



- Board of Directors  
*Engineering and Operations Committee*

1/8/2013 Board Meeting

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**8-1**

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## **Subject**

Appropriate \$14.5 million; and award \$9,983,091 contract to J. F. Shea Construction, Inc. for filter surface wash upgrades at Module No. 1 of the Joseph Jensen Water Treatment Plant (Approp. 15442)

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## **Executive Summary**

This action awards a construction contract for installation of a new filter surface wash system in Module No. 1 at the Joseph Jensen Water Treatment Plant.

### **Timing and Urgency**

During filter backwashing, the top surface of a filter bed is sprayed with water to break up solids that accumulate during the filtration process. A new fixed-nozzle surface wash system is needed at this time to replace the deteriorated equipment at Jensen Module No. 1. The existing 40-year-old rotary wash arms occasionally fail to rotate, while the surface wash header pipes and appurtenances have corroded over time. These conditions diminish the overall performance of the filters. Staff recommends moving forward with this work to improve operations of the filter backwash process, and to enhance the Jensen plant's ability to meet treated water quality goals.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is categorized as an Infrastructure Rehabilitation project. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2012/13.

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## **Details**

### **Background**

The Jensen plant was placed into service in 1972 with an initial capacity of 400 million gallons per day (mgd). The plant was expanded to its current capacity of 750 mgd in the early 1990s. The Jensen plant treats water from the West Branch of the State Water Project and delivers it to Metropolitan's Central Pool and to exclusive service areas on the west side of the distribution system. The plant is located in Granada Hills.

Jensen Module No. 1 has a total of 20 granular tri-media filters which commenced operation in 1972. In order to clean and break up the solids that accumulate during filtration, the filter surface wash system sprays the top of each filter bed with high-pressure water through nozzles mounted on rotary arms. Following 40 years of operation, the 16-inch-diameter steel header pipes and appurtenances have corroded and deteriorated. The rotary wash arms occasionally fail to rotate, and some of the discharge nozzles have plugged with rust.

These conditions have diminished the overall performance of the filters, as evidenced by mud ball formation and uneven filter cleansing, which can lead to removal of filters from service due to high outlet turbidity levels. The frequency of required repairs to components of the surface wash system has increased as the system continues to corrode.

In March 2009, Metropolitan's Board authorized final design of filter surface wash upgrades at Jensen Module No. 1. Planned upgrades include construction of a new fixed-nozzle surface wash system featuring new steel pipe

headers, and the replacement of related equipment, handrails, and light standards. The upgraded surface wash system will use low-pressure water from the plant's elevated washwater tanks, and will uniformly distribute it onto the surface of the filter media from equally spaced nozzles in a pipe grid. The new configuration will be consistent with the surface wash systems at Metropolitan's four other treatment plants.

The final element of this project includes replacement of the plant service water pumps, which are essential to supply water to the plant's chlorine disinfection process. In July 2011, Metropolitan's Board authorized final design and procurement to replace the 40-year-old pumps located at Jensen Module No. 1, in conjunction with the Module No. 1 Filter Surface Wash Upgrades project.

Final design of the filter upgrades has been completed, and procurement of the service water pumps is underway. The present action awards a contract for construction of the upgrades and installation of the pumps. Staff will return to the Board at a later date for award of the procurement contract for the service water pumps.

### **Jensen Module No. 1 Filter Surface Wash Upgrades – Construction (\$14.5 million)**

Specifications No. 1688 for the Jensen Module No. 1 Filter Surface Wash Upgrades was advertised for bids on October 23, 2012. As shown in [Attachment 2](#), seven bids were received on December 6, 2012. The low bid from J. F. Shea Construction, Inc., in the amount of \$9,983,091, complies with the requirements of the specifications. The six higher bids ranged from approximately \$10.3 million to \$12.4 million, while the engineer's estimate was \$12.8 million. Staff believes the difference between the engineer's estimate and the bids received reflects the current highly competitive bidding environment. For this contract, Metropolitan has established a Small Business Enterprise (SBE) participation level of at least 24 percent of the total bid amount.

This action appropriates \$14.5 million and awards a \$9,983,091 contract to J. F. Shea Construction, Inc. to construct the Jensen Module No. 1 filter surface wash upgrades. In addition to the amount of the contract, the requested funds include \$1.32 million for construction support by Metropolitan forces, which includes modification of the plant's Supervisory Control and Data Acquisition (SCADA) system; phased shutdown of filters and establishment of clearances; start-up and testing of the new systems; and final disinfection. The requested funds also include \$1.4 million for construction inspection; \$406,000 for submittals review and record drawing preparation by Metropolitan staff; \$327,000 for environmental monitoring and project management; and \$1,063,909 for remaining budget. The total cost of construction for this project is \$11.7 million, which includes \$9,983,091 for the construction contract, an estimated \$425,000 for procurement of the service water pumps, and \$1.32 million for the work by Metropolitan forces.

Metropolitan staff will perform inspection of the construction. For this project, the anticipated cost of inspection and support is approximately 11.9 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. The estimated inspection costs are at the upper end of the range due to the planned construction duration of 18 months, and the numerous sequenced shutdowns of the service water system and filter module.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2012/13 capital expenditure plan. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

This project is included within the Jensen Improvements Program - FY 2006/07 Through FY 2011/12 (Appropriation No. 15442), which was initiated in fiscal year 2006/07. Other projects authorized under Appropriation No. 15442 include the Washwater Tank Seismic Upgrades; Electrical System Upgrades; and the Chemical Trench Extension. With the present action, the total funding for Appropriation No. 15442 will increase from \$5,026,000 to \$19,526,000.

