% | .0164% |
| 1987-88 | 3,287,309 | 564,692,806,207 | .0112% | .0148% |
| 1988-89 | 3,288,247 | 596,900,358,958 | .0110% | .0112% |
| 1989-90 | 3,288,754 | 671,699,558,661 | .0121% | .0110% |
| 1990-91 | 3,291,520 | 750,992,873,309 | .0097% | .0121% |
| 1991-92 | | 820,543,619,722 | .0089% | .0097% |

(1) Includes secured, unsecured, and public utility valuations.
(2) First year in which Authority assessed valuation was included in District's assessed valuation.
(3) Effective FY 1981-82, assessed valuation reported at 100% of full value, and tax rates levied in percentage of full assessed value.

SAN DIEGO COUNTY WATER AUTHORITY

TABLES

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

| Member Agencies | Date of Annexation | Remaining Balance at 6/30/91 |
|---|--------------------|------------------------------|
| Annexation Charges Outstanding | | |
| Del Mar, City of | 11-23-62 | \$ 40,556.15 |
| De Luz M.W.D. | 6-28-67 | 3,406,911.58 |
| No. 1 Annexation of 1969 | 10-15-69 | 647,218.77 |
| Fallbrook P.U.D. | | |
| No. 2 Annexation of 1958 | 11-24-58 | 0 |
| Fallbrook Community Air Park | 12-22-69 | 96,936.26* |
| Helix Water District | | |
| Helix-Watson Ranch Annexation | 2-20-59 | 0 |
| Helix-Sunny Slope Hts. Annexation | 9-17-59 | 0 |
| Olivenhain M.W.D. | 7-25-60 | 0 |
| No. 1 Annexation of 1965 | 2-11-65 | 85,187.96 |
| No. 4 Annexation of 1967 | 11-13-67 | 41,962.33 |
| Otay W.D. | | |
| No. 3 Annexation of 1960 | 2-11-65 | 0 |
| Padre Dam M.W.D. | | |
| No. 2 Annexation of 1959 | 11-6-59 | 0 |
| No. 3 Annexation of 1960 | 10-17-60 | 0 |
| No. 4 Annexation of 1970 | 8-3-70 | 88,304.55 |
| Poway, City of | | |
| No. 1 Annexation of 1959 | 9-21-59 | 0 |
| Rainbow M.W.D. | | |
| No. 1 Annexation of 1959 | 5-12-59 | 0 |
| No. 3 Annexation of 1967 | 12-6-67 | 3,639,936.14* |
| No. 5 Annexation of 1973 | 11-22-73 | 8,856.05 |
| Ramona M.W.D. | | |
| No. 1 Annexation of 1959 | 8-27-57 | 0 |
| No. 2 Annexation of 1961 | 5-29-59 | 0 |
| No. 3 Annexation of 1963 | 9-22-61 | 508.53 |
| No. 4 Annexation of 1967 | 9-20-63 | 1,037.93 |
| No. 5 Annexation of 1972 | 11-12-67 | 413,788.41 |
| Rincon del Diablo M.W.D. | 5-17-72 | 479,333.55 |
| No. 4 Annexation of 1972 | 11-2-72 | 28,385.92* |
| San Diego W.D. | | |
| No. 1 Annexation of 1959 | 9-15-59 | 0 |
| No. 2 Annexation of 1972 | 12-8-72 | 160,015.85* |
| Valley Center M.W.D. | | |
| No. 1 Annexation of 1960 | 12-12-60 | 0 |
| No. 2 Annexation of 1967 | 11-29-67 | 23,956.62 |
| No. 3 Annexation of 1967 | 11-30-67 | 494,107.42 |
| Yuma M.W.D. | 12-16-63 | 74,845.78 |
| No. 1 Annexation of 1967 | 11-21-67 | 30,596.63 |
| No. 2 Annexation of 1969 | 11-24-69 | 9,691.38 |
| Pendleton Military Res. Nuclear Generating Plant | 12-16-77 | 1,757,667.12 |
| Total | | \$ 11,526,804.93 |
| Annexation charges received from other annexed areas not listed above having no remaining balance | | \$ 23,595,468.00 |

* 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.).

Table 15
WATER SALES BY METROPOLITAN WATER DISTRICT
Fiscal Years 1941-42 to 1990-91

