San Diego County Water Authority

1997 ANNUAL REPORT



The mission of the San Diego County Water Authority is to provide a safe and reliable supply of water to our member agencies serving the San Diego region.

ON THE COVER:

The San Diego County Water Authority provides most of this region's water. Clockwise from the top left corner is a young resident drinking from a water fountain; a view of Lake Hodges Dam, a local facility owned by the city of San Diego and a component of the Authority's proposed Emergency Water Storage Project; native flora of Southern California; and, an Authority employee providing maintenance to a large-diameter pipe during a routine inspection.

A Letter to the San Diego County Community	1
The Water Authority at-a-Glance	2
Serving San Diego County	4
Providing a Reliable Water Supply	6
A Strong Infrastructure	10
Preparing for Emergencies	12
Involving the Community	14
Protecting the Environment	16
Being Our Best	18
The Cost of Water and Water Shortages	22
Selected Financial Information	23
Appendix	29

A Letter to the San Diego County Community

The mission of the San Diego County Water Authority is to provide a safe and reliable supply of water to our member agencies serving the San Diego region. What we do as importer of up to 90 percent of the county's water is vital. The region's $83 billion economy and the very quality of life for more than 2.6 million residents depends on our efforts.

Guiding our efforts is the Water Resources Plan. This plan was updated in 1997 to reassess traditional local supplies and explore potential new water sources. The most significant new water source addressed in the Water Resources Plan is water transfers, which promise to be one of the Authority's greatest potential resources. In 1996-97, we released a summary of draft terms for an agreement with the Imperial Irrigation District for the transfer of up to 200,000 acre feet of water a year.

Making the most of local water resources also figures prominently in the Water Resources Plan, which shows local sources have the potential to meet nearly a fourth of our water needs by 2015. The Authority's work with its member agencies on conservation, groundwater development and reclamation remained a focus this year.

Transporting water to our member agencies is, of course, at the heart of what we do. This year, we delivered more than 490,000 acre feet of water and maintained 263 miles of pipeline. Several major pipelines were put into operation and construction began on two new pipelines. Another milestone was reached when our board of directors certified the Final Environmental Impact Report for the Emergency Water Storage Project and approved the preferred alternative.

'What we do as importer of up to 90 percent of the county's water is vital. The region's $83 billion economy and the very quality of life for more than 2.6 million residents depends on our efforts.'

Projects the size of ours can affect the environment and communities where they are built. We work hard to involve the communities near our projects so we get their input and can be responsive to their needs. We also make protecting the environment a priority by ensuring that our projects disturb plants and wildlife as little as possible and by mitigating any unavoidable disturbances.

In all we do, we keep in mind it is the public's money that funds our activities. Accordingly, we practice conservative expenditure and investment policies. This year, the Authority did not raise its water rates, maintaining the $80 an acre foot it charges to member agencies.

All of us at the Authority are dedicated to the purpose for which this agency was created. And each of us has a personal commitment to this common purpose. In the pages of this annual report, you will see the faces of some of the people who demonstrate that commitment every day in their work here. You will see words like "integrity," "customer service" and "organizational excellence." Like our mission statement, they are more than words on paper to us. They are norms and values we hold dear, the basis of all we do and how we do it. It is upon this solid foundation that we are building the Authority into the leader it must be in local, state and Western water issues — a leader that can ensure a reliable water supply for San Diego County now and in the future.



Maureen A. Stapleton
General Manager

The Water Authority at-a-Glance

The Authority is governed by a 34-member board of directors. Each of the 24 member agencies appoints at least one representative to the board; the number of representatives is determined by assessed valuation. (The county of San Diego, an ex-officio member agency, also has one director.) The directors are business and civic leaders with diverse professional and technical backgrounds.

The directors elect three of their number as board officers. As of June 30, 1997, the officers were: Christine Frahm, chair; Joseph Parker, vice-chair; Harold Ball, secretary.

Following is a list of the Authority's member agencies, their location, and the directors who represented the agencies on the Authority's board as of June 30, 1997.

MEMBER AGENCIES AND REPRESENTATIVES ON THE BOARD OF DIRECTORS

(As of June 30, 1997)

1 **Carlsbad Municipal Water District**
(760) 438-2722
Director: Claude A. "Bud" Lewis

2 **City of Del Mar**
(619) 755-9313
Director: Charles Newton

3 **City of Escondido**
(760) 741-4651
Director: David Drake

4 **Fallbrook Public Utility District**
(760) 728-1125
Director: Gordon W. Tinker

5 **Helix Water District**
(619) 466-0585
Directors: Harold W. Ball, H. Warren Buckner

6 **City of National City**
(619) 420-1413*
Director: Frank Chenelle

7 **City of Oceanside**
(760) 966-4850
Director: James F. Turner

8 **Olivenhain Municipal Water District**
(760) 753-6466
Director: Ann Peay

9 **Otay Water District**
(619) 670-2222
Director: Mark W. Watton

10 **Padre Dam Municipal Water District**
(619) 448-3111
Director: Doug Wilson

11 **Pendleton Military Reservation**
(760) 725-6451
Director: Edmund L. Rogers

12 **City of Poway**
(619) 748-6600
Director: James "Randy" Williams

13 **Rainbow Municipal Water District**
(760) 728-1178
Director: Sheila Manning

14 **Ramona Municipal Water District**
(760) 789-1330
Director: Connie Bull

15 **Rincon Del Diablo Municipal Water District**
(760) 745-5522
Director: Gregory M. Quist

16 **City of San Diego**
(619) 236-6750
Directors: Rosalie Shanks Bregante, John Fowler, Christine Frahm, Francesca Krauel, John "Mike" Leach, Mike Madigan, Joseph Parker, Bob Russell, Janice Strode, Fred Thompson

17 **San Dieguito Water District**
(760) 633-2650
Director: John Davis

18 **Santa Fe Irrigation District**
(619) 756-2424
Geoffrey A. Poole

19 **South Bay Irrigation District**
(619) 420-1413*
Director: Bud Pocklington

20 **Vallecitos Water District**
(760) 744-0460
Director: Dale Mason

21 **Valley Center Municipal Water District**
(760) 749-1600
Director: Gary A. Broomell

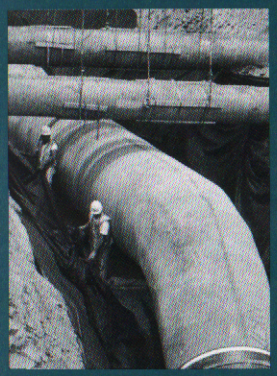
22 **Vista Irrigation District**
(760) 806-3100
Director: Howard Williams

23 **Yuima Municipal Water District**
(760) 742-3704
Director: Susan M. Collins

County of San Diego (Ex-Officio)
(619) 531-5533
Director: Pam Slater

The Authority is one of 27 member agencies of the Metropolitan Water District of Southern California. As such, the Authority appoints six people as its representatives on the Metropolitan board of directors. As of June 30, 1997, they were: Christine Frahm, Francesca Krauel, Dale Mason, Joseph Parker and Mark W. Watton; there was one vacancy.

* The telephone number of the Sweetwater Authority, a service organization for the city of National City and the South Bay Irrigation District



The Authority takes delivery of water from Metropolitan Water District of Southern California approximately six miles south of the Riverside-San Diego County line and transports it through five large-diameter pipelines (like the one under construction here) to 23 retail water agencies in San Diego County. These agencies in turn deliver water directly to homes, businesses and other users.

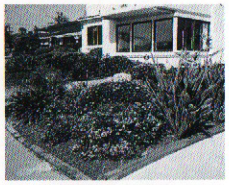


The San Diego County Water Authority is an *opportunity-driven* organization. For more than 50 years, this agency has sought new ways to meet this region's water needs.

Serving San Diego County

The San Diego County Water Authority was established May 16, 1944, by a popular vote that overwhelmingly approved the organization by a 15-to-1 margin. The agency opened for business one month later on June 9, three days after the Allies launched the invasion of Europe in World War II. San Diego County had grown into a national center for war effort activities, following the United States' entry into the war four years earlier. From 1940 to 1944, military bases and construction facilities mushroomed throughout our region and mass influxes of military personnel doubled the local population — straining the area's water resources beyond the breaking point and threatening the war effort. These forces combined to throw down a gauntlet before the newly formed Water Authority to meet the water supply needs of San Diego County.

Throughout its history, the Authority has successfully met the challenge by providing imported water and maintaining our regional pipeline system. In late 1946, the Authority joined the Metropolitan Water District of Southern California (MWD) to obtain access to Colorado River water.



Most of this region's water goes for residential uses. A local household typically uses one acre foot of water in two years. One acre foot is about 326,000 gallons, which is enough water to cover an acre to a depth of one foot.

A year later, on Nov. 24, 1947, the Authority brought the first imported water to San Diego County, just in time to rescue our region from a drought so severe that reservoirs shrank below 30 percent of capacity and officials considered implementing water rationing. The water traveled through the 242-mile Colorado River Aqueduct, over mountains and across deserts, from its source in the Colorado River at Parker Dam in Arizona. San Diego County now receives 83 percent of its imported water supply from the Colorado River.

