



● **Board of Directors**
Engineering and Capital Programs Committee

July 14, 2009 Board Meeting

8-4

Subject

Appropriate \$5.93 million; award \$3,438,590 contract to Layfield Environmental Systems Corporation to replace the floating cover; and authorize construction of a potable water connection at the Skinner Finished Water Reservoir (Approps. 15417 and 15435)

Description

This action awards a construction contract to remove and replace the deteriorated floating cover at the Robert A. Skinner Water Treatment Plant's finished water reservoir, and authorizes Metropolitan forces to construct a pipe connection from the reservoir inlet conduit to the existing Skinner potable water pumping station while the reservoir is out of service. The finished water reservoir is the final feature of the plant prior to distribution of treated water to member agencies in Riverside and San Diego counties. The reservoir provides 326 acre-feet of operational storage to regulate deliveries to meet member agency demands that vary seasonally and operationally. The floating cover protects the treated water within the reservoir from contamination.

Timing and Urgency

Staff recommends award of the construction contract at this time to enhance Skinner plant reliability, and maintain compliance with drinking water quality regulations. The existing floating cover has reached the end of its service life. Numerous repairs have been performed on damaged areas to prevent cross-connection violations, and damaged areas have become increasingly more difficult to repair. Replacement of the floating cover requires the reservoir to be emptied and is scheduled to occur in late 2009 through early 2010. Construction of the potable water connection at the reservoir also requires shutdown of the reservoir, and is planned to occur during the same reservoir shutdown. Award of the contract at this time would ensure that installation of the new cover would occur during the planned shutdown. Staff recommends that this work proceed and not be postponed. The potential risks of not proceeding at this time are that the floating cover material could no longer be reliably repaired and the reservoir would be required to be removed from service.

The floating cover replacement project is categorized as an Infrastructure Replacement project and the potable water connection is categorized as an Infrastructure Upgrade project. Each project has been evaluated and recommended by Metropolitan's Capital Investment Plan (CIP) Evaluation Team, and funds have been included in the fiscal year 2009/10 capital budget. Both projects have been reviewed with Metropolitan's updated CIP prioritization criteria. In addition, Metropolitan submitted a pre-application for the reservoir floating cover replacement project to request a share of the available \$160 million in stimulus funding from the American Recovery and Reinvestment Act of 2009 (ARRA) Program.

Background

The Skinner plant was placed into service in 1976 to supply treated water to Riverside and San Diego Counties. Since its original construction, the plant has been expanded four times and now consists of seven treatment modules that are operated as three distinct facilities (Plants Nos. 1, 2 and 3). The plant has a treatment capacity of 630 mgd, and delivers a blend of waters from the Colorado River and State Water Project to Eastern Municipal Water District, Western Municipal Water District of Riverside County, and San Diego County Water Authority.

Metropolitan has previously analyzed alternative methods to cover reservoirs holding potable water. These life-cycle analyses compared the costs of rigid covers and tanks to those of floating covers. The initial cost to install a floating cover on a reservoir similar in size to that of the Skinner plant is approximately \$6 million, compared to approximately \$55 million for a rigid cover. This life-cycle analysis is based on a useful life of 15 years for the floating cover and 50 years for a rigid cover. The studies indicated that, for the size of Metropolitan's existing water storage facilities, floating covers are the most cost-effective option. Furthermore, the Skinner Finished Water Reservoir was originally designed to accommodate a floating cover, so replacement of the existing cover, as currently proposed, was previously accounted for in the life-cycle analysis and remains the least-cost alternative.

Project No. 1 – Skinner Finished Water Reservoir Floating Cover Replacement – Construction (\$4.99 million)

The Skinner Finished Water Reservoir stores 326 acre-feet of treated water for operational storage and for use by the plant as potable, industrial and fire water. The reservoir was constructed in 1991 and is covered by a 700,000 square-foot floating cover made of Hypalon.

