



- Board of Directors
Engineering and Operations Committee

8/20/2013 Board Meeting

8-3

Subject

Appropriate \$19.3 million; and award \$11.11 million contract to Southern Contracting Company to construct the second stage of electrical upgrades at the Robert B. Diemer Water Treatment Plant (Approp. 15380)

Executive Summary

This action awards a construction contract which will complete an electrical upgrade program at the Robert B. Diemer Water Treatment Plant. The work includes replacement of aging electrical equipment, addition of backup systems in case of component failures, and upgrade of the electrical system to be consistent with current codes and industry practices.

Timing and Urgency

Upgrades to the existing electrical system at the Diemer plant are needed because the electrical equipment has gradually deteriorated over 50 years of continuous use, is difficult to maintain and repair, and requires improvements in backup capability. While the system was designed to meet electrical codes in place at the time of its construction, much of the equipment is underrated by current standards and does not have adequate short-circuit interrupting capability, which may increase the risk of unplanned outages, equipment damage, and fire hazard. Staff recommends moving forward with the final stage of this program to improve plant reliability and enhance worker safety.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria, and is categorized as an Infrastructure Reliability project. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2013/14.

Details

Background

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd), and was expanded in 1969 to its current capacity of 520 mgd. The Diemer plant delivers a blend of waters from the Colorado River and the State Water Project to Metropolitan's Central Pool portion of the distribution system and to exclusive service areas within Orange County. The Diemer plant is located in the city of Yorba Linda.

Principal components of the Diemer electrical system date to the plant's original construction in 1963. Since that time, whenever portions of the plant were upgraded or additional facilities were constructed, the electrical system was expanded or adapted to accommodate the increased electrical loads. However, the architecture of the electrical system and its principal components were not updated. Some protective equipment is now considered underrated and does not have adequate short-circuit interrupting capability. Many critical electrical components at the plant are over 50 years old, and their performance has begun to deteriorate. As the equipment continues to age, its ability to operate safely and reliably will diminish.

The electrical system at the Diemer plant needs to be upgraded to enhance plant reliability, to be consistent with current electrical codes, and to follow modern industry practices. The electrical system was initially designed as a radial system, with power running through a single path to each local unit power center (UPC) for distribution to

powered equipment. This practice of powering all the components of a critical system from a single electrical source does not provide backup or reliability, and leaves the plant vulnerable to an unplanned outage caused by a single failure in the electrical system. These unplanned outages are disruptive to plant operations and may impact reliability of the treatment process.

To address these issues, the Diemer Electrical Upgrades Program was initiated in 2005. Under Stage 1 of the two-stage program, the electrical improvements needed to accommodate the Diemer Oxidation Retrofit Program (ORP) were incorporated into that project's construction contract. The Stage 1 upgrades have recently been completed. The improvements needed for the remainder of the existing electrical system are being addressed in Stage 2. Final design of the Stage 2 upgrades has been completed, and staff recommends moving forward with construction. The following work is included within the Stage 2 construction contract:

- Installation of new electrical conduits, duct banks, seven UPCs and 23 motor control centers (MCCs), so that critical process systems are powered by two sources, and circuits do not become overloaded.
- Redistribution of the power feed to treatment plant equipment with additional circuits to improve reliability.
- Upgrade of the grounding system to reduce the potential for unplanned outages caused by ground faults.
- Replacement of obsolete liquid-propane-powered 480V standby generators with diesel-powered units.

Diemer Electrical Upgrades, Stage 2 – Construction (\$19.3 million)

Specifications No. 1705 for the Diemer Electrical Upgrades, Stage 2 was advertised for bids on April 23, 2013. As shown in [Attachment 2](#), seven bids were received on June 18, 2013. The low bid from Southern Contracting Company, in the amount of \$11.11 million, complies with the requirements of the specifications. The six higher bids ranged from approximately \$12.3 million to \$17.4 million. The engineer's estimate was \$15 million. Staff attributes the difference between the engineer's estimate and the group of low bids to the current highly competitive bidding environment. For this contract, Metropolitan has established a Small Business Enterprise (SBE) participation level of at least 22 percent of the bid amount. Southern Contracting Company is a registered SBE firm, and thus achieves 100 percent participation.

This action appropriates \$19.3 million and awards a \$11.11-million contract to Southern Contracting Company to construct the second stage of electrical upgrades at the Diemer plant. In addition to the amount of the contract, the requested funds include \$3,066,000 for Metropolitan force construction, which includes the following work:

Metropolitan Force Construction

Filter control upgrades	\$264,000
Filter and washwater reclamation plant lighting improvements	392,000
Shutdown and tie-in of components, and temporary electrical systems	1,581,000
Equipment start-up and testing	715,000
Supervisory Control and Data Acquisition (SCADA) Integration	114,000
Total	\$3,066,000

The appropriated funds also include \$1,682,000 for construction inspection; \$851,000 for submittals review and record drawing preparation by Metropolitan staff; \$721,000 for project management, hazardous materials management, and permitting; and \$1.87 million for remaining budget.