Working through MWD, the Authority first imported water from the State Water Project (SWP) to San Diego County in 1978. The water traveled 444 miles through the California Aqueduct from the Sacramento-San Joaquin River Delta, formed where the Sacramento and San Joaquin rivers converge south of Sacramento and flow west to meet San Francisco Bay. The State Water Project now provides 17

FAST FACTS

SERVICE AREA

Number of agencies	24
Gross area	909,033
Population	2,640,861
Assessed valuation	$140,576,961,472

OPERATIONS

A. Water imported by the Authority (acre-feet)	491,050
B. Water delivered to member agencies [1]	492,322
C. Water used by member agencies (acre-feet)	621,739
D. Local water used (acre-feet) [2]	143,038
E. Imported water used (acre-feet) [3]	478,701
Miles of pipeline	263
Miles of patrol road maintained	248
Number of service connections	119

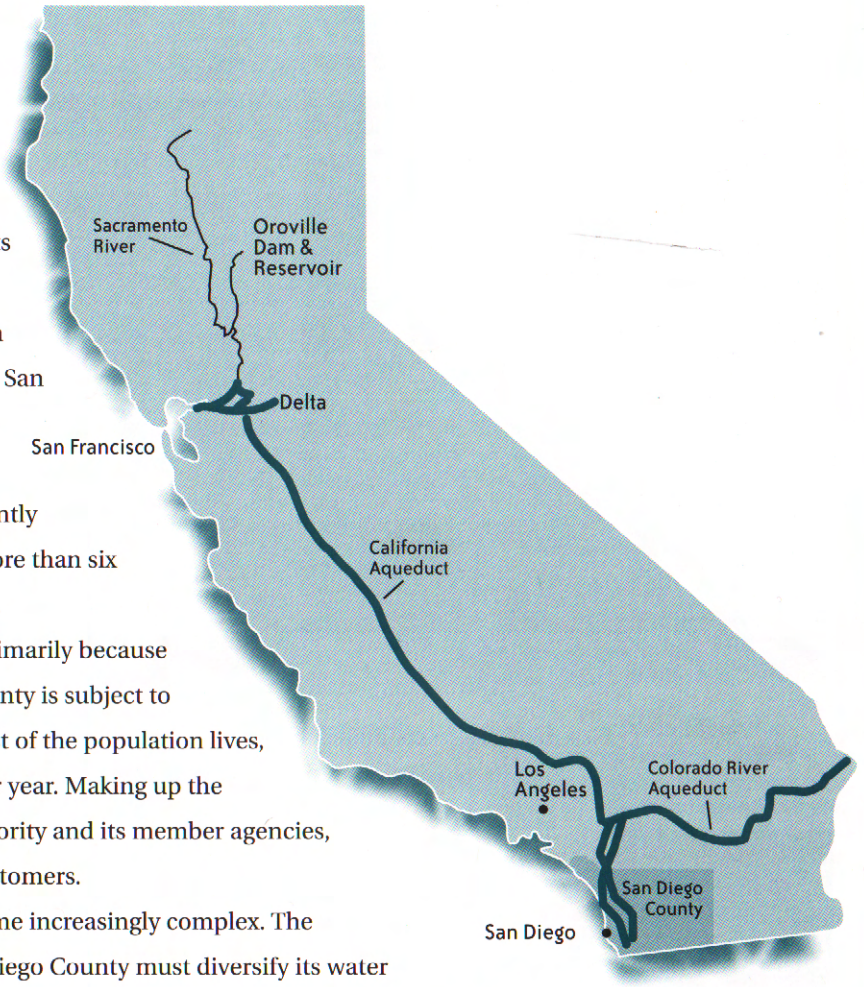
[1] Difference between "A" and "B" attributable to operational gains and losses and Authority storage accounts

[2] Does not include conservation

[3] Difference between "B" and "E" attributable to water placed into or withdrawn from storage

percent of our imported water supply and has furnished up to half in some years.

Over the years, San Diego County has come to rely upon imported water as the foundation for its residents' quality of life, job base and $83 billion economy. The Authority's water distribution system has expanded from the original 71 miles of the First San Diego Aqueduct to include 263 miles of pipeline. For more than 50 years, the Authority has consistently met the region's water needs and currently provides more than 490,000 acre feet of water — more than six times the original supply of 79,000 acre feet in 1947.



San Diego County relies on imported water primarily because the region lies in a semi-arid climatic zone. The county is subject to periodic droughts and our coastal areas, where most of the population lives, receive an average rainfall of less than 10 inches per year. Making up the difference falls to the San Diego County Water Authority and its member agencies, which provide water directly to their 2.6 million customers.

In this decade, water supply issues have become increasingly complex. The Authority's board of directors recognizes that San Diego County must diversify its water supply to improve its reliability — and no longer depend on MWD as its sole source of imported water. Moving toward this goal, in the 1997 fiscal year the Authority's board directed staff to actively locate, evaluate and develop potential new water sources to help meet the county's needs well into the next century.

In every project the Authority undertakes, the agency reaches out to gain public involvement so that all efforts to secure our water supply reflect the needs and values of the community. At the same time, the Authority makes it a priority to balance the needs of residents and businesses with the need to preserve and even enhance the natural environment affected by the construction and maintenance of vital water supply projects.





Imported water is fundamental to this region's quality of life. From urban parks to hillside avocado groves, this is a region with diverse water needs.



Committed **to the Authority's mission, water planners pursue a variety of programs to maximize resources. Mark Tegio utilizes a geographical information system to provide decision-making models using data from various sources.**

Providing a Reliable Water Supply

To meet its mission of providing a safe and reliable water supply to its member agencies serving San Diego County, the Authority is aggressively pursuing a variety of programs ranging from more efficient utilization of existing supplies to long-term transfer of conserved water from other regions.

1997 WATER RESOURCES PLAN

During the past fiscal year, the Authority published a new report that serves as a guide for future water supply programs: the 1997 Water Resources Plan. The 1997 Water Resources Plan is the second comprehensive planning document prepared by the Authority, following one prepared in 1993. The updated plan reassesses the availability of traditional local supplies and addresses potential major new water sources. The most notable change is the opportunity for significant water supply transfers in normal years and during droughts. A transfer is the voluntary sale or lease of water.



Regionwide implementation of a variety of conservation programs, such as the distribution of low-flow showerheads, resulted in saving 21,000 acre feet of water this year.

The Water Resources Plan describes the steps the Authority and its member agencies are taking to ensure that San Diego County achieves a cost-effective, safe, reliable water supply mix through 2015. The county relies on Colorado River and State Water Project (SWP) water imported by the Metropolitan Water District of Southern California (MWD). Reliance on this supplier has been a concern in the past, particularly in early 1991, when MWD imposed a 50-percent cutback in water supplies to the county. Since that time, the Authority has evaluated and re-evaluated its Water Resources Plan to ensure it has an up-to-date guide for providing a reliable water supply.

Opportunities for water transfers and increased development of local water supplies have dramatically changed the potential mix of water resources that the Authority can pursue. These opportunities, which could significantly enhance reliability, include:

- A new focus by the U.S. Bureau of Reclamation away from capital projects construction to an emphasis on managing water resources through federal-state and federal-local partnerships;
- Progress in resolving SWP environmental issues, largely through the efforts of CALFED, a consortium of state and

FAST FACTS

1996-97 WATER CONSERVATION SAVINGS:
More than 24,045 acre-feet

1996-97 RECLAIMED WATER USE:
11,094 acre-feet

1996-97 BRACKISH GROUNDWATER RECOVERY:
2,119 acre-feet

RAINFALL—WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997:

Location	Inches	% of Normal
Lindbergh Field	8.74	80%
Lake Cuyamaca	25.07	73%
Lake Henshaw	23.28	83%

federal agencies charged with finding long-term solutions for the transport of SWP supplies through the Sacramento-San Joaquin River Delta;

• New laws striking down barriers to water transfers, making this concept viable during normal water years as well as drought emergencies; and,

• Enhanced opportunities for local water development, including the expansion of recycled water markets through water repurification and newly identified groundwater recovery projects.

Parallel with the technical studies conducted as part of the 1997 Water Resources Plan, the Authority initiated a public outreach program involving representatives of a broad range of community, business, environmental, agricultural, government and consumer groups. Information developed through the public outreach program was incorporated into the evaluation of water management alternatives.

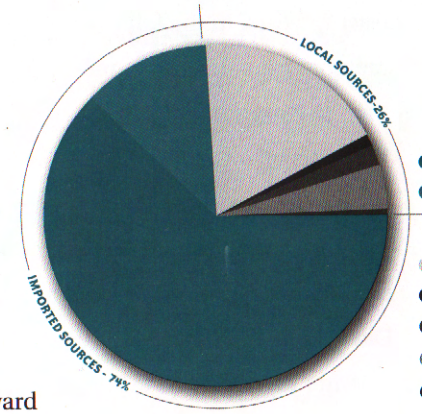


More than 22 million Californians, including San Diego County, rely on the Bay-Delta system for all or some of their drinking water. Solving problems on the Bay-Delta will benefit the San Diego region by improving reliability, increasing supplies and protecting water quality.

The Water Resources Plan assumes a 2015 water resources demand of 870,000 acre feet, before conservation adjustments. In an effort to maximize reliability at the least cost to the Authority's customers, six major alternatives for meeting this demand were developed. Each of these alternatives represented a different proportional mix of local and imported (through MWD and transfers) water supplies. The board adopted a hybrid of two alternatives that further diversifies the Authority's supply through inclusion of a significant water transfer component and a continued emphasis on development of local supplies.

IMPORTED WATER

The Authority monitors, evaluates and prepares recommendations relative to regional, state and federal issues affecting imported water quality and availability. During the past year, the Authority was particularly involved in Northern California and Colorado River supply issues, as well as issues involving MWD.



REGIONAL WATER SUPPLY SOURCES

IMPORTED SOURCES	**74%**
Colorado River Aqueduct	62%
State Water Project	12%
LOCAL SOURCES	**26%**
Surface water	18%
Wells	1%
Reclamation	2%
Conservation	4%
Brackish Groundwater	<1%
TOTAL ACRE FEET:	**645,784**

MWD proposals and programs were reviewed with an eye toward their potential impacts on the Authority, and staff made technical and policy recommendations to the Authority's board and its delegates to MWD's board of directors.

The Authority worked to help solve impediments to water supplies from Northern California by taking part in the process of "fixing" the Sacramento-San Joaquin River Delta, through which all water from Northern California passes. Authority representatives participated in the Bay-Delta Advisory

Council, agricultural and urban water users groups, and various CALFED workgroups to develop the three Bay-Delta restoration alternatives for CALFED's Phase 1.

Another significant effort was to assist in the development of the California 4.4 Plan to reduce California's demand on the Colorado River to the state's annual 4.4 million acre feet entitlement. Staff also reviewed the Bureau of Reclamation's proposed guidelines on lease, exchange or sale of water held under present perfected rights contracts.

To meet this region's water needs, the Authority has to be *flexible*. We are looking beyond our current sole water supplier, MWD, to IID for a potential transfer of Colorado River Water. Parker Dam, below, is at the starting point of the 242-mile Colorado River Aqueduct.

