

**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

October 13, 1993

To: Board of Directors (Ad Hoc Committee on Energy & Desalination--Action)
 (Engineering & Operations Committee--Action)
 (Finance & Insurance Committee--Action)

From: General Manager

Subject: Revision No. 3 to Appropriation No. 604 to Increase Funding by \$1.4 million to a Total of \$4.2 Million to Finance Estimated Costs to Implement the 2000-GPD Test Unit Operations and to Continue the Preliminary Design of a 5-MGD Seawater Desalination Demonstration Project

Report

In June of 1992, the Board approved Revision No. 2 to Appropriation No. 604 for \$2.15 million to a total of \$2.8 million to finance estimated preliminary engineering and design costs through fiscal year 1992/93 for the 5-mgd Demonstration Plant for the Seawater Desalination Project. The preliminary design work includes environmental studies, water quality studies, and laboratory testing, by the University of California Los Angeles along with the design, construction, and operation of a 2000-gpd test unit in order to verify the enhanced performance of the vertical-stacked, aluminum-fluted-tube, multiple-effect distillation process.

A preliminary design report has been completed and shows that, for large-capacity modules (50-100 mgd), this advanced distillation process can reduce project capital costs by 50 percent compared to currently available seawater desalination techniques and thereby significantly reduce unit water costs. The test unit, laboratory testing and preliminary design work are intended to verify the performance of the low-cost materials, process design parameters, and potential cost benefits associated with the economies-of-scale of a large capacity facility.

This increase in funds will, in part, provide for placing the 2000-gpd test unit into operation at the coastal test site and for initial results from the overall test program. Additional funds will then be required to continue test unit operations and complete the preliminary design of a 5-mgd demonstration plant.

The test unit is currently being assembled for start up testing at Metropolitan's facilities in La Verne followed by its relocation to the coastal test site for performance testing operations. The estimated cost to implement the test program and to continue with laboratory testing, preliminary design, water quality studies, and environmental studies is \$1.4 million. The total escalated cost for the demonstration project is estimated to be \$33 million.

This action is exempt from the provisions of the California Environmental Quality Act because it involves studies for possible future actions which your Board has not yet approved.

An Initial Review Report of the project was presented by the independent consulting firm to the Ad Hoc Committee on Energy and Desalination on June 22, 1993. In addition, the committee has been provided a copy of Metropolitan's Report No. 1084. This report is a preliminary design of a full-scale, 75-mgd Seawater Desalination Plant for Southern California that provides the technical basis for reducing seawater desalination water costs through the use of low-cost materials, and enhanced distillation performance, and describes the production of desalinated seawater in conjunction with existing coastal power plants. The report is being distributed throughout the desalination, water and power industries along with various government agencies for review and comments, and to stimulate interest in future project participation. Copies of the initial review report and Metropolitan's Report No. 1984 are available through the Executive Secretary's office.

Board Committee Assignments

This letter was referred for action to:

The Ad Hoc Committee on Energy and Desalination because of its charge to report matters of significance concerning Metropolitan's energy supplies and desalination technology to the Engineering and Operations Committee, pursuant to Administrative Code Section 2590(b);

The Engineering and Operations Committee because of its jurisdiction over the operation, protection, and maintenance of the plants and facilities required for the production, exchange, sale, storage, treatment, and delivery of water and power, pursuant to Administrative Code Section 2431(c); and

The Finance and Insurance Committee because of its jurisdiction to authorize the appropriation of funds, pursuant to Administrative Code Section 2441(d).

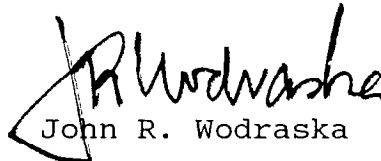
Recommendations

AD HOC COMMITTEE ON ENERGY AND DESALINATION AND ENGINEERING AND OPERATIONS COMMITTEE FOR ACTION.

It is recommended that the General Manager be authorized to implement the 2000-gpd test unit operations and to continue with preliminary design work, including environmental and water quality studies for a 5-mgd Seawater Desalination Demonstration Project.

FINANCE AND INSURANCE COMMITTEE FOR ACTION.

It is recommended that the Board authorize an increase of \$1.4 million to a total of \$4.2 million from the 1992 Revenue Bond Construction Fund to Appropriation No. 604 for estimated costs to implement the 2000-gpd test unit operations and to continue with preliminary design work, including Environmental and Water Quality Studies for a 5-mgd Seawater Desalination Demonstration Project.


John R. Wodraska

DWD:daa
(bd:apr-604L/9153)

Attachment A--Financial Statement

Fiscal Statement

(Program No. 5-6040-71)

The total cost breakdowns for Revisions Nos. 2 and 3 to Appropriation No. 604 are shown below:

	<u>Revision No. 2</u>	<u>Revision No. 3</u>
Labor:		
Investigative Studies	\$ 120,000	\$ 120,000
Preliminary Design, District Forces	500,000 <u>250,000</u>	350,000 <u>430,000</u>
Total Labor	\$ 870,000	\$ 900,000
Materials and Supplies	160,000	900,000
Incidental Expenses	70,000	100,000
Professional Services:		
UCLA	200,000	300,000
Black & Veach	195,000	195,000
CH2M Hill	97,000	175,000
Reynolds Metals	112,000	112,000
Others	<u>326,000</u>	<u>518,000</u>
Total Professional Services	\$ 930,000	\$1,300,000
Operating Equipment	75,000	100,000
Administrative Overhead	452,000	468,000
Contingencies	<u>243,000</u>	<u>432,000</u>
TOTAL	<u>\$ 2,800,000</u>	<u>\$4,200,000</u>
Estimated Funds Required:		
Initial	\$ 500,000	
Revision No. 1	150,000	
Revision No. 2	2,150,000	
Revision No. 3	1,400,000	
Additional	<u>\$28,833,000</u>	
TOTAL	<u>\$33,033,000</u>	

Source of Funds:

1992 Revenue Bond Construction Fund

Class One:

Projects directly related to delivery of water

Projected Expenditure of Funds:

Through Fiscal Year	1992/93	\$ 1,637,000
	1993/94	2,563,000
	1994/95	4,267,000
	1995/96	5,566,000
	1996/97	<u>19,000,000</u>
	TOTAL	<u>\$33,033,000</u>

Project Benefit:

Design and construct a state-of-the-art 5-million gallon per day Seawater Desalination Demonstration Plant to provide a proven design and operating history to undertake a full-scale 50/100 mgd seawater desalination project.