

APPROVED
by the Board of Directors of
The Metropolitan Water District
of Southern California
at its meeting held

DEC 13 1994

7-4



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

[Signature]
EXECUTIVE SECRETARY

Office of the General Manager

November 29, 1994

To: Board of Directors (Engineering and Operations Committee--Action)
(Finance and Insurance Committee--Action)

From: General Manager

Subject: Appropriation No. 685 for \$650,000 to Finance all Estimated Costs for Design and Construction of the Etiwanda Cavitation Testing Facility.

RECOMMENDATION:

That the General Manager be authorized to have all work performed other than contracts in an amount of \$250,000 or more, for design, purchase of equipment, and construction of the Etiwanda Cavitation Test Facility.

Authorize Appropriation No. 685 in the amount of \$650,000 from the Pay-As-You-Go Fund to finance all estimated costs for design, purchase of equipment and construction of the Etiwanda Cavitation Test Facility.

APPROVAL OF REQUEST

John R. Wodraska
General Manager

Submitted by:

[Signature]
Gary M. Snyder
Chief Engineer

Concur:

[Signature]
John R. Wodraska
General Manager

DS:aj
(bd:apr685.wp5)

CAPITAL FUNDING REQUEST					
PROJECT NAME: RELOCATION OF CAVITATION TEST FACILITY.					
APPROPRIATION NO.:	685	FUNDING REQUEST NO.:	NEW	AMOUNT:	\$650,000
SOURCE OF FUNDS:		PAY-AS-YOU-GO			
BUDGET:	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	@ \$334,800	CAPITAL PROGRAM	PAGE NO. REFERENCE: 85
PROJECT JUSTIFICATION AND TYPE: (CHECK ALL APPLICABLE)					
<input type="checkbox"/> MEET WATER DEMANDS <input type="checkbox"/> MANDATED BY LAW <input type="checkbox"/> ASSET PROTECTION/RISK MGT. <input checked="" type="checkbox"/> COST AVOIDANCE <input checked="" type="checkbox"/> OTHER REQUIRED FOR TESTING _____					
<input type="checkbox"/> NEW FACILITY <input checked="" type="checkbox"/> REPLACEMENT					
<input type="checkbox"/> IMPROVEMENT <input type="checkbox"/> EXPANSION					

<p><u>PROJECT DESCRIPTION (INCLUDE CLASSIFICATION AND PURPOSE):</u></p> <p>The Yorba Test Facility, which was built in the late 1960's has provided valuable information for design of equipment and testing of protective coatings. The two cavitation chambers for testing coatings at the Yorba Facility are no longer suitable for testing; the chambers and related piping have deteriorated and must be replaced, testing periods are restricted because the test chamber flows must be discharged through Service Connection OC-12A to the Santa Ana River, and the noise during testing is an annoyance to nearby residents.</p> <p>It is proposed to replace the cavitation chambers for testing coatings at the Yorba Test Facility by designing and constructing new chambers at the Etiwanda Facility. The project would include construction of a 140-square-foot masonry structure, fabrication and installation of two cavitation chambers and inlet and outlet piping, and installation of electronic equipment for monitoring pressure and flow rates. Design, purchase of materials and equipment, and construction would be accomplished by District personnel.</p> <p>Class: Three---Project not directly related to the delivery of water but demonstrates economic savings outweighing program costs due to reduced labor and energy costs during operations and unscheduled maintenance.</p>
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STRATEGIC PLAN PRINCIPLE: 4.0 -- Facilities
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BENEFIT (NARRATIVE FOR DIRECT AND OTHER BENEFITS):

Information gathered and materials evaluated through cavitation testing have saved MWD hundreds of thousands of dollars within the past five years by developing cavitation-resistant coatings, metal filled epoxies and weld repair methods used successfully during the Colorado River Aqueduct Pump Rehabilitation Program and at various hydroelectric power plants and flow control facilities. These materials have increased pump efficiency, eliminated costly downtime for maintenance, and minimized the loss of revenues from premature component failures.

Manufacturers are constantly reformulating products due to continually changing state and federal regulations governing the formulation, application, and use of coatings and other materials. Data obtained from the test facility allows MWD to select the most effective coating for a cavitation environment. These coatings are used to protect approximately \$200 million of aging distribution system facilities. To prevent costly downtime to these facilities, it is imperative to continue testing and to ensure coatings meet our needs and minimize life cycle costs, and to minimize maintenance costs.

