

● **Board of Directors**
Water Planning, Quality and Resources Committee

August 20, 2001 Board Meeting

8-9

Subject

Appropriate \$1.6 million for the fifth year funding of the Desalination Research and Innovation Partnership for the treatment of brackish water sources (Appn. 15301)

Description

The Desalination Research and Innovation Partnership (DRIP) has completed the fourth year of an eight-year effort of applied research to develop and demonstrate new technologies to substantially reduce the cost of desalinating and disinfecting Colorado River water and other brackish water sources. DRIP is a public/private consortium formed in 1997 and the participating member agencies/subagencies include San Diego County Water Authority, West Basin Municipal Water District, and Orange County Water District. The overall project goal for DRIP is to develop design specifications for next-generation desalination and disinfection technologies which can economically treat large volumes of brackish water for potable and non-potable uses. Approval of this request will authorize an increase of \$1.6 million in Appropriation No. 15301 to a total of approximately \$6.3 million to cover the fifth year of the project.

Major planned objectives for the fifth year of DRIP include continuation of the following treatment process evaluations:

- (1) process scale-up for reverse osmosis (RO) membranes and the ultraviolet (UV) light system;
- (2) membrane scale and biofouling control;
- (3) pilot testing of salinity reduction technologies for brackish groundwater, reclaimed wastewater, and agricultural drainage water; and
- (4) brine handling and disposal

Furthermore, an additional focus this year will be to execute new contracts between Metropolitan and the funding agencies, and between Metropolitan and the individual partners.

Applied research results obtained in the first four years of DRIP indicate the program is on track to achieve the major program objectives of demonstrating cost-effective desalination and UV technologies for a variety of source waters. Technological advancements in either or both of these areas could have a significant positive impact on several major water resources programs impacting Metropolitan, our member agencies, and the state of California. Specifically, successful achievement of the DRIP objectives would help promote the broad goals of the Integrated Resources Plan, the Salinity Management Plan, and the CALFED process addressing Bay-Delta issues.

The total estimated cost for Metropolitan's portion of the DRIP program is \$14.7 million, with the expectation that at least half of this cost (\$7.3 million) will be paid for by outside grant funding awarded to Metropolitan. In addition to Metropolitan's portion of the DRIP work, each of the DRIP partners is receiving grant funding and making significant in-kind contributions for their respective DRIP research projects.

Pursuit of additional outside funding for DRIP is ongoing, and promising funding opportunities continue to emerge. It is expected that the increased appropriation will be significantly leveraged by new, outside funding.

Additional information on the DRIP program is given in [Attachment 1](#). A financial statement is shown in [Attachment 2](#).

Policy

Prior Board direction, reference Board Letter 9-8, dated July 11, 2000.

Board Letter 9-12, dated February 13, 2001, adopting policy principles for brackish and seawater desalination.

CEQA

The proposed action is not defined as a project under the California Environmental Quality Act (CEQA), because it involves government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to CEQA per Section 15378(b)(4) of the State CEQA Guidelines.

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination and appropriate \$1.6 million for the fifth year funding of the Desalination Research and Innovation Partnership.

Fiscal Impact: \$1.6 million of budgeted capital funds.

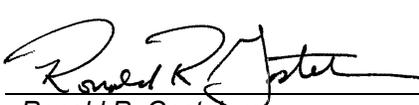
Option #2

Do not appropriate \$1.6 million for the fifth year funding of the Desalination Research and Innovation Partnership.

Fiscal Impact: Benefits of developing lower cost technologies for desalting and disinfecting water will not be realized. In addition, there will be the lost opportunity for Metropolitan to partner with member agencies to receive external funding.

Staff Recommendation

Option #1

 Jill Wicke Manager, Water System Operations	7/12/2001 Date
 Ronald R. Gastelum Chief Executive Officer	7/27/2001 Date

[Attachment 1 – Detailed Report](#)

[Attachment 2 – Financial Statement](#)

DETAILED REPORT

Background

The Desalination Research and Innovation Partnership (DRIP) has completed the fourth year of a planned eight-year applied research program to demonstrate innovative technologies to reduce the cost of desalinating various brackish waters, and to demonstrate scaled-up ultraviolet (UV) technologies for potable water oxidation and disinfection. The DRIP applied research is scheduled for completion in 2005. The Board approved the first four years of the program in July 1997, October 1998, July 1999 and July 2000, respectively.

As shown in Table 1, DRIP currently consists of eight applied research partners, and five funding partners. San Diego County Water Authority (SDCWA), West Basin Municipal Water District (WBMWD), and the Orange County Water District (OCWD) are active DRIP Partners. Three northern California water agencies are also DRIP members: Santa Clara Valley Water District, Alameda County Water District, and Sonoma County Water Agency.