Water Transfers

Water transfers have emerged as one of the Authority's greatest potential resources. Current studies will determine the feasibility of transferring between 200,000 and 500,000 acre feet of water a year from one or more water sources: the Colorado River, Central California and Northern California. This amount of water would meet more than half of the Authority's anticipated water demand in 2015.



IID Water Transfer

Water officials throughout California and the West focused their attention on the Authority and a proposed water transfer partner, the Imperial Irrigation District (IID), throughout 1996-97. Building on a Memorandum of Understanding they signed in September 1995, the two agencies continued to discuss an agreement that would permit the long-term transfer of major quantities of water to the San Diego region.

In July 1996, a Summary of Draft Terms for a transfer agreement with IID was released for public review and comment. The summary called for IID to conserve and transfer at least 200,000 acre feet of water per year to the Authority for at least 75 years. In the following three months, staff and directors made more than 85 presentations to member agencies, cities and private organizations about the summary.

In November, the Authority board of directors voted to continue wheeling negotiations with MWD. The vote responded to an MWD wheeling proposal that acknowledged for the first time that it was feasible for the Authority to convey, or "wheel," transfer water through MWD's Colorado River Aqueduct, that the transfer would benefit MWD's service area and that the transfer would help California live within its Colorado River entitlement of 4.4 million acre feet per year. During this same period, state Senator David Kelley's Senate Bill 1082 was working its way through the Legislature. The bill required the Director of Water Resources to make a recommendation about a wheeling agreement between the Authority and MWD.

In June 1997, transfer agreement negotiations between the Authority and IID continued. The new talks used the summary of draft terms as a starting point and built on the extensive public input received in San Diego and Imperial counties, and are expected to lead to a final transfer agreement by the end of the 1997 calendar year.

Also in June, California State Director of Water Resources David Kennedy told the Authority board

that the Authority-IID transfer was a key part of the draft California 4.4 Plan, designed to help the state live within its 4.4 million acre feet allocation of Colorado River water.



The State Water Project supplies a portion of our imported water from the Sacramento-San Joaquin River Delta through the 444-mile California Aqueduct.

LOCAL SUPPLIES

By making more efficient use of existing local water supplies, area residents and industries can reduce the need for imported water supplies. Local resources have the potential to meet up to 24 percent of the region's normal-year water supply needs by 2015.

Conservation, Groundwater Development and Reclamation

While the IID transfer effort continued, other Authority efforts to use existing resources more efficiently through conservation, groundwater development and reclamation provided valuable supplies to the region.

Conservation - During recent years, the Authority and its member agencies have implemented a wide variety of conservation programs that have directly and dramatically reduced the amount of water used on a per-capita basis in the region. A partial list of innovative projects includes distribution of low-flow showerheads, an incentive to purchase 1.6-gallon-per-flush toilets, teaching landscape workers how to use and maintain irrigation systems to maximize water use efficiency, and providing water audits for landscaping and commercial facilities. The Authority also worked with members of the agricultural community to continue maximizing their high level of water efficiency by using the latest in weather-forecasting and irrigation technology. In the past year, more than 21,000 acre feet of water were saved through Authority-funded water conservation programs.

Groundwater - Groundwater recovery and utilization activities were highlighted during the past year by a study undertaken in the basin west of Lake Hodges. The San Dieguito Basin Groundwater Management Study and its associated task force continued looking at potential alternatives for introducing reclaimed and/or imported water into the basin for storage and extraction and as a saltwater intrusion barrier. The study included creation of a Groundwater Pumpers Forum, community meetings, newsletters and preparation of a draft report by a consulting engineering firm.

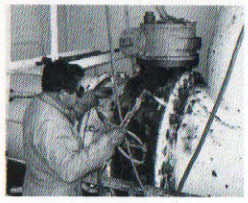
Water Reclamation - Using water more than once is rapidly gaining acceptance throughout the world, including in the San Diego region. Several projects have been operating for years, and the city of San Diego's Aquaculture facility in San Pasqual continued to draw acclaim for its innovative and successful research and high-quality end product. In the past year, more than 9,900 acre feet of reclaimed water was put to beneficial use throughout the county.



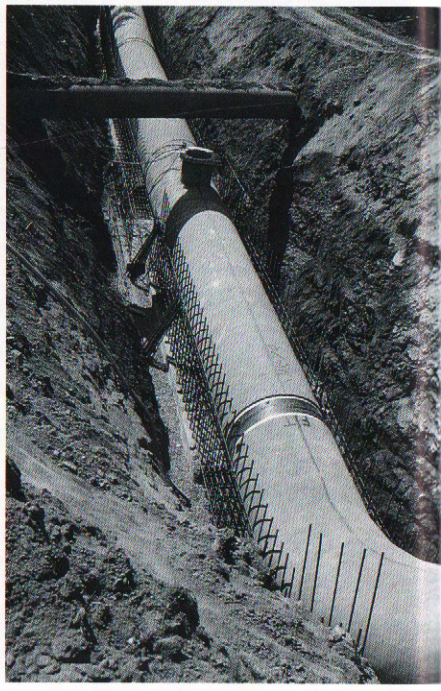
The Authority is *responsive* to our member agencies. Bob Patterson from the Operations and Maintenance Department monitors and controls water flows with state-of-the-art computerized equipment.

A Strong Infrastructure

SERVICE TO OUR CUSTOMERS



ABOVE: Benny Lira, of the Operations and Maintenance staff, works to keep the Authority's pipelines and facilities in optimal condition.



RIGHT: The Authority's Capital Improvement Program significantly increases the region's pipeline capacity.

Serving a safe and reliable supply of water to our member agencies is the fundamental mission of the Authority. Keeping that water moving through our pipelines to our member agencies and the more than 2.6 million people they serve requires the combined, full-time efforts of a major portion of the Authority staff.

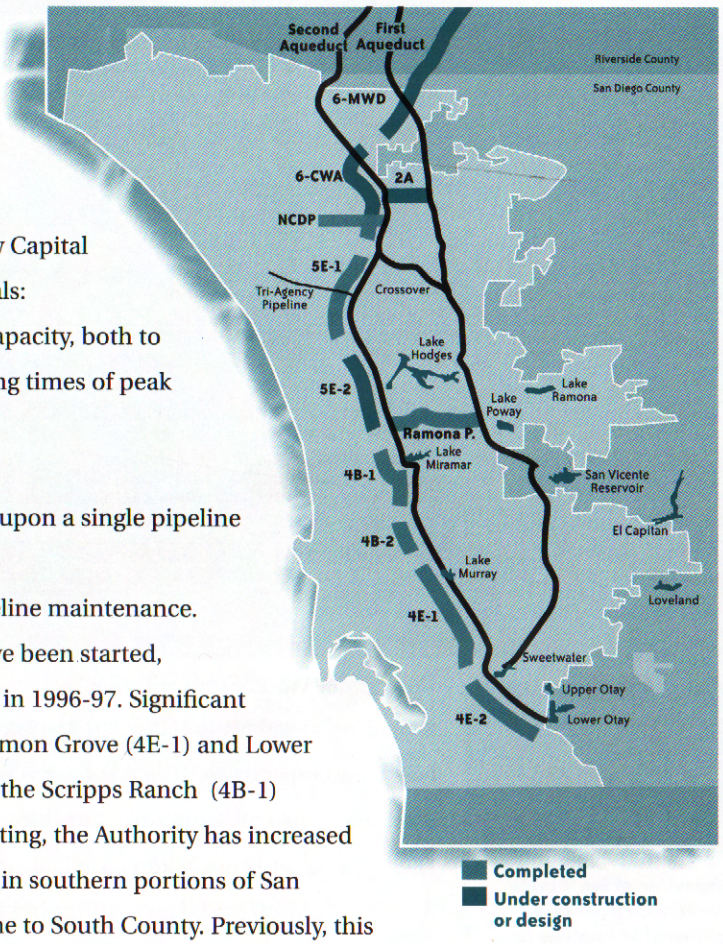
This year, the Authority delivered 492,322 acre feet of water through our regional pipeline system. About half the water the Authority delivered to member agencies was treated, meaning it was filtered and disinfected by the agency from which it was purchased, the Metropolitan Water District of Southern California (MWD). The rest, known as raw water, was delivered to member agencies who then filtered and disinfected it at their own facilities, or it was delivered to several local reservoirs, where it was stored for later use.

The heart of the region's distribution system is in Escondido at the Heilbron Operations Center, where Authority staff continually monitor and control flows received from MWD and supplied to member agencies. In 1996-97 a new Aqueduct Control System known as SCADA (Supervisory Control And Data Acquisition) was installed to provide additional real-time information about flows in the pipelines to system operators.

To keep the Authority's 263 miles of pipeline operating, various sections are taken out of service each year to be inspected and to perform preventive maintenance. During the past year, five planned shutdowns occurred, most of them lasting up to 10 days. Engineering, Right of Way, and Operations and Maintenance staff replaced 45 pipeline structure valves and 32 electric valve actuators, installed water sample points at various flow control facilities, and worked with property owners before and during shutdowns to ensure drainage, access and other property issues were handled properly. As part of the Aqueduct Protection Program, Authority engineers inspected the structural integrity of nearly 12 miles of pipeline.

Staff also brought important new regional pipelines into service, which required the disinfecting and testing of various tanks, valves, meters and other related equipment. New facilities included the new treated water line, made up of the Mission Trails Pipeline and Flow Regulatory Structure, and the

La Mesa/Lemon Grove and Lower Otay pipelines. To the north, the North County Distribution Pipeline and its associated facilities began serving Authority member agencies.



BUILDING A BETTER DELIVERY SYSTEM

Nearly a decade ago, it became apparent that a major new Capital Improvement Program (CIP) was needed to achieve several goals:

- Significantly increase the Authority's regional pipeline capacity, both to meet present as well as future demands, particularly during times of peak usage;
- Eliminate bottlenecks in the regional pipeline system;
- Increase reliability where water delivery was dependent upon a single pipeline or source; and,
- Increase operational flexibility in order to facilitate pipeline maintenance.