Recently, a study was conducted to identify a more suitable site for the test facility. Construction of a new test facility at the Etiwanda site was determined to be the best alternative because of the lower capital cost involved, the ease of operation and maintenance, the ability to convey and dispose of a large volume of water at a constant high pressure necessary for testing, and the ability to recirculate test water.

<u>PROJECT PLAN:</u>						
PHASE	COST	1992	1993	1994	1995	1996
PRE. DESIGN	\$ 92,000	11% COMPLETE;	\$10,500 SPENT			
FINAL DESIGN	\$161,000	0% COMPLETE;	\$0 SPENT			
CONSTRUCTION	\$355,000	0% COMPLETE;	\$0 SPENT			
ACCEPTANCE TESTING	\$ 42,000	0% COMPLETE;	\$0 SPENT			
TOTAL	\$650,000	2% COMPLETE; \$10,500 SPENT				

ALTERNATIVES TO PROPOSED ACTION:

Refurbish the existing test facility at Yorba Linda. This alternative has higher capital and recurring costs of \$1,000,000 and \$102,000/year respectively for, in part, a new pump station and piping to discharge water from the test facility into the Santiago Lateral Pipeline and the associated energy costs.

In addition, noise generation from the existing test chambers has raised complaints from adjacent residential and commercial property owners, along with liability concerns regarding dumping of effluent test water into the Orange County flood control basin.

POLICY CONSIDERATIONS:

Avoided cost project; no policy issues.

CEQA COMPLIANCE / ENVIRONMENTAL DOCUMENTATION

The proposed project is exempt from the provisions of the California Environmental Quality Act because the action consists of the minor alteration of an existing facility of a public-owned utility and involves negligible or no expansion of use beyond that previously existing.

FINANCIAL ANALYSIS (NEW PROJECTS ONLY)

EVALUATION PERIOD: 6 YEARS

A. PROJECTED COSTS (CAPITAL AND O&M):

	YEAR 1	YEAR 2	YEAR 3	OUT YEARS	TOTAL
LABOR/ADDITIVES	\$7,000	\$151,000	101,000	0	\$259,000
PROFESSIONAL SERVICES	0	0	0	0	0
OTHER	3,500	183,800	203,700	0	391,000
TOTAL	\$10,500	\$334,800	\$304,700	0	\$650,000

B. PROJECTED SAVINGS:

	YEAR 1	YEAR 2	YEAR 3	OUT YEARS	TOTAL
LABOR/ADDITIVES	\$27,000	\$28,350	\$29,768	\$49,268	134,386
PROFESSIONAL SERVICES	0	0	0	0	0
OTHER	150,000	\$78,750	82,688	273,706	585,144
TOTAL	\$177,000	\$107,100	\$112,456	\$322,974	\$719,530

C. DIFFERENCE (B-A)	\$166,500	\$(227,700)	\$(192,244)	\$322,974	\$69,530
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D. CUMULATIVE DIFFERENCE	\$166,500	\$(61,200)	\$(253,444)	\$69,530	\$69,530
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PAYBACK PERIOD: 6 YEARS

ESTIMATED LIFE OF PROJECT: 20 YEARS

ASSUMPTIONS:

5% AVERAGE INFLATION RATE PER YEAR

FINANCIAL STATEMENT

(Program No. 5-0415-63)

A breakdown of the estimated costs for designing and constructing the Etiwanda Cavitation Testing Facility is as follows:

Labor:

Engineering	\$ 174,000
Environmental Compliance	2,000
Operations District Forces Construction	<u>83,000</u>

Total Labor	\$ 259,000
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Materials and Supplies	\$ 154,000
Operating Equipment	11,000
Administrative Overhead	142,900
Contingencies	<u>83,100</u>

Project Total	<u>\$ 650,000</u>
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Source of Funds: Pay-As-You-Go Fund

Projected Expenditure of Funds:

Through Fiscal Year 1993/94	\$ 10,500
Fiscal Year 1994/95	\$ 334,800
Fiscal Year 1995/96	\$ <u>304,700</u>

Total	<u>\$ 650,000</u>
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1994/95 Capital Program:

Fiscal Year 1994/95 Capital Project Program

Budget Estimate For Fiscal Year 1994/95	\$ 334,800
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Original Estimated Program Cost	\$ 707,900
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Class: Three--Project not directly related to the delivery of water but demonstrates economic savings outweighing program costs due to reduced labor and energy costs during operations and unscheduled maintenance.

Project Benefit: Will allow testing to continue due to the ability to convey and dispose of a large volume of water at a constant high pressure. The cost involved in this option is considerably lower than that of upgrading the present Yorba Test Facility.