### ***Project Milestone***

August 2014 – Completion of construction of Module No. 1 filter surface wash upgrades

## Policy

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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)

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CEQA determination for Option #1:

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

CEQA determination for Option #2:

None required

## Board Options

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### Option #1

Adopt the CEQA determination and

- a. Appropriate \$14.5 million; and
- b. Award \$9,983,091 contract to J. F. Shea Construction, Inc. to construct the Jensen Module No. 1 Filter Surface Wash Upgrades.

**Fiscal Impact:** \$14.5 million in capital funds under Approp. 15442

**Business Analysis:** This option will enhance the reliability and operating efficiency of the Jensen plant's filters.

### Option #2

Do not award the contract and readvertise in an attempt to receive more favorable bids.

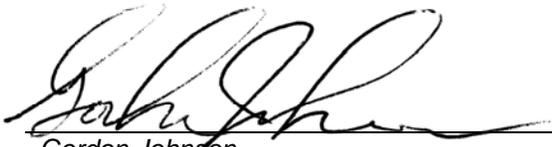
**Fiscal Impact:** None

**Business Analysis:** This option may or may not result in lower bids, and would increase the risk of reduced plant capacity if filters were taken out of service for repairs.

**Staff Recommendation**

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Option #1

  
Gordon Johnson  
Manager/Chief Engineer  
Engineering Services

12/19/2012  
Date

  
Jeffrey Kightlinger  
General Manager

12/20/2012  
Date

**Attachment 1 – Financial Statement**

**Attachment 2 – Abstract of Bids**

**Attachment 3 – Location Map**

Ref# es12621588

### **Financial Statement for Jensen Improvements Program – FY 2006/07 Through FY 2011/12**

A breakdown of Board Action No. 8 for Appropriation No. 15442 for the Module No. 1 Filter Surface Wash Upgrades project<sup>1</sup> is as follows:

	<b>Previous Total Appropriated Amount (July 2011)</b>	<b>Current Board Action No. 8 (Jan. 2013)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies & Investigations	\$ 958,495	\$ -	\$ 958,495
Final Design	1,339,800	-	1,339,800
Owner Costs (Program mgmt, envir. monitoring)	602,963	327,000	929,963
Submittals Review & Record Drwgs	-	406,000	406,000
Construction Inspection & Support	62,000	1,395,000	1,457,000
Metropolitan Force Construction	615,756	1,055,000	1,670,756
Materials & Supplies	705,000	265,000	970,000
Incidental Expenses	48,500	5,000	53,500
Professional/Technical Services	402,840	-	402,840
Equipment Use	19,000	-	19,000
Contracts	-	9,983,091	9,983,091
Remaining Budget	271,646 <sup>2</sup>	1,063,909	1,335,555
<b>Total</b>	<b>\$ 5,026,000</b>	<b>\$ 14,500,000</b>	<b>\$ 19,526,000</b>

### **Funding Request**

<b>Program Name:</b>	Jensen Improvements Program – FY 2006/07 Through FY 2011/12		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15442	<b>Board Action No.:</b>	8
<b>Requested Amount:</b>	\$ 14,500,000	<b>Capital Program No.:</b>	15442-I
<b>Total Appropriated Amount:</b>	\$ 19,526,000	<b>Capital Program Page No.:</b>	313
<b>Total Program Estimate:</b>	\$ 81,445,000	<b>Program Goal:</b>	I – Infrastructure Reliability

<sup>1</sup> The total amount expended to date on the Jensen Module No. 1 Filter Surface Wash Upgrades project is approximately \$1.35 million.

<sup>2</sup> Includes previous reallocation of \$163,044 to Remaining Budget as a result of completion of the Jensen Ground Fault Protection Upgrades project under budget; and \$245,000 from Remaining Budget for the Jensen Module No. 1 Filter Surface Wash Upgrades project to include the design for installation of the new service water pumps.

**The Metropolitan Water District of Southern California**  
**Abstract of Bids Received on December 6, 2012 at 2:00 P.M.**  
**Specifications No. 1688**  
**Joseph Jensen Water Treatment Plant Module No. 1**  
**Filter Surface Wash Upgrades**

The project consists of construction of a new fixed nozzle surface wash system including new steel pipe headers, service water pumps, handrails, and light standards.

**Engineer's Estimate: \$12,800,000**

<b>Bidder and Location</b>	<b>Total</b>	<b>SBE \$</b>	<b>SBE %</b>	<b>Met SBE<sup>1</sup></b>
<b>J. F. Shea Construction, Inc., Walnut, CA</b>	<b>\$ 9,983,091</b>	<b>\$ 2,857,400</b>	<b>28.6%</b>	<b>Yes</b>
Environmental Construction, Inc., Woodland Hills, CA	\$ 10,342,000	-	-	-
Steve P. Rados, Inc., Santa Ana, CA	\$ 10,480,000	-	-	-
Kiewit Infrastructure West Co., Santa Fe Springs, CA	\$ 10,898,000	-	-	-
Norman A. Olsson Construction, Inc., Orange, CA	\$ 11,764,500	-	-	-
C. W. Roen Construction Co., Danville, CA	\$ 11,895,000	-	-	-
Minako America Corporation dba Minco Construction, Gardena, CA	\$ 12,377,000	-	-	-

<sup>1</sup> SBE (Small Business Enterprise) participation level set at 24 percent

# Joseph Jensen Water Treatment Plant

