

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

May 16, 2006 Board Meeting

8-6

Subject

Appropriate \$4.34 million; and authorize (1) final design, materials procurement, and construction for three upgrade projects at the Mills Water Treatment Plant; and (2) an agreement with Lee & Ro, Inc. for design services (Approps. 15424 and 15381)

Description

The Henry J. Mills Water Treatment 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 to treat 160 mgd, which is the design capacity of the existing ozone contactors. The Mills plant exclusively treats water from the State Water Project and serves Eastern Municipal Water District and Western Municipal Water District of Riverside County.

When the Mills Oxidation Retrofit Program (ORP) was initiated in 1996, the ozone treatment capacity was established at 326 mgd to match the overall hydraulic capacity of the Mills plant following completion of Mills Expansion No. 2 in 1996. Due to low-demand conditions in the Mills service area, treatment Modules 1 and 2 were removed from service in 1997. The Mills ORP was completed in 2003 with an ozonation capacity of 160 mgd.

Mills Capacity Upgrade Program

In March 2005, Metropolitan's Board authorized preliminary design and preparation of environmental documentation for the Mills Capacity Upgrade Program. The objective of this program is to increase the capacity of the ozonation process to match the 326-mgd capacity of the remainder of the plant, and to rehabilitate existing plant facilities to reliably treat 326 mgd.

There are five projects within the Mills Capacity Upgrade Program: Addition of Ozone Contactors 3 and 4; Solids Handling Enhancements; Post-Filter Disinfection Upgrades; Chemical System Capacity Upgrades; and Modules 1 and 2 Rehabilitation. Final design of Ozone Contactors 3 and 4 is now in progress. Studies for the Solids Handling Enhancements and Post-Filter Disinfection Upgrades are underway, and preliminary design has been completed for the Chemical System Capacity Upgrades and the Modules 1 and 2 Rehabilitation projects. Staff recommends proceeding with final design of the latter two projects.

Chemical System Capacity Upgrades – Final Design (\$2,140,000)

Under this project, the existing chemical storage and feed systems will be upgraded to reliably treat the Mills plant's 326-mgd capacity. Chemical systems to be upgraded include those for sulfuric acid, hydrogen peroxide, caustic soda, alum/ferric chloride, Poly-DADMAC, sodium hypochlorite, aqueous ammonia, and dry polymer. Upgrades will include higher capacity chemical feed systems; addition of valves and instrumentation to meet recently adopted code requirements; centralization of the plant's coagulant injection system; heat-tracing of sodium hydroxide systems to prevent crystallization; replacement of four corroded sodium hydroxide storage tanks; addition of 5,000 gallons of aqueous ammonia storage capacity; and a comparative analysis between lime slurry and caustic soda for post-ozone contactor pH adjustment. Metropolitan forces will perform preparatory work in advance of construction, to limit disruption to the plant during subsequent activities. This preparatory will include relocation of piping and valves, modifications to existing electrical equipment, and material sampling and testing prior to subsequent demolition.

This action appropriates \$2.14 million and authorizes final design of the Chemical System Capacity Upgrades project. Final design is recommended to be performed by Lee & Ro, Inc. under a new professional services agreement, as described below. Staff also recommends that CH2M Hill provide technical support under an existing professional services agreement authorized by the Board in September 2003, to perform the post-ozone contactor pH adjustment study. No amendment to the CH2M Hill agreement is required. The final design cost as a percentage of the estimated total construction cost is approximately 11.6 percent. Engineering Services' goal for design of projects with construction costs greater than \$3 million is 9 to 12 percent.

Modules 1 and 2 Rehabilitation – Final Design (\$1,828,000)

This project will rehabilitate Modules 1 and 2 and return them to service to achieve the plant's full 326-mgd capacity. Rehabilitation work will include concrete crack repairs and joint sealant replacement; replacement of flocculators, flocculator drive units, filter inlet valves, and surface wash pumps; refurbishment of flash mix pumps, basin inlet valves, filter outlet gates, and control panels; replacement of instrumentation; and addition of filter chemical injection systems.

This action appropriates \$1.828 million and authorizes final design of the Modules 1 and 2 Rehabilitation project. Final design is recommended to be performed by Lee & Ro, Inc. under a new professional services agreement, as described below. The final design cost as a percentage of the estimated total construction cost is approximately 12 percent. Engineering Services' goal for design of projects with construction costs greater than \$3 million is 9 to 12 percent.

