

- **Board of Directors**
Engineering and Operations Committee

March 8, 2005 Board Meeting

8-2

Subject

Appropriate \$7.8 million; and authorize studies, preliminary design and environmental documentation for the Mills Plant Capacity Upgrade (Approp. 15424) and the Perris Valley Pipeline (Approp. 15425)

Description

The *Skinner Service Area Study Update* was undertaken in 2004 to assess water demand growth in Riverside and San Diego Counties. The *Study Update* concluded that additional treatment capacity would be needed by 2013 to meet the projected growth in demand in that portion of Metropolitan's system. The study recommended that staff evaluate increased utilization of the Henry J. Mills Water Treatment Plant for the purpose of offsetting treated water demand on the R.A. Skinner Water Treatment Plant. Preliminary analysis indicates that it is feasible to increase the use of the Mills plant by implementing several projects that will upgrade the plant to its full 326 mgd capacity. Increasing deliveries from the Mills plant will delay the need to construct an additional treatment plant in Riverside County, and will make the most efficient use of existing facilities.

The four existing conventional treatment modules at the Mills plant have a combined capacity of 326 mgd. Due to low-flow conditions, however, Modules 1 and 2 were removed from service in 1997 and have not been operated since. In 1999, Metropolitan's Board approved the addition of ozone pretreatment to the Mills plant, with the ozone treatment capacity matching the then-current flow conditions. Under the completed Mills Oxidation Retrofit Program (ORP), two ozone contactors with a combined capacity of 160 mgd were installed. To increase the treatment capacity of the ozonation process to match the 326 mgd capacity of the remainder of the plant, two new ozone contactors should be constructed. Under the Mills ORP, sufficient ozone generation capacity was installed to treat a flow of 326 mgd. Therefore, no additional ozone generators are required at this time. To fully upgrade the Mills plant to achieve a capacity of 326 mgd, Modules 1 and 2 should also be returned to service, enhanced solids handling capability for Modules 1 through 4 should be added, and the post-filter disinfection system should be upgraded.

Due to the rapid development occurring in Riverside County, Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD) have both requested additional deliveries from the Mills plant. WMWD is making pump station improvements to take an added 26 mgd. Similarly, in August 2004, EMWD requested two new treated water connections with a combined capacity of 116 mgd. The Mills plant would serve these requests for additional delivery. A recent study was undertaken to determine potential pipeline alignments to meet these deliveries. The proposed Perris Valley Pipeline will be a 7- to 8-foot diameter pipeline which will extend approximately 6.5 to 8 miles south from the Mills plant to the EMWD service connections, and which will include a turnout for WMWD's expanded pump station. The pipeline may be extended in the future to interconnect with other planned facilities within the eastern portion of Metropolitan's distribution system. Construction of this pipeline and the service connections will conform to Metropolitan's policy to build facilities at or near the boundary of its member agencies.

This action authorizes studies, preliminary design, and preparation of environmental documentation for the Mills Plant Capacity Upgrade Program and the Perris Valley Pipeline Program. These two programs have been evaluated and recommended by Metropolitan's Capital Investment Plan (CIP) Evaluation Team. The programs are not budgeted within the fiscal year 2004/05 capital budget. Since development of the 2004/05 budget, the *Study Update* has been undertaken and recommends these two programs to meet requests by EMWD and WMWD for additional service connections to take deliveries from the Mills plant. These programs will be

included in the proposed fiscal year 2005/06 capital budget. The planned date for completion of construction of the Mills Plant Capacity Upgrade and Perris Valley Pipeline Programs is June 2008.

For the Perris Valley Pipeline, the 2008 completion date is contingent on several critical factors which remain to be defined, including: (1) Selection of final alignment with accompanying right-of-way issues; (2) Extent of environmental documentation and permitting required; and (3) Selection of project delivery method. For this program, staff will assess the viability of alternate project delivery methods.

See [Attachment 1](#) for the Detailed Report, [Attachment 2](#) for the Financial Statement, [Attachment 3](#) for the location Map, and [Attachment 4](#) for the potential Perris Valley Pipeline alignments.

