



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

3/9/2010 Board Meeting

7-3

Subject

Appropriate \$740,000; and award \$485,500 contract to Advanced Industrial Services, Inc. for refurbishment of the Diemer East Washwater Tank (Approp. 15436)

Description

This action awards a construction contract at the Robert B. Diemer Water Treatment Plant to refurbish the corroded roof of the East Washwater Tank. This tank supplies water for backwashing half of the plant's 48 filters.

Timing and Urgency

During a recent inspection of the Diemer plant's East Washwater Tank, staff discovered a hole in the roof's steel plate and other structural damage to the tank roof. Refurbishment of the roof is needed to mitigate corrosion damage caused by moist chlorine vapors in the interior headspace, to protect the roof from further structural deterioration, and to extend the tank's service life.

This project has been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria. Staff recommends proceeding with the project at this time to enhance Diemer plant reliability and protect Metropolitan assets. This project is categorized as an Infrastructure Refurbishment project and is budgeted within Metropolitan's CIP for fiscal year 2009/10.

Background

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd). In 1969, the plant was expanded to a treatment capacity of 520 mgd. The plant delivers a blend of waters from the Colorado River and the State Water Project to Orange County and to parts of Metropolitan's Central Pool portion of the distribution system.

The Diemer East Washwater Tank is a cylindrical welded steel structure with a diameter of 60 feet and a height of 80 feet, holding approximately 1.5 million gallons of filtered water. The carbon steel tank is lined and coated for corrosion protection. It was erected in 1962. Water from the East Washwater Tank is normally used to backwash the plant's eastside filters, while the westside filters are served by the West Washwater Tank.

Backwashing is an essential step in the filtration process. Backwashing cleanses the filters after being on-line for 20 to 80 hours in active filtration service. A small portion of the plant's filtered water is pumped into and stored in the plant's washwater tanks, from which it is released by gravity to backwash dirty filters on demand.

An external inspection of the East Washwater Tank conducted in December 2008 by Metropolitan staff identified several areas of coating failure, with exposed bare metal in some areas. Most of the failed coating is on the roof and stairs. A 3/8-inch diameter hole in the roof and significantly reduced roof-plate thickness suggested likely internal coating failure as well.

A comprehensive interior inspection of the East Washwater Tank was conducted in April 2009. In addition to the exterior coating failures, accelerated corrosion has taken place throughout the interior steel roof supports and

I-beams, and coating failures and/or disbonding were observed in the headspace zone. The interior lining below the normal water surface appears to be in good condition. Interior coating failures at the East Washwater Tank could be attributed to insufficient ventilation within the tank that allows moisture to accumulate under the bottom of roof beams. The combination of chlorine vapor, heat and moisture in the tank's headspace likely creates the corrosive environment. Accelerated corrosion may lead to structural weakness, additional coating failures, and potential operational limitations that may require the tank to be taken out of service for repairs. Water production at the Diemer plant could then be limited depending on the raw water quality and backwash requirements to achieve satisfactory filter performance.

To mitigate the deteriorated coatings and roof structural damage, staff recommends: (1) installation of additional openings in the East Washwater Tank's roof to improve ventilation and to dissipate moist chlorine vapor in the headspace; (2) local repairs of deteriorated coatings; and (3) repair or replacement of corroded structural elements. The corrosive environment in the tank's headspace is expected to be minimized after ventilation improvements are completed and after the plant's conversion to biological filtration, when the filtered water pumped into the tank will no longer be continuously chlorinated.

In August 2009, Metropolitan's Board authorized final design of the East Washwater Tank roof refurbishment. Final design has now been completed, and staff recommends award of a construction contract to complete the refurbishment work. Timely completion of this project will prevent the tank's structural integrity from being compromised.

Diemer East Washwater Tank Roof Refurbishment – Construction (\$740,000)

Specifications No. 1668 for the Diemer East Washwater Tank Roof Refurbishment project was advertised for bids on December 14, 2009. As shown in [Attachment 2](#), five bids were received on January 28, 2010. The low bid from Advanced Industrial Services, Inc., in the amount of \$485,500, complies with the requirements of the specifications. The four higher bids ranged from approximately \$492,000 to \$774,000. The engineer's estimate was \$448,500. Staff believes the difference between the engineer's estimate and the group of higher bids is due to the different expectation of level of difficulty for welding repairs to the roof interior. For this contract, Metropolitan has established a Small Business Enterprise (SBE) participation level of at least 20 percent of the total bid amount. Advanced Industrial Services, Inc. is an SBE firm, and thus achieves 100 percent participation.

This action appropriates \$740,000 and awards a \$485,500 contract to Advanced Industrial Services, Inc. to refurbish the East Washwater Tank at the Diemer plant. In addition to the amount of the contract, the appropriated funds include \$17,100 for Metropolitan forces shutdown support and hazardous material handling; \$75,000 for construction inspection; \$32,000 for submittals review by Metropolitan staff; \$50,500 for project management, as-built preparation and environmental monitoring; and \$79,900 for remaining budget.

