



- Board of Directors
Engineering and Operations Committee

4/12/2011 Board Meeting

7-1

Subject

Appropriate \$840,000; and authorize two improvement projects at the Mills plant (Approps. 15381 and 15452)

Description

This action authorizes two projects at the Henry J. Mills Water Treatment Plant: (1) Final design of a new hazardous waste staging and handling facility to enhance compliance with environmental and safety regulations; and (2) Final design, procurement, and Metropolitan force construction to replace turbidity meters and gas detectors inside the chemical piping galleries of Modules Nos. 3 and 4, which will improve the reliability of water quality testing and enhance worker safety.

Timing and Urgency

The first project will provide additional hazardous waste storage space, improve on-site protection for hazardous wastes, and minimize the risk of on-site hazardous waste release. The second project will replace obsolete turbidity meters, which are unreliable and are required for water quality compliance monitoring; and will replace outdated gas detectors to enhance employee safety in the event of a gaseous chemical release inside the piping galleries.

These projects have been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria. The first project is categorized as a Stewardship project, and the second project is categorized as an Infrastructure Upgrade project. Both projects are budgeted within Metropolitan's CIP for fiscal year 2010/11.

Background

The Mills plant exclusively treats water from the East Branch of the State Water Project. The plant was placed into service in 1978 with an initial capacity of 75 million gallons per day (mgd), and has since been expanded twice. It is currently rated to treat 220 mgd. The Mills plant delivers treated water to Eastern Municipal Water District and to Western Municipal Water District of Riverside County.

Project No. 1 – Hazardous Waste Staging and Handling Facility Improvements – Final Design Phase (\$134,000)

Routine operations at the Mills plant and within the local distribution system generate wastes such as used chemicals, oils, paints, and thinners. These waste liquids are classified as hazardous wastes. Rehabilitation and demolition activities may also produce contaminated materials that must be handled and collected in accordance with regulatory requirements. The solid and liquid hazardous wastes are collected and placed into either metal or plastic drums ranging in size from 5 gallons to 55 gallons. These drums are presently separated by type (acid, base, flammable, or oxidizer/miscellaneous) and temporarily stored on secondary containment pallets within a fenced 15-foot by 15-foot unroofed area at the Mills plant. This staging and handling area is located northwest of the plant's existing automotive shop. As required by law, the waste-containing drums are stored on-site for no more than 90 days, and are transported off-site for appropriate disposal. A forklift is used to move the drums inside the staging and handling area, and to load them onto truck beds for disposal.

While the original design of the hazardous waste staging and handling area complied with applicable codes and regulations during the 1970s, regulatory requirements have become increasingly more stringent in recent years. The existing Mills hazardous waste staging and handling area now requires a number of upgrades to provide stable long-term service, to comply with current codes, and to minimize risk of an accidental hazardous waste release. The size of the staging and handling area must be expanded to accommodate increases in the amount of hazardous waste generated as a result of additional chemicals used at the Mills plant, as well as more stringent hazardous waste testing and disposal requirements. The additional storage capacity provided by this project will reduce the frequency of waste pick-ups by contract haulers, will provide for adequate separation between incompatible hazardous wastes, and will allow the forklift to safely maneuver while handling waste containers. Finally, a key safety feature at the storage area is the eyewash station. This project will upgrade the station to a full stand-alone permanent unit which will provide a greater degree of safety to employees working in the area.

In January 2010, Metropolitan's Board authorized preliminary design of the Mills Hazardous Waste Storage Facility Improvements to meet the plant's increasing staging and handling needs, and to enhance regulatory compliance and worker safety. Preliminary design is now complete and staff recommends moving forward with final design of a new hazardous waste staging and handling facility at this time.

The facility will include a concrete slab with containment curbs and a sump to collect leaks and spillage. The entire area will be fenced, and will be divided into liquid waste and solid waste staging and handling areas. The liquid waste area will be covered by a canopy to minimize rain accumulation within the containment area. Separate containment pallets will be used for each type of waste. Adequate separation will be provided for incompatible hazardous wastes and to allow the forklift to handle the waste containers safely. The facility will have upgraded safety features including a plumbed eyewash/shower station with flow switch to alarm the plant's Control Room if the station is used; a fire suppression system; a leak/spill detection system; and security camera and communication equipment. These improvements will provide improved protection and space for staging and handling of hazardous wastes, and will enhance safety for plant personnel while lowering the risk of accidental discharge of hazardous waste into the storm drain system.