The California Department of Public Health (CDPH) requires that all finished water reservoirs be covered to prevent cross-connections of potable water with untreated water. Floating reservoir covers typically consist of a composite of several layers of membrane material, known as Hypalon, which floats on top of the reservoir's water surface.

While floating reservoir covers are an effective means of maintaining water quality, they are susceptible to contamination of the potable water supply if a tear were to develop in the cover material. Metropolitan has an aggressive floating cover inspection and maintenance program to ensure compliance with CDPH regulations. The floating covers are regularly and carefully inspected for damage and signs of deterioration. The useful life of a reservoir's floating cover is determined by the reparability of the cover material. As the cover material ages, the bonding capability of repair patches to adhere to the original material declines. The repair patches become increasingly less effective and the actual repair work becomes more difficult to perform. When the cover material can no longer be reliably repaired, it is considered to be at the end of its useful life. The typical useful life for a Hypalon cover is between 15 and 20 years.

The Skinner reservoir's floating cover has been in service for 18 years. The existing cover has performed well and has reached the end of its useful life. In June 2006, numerous tears in the existing cover were discovered during routine inspection and maintenance. Close inspection of the tears showed delamination or separation between the multiple Hypalon membrane layers, which had not been observed during previous inspections and had not been observed at other Metropolitan floating covers of similar age. Major repairs were made to the Skinner reservoir cover at the time, and the cover has since been inspected on a more frequent basis to check for damage and signs of accelerated deterioration.

In September 2006, Metropolitan's Board authorized final design for replacement of the floating cover. Due to the importance of the reservoir to Skinner plant operations, staff recommends proceeding with construction of a replacement cover to meet a planned shutdown of the reservoir from December 2009 to March 2010.

Award of Construction Contract

Specifications No. 1594 for the Skinner Finished Water Reservoir Floating Cover Replacement project were advertised for bids on May 28, 2009. The project consists of removing and replacing the existing Hypalon floating cover of approximately 700,000 square feet in area, adding rain water collection pumps, modifying the existing electrical system, and installing drain pipes. As shown in [Attachment 2](#), one bid was received on June 16, 2009. The low bid from Layfield Environmental Systems Corporation, in the amount of \$3,438,590, complies with the requirements of the specifications. The engineer's estimate was \$3,672,000. For this contract, no Small Business Enterprise (SBE) participation was established because of the limited availability of SBE contractors certified to install Hypalon floating reservoir covers, which forms the major component of this project.

Staff has investigated the reasons why a single bid was received for this contract. The manufacture and installation of reservoir covers require a specialized California contractor's license. There are presently only four

contractors licensed by the state that are capable of installing covers of the size and complexity required for this project. Three contractors attributed lack of resources and logistical problems as their reasons for not submitting bids. Additionally, the only U.S. supplier of the raw materials used to manufacture Hypalon membranes has recently closed down its plant. The single bid is attributed to challenges in acquiring raw materials within the expedited schedule required to meet the late December 2009 shutdown.

This action appropriates \$4.99 million in budgeted funds and awards a \$3,438,590 contract to Layfield Environmental Systems Corporation to construct the new replacement floating cover. In addition to the amount of the contract, the appropriated funds include \$343,000 for construction inspection; \$190,000 for technical support by the design consultant (see below); \$290,000 for Metropolitan forces to perform dewatering, flushing, filling, disinfection, and startup; \$278,000 for all other staff support; and \$415,410 for remaining budget. Staff construction support includes technical oversight of the consultant, permitting with regulatory agencies, environmental monitoring, project management, and contract administration.

Technical engineering support is recommended to be performed by MWH Americas under an existing board-authorized agreement. As the engineer of record, MWH will coordinate and review submittals, respond to requests for information, prepare record drawings, and advise inspection staff on technical issues as they may arise. For this agreement, Metropolitan has established an SBE participation level of 20 percent. No amendment to the existing MWH agreement is required for this work.