Metropolitan staff will perform inspection of the construction contract. For this project, the anticipated cost of inspection is approximately 14.9 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction cost less than \$3 million is 9 to 15 percent. For this project, the inspection cost is at the upper end of the range because of the need for extensive interior structural and coating inspection. The contract includes an estimate of the quantity of weld repair expected to be encountered, along with a unit-price bid item for weld repair of the interior steel trusses, beams, walls, roof, hatch cover, and vent structure. This unit-price approach was adopted because the April 2009 interior inspection revealed accelerated corrosion and the continuing extent of corrosion could not be quantified as the tank has been in operation since April 2009. After deteriorated coating has been removed, structural inspectors will need to evaluate the extent of steel corrosion and determine whether the corroded structural elements can be repaired or must be replaced. Because the tank interior is infrequently available for routine inspection, refurbishment by Advanced Industrial Services, Inc., who has not previously performed work for Metropolitan, will be closely monitored and inspected.

Project Milestone

August 2010 – Completion of construction

See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, and [Attachment 3](#) for the Location Map.

This project is consistent with Metropolitan's goals for sustainability by enhancing the reliability of existing treatment facilities in order to maintain reliable water deliveries in the future.

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)

CEQA determination for Option #1:

The environmental effects of the East Washwater Tank Roof Refurbishment project were evaluated in Addendum No. 5 to the Robert B. Diemer Treatment Plant Improvements Project Subsequent Environmental Impact Report (EIR) certified by the Board on August 18, 2009.

The current board action is to award a construction contract for the project and does not propose any changes to the approved project. Hence, the previous environmental documentation certified by the Board in conjunction with the proposed action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act on the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in Addendum No. 5 to the EIR, and that no further environmental analysis or documentation is required.

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$740,000; and
- b. Award \$485,500 construction contract to Advanced Industrial Services, Inc. to refurbish the Diemer East Washwater Tank roof.

Fiscal Impact: \$740,000 of budgeted funds under Approp. 15436

Business Analysis: This option will protect Metropolitan assets and will enhance reliable plant operation.

Option #2

Do not award the contract and re-advertise in an attempt to receive more favorable bids.

Fiscal Impact: Unknown

Business Analysis: This option may or may not result in lower bids, and would allow continuing corrosion to the tank roof.

Staff Recommendation

Option #1



Roy L. Wolfe
Manager, Corporate Resources

2/23/2010
Date



Jeffrey Kichtlinger
General Manager

2/24/2010
Date

Attachment 1 – Financial Statement

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Ref# CR12602714

Financial Statement for Diemer Improvements Program – Phase II

A breakdown of Board Action No. 6 for Appropriation No. 15436 for the Diemer East Washwater Tank Roof Refurbishment project* is as follows:

	Previous Total Appropriated Amount (Feb. 2010)	Current Board Action No. 6 (Mar. 2010)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 472,000	\$ -	\$ 472,000
Final Design	1,765,100	-	1,765,100
Owner Costs (Program mgmt., envir. monitoring)	1,206,338	50,100	1,256,438
Submittals Review	-	32,000	32,000
Construction Inspection & Support	305,791	75,000	380,791
Metropolitan Force Construction	1,489,400	17,100	1,506,500
Materials and Supplies	691,258	-	691,258
Incidental Expenses	66,393	400	66,793
Professional/Technical Services	246,343	-	246,343
Equipment Use	23,155	-	23,155
Contracts	500,929	485,500	986,429
Remaining Budget	207,293	79,900	287,193
Total	\$ 6,974,000	\$ 740,000	\$ 7,714,000

Funding Request

Program Name:	Diemer Improvements Program – Phase II		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15436	Board Action No.:	6
Requested Amount:	\$ 740,000	Capital Program No.:	15436-I
Total Appropriated Amount:	\$ 7,714,000	Capital Program Page No.:	288
Total Program Estimate:	\$ 123,980,000	Program Goal:	I- Infrastructure Reliability

* The total amount expended to date on the Diemer East Washwater Tank Roof Refurbishment project is approximately \$105,420.

The Metropolitan Water District of Southern California

Abstract of Bids Received on January 28, 2010 at 2:00 P.M.

Specifications No. 1668

**Robert B. Diemer Water Treatment Plant
East Washwater Tank Roof Refurbishment**

The project consists of abrasive blasting and recoating of the exterior stairway to the top of the tank, exterior and interior roof, steel trusses, beams, hatch cover, vent structure, miscellaneous areas of the exterior tank wall, and the top 8 feet of interior tank wall; and performing minor structural repairs to the roof plate.

Engineer's Estimate: \$448,500

Bidder and Location	Total	SBE \$	SBE %	Met SBE*
Advanced Industrial Services, Inc. Los Alamitos, CA	\$ 485,500.00	\$ 485,500.00	100%	Yes
Blastco, Inc. Gardena, CA	\$ 492,255.00	N/A	N/A	N/A
Abhe & Svoboda, Inc. Prior Lake, MN	\$ 512,420.00	N/A	N/A	N/A
Cor-Ray Painting Co., Inc. Santa Fe Springs, CA	\$ 547,000.00	N/A	N/A	N/A
Olympus and Associates, Inc. Reno, NV	\$ 774,302.00	N/A	N/A	N/A

*SBE (Small Business Enterprise) participation set at 20 percent

Robert B. Diemer Water Treatment Plant