Achievement of the DRIP program objectives will allow development of additional local water supplies, help mitigate the region's dependence on imported supplies, reduce damages due to corrosion and scaling of plumbing fixtures which result from the use of high-salinity water, and could enhance or provide potential treatment alternatives to a Bay-Delta solution. Metropolitan is focusing on Colorado River water, and other DRIP partners are addressing brackish groundwater, municipal wastewater, and agricultural drainage water.

Accomplishments and Goals

The accomplishments of the fourth year of DRIP, and the goals for the fifth year are shown in Table 2.

Outside Funding

A summary of the outside funding received to date by DRIP is shown in Table 3, and the allocation of the funding is shown in Figure 1. The partnership has received \$10,900,000 in outside grant funding, of which \$9,000,000 has been allocated among the partnership. Of this \$9,000,000, \$2,894,000 has been allocated to Metropolitan. The \$1,900,000 recently received from the U.S. EPA has not yet been allocated among the DRIP partners.

Since July 2000, an additional \$7.9 million in grant funding has been awarded to the DRIP consortium. This funding came in three large grants, which are discussed below.

- California Energy Commission (CEC)--In January 2001, the California Energy Commission approved a \$2,000,000 grant to fund an unsolicited proposal submitted by DRIP entitled "Improving Energy Usage, Water Supply Reliability and Water Quality Using Advanced Water Treatment Processes." Metropolitan has approved the contract, and work under this contract will begin in summer 2001.
- U.S. Environmental Protection Agency (U.S. EPA)--Metropolitan, on behalf of DRIP, has been allocated \$1,900,000 as an earmark in the U.S. EPA FY 2001 budget. The funding allocation among the partners, and the technical scope of work for this funding will be developed during summer 2001.

The U.S. EPA is actively involved in the CALFED process, which is addressing Sacramento-San Joaquin Bay-Delta issues. The U.S. EPA's project manager for this funding has indicated that the DRIP program objectives in the areas of desalination and UV are very supportive of some of the goals of the CALFED process. Based on this, and the fact that U.S. EPA has funded DRIP for two consecutive years, future funding opportunities through the U.S. EPA appear promising. Metropolitan's Washington D.C. Legislative Office is currently pursuing earmarked funding in the U.S. EPA's FY 2002 budget.

- California Department of Water Resources (DWR)--Proposition 13, the Safe Drinking Water, Clean Water, Watershed Protection and Flood Control Act (Water Bond) was passed by the California voters in March 2000. The Governor's Budget Act of 2000 appropriated funding to the California Department of Water Resources to implement Proposition 13, including an award of \$4,000,000 to Metropolitan on behalf of DRIP. A contract for this work has been executed with DWR, and DRIP has allocated the funding among the DRIP partners, and submitted detailed work plans. Work under Proposition 13 should commence in early 2002.

TABLE 1

DESALINATION RESEARCH AND INNOVATION PARTNERSHIP

PARTICIPANTS AS OF JULY 2001

- Metropolitan Water District of Southern California
- Orange County Water District
- San Diego County Water Authority
- West Basin Municipal Water District
- Alameda County Water District
- Sonoma County Water Agency
- Santa Clara Valley Water District
- University of California

Funding Partners

- California Energy Commission
- California Department of Water Resources
- U.S. Bureau of Reclamation
- U.S. Environmental Protection Agency
- American Water Works Association Research Foundation