| Year | To Member Municipalities | | | | | | |
|----------|--------------------------|---------|---------------|---------|-------------------|-----------|-------------|
| | Natural Water | | Treated Water | | Total to Agencies | To Others | Total |
| | Acre Feet | Percent | Acre Feet | Percent | Acre Feet | Acre Feet | Acre Feet |
| 1941-42 | 0 | 0 | 9,372.6 | 100 | 9,372.6 | 70.7 | 9,443.3 |
| 1942-43 | 0 | 0 | 14,457.8 | 100 | 14,457.8 | 2,626.4 | 17,084.2 |
| 1943-44 | 0 | 0 | 15,874.9 | 100 | 15,874.9 | 3,301.8 | 19,176.7 |
| 1944-45 | 0 | 0 | 30,591.3 | 100 | 30,591.3 | 1,715.7 | 32,307.0 |
| 1945-46 | 0 | 0 | 46,685.8 | 100 | 46,685.8 | 1,264.2 | 47,950.0 |
| 1946-47 | 0 | 0 | 59,861.8 | 100 | 59,861.8 | 524.0 | 60,385.8 |
| 1947-48 | 41,093.5 | 36 | 71,995.4 | 64 | 113,088.9 | 116.8 | 113,255.7 |
| 1948-49 | 71,642.6 | 49 | 73,237.1 | 51 | 144,879.7 | 128.4 | 145,008.1 |
| 1949-50 | 69,308.0 | 49 | 72,936.0 | 51 | 142,244.0 | 23,371.6 | 165,615.6 |
| 1950-51 | 75,000.9 | 54 | 63,493.1 | 46 | 138,494.0 | 26,978.6 | 165,472.6 |
| 1951-52 | 66,674.3 | 44 | 84,616.1 | 56 | 151,290.4 | 42,464.2 | 193,754.6 |
| 1952-53 | 30,845.3 | 24 | 99,589.6 | 76 | 130,434.9 | 31,682.4 | 162,117.3 |
| 1953-54 | 120,773.0 | 51 | 115,550.6 | 49 | 236,323.6 | 7,820.7 | 244,144.3 |
| 1954-55 | 192,544.7 | 59 | 134,923.3 | 41 | 327,468.0 | 58,184.5 | 385,652.5 |
| 1955-56 | 190,337.2 | 53 | 169,506.4 | 47 | 359,843.6 | 45,562.9 | 405,406.5 |
| 1956-57 | 286,059.1 | 60 | 191,110.7 | 40 | 477,169.8 | 66,074.1 | 543,243.9 |
| 1957-58 | 266,024.1 | 57 | 197,900.0 | 43 | 463,924.1 | 75,612.8 | 539,536.9 |
| 1958-59 | 244,354.2 | 46 | 282,248.1 | 54 | 526,602.3 | 74,107.1 | 600,709.4 |
| 1959-60 | 425,019.0 | 58 | 304,874.8 | 42 | 729,893.8 | 6,523.2 | 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 | 388,533.9 | 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 | 1,574,504.0** | 934.0 | 1,575,438.0 |
| 1985-86 | 500,955.0 | 30 | 1,145,856.0 | 70 | 1,646,811.0** | 346.0 | 1,647,157.0 |
| 1986-87 | 568,812.9 | 31 | 1,252,783.6 | 69 | 1,825,921.5** | 1,508.0 | 1,827,429.5 |
| 1987-88 | 598,722.0 | 31 | 1,322,484.0 | 69 | 1,926,702.0** | 675.0 | 1,927,377.0 |
| 1988-89 | 745,767.3** | 35 | 1,362,428.6 | 65 | 2,108,195.9** | 694.0 | 2,108,889.9 |
| 1989-90 | 1,035,681.0** | 41 | 1,464,980.0 | 59 | 2,500,661.0** | 783.0 | 2,501,444.0 |
| 1990-91 | 889,972.0** | | 1,373,777.0 | | 2,263,749.0** | 0.0 | 2,263,749.0 |

* Revised

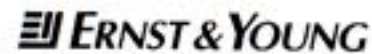
** Includes deliveries of reclaimed water to Las Virgenes, Coastal MWD, Long Beach, and MWD of Orange Co.

Table 16

WATER DELIVERIES AND LOCAL SUPPLIES
METROPOLITAN WATER DISTRICT CONSTITUENT AREAS
 Figures Furnished by Metropolitan Water District
 (Acre Feet)