Policy

Metropolitan Water District Administrative Code Section 5108: Capital Project Appropriation

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed actions consist of basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action, which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

Option #2:

None required

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determination and

- a. Appropriate \$7.8 million in unbudgeted funds;
- b. Authorize study, preliminary design and environmental documentation for the Mills Plant Capacity Upgrade Program; and
- c. Authorize preliminary design and environmental documentation for the Perris Valley Pipeline Program.

Fiscal Impact: \$7.8 million of unbudgeted funds under the following appropriations:

Approp. 15424 (Mills Plant Capacity Upgrade Program) – \$3.4 million

Approp. 15425 (Perris Valley Pipeline Program) – \$4.4 million

If the Board approves this option, the fiscal year 2004/05 CIP expenditure plan will be adjusted for these projects.

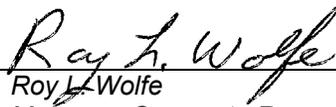
Option #2

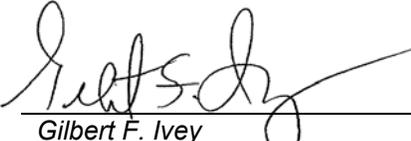
Do not initiate studies, preliminary design and preparation of environmental documentation. The Mills plant capacity will be limited to the existing 160 mgd capacity of the two ozone contactors. Future demands by member agencies within the Mills delivery area would need to be met through the development of other resources or supplies such as conservation or recycling.

Fiscal Impact: None

Staff Recommendation

Option #1

 _____ Roy L. Wolfe Manager, Corporate Resources	2/11/2005 _____ Date
---	----------------------------

 _____ Gilbert F. Ivey Interim Chief Executive Officer	2/11/2005 _____ Date
---	----------------------------

Attachment 1 – Detailed Report

**Attachment 2 – Mills Plant Capacity Upgrade Program Financial Statement
Perris Valley Pipeline Program Financial Statement**

Attachment 3 – Location Map

Attachment 4 – Potential Perris Valley Pipeline Alignments

BLA #3504

Detailed Report

Background

The Henry J. Mills Water Treatment Plant exclusively treats California State project water that is delivered through the Santa Ana Valley Pipeline and Box Springs Feeder to the Mills plant. Treated water from the Mills plant is delivered to Eastern Municipal Water District and Western Municipal Water District of Riverside County.

Mills Plant

The Mills plant was placed into service in 1978 with an initial capacity of 75 million gallons per day (mgd). The plant was expanded twice and is currently rated and permitted to treat 160 mgd, the hydraulic design capacity of the existing Mills plant ozone contactors.

The Mills plant's treatment processes consist of raw water ozonation, flocculation, sedimentation, biological filtration, and final disinfection using chlorine and ammonia. Currently, the plant has two ozone contactors and four independent conventional filtration modules. The two ozone contactors are each rated at 80 mgd for a total ozonation capacity of 160 mgd. Treatment Modules 1 and 2 have a combined capacity of 106 mgd and Modules 3 and 4 have a combined capacity of 220 mgd, providing a total conventional treatment plant capacity of 326 mgd. The modular design and large finished water reservoirs provide operational flexibility. Modules are placed into service as needed to meet water demands or to adjust to changes in raw water quality. The two 25-million-gallon finished water reservoirs can provide water to downstream users for extended periods of time during unusual water quality events or scheduled plant shutdowns, if needed. The current treated water delivery capacity out of the Mills plant is 220 mgd.

When the Mills Oxidation Retrofit Program (ORP) was initiated in 1996, the ozone treatment capacity was established at 326 mgd to match the overall 326-mgd capacity of the Mills plant following completion of the Mills Expansion No. 2 project in 1996. Due to low-demand conditions in the Mills service area, Modules 1 and 2 were removed from service in 1997 and have not operated since.

In January 2000, Metropolitan's Board adopted staff's recommendation to reduce the Mills plant ozone capacity to 160 mgd. At that time, the Board was informed that this decision would be revisited in approximately three years to assure that Metropolitan's overall supply needs are met in the future. Following the board action, staff completed design of the 160-mgd Mills ORP project and construction was completed in September 2003.