Final design phase activities will include preparation of specifications and plans, acquisition of permits, development of a construction cost estimate, advertisement and receipt of bids, and all activities in advance of award of a construction contract. Staff will return to the Board at a later date for award of the contract.

This action appropriates \$134,000 and authorizes final design of improvements to the Mills Hazardous Waste Staging and Handling Facility. Requested funds include \$67,000 for final design; \$57,000 for regulatory agency permitting, bidding process and project management; and \$10,000 for remaining budget. The anticipated cost of final design is approximately 14.3 percent of the estimated construction cost. Engineering Services' goal for design of projects with construction cost less than \$3 million is 9 to 15 percent. The construction cost for this project is anticipated to range from \$440,000 to \$500,000. All final design activities will be performed by Metropolitan staff.

Project No. 2 – Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement – Final Design Phase, Procurement, and Construction (\$706,000)

The Mills Modules Nos. 3 and 4 have a total of 8 flocculation and sedimentation basins, and 32 filters. The two modules were constructed in 1996. The piping galleries within Modules Nos. 3 and 4 house 32 on-line filter outlet turbidity meters and 27 chemical gas detectors. The on-line turbidity meters continuously measure the degree to which suspended and colloidal matter is removed during water filtration. These instruments also provide early warning of turbidity breakthrough of the filters. These meters are the key instruments used to demonstrate compliance with water quality regulations. The chemical gas detectors activate local and remote alarms in the event of a gaseous chemical release in the piping galleries to notify staff to safely evacuate the area.

Reliable on-line turbidity meters are needed for monitoring filter performance and for regulatory compliance. If an on-line turbidity meter fails, plant staff must manually retrieve water samples to analyze the turbidity levels. These analyses must be performed every four hours in accordance with the California Code of Regulation Title 22 (22CCR). However, continuous on-line measurements are required to be resumed within a 5-day period. If

turbidity measurements for a particular filter exceed the regulatory requirements, the filter must be removed from service, which would reduce the plant's ability to deliver treated water.

The existing 15-year-old on-line turbidity meters are obsolete and are not reliable. Spare parts are no longer available from the manufacturer or from after-market sources. To improve turbidity testing reliability, staff recommends replacing the on-line filter outlet turbidity meters with new state-of-the-art meters. While the 32 on-line filter outlet turbidity meters account for the majority of the turbidity meters installed at the Mills plant, there are an additional 12 turbidity meters at other locations which are also used for process control and regulatory compliance. The condition of these meters will be evaluated during this project and a recommendation will be made in the future, if necessary, for their replacement.

Ammonia and chlorine gas detectors are installed throughout the piping tunnels of Modules Nos. 3 and 4 to activate local and remote alarms in the event of a gaseous chemical release. The alarms notify staff of gas vapors so that the area can be evacuated. The existing 15-year-old detectors are obsolete and are prone to malfunction. Spare parts are no longer available. Further, several areas within the piping tunnels lack sufficient gas detectors. Additional detectors are needed to provide proper coverage and to enhance worker safety. Staff recommends replacing the existing chemical gas detectors throughout the piping galleries and adding additional detectors to increase coverage.

Along with the addition and replacement of detectors, improvements will be made to the alarm monitoring and control system to improve staff's ability to respond and organize an evacuation in the event of a leak. The scope of this work includes connection of activation alarms to nearby remote terminal units for signaling the plant's Control Room; programming the plant's Supervisory Control and Data Acquisition system; and connecting to power sources at several motor control centers.

This action appropriates \$706,000 and authorizes final design, procurement, and installation to replace on-line turbidity meters and chemical gas detectors at Mills Modules Nos. 3 and 4. The appropriated funds include \$241,000 for Metropolitan force construction; \$268,000 for materials, supplies, and equipment use; \$73,000 for final design; \$20,000 for technical support from design staff during construction, and for record drawings; \$48,000 for permitting, environmental documentation, procurement process, and project management; and \$56,000 for remaining budget. All work will be performed by Metropolitan staff. The anticipated cost of final design is approximately 14.4 percent of the estimated construction cost. Engineering Services' goal for design of projects with estimated construction cost less than \$3 million is 9 to 15 percent.