| (1) M.W.D. Member Agencies | (2) Fiscal Year 1989-1990 | | | (3) Fiscal Year 1989-1990 | | | (4) Fiscal Year 1990-1991 | | | (5) Fiscal Year 1990-1991 | | | (7) Total Water | (8) Difference in Totals | (9) Percent Difference of Totals | (10) Difference of M.W.D. Supply | (11) Percent Difference of M.W.D. Supply |
|-------------------------------------|------------------------------|--------|------------------|------------------------------|------------------|------------------|------------------------------|--------------|-----------------|------------------------------|-------|--------|-----------------------|-----------------------------------|---|---|--|
| | Local | | M.W.D. | Local | | M.W.D. | Local | | M.W.D. | Local | | M.W.D. | | | | | |
| | Water | Supply | Water | Supply | Water | Supply | Water | Supply | Water | Supply | Water | Supply | | | | | |
| Anaheim..... | 43,689 | | 29,475 | 41,592 | 29,576 | 71,168 | -1,996 | -2.73 | 101 | 0.34 | | | | | | | |
| Beverly Hills..... | 0 | | 14,867 | 0 | 13,760 | -1,107 | -7.45 | -1,107 | -7.45 | | | | | | | | |
| Burbank..... | 371 | | 23,217 | 761 | 19,795 | 20,556 | -3,032 | -12.85 | -3,422 | -14.74 | | | | | | | |
| Calleguas M.W.D..... | 29,637 | | 111,066 | 140,723 | 102,797 | 127,162 | -13,561 | -9.64 | -8,289 | -7.46 | | | | | | | |
| Central Basin M.W.D..... | 125,350 | | 149,735 | 127,630 | 136,699 | 264,329 | -10,756 | -3.91 | -13,036 | -8.71 | | | | | | | |
| Chino Basin M.W.D..... | 149,099 | | 68,664 | 217,763 | 148,685 | 201,067 | -16,696 | -7.67 | -16,282 | -23.71 | | | | | | | |
| Costal M.W.D..... | 12,635 | | 48,318 | 18,182 | 44,748 | 62,930 | 1,977 | 3.24 | -3,570 | -7.39 | | | | | | | |
| Compton..... | 6,123 | | 5,536 | 11,659 | 4,332 | 12,601 | 942 | 8.08 | -1,204 | -21.75 | | | | | | | |
| Eastern M.W.D..... | 101,285 | | 55,449 | 156,734 | 55,919 | 98,106 | -58,538 | -37.35 | 470 | 0.85 | | | | | | | |
| Foothill M.W.D..... | 6,229 | | 10,886 | 17,115 | 9,550 | 15,412 | -1,703 | -9.95 | -1,336 | -12.27 | | | | | | | |
| Fullerton..... | 19,422 | | 14,511 | 33,933 | 15,986 | 31,159 | -2,774 | -8.17 | 662 | 4.56 | | | | | | | |
| Glendale..... | 3,305 | | 28,848 | 32,153 | 3,955 | 28,903 | -3,250 | -10.11 | -3,900 | -13.52 | | | | | | | |
| Las Virgenes..... | 1,414 | | 24,671 | 26,085 | 1,820 | 25,612 | -473 | -1.81 | -879 | -3.56 | | | | | | | |
| Long Beach..... | 29,336 | | 51,030 | 80,366 | 28,381 | 72,705 | -7,661 | -9.53 | -6,706 | -13.14 | | | | | | | |
| Los Angeles..... | 300,810 | | 385,065 | 685,875 | 341,376 | 747,948 | 62,073 | 9.05 | 21,507 | 5.59 | | | | | | | |
| M.W.D. of Orange County..... | 163,946 | | 299,409 | 463,355 | 180,884 | 429,206 | -34,149 | -7.37 | -51,087 | -17.06 | | | | | | | |
| Pasadena..... | 12,066 | | 25,339 | 37,405 | 14,360 | 36,850 | -555 | -1.48 | -2,849 | -11.24 | | | | | | | |
| San Diego C.W.A..... | 44,173 | | 672,844 | 717,017 | 39,463 | 661,592 | -115,425 | -16.10 | -110,715 | -16.45 | | | | | | | |
| San Fernando..... | 2,780 | | 1,007 | 3,787 | 2,504 | 3,553 | -234 | -6.18 | 42 | 4.17 | | | | | | | |
| San Marino..... | 5,397 | | 1,427 | 6,824 | 1,700 | 6,748 | -76 | -1.11 | 273 | 19.13 | | | | | | | |
| Santa Ana..... | 31,419 | | 20,228 | 51,647 | 17,840 | 47,794 | -3,853 | -7.46 | -2,388 | -11.81 | | | | | | | |
| Santa Monica..... | 5,371 | | 11,690 | 17,061 | 9,802 | 14,550 | -2,511 | -14.72 | -1,888 | -16.15 | | | | | | | |
| Three Valleys M.W.D..... | 62,358 | | 75,877 | 138,235 | 52,104 | 124,297 | -13,938 | -10.08 | -3,684 | -4.86 | | | | | | | |
| Torrance..... | 7,482 | | 23,804 | 31,286 | 20,229 | 23,123 | -8,163 | -26.09 | -3,575 | -15.02 | | | | | | | |
| Upper San Gabriel Valley M.W.D..... | 120,691 | | 70,397 | 191,088 | 105,420 | 176,023 | -15,065 | -7.88 | 206 | 0.29 | | | | | | | |
| West Basin M.W.D..... | 17,182 | | 186,023 | 203,205 | 169,422 | 186,433 | -16,772 | -8.25 | -16,601 | -8.92 | | | | | | | |
| Western M.W.D. of Riverside Co..... | 198,742 | | 89,828 | 288,570 | 197,159 | 280,762 | -7,808 | -2.71 | -6,225 | -6.93 | | | | | | | |
| Totals | 1,500,312 | | 2,499,231 | 3,999,543 | 1,460,690 | 3,724,439 | -275,104 | -6.88 | -235,482 | -9.42 | | | | | | | |

SAN DIEGO COUNTY WATER AUTHORITY
FINANCIAL STATEMENTS
JUNE 30, 1991
 with
REPORT OF INDEPENDENT AUDITORS



CONTENTS

| | |
|---|---|
| <u>Report of independent auditors</u> | 1 |
| <u>Financial statements</u> | |
| Balance sheets | 2 |
| Statements of revenues, expenses and changes in undesignated retained earnings | 3 |
| Statements of cash flows | 4 |
| Notes to financial statements | 5 |



■ Suite 1200
301 West Broadway
San Diego, California 92101

■ Phone: 619 236 3100
Fax: 619 239 8189

Report of Independent Auditors

The Board of Directors
San Diego County Water Authority

We have audited the accompanying balance sheets of the San Diego County Water Authority as of June 30, 1991 and 1990, and the related statements of revenues, expenses and changes in undesignated retained earnings, and cash flows for the years then ended. These financial statements are the responsibility of the Authority's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the San Diego County Water Authority at June 30, 1991 and 1990, and the results of its operations and its cash flows for the years then ended in conformity with generally accepted accounting principles.