TABLE 2

**DESALINATION RESEARCH AND INNOVATION PARTNERSHIP
ACCOMPLISHMENTS AND GOALS**

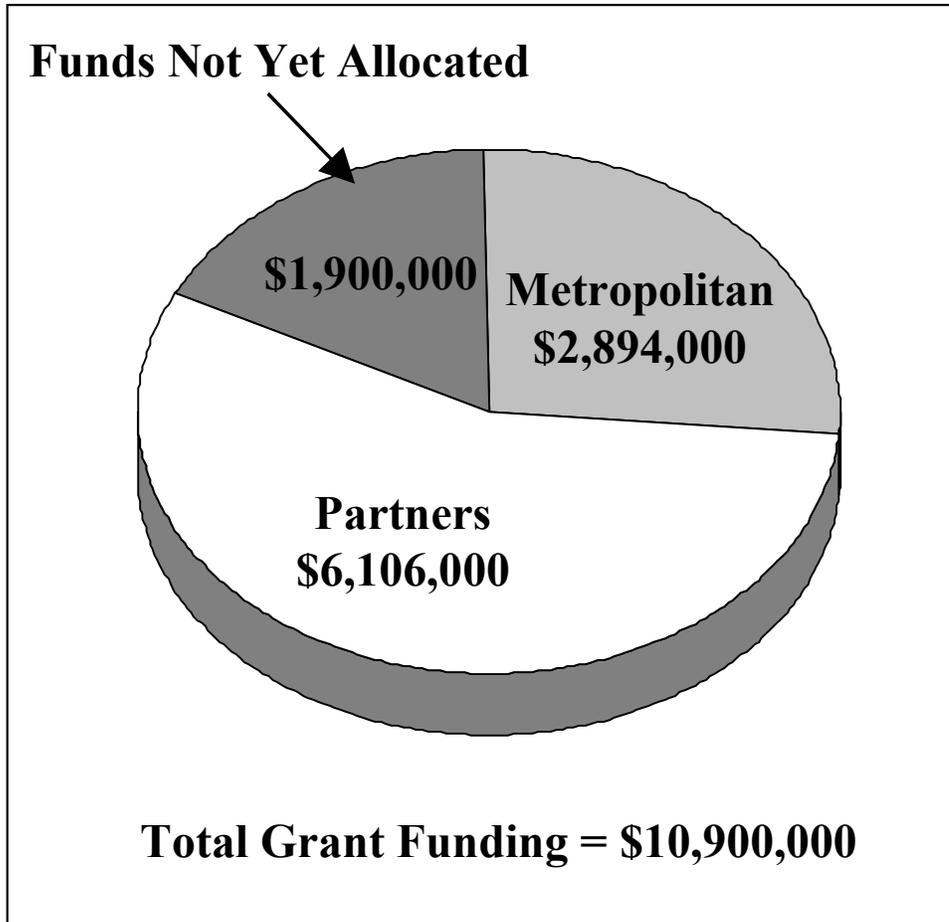
Project Tasks	Fourth Year Accomplishments	Fifth Year Goals
<p>Raise Money/Obtain Partners</p>	<ul style="list-style-type: none"> • Received a \$2,000,000 award from the California Energy Commission under their Public Interest Energy Research (PIER) program • Received \$4,000,000 from the California Department of Water Resources under Proposition 13 (the Water Bond) • Received \$1,900,000 in the U.S. Environmental Protection Agency's FY 2001 budget 	<ul style="list-style-type: none"> • Obtain additional research partners, as appropriate, and raise funds from state and federal sources • Continue efforts to secure funding through federal appropriations • Explore funding opportunities from the CALFED process
<p>Treatment Evaluations</p>	<ul style="list-style-type: none"> • Conducted testing of a large-scale (16" diameter) RO membrane module for treatment of Colorado River water • Evaluated a scaled-up (3 mgd) UV system for disinfection and destruction of micropollutants • Continued an investigation of new, immersed filtration membranes for pretreatment of municipal wastewater prior to RO (OCWD) • Conducted a study of the performance and economics of an electro dialysis reversal (EDR) process for desalination of municipal wastewater (SDCWA) • Initiated pilot testing of a membrane bioreactor as a pretreatment process for municipal wastewater (WBMWD) • Conducted an assessment of agricultural drainage water quality and flows, and conducted pilot testing for desalination of agricultural drainage water (UC Riverside) 	<ul style="list-style-type: none"> • Design a 0.5 - 1.0 mgd RO demonstration unit • Demonstrate large-scale desalination and ultraviolet light (UV) technologies for Colorado River water and municipal wastewater • Evaluate membrane scale and biofouling control options • Conduct pilot testing of new membranes and electrotechnologies for desalination of brackish groundwater, municipal wastewater, and agricultural drainage water • Conduct pilot testing of non-thermal technologies for brine minimization

TABLE 3**GRANT MONEY TO PARTNERSHIP
(AS OF JULY 2001)**

<u>Agency</u>	<u>Amount</u>
Edison/Electric Power Research Institute	\$ 405,000
American Water Works Association Research Foundation	110,000
California Energy Commission - Public Interest Energy Research – (PIER 1)	1,820,000
U.S. Bureau of Reclamation	100,000
U.S. Environmental Protection Agency (FY 2000)	500,000
Calif. Dept. of Water Resources (Proposition 204)	65,000
California Energy Commission - PIER 2	2,000,000
Calif. Dept. of Water Resources (Proposition 13)	4,000,000
U.S. Environmental Protection Agency (FY 2001)	1,900,000
<i>TOTAL FUNDING TO DATE</i>	<i>\$10,900,000</i>

FIGURE 1

**GRANT MONEY TO PARTNERSHIP
(AS OF JULY 2001)**



FINANCIAL STATEMENT

A breakdown of Board Action No. 4 for Appropriation No. 15301 to finance the fifth year of funding for the Desalination Research and Innovation Partnership is as follows:

	BOARD ACTION NO. 4
Labor	950,603
Material and Supplies	610,454
Professional/Technical	176,764
Incidental Expenses	12,952
Operating Equipment	3,083
Administrative Overhead	543,202
Contracts	
Construction	0
Grants	(888,961)
Contingencies	195,903
Total:	1,604,000

FUNDING REQUEST

Program Name:	Desalination Research and Innovation Partnership (DRIP)				
Source of Funds:	Pay-As-You-Go Fund				
Appropriation No.:	15301	Board Action No.:	4	FY 00/01 Budget:	\$2,276,200
Requested Amount:		\$1,604,000	Capital Program No.:	15301-W	
Total Appropriated Amount:		6,290,600	Capital Program Page No.:	N/A	
Total Program Estimate:		\$7,342,800	Program Category:	W-Water Quality	