Mills Water Treatment Plant Improvements Program

The Mills Water Treatment Plant Improvements Program was established to address needed rehabilitation work to ensure plant reliability and compliance with drinking water and environmental regulations.

Ground Fault Protection Upgrade – Procurement and Construction (\$372,000)

In early 2004, an electrical ground fault occurred at the Mills plant due to a pump failure. This isolated event caused a chain reaction of equipment shutdowns, which in turn impacted the entire plant until the problem could be identified and repaired. The ground fault protection system at the Mills plant is an outdated system, which protects the faulted item and other connected equipment by shutting down the entire Unit Power Center (UPC) serving all connected equipment, instead of isolating the faulted item alone. Up-to-date designs isolate a ground fault for a specific piece of equipment and keep other equipment on-line.

This project will upgrade the ground fault protection system on nine of the eleven UPCs at the Mills plant; the remaining two UPCs were installed under the recent Mills ORP project and thus are already up-to-date. The upgraded ground fault protection systems will, by design, limit and contain ground faults and improve Mills plant reliability by reducing the possibility of plant shutdowns caused by unintentional power outages. Metropolitan's Board authorized final design of the Ground Fault Protection Upgrade project in August 2005. Final design is now complete.

This action appropriates \$372,000 for the procurement of materials and construction of the Mills Ground Fault Protection Upgrade project. Metropolitan staff will procure the materials and perform all installation and construction work.

Technical Engineering Support – New Agreement with Lee & Ro

Lee & Ro, Inc. was selected through a competitive process (Request for Qualifications No. 719, issued in January 2005) to perform engineering design services related to water treatment facilities. Statements of Qualifications (SOQs) were submitted by ten firms, of which nine firms were short-listed. Staff recommends that a new professional services agreement be authorized with Lee & Ro, Inc. for final design of the Chemical System Capacity Upgrades and the Modules 1 and 2 Rehabilitation projects.

This action authorizes the General Manager to enter into a professional services agreement with Lee & Ro in an amount not to exceed \$2.75 million.

These three projects have been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included in the fiscal year 2005/06 capital budget. See [Attachment 1](#) for the Financial Statements and [Attachment 2](#) for the Location Map.

The total program estimates for the Mills Capacity Upgrade Program and the Mills Improvements Program are \$70.5 million and \$12 million, respectively.

Project Milestones

April 2007 – Completion of Mills Ground Fault Protection Upgrade

September 2008 – Completion of Mills Chemical System Capacity Upgrades

September 2008 – Completion of Mills Modules 1 and 2 Rehabilitation

Policy

Metropolitan Water District Administrative Code Section 5108: Capital Project Appropriation

California Environmental Quality Act (CEQA)

CEQA determinations for Option #1:

Mills Chemical System Capacity Upgrades – Final Design

The environmental effects from the design, construction, and operation of the Mills Chemical System Capacity Upgrades Project were originally evaluated in the Henry J. Mills Water Filtration Plant Expansion Final Environmental Impact Report (Final EIR), which was certified by the Board on February 12, 1991. The Board also approved the Findings of Fact (findings), the Mitigation Monitoring and Reporting Program (MMRP), and the overall expansion, including ORP and the Ozone Contactors. The present proposed board actions are solely based on appropriating the budgeted funds, carrying out the final design, and implementing other related activities up to award of a construction contract for the Mills Chemical System Capacity Upgrades Project at the Mills Plant and not on any other substantial changes to the original project. Hence, the previous environmental documentation taken by the Board in conjunction with the proposed actions fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act on the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the certified 1991 Final EIR and adopted documentation (i.e., findings and MMRP) and that no further environmental analysis or documentation is required.

Mills Modules 1 and 2 Rehabilitation – Final Design

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed project involves the funding; final design; and minor alterations, reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures with no expansion of use and no possibility of significantly impacting the physical environment. In addition, the proposed project involves minor modifications in the condition of land, water, and/or vegetation, which does not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under Class 1, Class 2, Class 3, and Class 4 Categorical Exemptions (Sections 15301, 15302, 15303, and 15304 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under four Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; Class 3, Section 15303; and Class 4, Section 15304 of the State CEQA Guidelines).