Ernst + Young

September 11, 1991

SAN DIEGO COUNTY WATER AUTHORITY

BALANCE SHEETS

June 30, 1991 and 1990

| | 1991 | 1990 |
|---|-----------------------|-----------------------|
| ASSETS | | |
| Current assets: | | |
| Cash and cash equivalents (Note 2) | \$ 11,176,000 | \$ 14,345,000 |
| Short-term investments (Note 2) | - | 20,200,000 |
| Accounts and taxes receivable (Notes 1 and 3) | 29,615,000 | 22,134,000 |
| Inventories (Note 1) | 8,414,000 | 6,497,000 |
| Other current assets | 77,000 | 75,000 |
| Total current assets | <u>49,282,000</u> | <u>63,241,000</u> |
| Restricted cash and investments (Notes 2 and 3) | 174,209,000 | 141,258,000 |
| Property, plant and equipment, net (Notes 1 and 6) | 183,478,000 | 156,960,000 |
| Deferred compensation deposit (Note 5) | 1,674,000 | 1,590,000 |
| Other assets (Note 3) | 3,603,000 | 3,618,000 |
| | <u>\$ 412,246,000</u> | <u>\$ 366,657,000</u> |
| LIABILITIES AND EQUITY | | |
| Current liabilities: | | |
| Accounts payable and accrued liabilities | \$ 37,413,000 | \$ 29,820,000 |
| Current maturities of long-term debt (Note 3) | 3,439,000 | 3,335,000 |
| Total current liabilities | <u>40,852,000</u> | <u>33,155,000</u> |
| Long-term debt (Note 3) | 161,576,000 | 163,859,000 |
| Deferred compensation (Note 5) | 1,674,000 | 1,590,000 |
| Commitments and contingencies (Notes 1 and 6) | | |
| Equity: | | |
| Contributions in aid of construction (Note 1) | 5,464,000 | 5,216,000 |
| Retained earnings (Note 3): | | |
| Designated | 54,153,000 | 31,000,000 |
| Undesignated | 148,527,000 | 131,837,000 |
| Total equity | <u>208,144,000</u> | <u>168,053,000</u> |
| | <u>\$ 412,246,000</u> | <u>\$ 366,657,000</u> |

See accompanying notes.

SAN DIEGO COUNTY WATER AUTHORITY
STATEMENTS OF REVENUES, EXPENSES AND CHANGES
IN UNDESIGNATED RETAINED EARNINGS

Years ended June 30, 1991 and 1990

| | 1991 | 1990 |
|--|-----------------------|-----------------------|
| Water sales | \$ 122,062,000 | \$ 154,758,000 |
| Operating expenses: | | |
| Cost of sales | 96,713,000 | 125,309,000 |
| Depreciation and amortization | 4,143,000 | 2,229,000 |
| Operations and maintenance | 3,164,000 | 3,150,000 |
| Planning and reclamation | 2,798,000 | 1,763,000 |
| General and administrative | 4,711,000 | 3,639,000 |
| Total operating expenses | <u>111,529,000</u> | <u>136,090,000</u> |
| Operating income | 10,533,000 | 18,668,000 |
| Other revenues (expenses): | | |
| Property taxes and in-lieu charges (Note 1) | 8,200,000 | 8,028,000 |
| Water availability and capacity charges (Note 1) | 16,690,000 | 10,706,000 |
| Interest expense (Note 1) | (8,948,000) | (10,287,000) |
| Interest income | 13,368,000 | 12,523,000 |
| Total other revenues | <u>29,310,000</u> | <u>20,970,000</u> |
| Net income | 39,843,000 | 39,638,000 |
| Undesignated retained earnings at beginning of year | 131,837,000 | 123,199,000 |
| Transfer to designated retained earnings (Note 3) | (23,153,000) | (31,000,000) |
| Undesignated retained earnings at end of year | <u>\$ 148,527,000</u> | <u>\$ 131,837,000</u> |

See accompanying notes.