The CIP was launched in 1989, and each year projects have been started, continued and/or completed. Several milestones were reached in 1996-97. Significant progress was made when the Mission Trails (4B-2), La Mesa/Lemon Grove (4E-1) and Lower Otay (4E-2) pipelines were brought into service. Together with the Scripps Ranch (4B-1) Pipeline, these pipelines form Pipeline 4. With Pipeline 4 operating, the Authority has increased capacity to deliver treated water to more than 1 million people in southern portions of San Diego County and has provided a much-needed second pipeline to South County. Previously, this area had received water only from Pipeline 3, a treated-water line. In 1998, Pipeline 3 will be converted to carry untreated water, which will be delivered to reservoirs, while Pipeline 4 will deliver treated water directly to member agencies.

The North County Distribution Pipeline and its three flow control and metering facilities, a 1 million-gallon regulating structure and 700,000-gallon chlorine contact tank were completed and placed into service for the city of Oceanside, Vista Irrigation District, Vallecitos Water District and Rainbow Municipal Water District.

As these projects neared completion, construction started on the Rancho Penasquitos (5E-2) and Valley Center (2A) pipelines.

The Valley Center Pipeline will connect the Second Aqueduct to the First Aqueduct and improve the flexibility of the Authority's treated water system. This 4-mile, 66-inch-diameter pipeline includes a tunnel under Interstate 15 and a pumping station capable of pumping up to 13 million gallons per day.

Farther south, construction began on the 108-inch-diameter, 10-mile Rancho Penasquitos Pipeline (5E-2). This pipeline connects to the San Marcos (5E-1) and Scripps Ranch pipelines and will provide additional flexibility and delivery capability for the Authority. Since the project is being built in the existing Second Aqueduct easement, property acquisition was not a significant issue. However, existing businesses and residents have constructed various structures or placed items such as nursery stock in the easement since Pipeline 4 was built in the 1970s. Each of these encroachments was addressed by Right of Way staff.



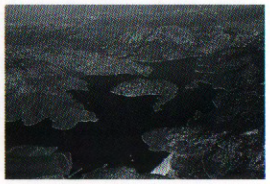
The construction of the North County Distribution Pipeline is part of the Authority's Capital Improvement Program. The pipeline will increase service capabilities to the city of Oceanside, Vista Irrigation District, Vallecitos Water District and Rainbow Municipal Water District.



The Authority recognizes the threat natural disasters pose to our water supply. As *problem-solvers*, we have taken on the challenge of providing water to this region even in times of emergency. Mary Putman of the Emergency Water Storage Project team describes the project's benefits.

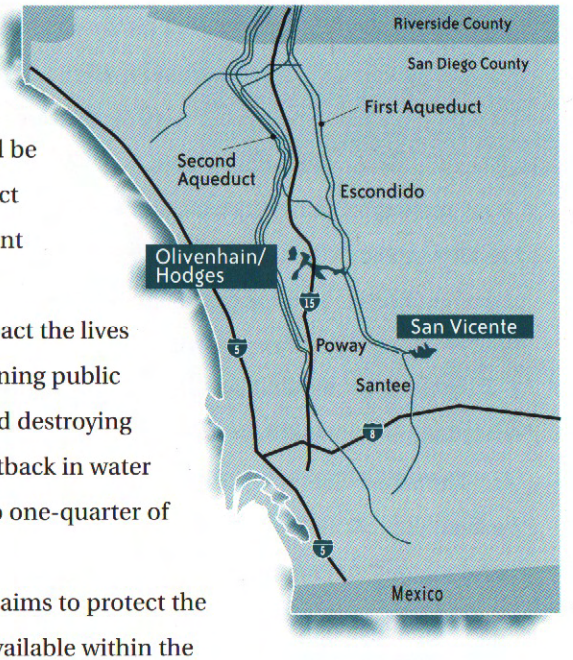
Preparing for Emergencies

The threat of earthquakes, floods and drought looms over Southern California — a large and chilling spectre poised to strike at nature's whim. Although no one can predict exactly when "The Big One" or other natural disaster will strike our region, the Authority is striving to implement vital, preventive measures necessary to protect our water supply and keep it flowing in the event of a natural disaster. To ensure our region has an adequate and reliable water supply if an earthquake or other emergency disrupts the facilities that carry our water, the Authority is moving toward approval of the Emergency Water Storage Project.



Expansion of San Vicente Reservoir is among the preferred alternatives for the proposed Emergency Water Storage Project.

This is especially critical in San Diego County, where we import up to 90 percent of our water — water that must travel across three major earthquake faults and a flood-prone river valley. A major earthquake on the San Andreas or San Jacinto fault in Riverside County would sever half of the San Diego region's normal water supplies for up to six months. A major quake on the Elsinore fault or a big flood on the San Luis Rey River could cut the region off from the imported water we depend on for as long as two months. In either case, San Diego County would be totally dependent on water stored south of the aqueduct breaks until repairs are made — and the county's current reservoir system is inadequate.



The resulting water shortages would severely impact the lives of everyone who lives and works in the county, threatening public health and safety, devastating the region's economy and destroying our quality of life. Research shows that a 60 percent cutback in water supplies over a six-month period could eliminate up to one-quarter of the region's total sales and jobs.

The Authority's Emergency Water Storage Project aims to protect the region's economy by increasing the amount of water available within the county for use during emergencies. In August 1996, the Authority's board of directors certified the Final Environmental Impact Report (EIR) for the Emergency Storage Project. As indicated in the EIR, the board also approved Olivenhain/Lake Hodges/San Vicente as the preferred alternative among four possible emergency systems identified for the Emergency Water Storage Project.

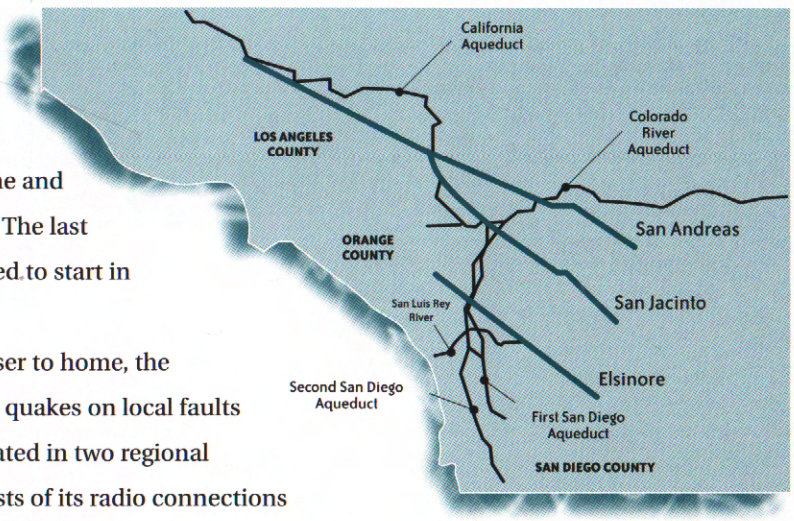
In terms of cost, environmental impacts and location, the proposed alternative will accomplish the Authority's emergency storage objective: to construct or reallocate approximately 90,100 acre feet of reservoir storage and supporting distribution facilities (pipeline and pump stations) to supplement emergency water supplies available to the region to the year 2030. The preferred alternative calls for construction of a new dam and reservoir at Olivenhain with an emergency capacity of 18,000 acre feet, reoperation of Lake Hodges with an emergency capacity of 20,000 acre feet, and expansion of the San Vicente Reservoir with an emergency capacity of 52,000 acre feet. The system will involve 17.3 miles of pipeline and six pump stations ranging from 320 to 42,000 horsepower. Construction of the storage project will be phased over 10 years with completion of the last phase scheduled for 2010.



California is known for its earthquakes–a major threat to our water supply.

The Authority anticipates the U.S. Army Corps of Engineers will prepare a Record of Decision for the Final Environmental Impact Statement and issue a 404 permit in August 1997. The Authority has plans to develop and implement a finance plan by mid-1998 to fund the Emergency Water Storage Project and other capital improvement projects, as well as to prepare the Authority's rate structure for anticipated changes in the water industry. The Authority plans to award design contracts for the Olivenhain Dam and pipeline in July 1998. Construction at Olivenhain is expected to begin in late-1999 and be completed by 2002. The San Vicente to Second Aqueduct Pipeline and San Vicente pump station are scheduled for construction in 2005. The third phase is construction of the Lake Hodges pipeline and pump station, which are expected to be built by 2007. The last phase is raising San Vicente Reservoir, which is planned to start in 2007, with completion anticipated in 2010.

Major earthquake faults in Southern California in relation to water conveyance facilities.



In preparation for an earthquake that strikes closer to home, the Authority helped develop a regional response plan for quakes on local faults that could break pipelines within the county, participated in two regional emergency response exercises, conducted monthly tests of its radio connections to other water agencies and refined its emergency response plan.



The very nature of our mission statement is *customer-oriented*. Meeting our member agencies' needs is what we are all about. To do this effectively, we work closely with our member agencies at all levels. Here, member agency public information representatives C.J. Lucke from Vista Irrigation District and Cynthia Ferguson-Salvati from the city of Escondido discuss regionwide communication issues.

Involving the Community



Like engineering and environmental considerations, the impact on the community is taken into account when the Authority proposes any new water project. The Authority seeks out local planning groups, business, schools, city councils, community leaders and others to provide and receive information on how they might be affected. This input is considered as the Authority plans for or constructs needed water infrastructure programs and projects.

In a far-reaching program such as the proposed water transfer agreement with the Imperial Irrigation District, the Authority understands the need to communicate with those who live and work in this region. During and following the 60-day public comment period on the water transfer's Summary of Draft Terms, Authority staff and board members made more than 85 public presentations to water districts, legislative representatives, and a wide variety of community and municipal organizations. This public feedback is organized and utilized by the board in its planning process. Also, a special "Water Transfer Update" newsletter has been developed and mailed to interested parties on an ongoing basis.

ABOVE RIGHT: Students encounter a hands-on learning experience with the Splash Science Mobile Lab.

BELOW: Education program specialist Kelly Mooney teaches students about San Diego County's water resources.



The Capital Improvement Program (CIP) provides a variety of outreach opportunities on specific projects. During fiscal year 1996-97, public input was important in the construction of the Authority's new pipelines. Also, Authority staff made approximately 200 public contacts regarding right of way and other land use issues along its easements.