In February 2002, Metropolitan's Board authorized preliminary and final design to rehabilitate Mills Module 2. At that time, staff recommended that Module 2 be used to treat the low flow scenarios experienced by the plant at that time. Subsequently, demands increased such that the larger Modules 3 and 4 could reliably treat all flow conditions. Preliminary design to rehabilitate Module 2 was completed, but final design was placed on hold.

New Service Connections

Riverside County is the fastest growing region within Metropolitan's service area. Peak demands have been steadily increasing over the last five years. In 2004, peak demands on the Mills plant reached 138 mgd, with short-term spikes reaching 160 mgd, which equals the current rated capacity of the Mills plant.

Both Eastern MWD and Western MWD have requested additional deliveries from the Mills plant. Eastern MWD is improving its existing pump station to take an additional 10 mgd from the plant next year, and has requested two new service connections that will ultimately receive 116 mgd. Western MWD is improving its existing pump station to take an additional 26 mgd from the Mills plant.

Skinner Service Area Study Update

Metropolitan's long-term projections for growth in the Riverside area indicate that the population will increase from 1.1 million in 2000 to 2 million in 2025, an 82 percent increase. Firm demands on Metropolitan are projected to increase from 214,000 acre-feet in 2005 to 386,000 acre-feet in 2025.

Eastern MWD and Western MWD receive water from both the Mills plant and the Skinner plant. The Skinner plant has been operating at capacity during the peak summer period for three years, and deliveries from the Mills plant are limited by existing conveyance facilities. At the Skinner plant, Module 7 is now under construction and will provide an additional 110 mgd of capacity when it is completed in 2007. In 2004, the *Skinner Service Area Study Update* was undertaken to assess water demand growth in Riverside and San Diego Counties. The *Study Update* concluded that additional treatment capacity would be needed by 2013 to meet the projected growth in demand in that portion of Metropolitan's system. The study recommended that staff evaluate increased utilization of the Mills plant for the purpose of offsetting treated water demand on the Skinner plant. Preliminary analysis indicates that it is feasible to increase use of the Mills plant by implementing several projects that will upgrade the plant to its full 326-mgd capacity. Increasing deliveries from the Mills plant will delay the need to construct an additional treatment plant in Riverside County, and will make the most efficient use of existing facilities.

To meet projected demand increases, and to make maximum use of the existing Mills plant, new conveyance capacity and a number of facility improvements are required. These proposed improvements are described below.

Mills Plant Capacity Upgrade – Study and Preliminary Design (\$3.4 million)

Reliability Considerations

The existing two ozone contactors at the Mills plant are typically taken out of service separately during low-demand months for routine preventive and corrective maintenance. However, projected flow increases are expected to remain above 80 mgd (the capacity of one contactor) for nine months of each year by 2008. Peak demands in 2008 are expected to exceed 160 mgd. Thus, two additional contactors are recommended to provide the capacity and redundancy required for projected increases in flow demand. Staff recommends an on-line date for both new contactors of 2008. The ozone generation system currently in place has adequate capacity to process up to 326 mgd of raw water. Therefore, no new ozone generators are required at this time.

Based on increasing demands, Modules 1 and 2 need to be rehabilitated and returned to service in conjunction with the new ozone contactors to restore usable treatment capacity to the original 326-mgd design rating. Rehabilitation of the two modules will include equipment and filter media replacement, modification of the filter backwash chlorination process, and improvements to the plant's existing solids removal and processing capabilities. The existing lagoon system at the plant has not been as effective for solids removal as had been expected. Upgrades to the existing solids handling facilities and the post-filter disinfection system will be studied under this project.

Project Description

The proposed Mills Plant Capacity Upgrade Program will provide for a phased approach to making upgrades at the Mills plant to reliably treat 326 mgd. Study and preliminary design activities will include: investigations of existing equipment conditions; process design development; hydraulic analyses; utility needs analyses; major pipeline routing; cost estimating; identification of permits; and preparation of environmental documentation.