SAN DIEGO COUNTY WATER AUTHORITY
STATEMENTS OF CASH FLOWS
Years ended June 30, 1991 and 1990

| | 1991 | 1990 |
|---|----------------------|----------------------|
| Net cash flows provided by (used for) operating activities: | | |
| Net income | \$ 39,843,000 | \$ 39,638,000 |
| Adjustments to reconcile net income to net cash provided by operating activities: | | |
| Depreciation and amortization | 4,143,000 | 2,229,000 |
| Interest, net | (4,420,000) | (2,236,000) |
| (Increase) decrease in accounts and taxes receivable | (7,491,000) | 1,710,000 |
| (Increase) decrease in inventories | (1,917,000) | 163,000 |
| Increase in other current assets | (2,000) | (10,000) |
| Increase in other assets | (96,000) | (574,000) |
| Increase (decrease) in accounts payable and accrued liabilities and rebatable arbitrage | 8,749,000 | (3,263,000) |
| Net cash provided by operating activities | <u>38,809,000</u> | <u>37,657,000</u> |
| Cash flows provided by (used for) capital and related financing activities: | | |
| Purchase of property, plant and equipment | (28,524,000) | (12,596,000) |
| Contributions in aid of construction | 248,000 | 159,000 |
| Interest paid on long-term debt | (11,007,000) | (11,353,000) |
| Principal repayment of debt | (3,335,000) | (12,720,000) |
| Net cash used for capital and related financing activities | <u>(42,618,000)</u> | <u>(36,510,000)</u> |
| Cash flows provided by (used for) investing activities: | | |
| Purchase of investment securities | (12,751,000) | (34,150,000) |
| Interest and dividends on investments | 13,391,000 | 11,202,000 |
| Net cash provided by (used for) investing activities | <u>640,000</u> | <u>(22,948,000)</u> |
| Decrease in cash and cash equivalents | (3,169,000) | (21,801,000) |
| Cash and cash equivalents at beginning of year | 14,345,000 | 36,146,000 |
| Cash and cash equivalents at end of year | <u>\$ 11,176,000</u> | <u>\$ 14,345,000</u> |

See accompanying notes.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

1. Organization and summary of significant accounting policies

Organization - The San Diego County Water Authority (the Authority) was organized on June 9, 1944 under the County Water Authority Act (the Act) for the primary purpose of providing a supplemental supply of imported water to its member agencies for domestic, municipal and agricultural uses. The Authority consists of 23 member agencies which are each represented by at least one person on the Authority's Board of Directors. The Authority is a member of the Metropolitan Water District of Southern California (MWD) and historically, the Authority has purchased from MWD all the water it requires to meet the demands of the member agencies.

The Metropolitan Water District Act provides a preferential right for the purchase of water by each of the MWD constituent agencies. This preferential right is calculated using a formula and based upon such formula, the Authority has a statutory preferential right to approximately 12% of MWD's total supply. MWD, however, has never applied such criteria to limit the Authority's purchases and has a written policy to meet all the supplemental needs of each of its member agencies, including the Authority. If a shortage should arise, legal issues exist whether different California Water Code provisions should be invoked to require reasonable regulations for the allocation of water in the time of shortage.

Basis of accounting - The Authority is accounted for as an enterprise fund (proprietary fund type). A fund is an accounting entity with a self-balancing set of accounts established to record the financial position and results of operations of a specific governmental activity. The activities of enterprise funds closely resemble those of ongoing businesses in which the purpose is to conserve and add to basic resources while meeting operating expenses from current revenues.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

1. Organization and summary of significant accounting policies (Cont'd.)

Enterprise funds account for operations that provide services on a continuous basis and are substantially financed by revenues derived from user charges. As an enterprise fund, the Authority uses the accrual basis of accounting, revenues are recognized when earned and expenses are recognized as they are incurred.

Property taxes and in-lieu charges - The Authority is authorized under the Act to levy taxes on all taxable property within its boundaries for the purpose of carrying on its operations and paying its obligations, subject to certain limitations in the Act, the Revenue and Taxation Code and the California Constitution. The Authority levies taxes to meet its debt service requirements on its general obligation bonds and its obligation under the contract with the U. S. Government (Note 3).

Member agencies of the Authority may elect to pay in-lieu charges instead of the tax levy. Included in the accompanying statements of revenues, expenses and changes in undesignated retained earnings for the years ended June 30, 1991 and 1990, are in-lieu charges of \$673,000 and \$2,960,000, respectively.

Inventories - Inventories consist primarily of water in storage and are stated at the lower of cost (first-in, first-out) or market.

Property, plant and equipment - Property, plant and equipment is stated at cost. Effective July 1, 1990, the Authority revised the estimated remaining useful lives of water systems from 100 years to periods ranging from 10 to 75 years to more closely reflect expected remaining lives. The net effect of this change in estimate increased fiscal 1991 depreciation expense by \$1,762,000. Depreciation is computed utilizing the straight-line method over the following estimated useful lives:

| | |
|-----------------|----------------|
| Water systems | 10 to 75 years |
| Buildings | 40 years |
| Other equipment | 5 to 15 years |
| Automobiles | 4 years |

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

1. Organization and summary of significant accounting policies (Cont'd.)

Property, plant and equipment consists of the following:

| | June 30, | |
|-------------------------------|-----------------------|-----------------------|
| | 1991 | 1990 |
| Water systems | \$ 154,967,000 | \$ 154,532,000 |
| Buildings | 4,517,000 | 4,463,000 |
| Automobiles and equipment | 3,473,000 | 2,845,000 |
| Construction in progress | 55,826,000 | 26,549,000 |
| | <u>218,773,000</u> | <u>188,389,000</u> |
| Less accumulated depreciation | 35,295,000 | 31,439,000 |
| | <u>\$ 183,478,000</u> | <u>\$ 156,950,000</u> |

Included in construction in progress at June 30, 1991 and 1990 is \$4,155,000 related to the construction of the Pamo Reservoir Project. The Authority has suspended further work on this project pending completion of a county-wide water storage plan. In the opinion of management, the ultimate completion of this plan may impact the completion of the Pamo Project or the realization of the costs incurred; however, the effect on the financial position or results of operations of the Authority is not expected to be material.

