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METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

AUG 19 1994

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[Signature]
EXECUTIVE SECRETARY

July 13, 1994

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. 4 to Appropriation No. 604 to Increase Funding by \$800,000 to a Total of \$5 Million to Continue Operation of the 2,000-GPD Test Unit Sufficient to Determine the Continuation of Final Design of the 5-MGD Seawater Desalination Demonstration Project

Report

In November of 1993, the Board approved Revision No. 3 to Appropriation No. 604 for \$1.4 million to a total of \$4.2 million to finance all estimated costs for preliminary engineering and design through Fiscal Year 1993/94 for the 5-million-gallon-per-day (mgd)/5,000 acre-foot-per-year (AFY) demonstration plant for the Seawater Desalination Demonstration Project. The preliminary design work includes: environmental and water quality studies; laboratory testing of distillation tube performance by the University of California at Los Angeles; and design, construction, and operation of a 2,000-gallon-per-day (gpd) test unit. The test program will verify the enhanced performance and potential cost benefits of an advanced distillation seawater desalination process that incorporates the vertical-stacked, fluted-aluminum tube, multiple-effect distillation process.

The Seawater Desalination Demonstration Project is a three-phase program that includes preliminary engineering, final design and construction of a 5,000 AFY demonstration plant. The results from the test program, funded with this increase in the appropriation, will determine the continuation of and provide the technological basis for the final design of the demonstration plant. The test program is scheduled to produce conclusive results in spring 1995. Upon successful test results, the 2,000-gpd test until will be available for operation to assist in the final design of the demonstration plant.

Metropolitan's Report No. 1084, completed in October 1993 and available through the Executive Secretary's office, indicates that for large-capacity modules (50-100,000 AFY), an

advanced distillation process can reduce project capital costs by 50 percent compared to currently available seawater desalination techniques, and thereby significantly reduce total unit water costs. The report has been distributed throughout the desalination, water and power industries, and various governmental agencies for review and comments, in order to stimulate interest in future project participation as well as independent development. The test unit, laboratory testing, and the preliminary design work will 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. The total escalated cost for the 5-mgd Demonstration Plant is estimated to be \$35 million.

Metropolitan has entered into a joint partnership agreement with the Southern California Edison Company to participate in the test unit operating program. The test unit is now being assembled and will be installed at Southern California Edison's Huntington Beach Generating Station. Initial tests will be completed under the current appropriation. Additional funds in the sum of \$800,000 are required to conduct the decisive phase of the test program and validate the design criteria provided in Report No. 1084. A breakdown of the estimated cost is shown on the attached Financial Statement.

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.

Board Committee Assignments

This letter was referred for action to:

The Ad Hoc Committee on Energy and Desalination because of its jurisdiction over matters of significance concerning Metropolitan's water supply needs and desalination technology, pursuant to Administrative Code Section 2590(b);

The Engineering and Operations Committee because of its jurisdiction over the initiation, scheduling, contracting, and performance of construction programs and work, pursuant to Administrative Code Section 2431(b); and

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

Recommendations

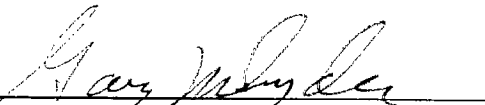
AD HOC COMMITTEE ON ENERGY AND DESALINATION AND ENGINEERING AND OPERATIONS COMMITTEE FOR ACTION.

It is recommended that your Board authorize the General Manager to have all work performed, other than work performed under contracts involving an expenditure of \$250,000 or more, to continue operation of the 2,000-gpd test unit as part of the preliminary engineering phase of the Seawater Desalination Demonstration Project.

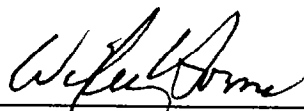
FINANCE AND INSURANCE COMMITTEE FOR ACTION.

It is recommended that your Board authorize Revision No. 4 to Appropriation No. 604 to increase funding from \$4,200,000 to a total of \$5 million from the 1992 Revenue Bond Construction Fund to finance the estimated costs to continue operation of the 2,000-gpd test unit as part of the preliminary engineering phase of the Seawater Desalination Demonstration Project.

John R. Wodraska
General Manager

By 
Gary M. Snyder
Chief Engineer

Concur:



John R. Wodraska
General Manager

DS:jj/aj-07014
(ba:604-r4.rs)

Attachment A--Financial Statement

Attachment A

Financial Statement

(Program No. 5-6040-11)

The total cost breakdowns for Revisions Nos. 3 and 4 to Appropriation No. 604 are shown below:

	<u>Revision No. 3</u>	<u>Revision No. 4</u>
Labor:		
Investigative Studies	\$ 120,000	\$ 120,000
Preliminary Design	350,000	350,000
District Forces	<u>430,000</u>	<u>835,000</u>
Total Labor	\$ 900,000	1,305,000
Materials and Supplies	900,000	1,000,000
Incidental Expenses	100,000	100,000
Professional Services:		
UCLA	300,000	300,000
Black & Veach	195,000	195,000
CH2M Hill	175,000	175,000
Reynolds Metals	112,000	112,000
Design Team	<u>518,000</u>	<u>518,000</u>
Total Professional Services	\$ 1,300,000	1,300,000
Operating Equipment	100,000	100,000
Administrative Overhead	468,000	663,000
Contingencies	<u>432,000</u>	<u>532,000</u>
TOTAL	<u>\$ 4,200,000</u>	<u>5,000,000</u>
Estimated Funds Required:		
Initial	\$ 500,000	
Revision No. 1	150,000	
Revision No. 2	2,150,000	
Revision No. 3	1,400,000	
Revision No. 4	800,000	
Additional	<u>\$29,693,700</u>	
TOTAL	<u>\$34,693,700</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	1,824,000
1995/96	9,669,700
1996/97	<u>19,000,000</u>
TOTAL	<u>\$34,693,700</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 before undertaking a full-scale
50/100 mgd seawater desalination project.