Cost Estimate

Attachment 2 contains the financial statement for the Mills Plant Capacity Upgrade Program. Metropolitan staff will conduct all studies, preliminary design and preparation of environmental documentation, with assistance from specialty consultants. Staff will return to Metropolitan's Board for authority to enter into consulting agreements, if needed.

Project Milestones

- Spring 2006 – Completion of preliminary design and environmental documentation
- June 2008 – Completion of construction

New Service Connections / Perris Valley Pipeline – Preliminary Design (\$4.4 million)***Purpose and Background***

In August 2004, Eastern MWD requested that Metropolitan provide two new service connections along the I-215 corridor with a combined connected capacity of 116 mgd. Metropolitan staff have identified nine alternative pipeline alignments. The final pipeline alignment will be determined during the preliminary design phase. In addition to the two new service connections, Eastern MWD is expanding an existing pump station to take an additional 10 mgd from the plant by 2006. Further, Western MWD is also expanding an existing pump station to take an additional 26 mgd from the Mills plant by 2006.

Implementation of the Perris Valley Pipeline will provide the ability to increase deliveries from the Mills plant further south into the region now served by the Skinner plant, and will help offset the need for construction of a new Riverside County water treatment plant by maximizing deliveries from an existing facility.

The proposed Perris Valley Pipeline Program consists of the construction of an extension of the existing Mills plant effluent line, a turnout for Western MWD's expanded pump station, two new service connections for Eastern MWD, and approximately 30,000 to 45,000 feet of 84- to 96-inch diameter pipeline to deliver water to Eastern MWD's boundary. The initial work consists of preliminary design, right-of-way assessment, and preparation of environmental documentation.

Cost Estimate

Attachment 2 contains the financial statement for the Perris Valley Pipeline Program. The preliminary design work and preparation of environmental documentation will be performed by Metropolitan staff, with assistance from specialty consultants. Staff will return to Metropolitan's Board for authority to enter into consulting agreements, if needed.

Project Milestones

- June 2008 – Goal for completion of construction

Financial Statement for Mills Plant Capacity Upgrade Program

A breakdown of Board Action No.1 for Approp. No. 15424 for the Mills Plant Capacity Upgrade Program is as follows:

	Board Action No. 1 (Mar 2005)
Labor	
Studies and Preliminary Design	\$ 1,030,000
Final Design and Specifications	0
Owner Costs (Program management, environmental documentation)	460,000
Construction Inspection and Support	0
Water System Operations (Water quality and plant staff support)	96,000
Materials and Supplies	10,000
Incidental Expenses	10,000
Professional/Technical Services (Geotechnical, specialty environmental, project controls, survey, process engineering)	1,540,000
Right Of Way	0
Contracts	0
Remaining Budget	254,000
Total	\$ 3,400,000

Funding Request

Program Name:	Mills Plant Capacity Upgrade Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15424	Board Action No.:	1
Requested Amount:	\$ 3,400,000	Capital Program No.:	15424-I
Total Appropriated Amount:	\$ 3,400,000	Capital Program Page No.:	N/A
Total Program Estimate:	\$ 70,500,000	Program Goal:	Reliability

Financial Statement for Perris Valley Pipeline Program

A breakdown of Board Action No.1 for Approp. No. 15425 for the Perris Valley Pipeline Program is as follows:

	Board Action No. 1 <u>(Mar 2005)</u>
Labor	
Studies and Preliminary Design	\$ 1,040,000
Final Design and Specifications	0
Owner Costs (Program management, environmental documentation, right of way support)	930,000
Construction Inspection and Support	0
Water System Operations (Water quality and distribution staff support)	46,000
Materials and Supplies	10,000
Incidental Expenses	30,000
Professional/Technical Services (Geotechnical, specialty environmental, project controls, survey, engineering)	1,650,000
Right Of Way	201,000
Contracts	0
Remaining Budget	493,000
Total	\$ 4,400,000

Funding Request

Program Name:	Perris Valley Pipeline Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15425	Board Action No.:	1
Requested Amount:	\$ 4,400,000	Capital Program No.:	15425-I
Total Appropriated Amount:	\$ 4,400,000	Capital Program Page No.:	N/A
Total Program Estimate:	\$ 81,300,000	Program Goal:	Reliability