Contributions in aid of construction - Amounts received from member agencies for construction of service connections or other facilities are included in the accompanying balance sheets as contributions in aid of construction.

Capitalized interest - The Authority capitalizes interest on self-constructed assets based on a weighted average interest rate on obligations outstanding during the period of construction. Interest earned on interest-bearing investments acquired with proceeds of related tax-exempt borrowings is offset against the interest cost in determining the maximum interest capitalizable. Interest capitalized during the years ended June 30, 1991 and 1990 was \$2,037,000 and \$1,024,000, respectively.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

1. Organization and summary of significant accounting policies (Cont'd.)

Revenue policies - The principal portion of the Authority's revenues is provided by sales of water. Water is delivered to member agencies on demand and revenue is recognized at the time of delivery. The Authority has implemented two new revenue sources as part of its Capital Finance Plan to fund the Capital Improvement Program (Note 6). A water availability standby charge was put into effect in fiscal 1990 and generated revenue of \$10,673,000 and \$10,706,000 for the years ended June 30, 1991 and 1990, respectively. The Authority also implemented a capacity charge on all new water meters purchased within the boundaries of the Authority, commencing October 1, 1990 generating revenue of \$6,017,000 in fiscal 1991.

Included in restricted cash and investments at June 30, 1991 is approximately \$16,690,000 related to fiscal 1991 revenue from the water availability standby charge and the capacity charge.

Budgets and budgetary accounting - Annual budgets adopted by the Board of Directors provide for operations, debt service and capital expenditures of the Authority. Budgetary controls are set by the Board of Directors. The Board of Directors adopts an operating budget at the beginning of the Authority's fiscal year. The legally adopted budget requires only that expenditures not exceed appropriations in total for the Authority. The Board of Directors may make appropriation adjustments to the budget during the year as deemed necessary. The Authority adhered to the prescribed budget as discussed above for the years ended June 30, 1991 and 1990.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

2. Cash and investments

Cash and cash equivalents consist of short-term highly liquid investments with maturities of 90 days or less at the date of purchase. All cash and investments, which are recorded at cost and which approximate market, are fully insured or collateralized. The California Government code requires California banks and savings and loan associations to secure public fund deposits by pledging government securities or mortgages as collateral. The market value of pledged securities or mortgages must equal at least 110% or 150%, respectively, of public fund deposits. The Authority currently requires government securities as collateral on all its investments with such institutions. At June 30, 1991 and 1990, the Authority's cash and investments are collateralized with government securities held by the pledging financial institutions' trust departments, but not in the name of the Authority.

The Authority may waive collateral requirements for deposits which are fully insured up to \$100,000 by the Federal Deposit Insurance Corporation (FDIC).

The surplus funds of the Authority may be invested in any of the following approved investments: treasury bills and/or treasury notes; commercial bank certificates collateralized by public fund deposits; savings and loan certificates collateralized by public fund deposits; guaranteed investment contract deposits collateralized by government securities; and money market funds collateralized by government securities.

Cash and investments, including restricted amounts, consist of the following:

| | June 30, | |
|---|----------------------|----------------------|
| | 1991 | 1990 |
| Insured demand deposits | \$ 265,000 | \$ 848,000 |
| Certificates of deposit | 23,111,000 | 33,366,000 |
| U.S. government securities | 59,454,000 | 32,634,000 |
| Guaranteed investment contract deposits | 102,555,000 | 108,955,000 |
| | <u>\$185,385,000</u> | <u>\$175,803,000</u> |

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

3. Long-term debt

Long-term debt consists of the following:

| | June 30, | |
|--|----------------|----------------|
| | 1991 | 1990 |
| Water revenue certificates of participation and general obligation bonds, including an arbitrage rebate liability of \$2,459,320 in 1991 and \$1,303,095 in 1990 | \$ 163,629,000 | \$ 165,438,000 |
| U. S. Government contract | 1,386,000 | 1,756,000 |
| Total long-term debt | 165,015,000 | 167,194,000 |
| Less amounts due within one year | 3,439,000 | 3,335,000 |
| | \$ 161,576,000 | \$ 163,859,000 |

Water revenue certificates of participation - To provide funds for the acquisition and construction of water system improvements and the advance refunding of previously issued debt, the Authority issued certificates of participation in May 1989 in the aggregate principal amount of \$140,000,000 with interest, at rates ranging from 6.65% to 7.30% payable semi-annually on May 1 and November 1. The certificates mature serially between May 1, 1993 and May 1, 2009, and may be redeemed at premiums decreasing from 2% in 1997 to 1% in 1999 (thereafter at par).

