MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

June 3, 1993

To: (Engineering and Operations Committee--Action)
(Finance and Insurance Committee--Action)
Board of Directors (Special Committee on Water Quality and Environmental Compliance--Action)

From: General Manager

Subject: Appropriation No. 659 for $9,265,400 to Finance an Additional Three Years of Demonstration Plant Operations

Report

In 1986, Metropolitan initiated its Trihalomethane (THM) Action Plan in an effort to identify cost-effective treatment technologies that would allow Metropolitan to meet new and more stringent standards for THMs and other disinfection by-products (DBPs), while maintaining control over taste-and-odor (T&O) compounds and microorganisms. This action plan has included a series of bench-, pilot-, and demonstration-scale studies funded under Appropriation No. 536 (total cost of $26.9 million). The primary purpose of these studies was to develop and confirm the innovative PEROXONE process (the combination of ozone and hydrogen peroxide), which has the potential to substantially reduce the required ozone dosage.

The first year of testing at Metropolitan's 5.5 million-gallon-per-day demonstration plant has successfully demonstrated the viability of the PEROXONE process, as well as confirmed that ozone and PEROXONE are effective for disinfection and the control of T&O compounds. In addition, the scope of the Oxidation Demonstration Project (ODP) testing has been expanded beyond the original objectives to provide full-scale data in support of the negotiations for the disinfectants/DBP (D/DBP) rule. Specifically, Metropolitan conducted ODP testing to study the formation and control of bromate during ozonation of State project water (SPW) and the degree of total organic carbon removal obtained for both SPW and Colorado River water through enhanced coagulation (without ozone). Table 1 summarizes ODP accomplishments through the first year of operations.

The demonstration plant has proven to be an extremely valuable tool. Confirmation of the PEROXONE process may save Metropolitan, and ultimately its customers, up to $175 million in the full-scale implementation of ozone/PEROXONE. ODP data have also been used directly in the negotiations for the new DBP regulation, potentially saving Metropolitan millions of dollars. Also, a bromate control strategy has been successfully demonstrated at the ODP.

In April 1993, culminating the first year of ODP operations, Metropolitan received the 1993 Excellence in Environmental Engineering Award in Research from the American Academy of Environmental Engineers for the ODP. This award is a great honor for Metropolitan, recognizing Metropolitan's role as a world leader in the area of drinking water treatment research. It is important to note that this award was the result of a successful group effort, involving staff from the Water Quality, Operations, Engineering, Environmental Compliance, Planning, and other Metropolitan divisions.

It is proposed that an additional three years of demonstration plant operations be funded under Appropriation No. 659 to refine bromate formation and control strategies, finalize process design criteria for full-scale ozone/PEROXONE facilities, conduct enhanced coagulation testing for arsenic removal and regulatory input, support negotiations for Stage 2 of the D/DBP rule, and study long-term operational issues associated with ozone. Continued operations are essential to provide data to influence new regulations, at a time when even a modest change in these new regulations can result in major cost savings to Metropolitan and its member agencies. The estimated cost for the three years of demonstration plant operations is $9,265,400 (see Table 2). Where appropriate, staff will seek outside funding, including American Water Works Association Research Foundation funding, to partially finance future ODP testing. Closure of Appropriation No. 536 and creation of a new appropriation (Appropriation No. 659) are necessary to stop interest charges for demonstration plant construction and begin depreciation of the design, construction, and start-up costs. Following completion of this three-year operating period, Appropriation No. 659 will be reevaluated to determine whether further demonstration plant operations should be capitalized or charged to O&M funds.

Board Committee Assignments

This letter is referred for action to:

The Engineering and Operations Committee because of its authority to study, advise, and make recommendations with regard to the treatment of water pursuant to Administrative Code 2431 (c);

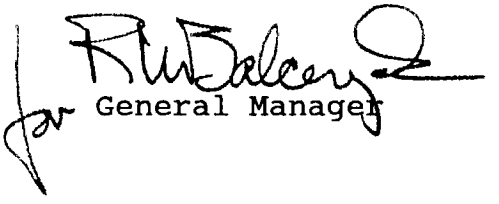
The Finance and Insurance Committee because of its authority to study, advise, and make recommendations with regard to the authorization of appropriations pursuant to Administrative Code 2441 (d); and

The Special Committee on Water Quality and Environmental Compliance because of its authority with regard to Federal and State water quality regulations pursuant to Administrative Code 2551 (a) and (b).

Recommendation

ENGINEERING AND OPERATIONS, FINANCE AND INSURANCE, AND SPECIAL COMMITTEE ON WATER QUALITY AND ENVIRONMENTAL COMPLIANCE FOR ACTION

It is recommended that the Board authorize the appropriation of $9,265,400 from the Pay-As-You-Go Fund to finance an additional three years of demonstration plant operations. This appropriation will be designated Appropriation No. 659.



for General Manager

JTG/dmn
BOARD/AO0

Attachment

TABLE 1

OXIDATION DEMONSTRATION PROJECT ACCOMPLISHMENTS

(February 1992-May 1993)

- CONFIRMED OZONE/PEROXONE PROCESSES
  Up to $175 million capital cost savings

- CONDUCTED EQUIPMENT SPECIAL STUDIES
  Refine and improve design of ozone retrofit program

- EVALUATED BROMATE FORMATION AND CONTROL STRATEGIES
  Successfully demonstrated bromate control strategy
  Direct input into the D/DBP regulation negotiations

- CONDUCTED ENHANCED COAGULATION TESTING
  Direct input into D/DBP regulation negotiations

TABLE 2

DEMONSTRATION PLANT OPERATIONS BUDGET FY 93/94 THROUGH FY 95/96

CATEGORY	AMOUNT
Labor	$4,380,800
Materials and Supplies	397,200
Incidental Expenses	149,000
Professional and Technical	1,257,800
Equipment Use/Rental	86,100
Administrative Overhead	2,417,500
Contingency	577,000
TOTAL	$9,265,400