Public participation is a major component of the Emergency Water Storage Project. In addition to many successful speakers bureau presentations, the Final Environmental Impact Report/Environmental Impact



The popular Splash Science Mobile Lab is an exciting "field trip" that visits schools throughout the county. The Authority, in collaboration with the county Office of Education, offers this innovative curriculum for fourth- through sixth-graders.

Statement was completed. Two of this document's three volumes are public comments, along with the Authority's responses to those comments.

None of the Authority's efforts to provide a reliable water supply to San Diego County will do any good unless area residents understand this is a semi-arid environment and that water conservation must be their way of life. So the Authority makes education — about where our water comes from and the importance of conservation — a high priority. Through literature distribution, attendance at public events, an internet home page (http://www.sdcwa.org), advertising and other methods, the Authority maintains ongoing efforts to inform the public about water issues, the importance of conservation and the various programs available to them.

The Authority promotes community programs to encourage efficient irrigation and planting of drought-tolerant plants.

Educating children is one of the most effective methods of building lifelong understanding of this region's water needs and establishing the water ethic that conservation is our way of life. This year, the Authority's School Education Program reached 3,367 teachers and 142,253 students through its presentations and training programs about water, helping ensure the next generation will be responsible stewards of this precious resource. The Education Program's outstanding efforts earned it the Association of California Water Agencies' Clair A. Hill Agency Award for Excellence for 1997.





Integrity **is a core value at the Authority. This agency strives to do the right thing, which is apparent in our efforts to protect the environment. Larry Purcell of the Water Resources Department reviews environmental documents to help the Authority determine ways to prevent or mitigate any environmental disturbances.**

Protecting the Environment



As a major utility in San Diego County, the Water Authority has facilities that affect the natural ecosystem of plants and animals. A key goal is to make sure that existing and planned facilities are operated and built in a manner that is sensitive to the environment, and to ensure that unavoidable impacts are mitigated. During the past fiscal year, several programs were undertaken to achieve those goals.

RIGHT: A biologist monitors California gnatcatcher habitat near an Authority construction project.

In the North County, revegetation efforts for the North County Distribution Pipeline were completed, as was a biological survey for the Valley Center Pipeline. Of particular note at the Valley Center Pipeline was the discovery of threatened California gnatcatchers breeding in a very small vegetated area between Interstate 15 and Highway 395. The pipeline project included construction of a tunnel in this area, and biologists were surprised and pleased to see that the tiny birds not only bred but successfully fledged young in the immediate vicinity of construction. At Keyes Creek, the pipeline survey searched for the endangered least Bell's vireo, southwestern willow flycatcher and arroyo toad, but none were found.

BELOW: The endangered thread-leafed brodiaea grows in vernal pools near pipelines and is continually monitored by the Authority and the California Department of Fish and Game.



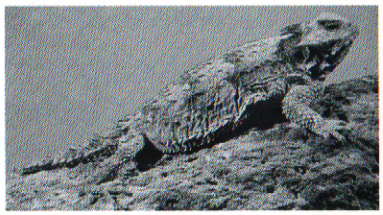
Construction of the Rancho Penasquitos Pipeline between Elfin Forest and Mercy Road required clearing of coastal sage scrub at several locations. This is preferred habitat for the California gnatcatcher, San Diego horned lizard and orange-throated whiptail lizard. Clearing had to be completed prior to the spring breeding season in order to avoid impacting nesting gnatcatchers. The Authority continued to monitor for the birds' presence in nearby habitat throughout the breeding season. The same species surveying done for the Valley Center Pipeline was done for the Rancho Penasquitos Pipeline. None of these species was found, but the effort turned up substantial populations of western pond turtles in



During construction of the Rancho Penasquitos Pipeline, Escondido Creek was protected by a temporary sandbag diversion preventing damage to the riparian habitat.

Escondido and Lusardi creeks. Turtles were relocated to nearby suitable habitat and are expected to naturally repopulate restored stream crossings after construction.

Revegetation also continued in disturbed areas in Mission Trails Regional Park. One unusual effort was to test methods of revegetation for coastal sage scrub, which was done in native soil that had been placed as a permanent cover on top of the Flow Regulatory Structure. Three test strips included hydro-seeding, hand-application and drill-seeding. All methods were equally successful, allowing the Authority more flexibility in revegetation-seeding methods, with possible cost reductions.



The San Diego horned lizard is a rare species that inhabits coastal sage scrub.



The Authority strives for *organizational excellence* by being our best and taking pride in what we do. At the heart of what we do is delivering water. Andy Vano of the Right of Way Department works to keep land around our pipelines clear.

Being Our Best

At the end of the fiscal year, 179 employees worked at the Authority in its main administrative office in San Diego, an annex to the main building and the Heilbron Operations Center in Escondido.

Department heads as of June 30, 1997, are listed below.

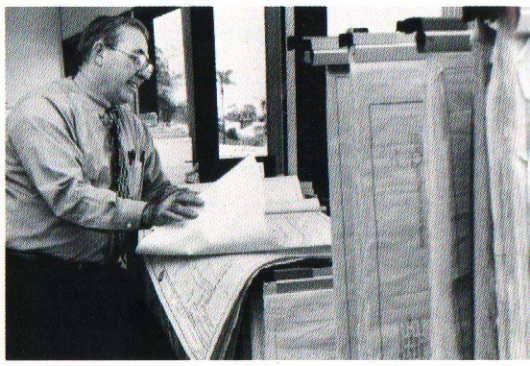
THE OFFICE OF THE GENERAL MANAGER manages and directs the activities of the Authority and provides staff support and assistance to the board of directors. The office includes special programs, such as water transfers, as well as the budget for expenses incurred by the board of directors. Maureen A. Stapleton serves as the Authority's general manager and Christopher J. Guild serves as deputy general manager.

THE OFFICE OF THE GENERAL COUNSEL is headed by Vincent F. Biondo Jr., the general counsel, who is appointed by the board of directors and is responsible for providing comprehensive legal support to meet Authority goals and objectives. The Office of the General Counsel provides in-house legal assistance to the board, the Emergency Storage Project, and regarding right of way acquisition and protection.

ENGINEERING is responsible for the planning, design and construction of Authority facilities required to improve aqueduct system reliability and flexibility in meeting existing and projected water demands of the Authority's member agencies. John Economides is the director of Engineering and Michael Stift serves as assistant director of Engineering.

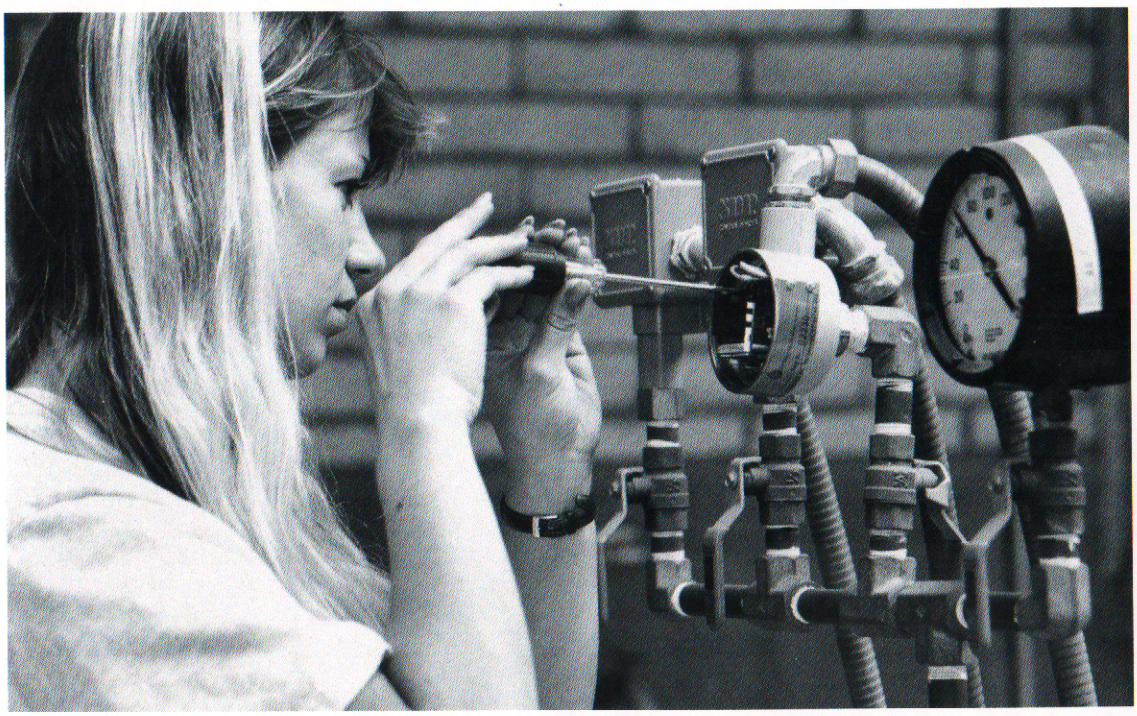
RIGHT OF WAY is responsible for the acquisition of all land and land rights to support the Capital Improvement Program. Directed by Tom Nutt, the department is also responsible for managing acquired lands, processing requests for joint use of the right of way and maintaining map information.

OPERATIONS AND MAINTENANCE controls and maintains the Authority's aqueducts and related facilities. Directed by Gene Nordgren, the department is responsible for 263 miles of large-diameter pipeline, with more than 1,600 related structures occupying some 1,400 acres of right of way in San Diego County.



Bill Busch of the Right of Way Department surveys service area maps.

WATER RESOURCES PLANNING is responsible for providing demand and supply projections, maintaining water delivery, storage, use and quality data and performing and administering a variety of water management studies and programs. Under Larry Purcell's direction as acting director of



Marianne Brazell, a Technical Services technician, performs routine maintenance at a pump station.

water resources, the department also administers water conservation programs and environmental regulatory compliance.

IMPORTED WATER, headed by Gordon Hess, is responsible for the Authority's activities with respect to the Metropolitan Water District of Southern California, the Colorado River and Bay-Delta issues. The department also provides support for the proposed Imperial Irrigation District water transfer.