The certificates require that a reserve be maintained in an amount equal to the lesser of \$14,000,000, 100% of the maximum annual payments or 125% of the

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

3. Long-term debt (Cont'd.)

average annual payments. Included in restricted cash and investments at June 30, 1991 and 1990 is \$14,000,000 which represents the required reserve, and \$88,555,000 and \$94,955,000, respectively, which represents unexpended proceeds of the certificates.

1957 waterworks general obligation bonds - To provide funds for the construction of a second aqueduct and related works, the Authority issued general obligation bonds in the aggregate principal amount of \$35,000,000 with interest rates ranging from 1% to 6% payable semi-annually on February 1 and August 1. The bonds mature serially through February 1, 1994. Included in certificates of participation and general obligation bonds at June 30, 1991 and 1990 is \$4,525,000 and \$6,565,000, respectively.

1966 waterworks general obligation bonds - During 1968 the Authority issued general obligation bonds in the aggregate principal amount of \$30,000,000 with interest rates ranging from 4.5% to 5.5% payable semi-annually on April 1, and October 1, for the construction of a second pipeline to the second aqueduct. The bonds mature serially through October 1, 2003 and may be redeemed on or after October 1, 1980 at premiums decreasing from 3.5% in 1980 to 0.5% in 2002. Included in certificates of participation and general obligation bonds at June 30, 1991 and 1990 is \$16,645,000 and \$17,570,000, respectively.

U.S. Government contract - The U.S. Government constructed an aqueduct for which the title was conveyed to the Authority upon its completion. The Authority is reimbursing the U.S. Government for the cost of the aqueduct in quarterly principal installments of \$92,000, plus interest at 2.6% annually.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

3. Long-term debt (Cont'd.)

The Authority has entered into an agreement with MWD whereby a portion of the U.S. Government contract will be paid by MWD. Included in accounts and taxes receivable and other assets are the current and long-term portions of this receivable of \$197,000 and \$543,000 respectively, at June 30, 1991 and \$197,000 and \$740,000, respectively, at June 30, 1990.

Certain outstanding debt agreements require the Authority to maintain a minimum level of operational earnings. Exclusive of the tax revenue and debt servicing costs associated with voter-approved general obligation bonds and other voter-approved debt, net water revenues, as defined by the agreements, must equal or exceed 120% of all other debt servicing costs (principal and interest). The Authority was in compliance with all of its covenants, including establishing the rate stabilization fund and meeting its debt service ratio requirement.

In fiscal 1990, the Authority established a water rate stabilization fund for the purpose of identifying amounts available to mitigate future water rate increases. The Authority will transfer portions of its net water revenues (as defined), which exceed its debt service ratio requirement, into the rate stabilization fund and from time to time transfer amounts from its rate stabilization fund into net water revenues to meet its debt service ratio requirements. As of June 30, 1991 and 1990, the balance in this fund, which is included in restricted cash and investments, totaled \$54,153,000 and \$31,000,000, respectively and is also reflected as designated retained earnings in the accompanying balance sheet.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

3. Long-term debt (Cont'd.)

For the years ended June 30, 1991 and 1990, the Authority's actual debt service ratio is calculated as follows:

| | 1991 | 1990 |
|--|---------------|---------------|
| Net water revenues (as defined) | \$ 48,649,000 | \$ 48,149,000 |
| Transfer to rate stabilization fund | (23,153,000) | (31,000,000) |
| Net water revenues | \$ 25,496,000 | \$ 17,149,000 |
| Debt service requirements (principal and interest) | \$ 10,158,000 | \$ 12,328,000 |
| Debt service ratio | 251% | 139% |

Included in other assets are deferred financing costs of \$1,996,000 and \$2,107,000, net of accumulated amortization, at June 30, 1991 and 1990, respectively. The deferred financing costs are being amortized using the straight-line method over the life of the related obligation.

The aggregate principal payments on long-term debt at June 30, 1991 are as follows:

| | |
|------------|---------------|
| 1992 | \$ 3,439,000 |
| 1993 | 8,120,000 |
| 1994 | 9,024,000 |
| 1995 | 6,582,000 |
| 1996 | 6,710,000 |
| Thereafter | 131,140,000 |
| | \$165,015,000 |

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

4. Retirement plan

Public Employees Retirement System plan description - The Authority is a member of the California Public Employees' Retirement System (PERS), an agent multiple-employer pension system that acts as a common investment and administrative agent for participating public entities within the State. The Authority's total covered payroll for employees participating in PERS for the fiscal year ended June 30, 1991 and 1990 is \$4,342,000 and \$3,501,000, respectively. The Authority's total payroll is \$4,626,000 and \$3,606,000 for the years ended June 30, 1991 and 1990, respectively.

All permanent employees of the Authority are eligible to participate in PERS upon entry into employment. Retirement benefits vest after five years of service and PERS also provides death and disability benefits. Retirement benefits are based on the highest annual salary and years of credited service.