Procurement contracts for the instruments, materials, and equipment for this project are planned to be awarded under the General Manager's Administrative Code authority.

Summary

This action appropriates \$840,000; authorizes final design of the Mills Hazardous Waste Staging and Handling Facility Improvements; and authorizes final design, procurement, and construction for the Mills Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement project. Both projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2010/11 capital budget. See [Attachment 1](#) for the Financial Statements and [Attachment 2](#) for the Location Map.

The Hazardous Waste Staging and Handling Facility project is included within capital Appropriation No. 15381, the Mills Improvements Program, which was initiated in fiscal year 2001/02. Appropriation No. 15381 also includes projects such as the Administration Building HVAC System Replacement; Filter Media Replacement; and Ground Fault Protection Upgrade. With the present action for this project, the total funding for Appropriation No. 15381 will increase from \$4,881,000 to \$5,015,000.

The Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement project is included within capital Appropriation No. 15452, the Mills Improvements Program Phase II, which was initiated in fiscal year 2007/08. Appropriation No. 15452 also includes projects such as the Electrical Buildings Nos. 1 and 2 Seismic Upgrades; and Weir Gate and Filter Valve Rehabilitation. With the present action for this project, the total funding for Appropriation No. 15452 will increase from \$7,038,000 to \$7,774,000.

Both of these projects are consistent with Metropolitan's goals for sustainability by enhancing the reliability of the Mills plant, in order to maintain reliable water deliveries in the future.

Project Milestones

December 2011 – Completion of final design of Hazardous Waste Staging and Handling Facility improvements

February 2012 – Completion of replacement of Modules Nos. 3 and 4 turbidity meters and gas detectors

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

California Environmental Quality Act (CEQA)

Project No. 1: Hazardous Waste Staging and Handling Facility Improvements – Final Design Phase

CEQA determination for Options #1 and #2:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, design, minor alterations, and reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, this proposed action involves minor modifications in the condition of land and/or vegetation that do not involve removal of healthy, mature, scenic trees. Accordingly, the proposed action qualifies under Class 1, Class 2, Class 4, and Class 11 Categorical Exemptions (Sections 15301, 15302, 15304, and 15311).

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 4, Section 15304; and Class 11, Section 15311 of the State CEQA Guidelines).

CEQA determination for Option #3:

None required

Project No. 2: Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement – Final Design Phase, Procurement, and Construction

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the funding, design, minor alterations, and reconstruction or replacement of existing public facilities along with the construction of minor appurtenant structures with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1, Class 2, and Class 3 Categorical Exemptions (Sections 15301, 15302, and 15303 of the State CEQA Guidelines).

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

CEQA determination for Options #2 and #3:

None required

Board Options

Option #1

Adopt the CEQA determinations and

- a. Appropriate \$840,000;
- b. Authorize final design of the Mills Hazardous Waste Staging and Handling Facility Improvements; and
- c. Authorize final design, procurement, and construction of the Mills Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement project.

Fiscal Impact: \$134,000 in budgeted funds under Approp. 15381 and \$706,000 in budgeted funds under Approp. 15452

Business Analysis: This option will enhance compliance with state environmental and safety regulations; reduce the risk of unintentional on-site discharge of non-permitted hazardous waste; and enhance staff safety. It will also improve water quality monitoring for regulatory compliance.

Option #2

Adopt the CEQA determinations and

- a. Appropriate \$134,000;
- b. Authorize final design of the Mills Hazardous Waste Staging and Handling Facility Improvements; and
- c. Do not authorize the Mills Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement project.

Fiscal Impact: \$134,000 in budgeted funds under Approp. 15381

Business Analysis: Under this option, replacement of turbidity meters and gas detectors would be made on an incremental basis as individual units fail. Depending on the length of time required to procure and install the replacement instrument, this approach would increase the risk of noncompliance with water quality regulations and could lead to reduced worker safety.