FINANCE is responsible for the finance, treasury, accounting and budgeting operations of the Authority. During the 1996-97 fiscal year, Jim Munson served as acting director of finance. Bob Campbell served as the Authority's treasurer, responsible for the investment of all funds not immediately required for the business operations.

PUBLIC AFFAIRS is responsible for communicating with the general public, business, government officials, community leaders and others. Under acting Public Affairs Director Mark Stadler, the department focuses on encouraging involvement in, and gaining support for, the Authority's efforts to provide a safe, reliable water supply to the San Diego region.

HUMAN RESOURCES, under the direction of Malcolm Glover, provides a full range of services that assist the Authority in achieving its organizational goals. The department's responsibilities include recruiting employees to fill staffing needs, providing training programs to improve employees' skills and working on employee relations matters to resolve problems.

ADMINISTRATIVE SERVICES, under the direction of Susan Cole, has responsibility for information systems, purchasing, warehousing operations, the Emerging Business Enterprise program and administrative support of the board of directors.



The Authority is *team-oriented*, bringing together expertise from a range of disciplines to provide a comprehensive approach to projects. At right, engineering staff members Mario Garcia and Kathy Schuler examine engineering drawings and discuss project specifications.

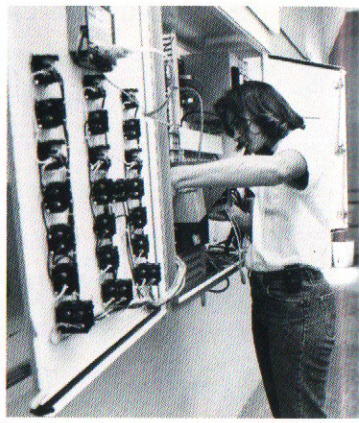
REFLECTIONS ON DIVERSITY

The community the Authority serves is a diverse one. The Authority seeks to reflect that diversity in its staff and with contractors and consultants it hires.

The Authority is an equal opportunity employer that does not discriminate against any employee or applicant because of race, color, national origin, ancestry, religion, age, sex, marital status, or non-job-related physical or mental handicap. Maintaining a non-discriminatory working environment in which all individuals are treated fairly is a primary objective at the Authority.

The Authority often seeks the expertise of others to best achieve its objectives. Our consultant database contains hundreds of firms with expertise ranging from biotechnical engineering to graphic design. In addition, the Authority solicits outside expertise by advertising in regional trade journals and local newspapers.

It is the policy of the Authority to promote and maximize opportunities for all firms, including Emerging Business Enterprises (EBE), to participate in procurement activities. EBEs are small businesses owned by women, economically disadvantaged individuals or disabled veterans that are certified with Caltrans. Authority staff members are involved with professional organizations as a way to encourage EBE companies to submit bids and proposals each time the agency seeks contractor or consultant assistance. These companies are also targeted through advertisements in trade journals



RIGHT: Sandi Stoner, a Technical Services technician, performs routine maintenance at a pump station.

and ethnically focused newspapers. This year, the Authority committed $69.2 million for outside contracting services, of which $5.2 million was awarded to EBEs.

EMPLOYEE RELATIONS

Three bargaining units are represented at the Authority, including the Professional/Administrative Group, Technical/Support Group and the Managerial/Supervisory Group. Through participation in an extensive meet and confer process, all three groups have signed three-year agreements with the Authority.

The Authority prides itself on the high-caliber people working here. The agency works to ensure that employees are fairly compensated for the jobs they do. During the course of fiscal year 1996-97, the Authority conducted an agencywide classification and compensation study, including a complete evaluation of all the Authority's job descriptions and a comparison of Authority position classifications and their compensation to corresponding positions in similar agencies.



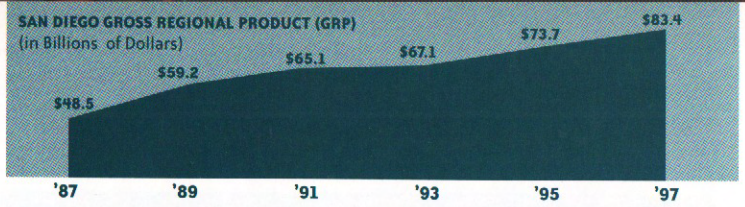


Dean Vargo, left, and Ken Teter discuss plans for maintenance in the field.

One of the ways the agency seeks to demonstrate pride in its staff is through incentives programs, which provide awards for Employee of the Quarter and Employee of the Year, as well as for outstanding attendance, for years of service and for suggestions. The annual Incentive Awards Banquet provides a forum to honor award recipients in the presence of their co-workers, families and friends.

The 1996-97 employees of the quarter were: Sharon Elliott, Will Kane, Cindy Done and Gene Bencivenga. Gene Bencivenga was also named Employee of the Year.

Maintaining a skilled, highly trained work force is essential if the Authority is to fulfill its mission of providing a safe, reliable water supply. The Authority encourages its employees to hone their skills by providing a tuition reimbursement program that helps defray employees' education expenses. To help keep the organization running smoothly, Authority employees participate in regular training programs, such as those administered this year: conducting effective presentations and meetings, defensive driving, earthquake preparedness, hazardous material handling, confined space, construction safety, and hearing conservation.



It is the public's money that pays for work the Authority does to provide this region's $83 billion economy with water. We take great care to be *fiscally responsible* in our expenditures and investments.

The Cost of Water and Water Shortages



ABOVE: Seaport Village is one of many attractions that makes San Diego a popular tourist destination.

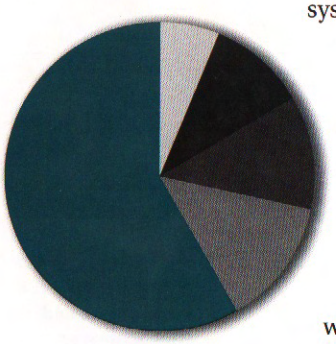
BELOW RIGHT: San Diego's industries are vital to this region's economy.

San Diego County boasts a diverse, $83 billion economy that ranks it third in the state. That economic strength translates into jobs to sustain the families that call this region home. A reliable water supply is critical to our economic health and the quality of life enjoyed by those who live here. Most of the water we use comes from hundreds of miles away. The cost of water here reflects, in large part, the expense of transporting that water from its sources in Northern California and the Colorado River.

In FY '97, the Authority did not increase the $80-an-acre-foot rate it charges member agencies for water, but the Metropolitan Water Authority of Southern California increased the water rate it charges the Authority. MWD untreated water rates increased from $344 to $349 an acre foot, while treated water rates increased from $426 to $431 an acre foot. The Authority passed these increases on to its member agencies.

Other water costs imposed by MWD include the New Demand Charge and the Readiness-to-Serve charge. The New Demand Charge is designed to recover the cost of accommodating new demand for MWD water and is allocated to each MWD member agency according to its use of MWD water above a specified base level. This charge will not actually be imposed by MWD until its total, systemwide water sales reach 2.2 million acre feet a year; sales are now at 1.6 million acre feet a year.

The Readiness-to-Serve charge helps cover MWD's costs for construction projects necessary to meet the water needs of the region's current population. The charge is fixed each year and is allocated to the Authority and MWD's other member agencies based on a rolling average of historic water purchases from MWD. The Authority passed these increases on to its member agencies.



SAN DIEGO COUNTY WATER USE

Residential	58%
Commercial	13%
Industry/Government	12%
Agriculture	11%
Other	6%

The Readiness-to-Serve charge and MWD's water rate increase raised the wholesale water rate to the Authority by 3 percent in FY '97.

Ensuring water continues to flow to this semi-arid county comes at a price. But without the water we need, existing businesses cannot be sustained, new enterprises cannot thrive and grow, and preserving our quality of life for county residents becomes impossible.



Selected Financial Information

To protect the public's money, the Authority practices conservative investment policies. Top priority is placed on the safety of the principal and maintaining the liquidity needed to run the agency. Once these criteria are met, investment yield is considered.

The treasurer's cash accountability was as follows as of June 30, 1997, and 1996:

PORTFOLIO MASTER SUMMARY

INVESTMENT TYPE	PERMITTED BY BOARD POLICY	1997 ACTUAL PERCENTAGE	1997 ACTUAL AMOUNT	1996 ACTUAL AMOUNT
Local Agency Investment Fund	$20 million	6.43	10,849,496	18,499,949
Bankers Acceptances	20%	2.93	4,941,418	10,266,355
Treasury Securities	50% - Minimum	48.76[1]	82,290,874	94,036,411
Repurchase Agreements	20%	0.00	--	--
Reverse Repurchase Agreements	20%	0.00	--	--
Certificates of Deposit	15%	0.00	--	--
Negotiable Certificates of Deposit	5%	3.55	5,999,296	6,500,985
Commercial Paper	15%	11.19	18,880,197	6,937,678
Federal Agency Securities	20%	12.98	21,905,898	28,163,530
Medium Term Corporate Notes	15%	13.27	22,395,790	17,296,114
Money Market Funds	15%	0.90	1,521,402	3,025,698
Arbitrage Rebate			211,101	204,822
Checking/Petty Cash			1,648,292	354,214
BOND PROCEEDS EXCLUDED FROM PORTFOLIO PERCENTAGES:				
Societe General - 1991 A/B Bond Reserve (GIC)			25,799,236	25,804,244
TOTAL CASH AND INVESTMENTS			**196,443,000**	**211,090,000**

(1) Deviation from 50% minimum corrected in July 1997

As of June 30, 1997, and 1996, restricted reserve fund cash balances were as follows:

	1997	1996
Construction	8,876,663	33,663,934
Rate Stabilization	36,453,000	55,453,000
Pay-As-You-Go	103,799,000	77,388,000
Debt Service Reserve	25,799,236	25,804,244
Equipment Replacement Fund	1,900,000	-
Interest Arbitrage Rebate	211,101	204,822
TOTAL	**177,039,000**	**192,514,000**

As of June 30, 1997, and 1996, unrestricted cash balances were as follows:

	1997	1996
Operating	19,404,000	18,576,000

In the 1996-97 fiscal year, the Authority facilitated the refund of $19 million in excess reserves from MWD to the Authority's member agencies. This year also marked the implementation of the payroll, accounts payable, budget preparation and general ledger modules of the Peoplesoft Integrated Financial Management computer system. The annual update to the Statement of Investment Policy was completed during the fiscal year. Additionally, the Long Range Financing Plan was updated which revised the Authority's rate stabilization and operating fund policies.