Employee and employer contributions - Both the Authority and the employees are required to contribute to PERS. The Authority pays its share and the entire portion of the employees' share. The employee rate of 7% is set by statute and therefore, generally remains unchanged from year to year. The Authority is required to contribute the remaining amounts necessary to fund the benefits for its members, using the actuarial basis recommended by PERS actuaries and actuarial consultants and adopted by the PERS Board of Administration.

Funding status and progress - The amount shown below as the "pension benefit obligation" is a standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases and step-rate benefits, estimated to be payable in the future as a result of employee service to date. The measure is intended to help users assess the funding status of PERS on a going concern basis, assess the progress made in accumulating sufficient assets to pay benefits when due, and make comparisons among employers. The measure is the actuarial present value of credited projected benefits and is independent of the funding method used to determine contributions to PERS.

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

4. Retirement plan (Cont'd.)

The pension benefit obligation was computed as part of an actuarial valuation performed as of June 30, 1990. Significant actuarial assumptions used in the valuation include the following: (a) a rate of return on the investment of present and future assets of 8.5% a year, compounded annually; (b) projected salary increases attributable to inflation of 5% per year compounded annually; (c) additional projected salary increases of 2% per year, attributable to seniority/merit; and (d) no post retirement benefit increases.

The total unfunded pension benefit obligation applicable to the Authority's employees was \$1,036,000 at June 30, 1990 and is computed as follows:

| | |
|---|--------------------|
| Pension benefit obligation: | |
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | \$4,132,000 |
| | |
| Current employees: | |
| Accumulated employee contributions, including allocated investment earnings | 1,607,000 |
| Employer-financed vested | 2,719,000 |
| Employer-financed nonvested | 261,000 |
| Total pension benefit obligation | <u>8,719,000</u> |
| | |
| Net assets available for benefits at cost (market value is \$8,713,000) | <u>7,683,000</u> |
| Unfunded pension obligation | <u>\$1,036,000</u> |

During fiscal 1991, PERS changed the non-economic actuarial assumptions resulting in an increase in the pension benefit obligation of \$270,000. There were no changes in benefit provisions in the current year.

Actuarially determined contribution requirements and contributions made - PERS uses the entry-age normal actuarial cost method. As a projected benefit cost method, it takes into account those benefits that are expected to be earned in the future as well as those already accrued. The normal cost for an

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

4. Retirement plan (Cont'd.)

employee is the level amount which would fund the projected benefit if it were paid annually from the date of employment until retirement. PERS uses a modification of the entry-age method in which the Authority's total normal cost is expressed as a level percentage of payroll. PERS uses this same method to amortize any unfunded actuarial liabilities. The amortization period of the unfunded liability ends in the year 2000.

The significant actuarial assumptions used to compute the actuarially determined contribution requirement are the same as those used to compute the pension benefit obligation, as previously described.

The contributions to PERS for 1991 and 1990 of \$709,000 and \$608,000, respectively, were made in accordance with actuarially determined requirements computed through an actuarial valuation performed as of June 30, 1990 and 1989, respectively. The contributions consisted of \$608,000 and \$495,000 normal costs (14.00% and 14.13% of current covered payroll) and \$101,000 and \$113,000 amortization of the unfunded actuarial accrued liability (2.32% and 3.24% of current covered payroll), respectively.

Trend information - Trend information gives an indication of the progress made in accumulating assets to pay benefits when due. Systemwide, ten year trend information is not yet available.

| | June 30, | | | |
|--|----------|-------|-------|-------|
| | 1991 | 1990 | 1989 | 1988 |
| Net assets available for benefits, expressed as a percentage of the pension benefit obligation | 88.1% | 87.5% | 85.3% | 80.3% |
| Unfunded pension obligation, expressed as a percentage of annual covered payroll | 23.8% | 26.7% | 36.1% | 66.0% |
| Employer contributions, expressed as a percentage of annual covered payroll | 16.3% | 17.4% | 19.4% | 19.0% |

SAN DIEGO COUNTY WATER AUTHORITY
NOTES TO FINANCIAL STATEMENTS

5. Deferred compensation plan

The Authority has adopted and administers a deferred compensation plan in accordance with Section 457 of the Internal Revenue Code. Generally, all eligible employees may defer receipt of a portion of their salary until future years. Once deferred, the compensation is not available to the employees until termination, retirement, death or unforeseeable emergency. The employees are not liable for income taxes on amounts deferred until the funds are withdrawn. At June 30, 1991 and 1990, assets of the plan totaled \$1,674,000 and \$1,590,000, respectively.

All compensation deferred under the plan, all assets purchased with the deferred amounts and all income attributable to these amounts or assets (until paid or made available to the employee or other beneficiary) are the sole property of the Authority, subject to the claims of the Authority's general creditors. Participants' rights to deferred amounts under the plan are equal to those of the general creditors of the Authority.

6. Commitments

The Authority is committed to a long-range effort to increase the present aqueduct capacity, obtain additional water from MWD, provide additional storage within the county and maximize the use of existing storage reservoirs. The Authority estimates that the cost of the capital improvement program will be approximately \$661 million and will be expended over the next ten years. The Authority expects to fund approximately 60 percent of these requirements through the sale of bonds or other debt obligations. The remaining portion will be funded from operations.