Mills Ground Fault Protection Upgrade – Procurement and Construction

This project was previously determined to be categorically exempt under the provisions of CEQA and State CEQA Guidelines. The Board found these projects to be exempt under Class 1, Section 15301; Class 2, Section 15302; and Class 3, Section 15303 of the State CEQA Guidelines on August 16, 2005. A Notice of

Exemption (NOE) was filed on the projects at that time and the statute of limitations has ended. With the current board actions, there are no substantial changes proposed to the projects since the original NOE was filed. Hence, the previous environmental documentation in conjunction with the projects fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regards to the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the 2005 NOE (Class 1, Section 15301; Class 2, Section 15302; and Class 3, Section 15303 of the State CEQA Guidelines) and that no further environmental analysis or documentation is required.

CEQA determination for Option #2:

None required

Board Options/Fiscal Impacts

Option #1

Adopt the CEQA determinations and

- a. Appropriate \$4.34 million;
- b. Authorize final design of the Mills Chemical System Capacity Upgrades project and the Modules 1 and 2 Rehabilitation project;
- c. Authorize procurement of materials and construction of the Mills Ground Fault Protection Upgrade by Metropolitan forces; and
- d. Authorize an agreement for design services with Lee & Ro, Inc. in an amount not to exceed \$2.75 million.

Fiscal Impact: \$3.968 million of budgeted funds under Approp. 15424 and \$372,000 of budgeted funds under Approp. 15381


Option #2

Do not proceed with the work at this time.

Fiscal Impact: None. This option will limit the Mills' plant capacity and increase the risk of shutdowns due to unintentional electrical power outages.

Staff Recommendation

Option #1



Gordon L. Johnson
for Roy L. Wolfe
Manager, Corporate Resources
4/17/2006
Date



Jeffrey Lightlinger
General Manager
4/21/2006
Date

Attachment 1 – Financial Statements

Attachment 2 – Location Map

BLA #4377

Financial Statement for Mills Plant Capacity Upgrade Program

A breakdown of Board Action No. 3 for Appropriation No. 15424 is as follows:

	Previous Total Appropriated Amount (Sep. 2005)	Current Board Action No. 3 (May 2006)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 1,030,000	\$ -	\$ 1,030,000
Final Design	1,971,000	143,000	2,114,000
Owner Costs (Program mgmt., permitting, envir. monitoring)	1,038,000	393,000	1,431,000
Metropolitan Force Construction	-	57,000	57,000
Materials and Supplies	10,000	97,000	107,000
Incidental Expenses	10,000	15,000	25,000
Professional/Technical Services	1,587,000	-	1,587,000
Lee & Ro, Inc.	-	2,750,000	2,750,000
CH2M Hill	-	100,000	100,000
Project Controls	-	14,000	14,000
Equipment Use	-	-	-
Contracts	-	-	-
Remaining Budget	354,000	399,000	753,000
Total	\$ 6,000,000	\$ 3,968,000	\$ 9,968,000

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.:	3
Requested Amount:	\$ 3,968,000	Capital Program No.:	15424-S
Total Appropriated Amount:	\$ 9,968,000	Capital Program Page No.:	E-46
Total Program Estimate:	\$ 70,500,000	Program Goal:	S- Supply & Delivery Reliability

Financial Statement for Mills Water Treatment Plant Improvements Program

A breakdown of Board Action No. 8 for Appropriation No. 15381 is as follows:

	Previous Total Appropriated Amount (Sep. 2005)	Current Board Action No. 3 (May 2006)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 145,000	\$ -	\$ 145,000
Final Design	653,800	-	653,800
Owner Costs (Program management)	250,100	13,000	263,100
Construction Inspection and Support	222,000	50,000	272,000
Metropolitan Force Construction	227,000	158,000	385,000
Materials and Supplies	131,100	97,000	228,100
Incidental Expenses	16,000	5,000	21,000
Professional/Technical Services	45,000	-	45,000
Equipment Use	13,000	-	13,000
Contracts	2,520,000	-	2,520,000
Remaining Budget	182,000	49,000	231,000
Total	\$ 4,405,000	\$ 372,000	\$ 4,777,000

* Includes previous reallocation of \$257,000 from Remaining Budget to resolve unanticipated issues during construction of the Mills Administration Building HVAC System (\$107,000) and the Mills Plant Filter Media Replacement (\$150,000).

Funding Request

Program Name:	Mills Water Treatment Plant Improvements Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15381	Board Action No.:	8
Requested Amount:	\$ 372,000	Capital Program No.:	15381-I
Total Appropriated Amount:	\$ 4,777,000	Capital Program Page No.:	E-48
Program Estimate:	\$ 11,958,000	Program Goal:	I-Infrastructure Reliability