Metropolitan staff will perform inspection of the construction contract. The anticipated cost of inspection 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. For this project, the total cost of construction is \$14,176,000.

The total estimated cost to complete both stages of the Diemer electrical upgrades, including the amount expended to date and current funds requested, is approximately \$36 million.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds for this work are available within the fiscal year 2013/14 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 capital Appropriation No. 15380, the Diemer Improvements Program, which was initiated in fiscal year 2001/02. With the present action, the total funding for Appropriation No. 15380 will increase from \$113,296,600 to \$132,596,600.

Project Milestone

February 2016 – Completion of construction of Stage 2 of the Diemer electrical upgrades

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 proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, design, and minor alterations, 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 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 five Categorical Exemptions (Class 1, Section 15301; Class 2, Section 15302; Class 3, Section 15303; Class 4, Section 15304 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed action is categorically exempt and

- a. Appropriate \$19.3 million; and
- b. Award \$11.11 million contract to Southern Contracting Company to construct the Stage 2 electrical upgrades at the Diemer plant.

Fiscal Impact: \$19.3 million in capital funds under Approp. 15380

Business Analysis: This option will enhance electrical reliability and worker safety at the Diemer plant. This project will provide improved backup capability for critical treatment process equipment.

Option #2

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

Fiscal Impact: None

Business Analysis: This option may or may not result in a lower bid, and would delay the completion of the electrical upgrades.

Staff Recommendation

Option #1

	7/29/2013
Gordon Johnson Manager/Chief Engineer, Engineering Services	Date
	7/31/2013
Jeffrey Kichtlinger General Manager	Date

- [Attachment 1 – Financial Statement](#)
- [Attachment 2 – Abstract of Bids](#)
- [Attachment 3 – Location Map](#)

Financial Statement for Diemer Improvements Program

A breakdown of Board Action No. 25 for Appropriation No. 15380 for the Diemer Electrical Upgrades¹ is as follows:

	Previous Total Appropriated Amount (July 2013)	Current Board Action No. 25 (Aug. 2013)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 1,930,200	\$ -	\$ 1,930,200
Final Design	8,594,900	-	8,594,900
Owner Costs (Program mgmt., haz. materials mgmt., permitting)	8,276,159	721,000	8,997,159
Submittals Review & Record Drwgs.	186,204	851,000	1,037,204
Construction Inspection & Support	6,278,168	1,682,000	7,960,168
Metropolitan Force Construction	2,211,600	2,933,000	5,144,600
Materials & Supplies	831,916	108,000	939,916
Incidental Expenses	373,167	17,000	390,167
Professional/Technical Services (Haz. materials specialty firm)	11,513,375 -	- 8,000	11,513,375 8,000
Equipment Use	96,608	-	96,608
Contracts	71,220,553	11,110,000	82,330,553
Remaining Budget	1,783,750	1,870,000	3,653,750
Total	\$ 113,296,600	\$ 19,300,000	\$ 132,596,600

Funding Request

Program Name:	Diemer Improvements Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15380	Board Action No.:	25
Requested Amount:	\$ 19,300,000	Budget Page No.:	297
Total Appropriated Amount:	\$ 132,596,600	Total Program Estimate:	\$ 285,285,000

¹ The total amount expended to date on the Diemer Electrical Upgrades, Stage 2 is approximately \$3,980,000. The total estimated cost to complete the electrical upgrades, including the amount expended to date and the current funds requested, is approximately \$36 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on June 18, 2013 at 2:00 P.M.

Specifications No. 1705

Diemer Electrical Upgrades, Stage 2

The Diemer Electrical Upgrades, Stage 2 work consists of installation of new conduits, duct banks, UPCs, MCCs, and circuit breakers; relocation of electrical loads; upgrade of the existing grounding system; and replacement of existing liquid-propane standby generators with diesel-powered generators.

Engineer's Estimate: \$15,000,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE¹
Southern Contracting Company, San Marcos, CA	\$ 11,110,000	\$ 11,110,000	100	Yes
Helix Electric, Inc., San Diego, CA	\$ 12,260,000	N/A	N/A	N/A
Neal Electric Corp., Poway, CA	\$ 13,140,000	N/A	N/A	N/A
Stronghold Engineering, Inc., Riverside, CA	\$ 13,577,217	N/A	N/A	N/A
Minako America Corporation dba Minco Construction, Gardena, CA	\$ 14,077,700	N/A	N/A	N/A
Morrow-Meadows Corporation, City of Industry, CA	\$ 14,222,000	N/A	N/A	N/A
Shimmick Construction Company, Inc., Irvine, CA	\$ 17,351,182	N/A	N/A	N/A

¹ SBE (Small Business Enterprise) participation level was established at 22% for this contract

Distribution System