Option #3

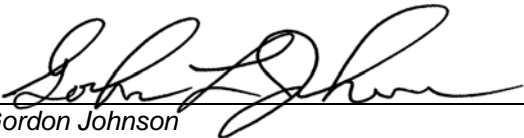
Do not proceed with the two projects.

Fiscal Impact: None

Business Analysis: With this option, staff would continue to use the temporary hazardous waste staging and handling area. There would be a continuing higher risk of unintentional on-site discharge of non-permitted hazardous waste. Worker safety would not be enhanced during the staging and handling of hazardous wastes. In addition, replacement of turbidity meters and gas detectors would be made on an incremental basis as individual units fail. Depending on the length of time required to procure and install the replacement instrument, this approach would increase the risk of noncompliance with water quality regulations and could lead to reduced worker safety.

Staff Recommendation

Option #1



Gordon Johnson 3/21/2011
Manager/Chief Engineer, Engineering Services *Date*



Jeffrey Kightlinger 3/29/2011
General Manager *Date*

Attachment 1 – Financial Statements

Attachment 2 – Location Map

Ref# es12609443

Financial Statement for Mills Improvements Program

A breakdown of Board Action No. 10 for Appropriation No. 15381 for the Mills Hazardous Waste Staging and Handling Facility project* is as follows:

	Previous Total Appropriated Amount (Jan. 2010)	Current Board Action No. 10 (Apr. 2011)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 221,000	\$ -	\$ 221,000
Final Design	653,800	67,000	720,800
Owner Costs (Program mgmt., permitting, bidding process)	256,042	57,000	313,042
Construction Inspection and Support	272,000	-	272,000
Metropolitan Force Construction	371,285 **	-	371,285
Materials and Supplies	228,100	-	228,100
Incidental Expenses	22,000	-	22,000
Professional/Technical Services	45,000	-	45,000
Equipment Use	13,000	-	13,000
Contracts	2,524,884	-	2,524,884
Remaining Budget	273,889 **	10,000	283,889
Total	\$ 4,881,000	\$ 134,000	\$ 5,015,000

Funding Request

Program Name:	Mills Improvements Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15381	Board Action No.:	10
Requested Amount:	\$ 134,000	Capital Program No.:	15381-I
Total Appropriated Amount:	\$ 5,015,000	Capital Program Page No.:	299
Total Program Estimate:	\$ 7,248,000	Program Goal:	I- Infrastructure Upgrade

* The total amount expended to date on the Mills Hazardous Waste Staging and Handling Facility Improvements is \$104,000.

** Includes previous reallocation of \$13,715 from the Ground Fault Protection Upgrade project to Remaining Budget for work completed below budget.

Financial Statement for Mills Improvements Program – Phase II

A breakdown of Board Action No. 11 for Appropriation No. 15452 for the Mills Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacment project* is as follows:

	Previous Total Appropriated Amount (Sept. 2010)	Current Board Action No. 11 (Apr. 2011)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 1,113,100	\$ 25,000	\$ 1,138,100
Final Design	926,000	73,000	999,000
Owner Costs (Program mgmt., record drwgs.)	1,055,200	43,000	1,098,200
Submittals Review	50,000	-	50,000
Construction Inspection and Support	187,000	-	187,000
Metropolitan Force Construction	1,252,000	241,000	1,493,000
Materials and Supplies	994,892	256,000	1,250,892
Incidental Expenses	127,700	-	127,700
Professional/Technical Services	97,000	-	97,000
Equipment Use	50,000	12,000	62,000
Contracts	550,108	-	550,108
Remaining Budget	635,000	56,000	691,000
Total	\$ 7,038,000	\$ 706,000	\$ 7,744,000

Funding Request

Program Name:	Mills Improvements Program – Phase II		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15452	Board Action No.:	11
Requested Amount:	\$ 706,000	Capital Program No.:	15452-I
Total Appropriated Amount:	\$ 7,774,000	Capital Program Page No.:	300
Total Program Estimate:	\$ 16,016,000	Program Goal:	I- Infrastructure Upgrade

* This action is the initial appropriation for the Mills Modules Nos. 3 and 4 Turbidity Meters and Gas Detectors Replacement project.

Location Map