Metropolitan staff will perform inspection of the construction contract. For this project, the anticipated cost of inspection and support is approximately 9 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction cost greater than \$3 million is 9 to 12 percent.

Potential ARRA Funding

Metropolitan submitted a pre-application for this project to request a share of the available \$160 million in stimulus funding from the ARRA Program. As administering agency, CDPH identified projects that would most likely be in compliance with ARRA requirements and could be under construction by the end of August 2009. This project has been ranked 81st out of 2,200 pre-applications and has been placed on the draft funding list for further assessment. No funding commitment has been made at this time. Under the ARRA criteria, Metropolitan may be eligible for up to \$3.5 million in construction funds, including \$1.75 million as a grant and the remaining \$1.75 million as a loan. A public hearing was held on May 26, 2009, and funding agreements will be issued by the beginning of summer 2009.

Project No. 2 – Skinner Reservoir Potable Water Connection – Fabrication and Construction (\$940,000)

The new potable water pumping station constructed recently under the Module No. 7 construction contract draws water from the reservoir outlet conduit downstream of an isolation gate, and supplies the Skinner plant with pressurized potable, industrial and fire water. When a Skinner plant shutdown occurs, the reservoir outlet conduit isolation gate is closed. In order to maintain required water services (such as fire protection) during a plant shutdown, an additional alternate connection upstream of the isolation gate is planned for the potable water pumping station. To perform the tie-in, the reservoir must be drained. The existing potable water pumping station was constructed with provisions to easily accommodate this alternate connection.

Staff recommends installation of the alternate potable water connection during the reservoir shutdown required for the floating cover replacement project. This project will enable continuous fire protection service during plant shutdowns in accordance with the California Fire Code.

This action appropriates \$940,000 and authorizes fabrication and construction of a potable water connection to the reservoir outlet conduit. All work will be performed by Metropolitan staff. The total cost of construction is estimated to be \$772,000. In addition to the Metropolitan force construction, the appropriated funds include \$18,000 for construction inspection, \$23,600 for project management, and \$126,400 for remaining budget. The work is scheduled to be completed during the finished water reservoir shutdown planned for December 2009 to March 2010.

Summary

This action appropriates \$5.93 million; awards a \$3,438,590 contract to Layfield Environmental Systems Corporation to replace the floating cover at the Skinner Finished Water Reservoir; and authorizes construction of a potable water connection at the reservoir. See **Attachment 1** for the Financial Statements, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

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

Project Milestones

March 2010 – Completion of the new floating cover installation and the upstream potable water tie-in at the reservoir outlet

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)

Skinner Finished Water Reservoir Floating Cover Replacement

CEQA determination for Options #1 and #2:

The proposed project was previously determined to be categorically exempt under the provisions of CEQA and State CEQA Guidelines. The activities associated with this project were found by the Board to be exempt under Classes 1 and 2, Sections 15301 and 15302 of the State CEQA Guidelines on September 12, 2006. A Notice of Exemption (NOE) was filed on the project at that time and the statute of limitations has ended. With the current board action, there is no substantial change proposed to the project since the original NOE was filed. Hence, the previous environmental documentation in conjunction with the project 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 action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the 2006 NOE (Classes 1 and 2, Sections 15301 and 15302 of the State CEQA Guidelines) and that no further environmental analysis or documentation is required.

CEQA determination for Option #3:

None required

Skinner Reservoir Potable Water Connection

CEQA determination for Option #1:

The environmental effects from the funding, design, procurement of equipment, construction, and operation of the Skinner Module No. 7, Oxidation Retrofit Program, Chemical Systems Modifications, and Wastewater Reclamation Plant programs (Program) were evaluated in the "Robert A. Skinner Filtration Plant Reliability and Quality Program Final Program Environmental Impact Report" (Final PEIR). The Final PEIR was certified by the Board on July 8, 2003. The Board also approved the Findings of Fact (Findings), the Statement of Overriding Considerations (SOC), the Mitigation Monitoring and Reporting Program (MMRP), and the Program itself. Subsequent to the certification of the 2003 Final PEIR for the Program, to comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Mitigated Negative Declaration (MND) entitled "Robert A. Skinner Filtration Plant Reliability and Quality Program, Additional Construction Use Area and Creek Crossing" to address the environmental impacts of establishing an additional construction use area for the Program. The MND was adopted by the Board on May 11, 2004. Additionally, further refinements were found

to be required thus modifying the original Program description. Metropolitan prepared a Negative Declaration (ND) entitled "Robert A. Skinner Filtration Plant Reliability and Quality Program Refinements to the Program" to address these refinements. The ND was adopted by the Board on November 9, 2004. Addendum No. 1 to the MND was prepared in July 2006, for installation and use of a temporary metal storage building during Program construction. The current proposed action would not result in any new significant environmental impacts, nor result in substantial changes to the approved Program. Hence, the previously adopted environmental documentation in conjunction with the current board action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the certified 2003 Final PEIR and related documents, the adopted 2004 MND and 2006 Addendum No. 1 to the MND, and the adopted 2004 ND, and that no further environmental analysis or documentation is required.

CEQA determination for Options #2 and #3:

None required

Board Options

Option #1

Adopt the CEQA determinations and

- a. Appropriate \$5.93 million in budgeted funds;
- b. Award \$3,438,590 contract to Layfield Environmental Systems Corporation to replace the floating cover at the Skinner reservoir; and
- c. Authorize construction of a potable water connection at the Skinner reservoir.

Fiscal Impact: \$4.99 million of budgeted funds under Approp. 15417 and \$940,000 of budgeted funds under Approp. 15435

Business Analysis: This option will improve reliability of the Skinner reservoir, maintain water quality, and avoid potential violations due to cross-connections. The Skinner plant will also have a continuous source of fire water during a complete shutdown, as required by Fire Code regulations.

Option #2

Adopt the CEQA determinations and

- a. Appropriate \$4.99 million in budgeted funds;
- b. Award \$3,438,590 construction contract to Layfield Environmental Systems Corporation to replace the floating cover at the Skinner reservoir; and
- c. Do not authorize construction of the potable water connection at the Skinner reservoir.

Fiscal Impact: \$4.99 million of budgeted funds under Approp. 15417

Business Analysis: This option will improve reliability of the Skinner Finished Water Reservoir, maintain water quality, and avoid potential violations due to cross-connections. Deferral of the potable water connection at the reservoir would temporarily leave the plant without the ability to perform a complete plant shutdown. This option would forego an opportunity to perform construction during a planned reservoir shutdown, and require an additional shutdown in the future to complete the connection. Alternately, staff would be required to design and construct an interim connection. The only option for the interim connection would be a temporary line directly from Lake Skinner, which would require a longer pipe run, additional pumping station at the lake, and chlorination station to protect against quagga mussel infestation. The interim connection would cost more than the proposed permanent tie-in, which would still be required at a later date.

Option #3

- a. Do not award the construction contract and re-advertise in an attempt to receive more favorable bids; and
- b. Do not authorize construction of a potable water connection at the Skinner reservoir.

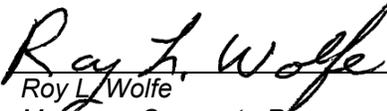
Fiscal Impact: Unknown

Business Analysis: This option may or may not result in a lower bid, and would delay the work until the next shutdown season. CDPH would likely require the Skinner reservoir to be removed from service if damage to

the floating cover material could no longer be reliably repaired. Such an action would severely disrupt operations at the Skinner plant. Deferral of the potable water connection at the reservoir would temporarily leave the plant without the ability to perform a complete plant shutdown. Staff would be required to design and construct an interim connection. The option for the interim connection would be a temporary line directly to Lake Skinner. The interim connection would cost more than the proposed permanent tie-in, which would still be required at a later date.