For the second consecutive year, the Government Finance Officers Association honored the Authority with the Distinguished Budget Presentation award, making the Authority one of 700 government entities in the country to be recognized.

INCOME STATEMENT

Statements of revenues, expenses and changes in retained earnings
Years ended June 30, 1997, and 1996

OPERATING REVENUES	1997	1996
Water sales	219,072,000	194,587,000
TOTAL OPERATING REVENUES	**219,072,000**	**194,587,000**
OPERATING EXPENSES		
Cost of water sold	180,033,000	160,132,000
Operations & Maintenance	5,695,000	4,726,000
Planning & reclamation	1,762,000	2,443,000
General & administrative	6,557,000	6,236,000
Depreciation & amortization	6,115,000	4,985,000
TOTAL OPERATING EXPENSES	**200,162,000**	**178,522,000**
NON-OPERATING REVENUES		
Interest	12,629,000	13,282,000
Property taxes	5,525,000	5,465,000
Capacity charge	11,351,000	9,869,000
Water Availability	10,797,000	10,490,000
TOTAL NON-OPERATING REVENUES	**40,302,000**	**39,106,000**
NON-OPERATING EXPENSES		
Interest	2,614,000	4,196,000
TOTAL NON-OPERATING EXPENSES	**2,614,000**	**4,196,000**
NET INCOME	**56,598,000**	**50,975,000**
Transfer from reserve for rate stabilization	19,000,000	-
Retained earnings, beginning of year	322,998,000	272,023,000
Retained Earnings End of Year	**398,596,000**	**322,998,000**

ASSETS

June 30, 1997, and 1996

CURRENT ASSETS	1997	1996
Cash and equivalents	19,404,000	18,576,000
Accounts receivable	42,555,000	42,400,000
Inventories	10,496,000	9,166,000
Other current assets	290,000	259,000
TOTAL CURRENT ASSETS	**72,745,000**	**70,401,000**
RESTRICTED ASSETS		
Cash & cash equivalents	11,106,000	30,321,000
Investments	165,933,000	162,193,000
TOTAL RESTRICTED ASSETS	**177,039,000**	**192,514,000**
PROPERTY, PLANT AND EQUIPMENT		
Water systems	516,041,000	181,133,000
Buildings	25,751,000	5,928,000
Automobiles and equipment	8,843,000	9,789,000
Construction in progress	201,644,000	488,939,000
Less: accumulated depreciation	(62,137,000)	(56,536,000)
TOTAL PROPERTY, PLANT AND EQUIPMENT	**690,142,000**	**629,253,000**
Deferred compensation deposit	6,526,000	4,992,000
Other assets	6,609,000	7,187,000
TOTAL ASSETS	**953,061,000**	**904,347,000**

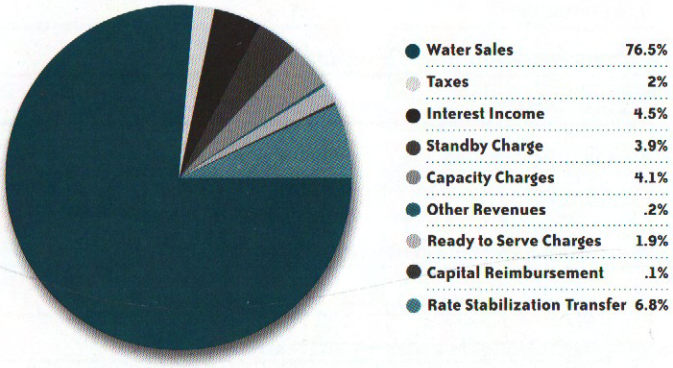
LIABILITIES AND FUND EQUITY

June 30, 1997, and 1996

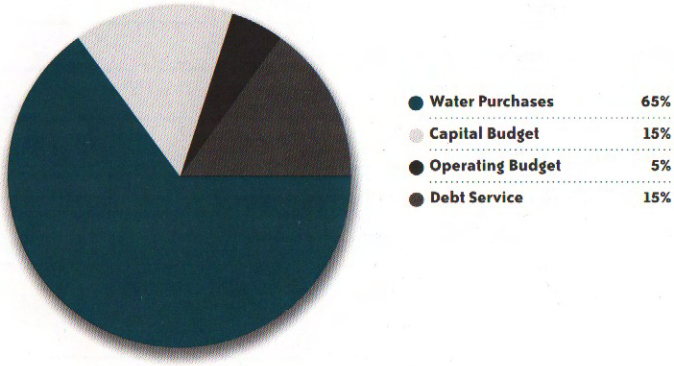
CURRENT LIABILITES	1997	1996
Current installments of long-term debt	$15,755,000	15,044,000
Accounts payable	53,138,000	47,664,000
TOTAL CURRENT LIABILITIES	**68,893,000**	**62,708,000**
LIABILITIES TO BE PAID FROM RESTRICTED ASSETS		
Deferred compensation plan	6,526,000	4,992,000
TOTAL LIABILITIES TO BE PAID FROM RESTRICTED ASSETS	**6,526,000**	**4,992,000**
LONG-TERM DEBT, EXCLUDING CURRENT PORTION		
1966 GO Bond	9,104,000	11,340,000
1991 COP Series	265,705,000	269,040,000
1993 COP Series	111,570,000	121,805,000
Commercial paper	40,000,000	40,000,000
TOTAL LONG-TERM DEBT	**426,379,000**	**442,185,000**
TOTAL LIABILITIES	**501,798,000**	**509,885,000**
FUND EQUITIES		
Contributions in aid of construction	16,214,000	16,011,000
Retained earnings	435,049,000	378,451,000
TOTAL FUND EQUITY	**451,263,000**	**394,462,000**
TOTAL	**953,061,000**	**904,347,000**

SOURCE AND APPRECIATIONS OF CASH

SOURCES OF CASH	1997
Water Sales	213,246,936
Taxes	5,525,276
Interest Income	12,628,982
Standby Charges	10,797,459
Capacity Charges	11,350,619
Other Revenues	672,936
Ready to Serve Charge	5,161,038
Capital Reimbursement	203,206
Rate Stabilization Transfer	19,000,000
Pay-As-You-Go Draw	-
TOTAL SOURCES OF CASH	**278,586,452**



EXPENDITURES	1997
Water Purchases	180,031,904
Operating Budget	14,014,000
Capital Budget	42,858,776
Debt Service	40,858,656
TOTAL EXPENDITURES	**277,763,336**



Appendix

APPENDIX

TABLE 1

WATER SOURCE AND USE
FISCAL YEAR 1996-97
(Compilation of data furnished by member agencies.)

	SOURCE OF WATER		TYPE OF WATER USE				
	LOCAL SUPPLY (1) AF	AUTHORITY SUPPLY AF	AGRICULTURAL USE (4) AF	M&I USE AF	TOTAL AF	GROSS AREA ACRES	ESTIMATED POPULATION
Carlsbad M.W.D.	1,522.01	6,010.5	1,336.81	6,195.71	7,532.5	20,640.25	8,000
Del Mar, City Of	0.0	1,517.6	0.0	1,517.6	1,517.6	1,159.0	5,211
Escondido, City Of	11,011.0	18,861.7	2,681.2	27,191.5	29,872.7	21,568.9	118,286
Fallbrook P.U.D.	845.2	14,021.2	6,468.0	8,398.4	14,866.4	27,988.0	26,800
Helix W.D.	4,669.5	36,201.9	0.0	40,871.4	40,871.4	31,347.0	232,401
National City, City Of	5,095.1	1,699.2	0.0	6,794.3	6,794.3	5,576.8	55,625
Oceanside, City Of	2,427.0	29,724.4	1,414.4	30,737.0	32,151.4	26,574.5	147,200
Olivenhain M.W.D.	230.0	15,233.8	695.6	14,768.2	15,463.8	30,466.0	42,264
Otay W.D.	901.0	24,560.4	157.0	25,304.4	25,461.4	63,180.0	105,929
Padre Dam M.W.D.	478.0	19,326.1	581.8	19,222.3	19,804.1	54,435.5	132,038
Pendleton Military Res.	4,394.0	111.5	0.0	4,505.5	4,505.5	134,625.0	50,000
Poway, City Of	166.2	12,658.7	453.3	12,371.6	12,824.9	23,214.0	45,500
Rainbow M.W.D.	0.0	24,816.6	13,934.3	10,882.3	24,816.6	47,260.0	14,693
Ramona M.W.D. [2]	1,459.7	10,589.7	2,939.8	9,109.6	12,049.4	46,524.0	33,500
Rincon Del Diablo M.W.D.	0.0	7,264.4	805.3	6,459.1	7,264.4	10,596.0	26,000
San Diego, City Of [3]	74,950.4	161,776.6	44.7	236,682.3	236,727.0	210,625.7	1,183,102
San Dieguito W.D.	3,795.4	4,508.9	0.0	8,304.3	8,304.3	5,652.0	35,981
Santa Fe I.D.	5,963.2	7,362.9	202.7	13,123.4	13,326.1	10,178.6	20,032
South Bay I.D.	11,012.7	6,241.1	0.0	17,253.8	17,253.8	15,565.8	109,735
Vallecitos W.D.	0.0	13,815.3	2,146.3	11,669.0	13,815.3	28,635.0	66,868
Valley Center M.W.D.	300.0	38,743.9	30,669.0	8,374.9	9,043.9	61,022.0	20,826
Vista I.D.	10,006.9	12,100.6	398.2	21,709.3	22,107.5	19,407.0	109,000
Yuima M.W.D.	3,810.6	1,554.4	1,476.0	3,889.0	5,365.0	12,791.9	1,870
TOTALS	**143,038.9**	**478,701.4**	**66,404.4**	**555,399.9**	**621,739.3**	**909,032.8**	**2,640,861**

(1) Includes surface, reclaimed and groundwater supplies, does not reflect conserved water.
(2) Local water use includes Lake Sutherland water purchased from city of San Diego.
(3) Includes production by city of San Diego for areas outside city (not in Authority service area).
(4) Only amounts certified through the Interim Agricultural Water Program.

Note: AF=Acre feet

APPENDIX

TABLE 2

ASSESSED VALUATION

	ASSESSED VALUATION – SECURED AND UNSECURED	
	1995-96 TOTAL	1996-97 TOTAL
Carlsbad M.W.D.	$5,052,524,525	$5,230,066,662
Coronado, City of [1]	—	—
Del Mar, City Of	796,709,661	818,770,912
Escondido, City Of	3,007,734,767	3,005,330,991
Fallbrook P.U.D.	1,372,184,206	1,372,436,783
Helix W.D.	9,592,072,830	9,569,278,965
National City, City Of	1,465,824,844	1,451,717,999
Oceanside, City Of	6,606,893,683	6,497,138,953
Olivenhain M.W.D.	4,494,654,986	4,609,661,432
Otay W.D.	6,556,630,831	6,607,554,469
Padre Dam M.W.D.	4,689,431,929	4,763,568,369
Pendleton Military Res.	142,002,527	146,837,346
Poway, City Of	3,180,274,369	3,175,098,884
Rainbow M.W.D.	1,404,575,266	1,396,750,565
Ramona M.W.D.	1,539,862,918	1,556,794,114
Rincon Del Diablo M.W.D.	3,084,303,968	3,065,324,702
San Diego, City Of	67,158,514,403	67,327,690,135
San Dieguito W.D.	2,401,540,635	2,473,355,971
Santa Fe I.D.	3,420,626,720	3,533,145,565
South Bay I.D.	4,646,628,481	4,397,278,941
Vallecitos W.D.	3,109,034,911	3,100,712,464
Valley Center M.W.D.	1,575,997,271	1,576,265,722
Vista I.D.	4,751,354,006	4,730,653,955
Yuima M.W.D.	171,771,233	171,527,573
TOTAL AUTHORITY	**$140,291,148,970**	**$140,576,961,472**
SAN DIEGO COUNTY [2]	**$148,764,295,593**	**$149,111,807,364**

(1) Excluded from CWA
(2) Excluding 1,450,000 acres of non-taxable land in San Diego County

APPENDIX

TABLE 3

SUMMARY OF WATER RATES

(Dollars per acre foot.)

		METROPOLITAN WATER DISTRICT				COUNTY WATER AUTHORITY					
		RATE				CWA RATE		TOTAL RATE (RATE CHARGED TO MEMBER AGENCIES)			
		NON-INTERRUPTIBLE		INTERRUPTIBLE				NON-INTERRUPTIBLE		INTERRUPTIBLE	
FROM	TO	UNTREATED	TREATED	UNTREATED	TREATED	UNTREATED	TREATED	UNTREATED	TREATED	UNTREATED	TREATED
1/01/88	6/30/88	$197.00	$230.00	$153.00	$186.00	$15.00	$22.00	$212.00	$252.00	$168.00	$208.00
7/01/88	12/31/88	$197.00	$230.00	$153.00	$186.00	$20.00	$27.00	$217.00	$257.00	$173.00	$213.00
1/01/89	6/30/89	$197.00	$230.00	$153.00	$186.00	$25.00	$32.00	$222.00	$262.00	$178.00	$218.00
7/01/89	6/30/90	$197.00	$230.00	$153.00	$186.00	$40.00	$47.00	$237.00	$277.00	$193.00	$233.00
7/01/90	6/30/91	$197.00	$230.00	$153.00	$186.00	$40.00	$47.00	$237.00	$277.00	$193.00	$233.00
7/01/91	6/30/92	$222.00	$261.00	—	—	$55.00	$62.00	$277.00	$323.00	—	—
7/01/92	6/30/93	$269.00	$322.00	—	—	$55.00	$62.00	$324.00	$384.00	—	—
7/01/93	6/30/94	$318.00	$385.00	—	—	$70.00	$70.00	$388.00	$455.00	—	—
7/01/94	6/30/95	$335.00	$412.00	—	—	$70.00	$70.00	$405.00	$482.00	$292.00	$345.00
7/01/95	12/31/96	$344.00	$426.00	—	—	$80.00	$80.00	$424.00	$506.00	$311.00	$369.00
1/01/97	6/30/97	$349.00	$431.00	—	—	$80.00	$80.00	$429.00	$511.00	$236.00	$294.00

Note:

Beginning in the year 1989, a seasonal water rate was in effect from October 1 until April 30.
The MWD seasonal rate was $115 for untreated water and $135 for treated water in 1989-90.
MWD seasonal rates were $115/$135 in 1990-91, $130/$154 in 1991/92, $168/$203 for 1992/93.
$208/$253 for 1993/94, $222/$275 for 1994/95, and $229/$286 for 95/96, January '97 $233/$290.

Beginning April 1, 1991, the interruptible (and agricultural) rate was suspended by MWD.
Beginning May 1, 1994, the MWD agricultural rate was $205/$248.
Beginning July 1, 1994, the MWD agricultural rate was $222/$275.
Beginning July 1, 1995, the MWD agricultural rate was $231/$289.

APPENDIX

TABLE 4

GENERAL MINERAL AND PHYSICAL ANALYSES OF METROPOLITAN WATER DISTRICT'S WATER SUPPLIES FISCAL YEAR 1996-97 AVERAGES

			SOURCE WATERS							FILTRATION PLANT EFFLUENTS					
CONSTITUENTS	SYMBOLS AND UNITS		LAKE HAVASU NEAR WHITSETT INTAKE	SAN JACINTO TUNNEL WEST PORTAL	LAKE MATHEWS	CASTAIC LAKE AT JENSEN INFLUENT	SILVER-WOOD LAKE AT DEVIL CANYON	LAKE PERRIS	LAKE SKINNER	WEYMOUTH PLANT	DIEMER PLANT	JENSEN PLANT	SKINNER PLANT NO. 1	SKINNER PLANT NO. 2	MILLS PLANT
Silica	SiO_2	mg/L	9.3	8.9	9.6	15.2	15.7	5.6	9.6	10.8	11.0	15.0	9.3	9.5	13.6
Calcium	Ca	mg/L	78	77	76	40	19	27	67	68	69	40	66	67	23
Magnesium	Mg	mg/L	29	29	29.5	16	8.5	17.5	26	27	27.5	16.5	26	26	11.5
Sodium	Na	mg/L	97	98	101	48	30	79	89	92	93	50	88	89	46
Potassium	K	mg/L	4.4	4.4	4.6	2.9	2.1	4.1	4.2	4.2	4.2	2.8	4.2	4.1	2.6
Carbonate	CO_3	mg/L	0	1	1	0	0	4	1	0	0	0	0	0	1
Bicarbonate	HCO_3	mg/L	162	159	154	113	85	119	146	139	145	116	142	144	88
Sulfate	SO_2	mg/L	262	262	270	105	26	57	224	238	242	105	222	227	45
Chloride	Cl	mg/L	87	87	91	49	36	108	85	88	89	51	87	87	61
Nitrate	NO_3	mg/L	0.85	0.78	0.54	1.94	2.28	0.17	0.55	0.84	0.87	1.88	0.46	0.53	2.15
Fluoride	F	mg/L	0.32	0.30	0.30	0.26	0.13	0.16	0.25	0.22	0.23	0.23	0.24	0.22	0.12
Boron	B	mg/L	0.12	0.12	0.13	0.35	0.11	0.23	0.13	0.14	0.13	0.34	0.13	0.13	0.16
Total dissolved solids	TDS	mg/L	649	648	660	335	182	363	580	599	609	341	575	582	250
Total hardness as $CaCO_3$		mg/L	314	313	312	165	83	141	274	281	285	167	272	274	104
Total alkalinity as $CaCO_3$		mg/L	133	132	128	93	70	105	121	114	119	95	116	118	74
Free carbon dioxide	CO_2	mg/L	1.4	1.2	1.3	3.4	1.2	0.6	1.2	2.1	2.2	1.5	2.1	2.1	0.5
H* concentration	pH		8.28	8.36	8.31	7.74	8.09	8.53	8.31	8.03	8.03	8.11	8.06	8.06	8.44
Specific conductance		µmho/cm	1020	1022	1040	558	315	668	932	963	975	568	927	935	440
Color		CU	4	3	4	3	37	4	3	2	1	2	2	2	2
Filter effluent turbidity		NTU	—	—	—	—	—	—	—	0.07	0.08	0.06	0.09	—	0.07
Turbidity		NTU	0.86	0.47	0.84	0.78	10.3	0.62	2.7	0.07	0.08	0.06	0.09	0.07	0.07
Temperature		°C	20	20	19	15	16	20	22	20	20	15	22	22	22
Asbestos		MFL	—	ND	ND	0.2	5.2	ND	ND	ND	ND	ND	ND	ND	ND
Bromide*	Br	mg/L	0.09	0.08	0.09	0.14	0.11	0.34	0.10	0.09	0.09	0.14	0.10	0.10	0.16
Cyanide	CN	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Foaming agents (MBAS)		mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total organic carbon	TOC	mg/L	2.49	2.78	3.04	2.95	2.82	4.19	2.79	2.50	2.54	2.91	2.75	2.57	2.52
Total trihalomethanes	TTHM	µg/L	—	—	—	—	—	—	—	39	39	51	48	37	60
Threshold odor number	TON		8	8	35	4	24	12	4	1.4	3	1.4	1.4	2	2
% State Project Water	%SPW	%	0	0	0	100	100	100	16	14	12	100	16	17	95

ND = None Detected
*Treatment plant bromides are influent values
Source: Metropolitan Water District

Credits

Published by the **San Diego County Water Authority Public Affairs Department**

Designed and produced by **viadesign**

Photography:

Robert Burroughs	Page 5 (fountain)
Linda O'Neill	Employee photos
San Diego County Water Authority	All others

Printed by **Continental Graphics**



San Diego County
Water Authority

San Diego Office

3211 Fifth Avenue

San Diego, California 92103-5718

619-682-4100 Tel

619-297-0511 Fax

Heilbron Operations Center in Escondido

610 West Fifth Avenue

Escondido, California 92025-4041

760-480-1991 Tel

760-480-9867 Fax

http://www.sdcwa.org