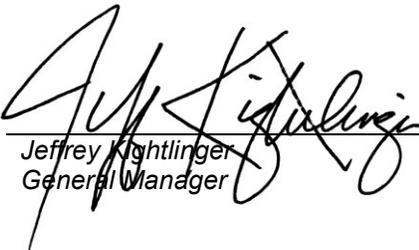
Staff Recommendation

Option #1



Roy L. Wolfe
Manager, Corporate Resources

6/29/2009
Date



Jeffrey Nightlinger
General Manager

6/30/2009
Date

Attachment 1 – Financial Statements

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

BLA #6708

Financial Statement for Reservoir Cover Replacement Program

A breakdown of Board Action No. 4 for Appropriation No. 15417 for replacement of the floating cover at the Skinner Finished Water Reservoir is as follows:

	Previous Total Appropriated Amount (Sept. 2006)	Current Board Action No. (July 2009)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 43,000	\$ -	\$ 43,000
Final Design	50,000	-	50,000
Owner Costs (Program mgmt, permitting, envir. monitoring)	599,000	278,000	877,000
Construction Inspection and Support	-	343,000	343,000
Metropolitan Force Construction		290,000	290,000
Materials and Supplies	1,000	5,000	6,000
Incidental Expenses	30,000	30,000	60,000
Professional/Technical Services	-	-	-
MWH Americas	1,915,000	190,000	2,105,000
Contracts	-	3,438,590	3,438,590
Remaining Budget	702,000	415,410	1,117,410
Total	\$ 3,340,000	\$ 4,990,000	\$ 8,330,000

Funding Request

Program Name:	Reservoir Cover Replacement Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15417	Board Action No.:	4
Requested Amount:	\$ 4,990,000	Capital Program No.:	15417-S
Total Appropriated Amount:	\$ 8,330,000	Capital Program Page No.:	240
Total Program Estimate:	\$ 26,600,000	Program Goal:	Supply & Delivery Reliability

Financial Statement for Skinner Improvements Program Phase II

A breakdown of Board Action No. 4 for Appropriation No. 15435 for construction of a potable water connection at the Skinner Finished Water Reservoir is as follows:

	Previous Total Appropriated Amount (June 2009)	Current Board Action No. 4 (July 2009)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 20,000	\$ -	\$ 20,000
Preliminary Design	40,300		40,300
Final Design	181,800	-	181,800
Owner Costs (Program mgmt)	140,800	23,600	164,400
Construction Inspection and Support	39,200	18,000	57,200
Metropolitan Force Construction	811,500	458,500	1,270,000
Materials and Supplies	360,000	96,300	456,300
Gates and Stems	356,000		356,000
Incidental Expenses	26,000	13,000	39,000
Professional/Technical Services	-	-	-
Equipment Use	22,000	204,200	226,200
Contracts	-	-	-
Remaining Budget	307,400	126,400	433,800
Total	\$ 2,305,000	\$ 940,000	\$ 3,245,000

Funding Request

Program Name:	Skinner Improvements Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15435	Board Action No.:	4
Requested Amount:	\$ 940,000	Capital Program No.:	15435-I
Total Appropriated Amount:	\$ 3,245,000	Capital Program Page No.:	245
Total Program Estimate:	\$ 33,229,800	Program Goal:	I-Infrastructure Reliability

The Metropolitan Water District of Southern California

Abstract of Bids Received on June 16, 2009 at 2:00 P.M.

Specifications No. 1594

**Robert A. Skinner Water Treatment Plant
Finished Water Reservoir Cover**

The project consists of the replacement of the existing floating cover, installation of a flexible membrane chafer/liners, and other associated improvements. The new cover will contain improved surface rainwater drainage and pumping system.

Engineer's Estimate: \$3,672,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE*
Layfield Environmental Systems Corporation, El Cajon, California	\$3,438,590	N/A	N/A	N/A

*No Small Business Enterprise (SBE) participation level was established for this contract.

