

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

May 16, 2006 Board Meeting

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**8-5**

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**Subject**

Appropriate \$5.73 million; and authorize (1) three projects at the Diemer Water Treatment Plant; (2) an increase of \$410,000 in change order authority for the Diemer Plant Maintenance Facilities; and (3) an amendment to existing agreement with CDM, Inc. (Approp. 15380)

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**Description**

The Robert B. Diemer Water Treatment 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 State Water Project to Metropolitan's Central Pool portion of the distribution system.

The Diemer Improvements Program was established to address needed rehabilitation and improvement work to ensure plant reliability and compliance with drinking water and environmental regulations. Three improvement projects are recommended to proceed with design at this time. These projects will be coordinated with other construction activities planned for the Diemer plant.

**Diemer Water Treatment Plant Improvements Program**

**Washwater Reclamation Plant No. 3 – Final Design (\$3,887,000)**

The Diemer Washwater Reclamation Plant (WWRP) No. 2, which was constructed in 1992, processes up to 25 mgd of used filter backwash water, decant water from the solids thickeners, and drainage water from the main plant sedimentation basins. WWRP No. 1, which was constructed in 1961, will be demolished in 2006 to provide room for the Diemer Oxidation Retrofit Program (ORP) chemical tank farm. WWRP No. 1 is an obsolete facility which has been out of service since 1992.

Approximately 40 percent of the WWRP No. 2 structure is constructed on long slender piles and earthen fill, which forms a level surface at the top of a slope. In June 2004, Metropolitan's Board authorized geotechnical studies and detailed analyses to assess the seismic stability of the facility and to identify required rehabilitation work to ensure reliability of the WWRP No. 2 facility. The Whittier Fault, which is located approximately one-half mile from the Diemer plant, has the capability of generating a 6.8 magnitude earthquake. Seismic analyses have revealed that the slope on which WWRP No. 2 is located would not be stable during a major earthquake, thus causing significant damage. Without the ability to treat used washwater, the Diemer filters could not be backwashed and the Diemer plant would not be able to treat water. If WWRP No. 2 were unusable, staff would implement temporary measures such as leasing portable washwater reclamation treatment units or converting one of the main treatment basins to a washwater reclamation plant.

Rehabilitation of the existing slope beneath WWRP No. 2 would require a significant amount of excavation and replacement of fill, and would not be cost-effective. To mitigate the seismic risk, staff recommends addition of a new 24-mgd WWRP No. 3 sited on the stable pad at the northwest hill area of the Diemer plant. The construction cost to build a new WWRP No. 3 is estimated to be approximately \$30 million, while the estimated cost to stabilize the fill slope at WWRP No. 2 would be approximately \$50 million, based on recent bids to stabilize the plant's south-facing slope. Addition of WWRP No. 3 would ensure continued operation of the Diemer plant in the event that a major earthquake renders WWRP No. 2 inoperable. Following completion of WWRP No. 3, the existing WWRP would remain in operation to assist with peak loadings and to serve as a backup facility.

The WWRP No. 3 project will include a coal removal structure, three 8-mgd treatment trains, and a reclaimed washwater pumping station. Staff recommends proceeding with final design at this time and integrating the construction work with the Diemer ORP to increase efficiency and better coordinate construction activities due to their overlapping schedules and common location of some facilities. Staff recommends that CDM, Inc. perform final design of this project under an existing professional services agreement. Amendment of the existing CDM agreement to perform this work is described below.

This action appropriates \$3.887 million for final design of the Diemer WWRP No. 3 project. The anticipated cost of final design is 11.3 percent of the estimated construction cost. Engineering Services' goal for design of projects with construction cost greater than \$3 million is 9 to 12 percent.

#### **Flow Meters and Vault – Final Design (\$243,000)**

At the Diemer plant, raw water delivered through the Yorba Linda Feeder is measured by a remote meter that is located approximately 20 miles from the plant. As a result of this remote metering, there is no actual instantaneous measurement of flow into the plant. The remote meter has failed in the past and there is no back-up flow meter. The washwater return pipeline also has no flow meter. In June 2005, Metropolitan's Board authorized preliminary design of the Flow Meters and Vault project. The scope of the project includes addition of a new 96-inch diameter acoustic flow meter within a vault at the Diemer plant inlet conduit, and a new 36-inch magnetic flow meter to be installed aboveground on the washwater return pipeline. The Diemer plant inlet flow meter and vault will be located adjacent to the ozone facilities' inlet control structure. Installation of these flow meters will enable the plant to accurately and reliably measure plant flow and better control chemical dosages at the plant.

Preliminary design has been completed and staff recommends proceeding with final design at this time. Staff recommends that CDM perform final design of this project under an existing professional services agreement. Amendment of the existing CDM agreement to perform this work is described below.

This action appropriates \$243,000 and authorizes final design of the Diemer plant Flow Meters and Vault project. The anticipated cost of final design is 11 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.

#### **Filter Valve Starter and Wiring Replacement – Procurement and Construction (\$1,600,000)**

The Diemer plant has a total of 48 filters, each of which employs 5 motor-operated valves. The majority of the electrical starters for these valves have been in service more than 36 years and require excessive maintenance to keep operational. Replacement parts are often not available and support from the original manufacturer is difficult to obtain. In addition, the electrical wire insulation has deteriorated such that the wiring needs to be replaced. Staff recommends upgrading the electrical starters and wiring to ensure reliability of the filters.

This project will replace the starters for the filter inlet, outlet, drain, backwash, and surface wash valves, and will replace the electrical wiring between the starters and the filter valve motor operators for all 48 filters at the Diemer plant.

This action appropriates \$1.6 million and authorizes procurement and installation by Metropolitan forces.

#### **Change Order Authority for Diemer Plant Maintenance Facilities (No Funds Required)**

In October 2005, Metropolitan's Board awarded the \$8.219-million Plant Maintenance Facilities construction contract (Specifications No. 1505) to Brutoco Engineering & Construction, Inc. (Brutoco). Notice to Proceed was issued to Brutoco on November 8, 2005. This facility was designed by RNL Design, a consulting architectural firm, assisted by a team of specialty subconsultants. During construction of this project it was discovered that the plans and specifications included incomplete electrical design layouts, erroneous electrical duct bank profiles and details; an incomplete electrical grounding plan; and lacked coordination between the mechanical and electrical portions of the work. Due to errors and omissions in the design, several change orders have been issued to Brutoco and several more are pending. Staff is working closely with Brutoco and RNL Design to address these errors and omissions and to minimize further construction cost and schedule impacts. Additionally, staff is pursuing recompense from RNL Design for these impacts.

This action authorizes an increase in the General Manager's authority to execute change orders with Brutoco from \$410,950 (which is 5 percent of the original contract, per Metropolitan's Administrative Code) to an aggregate amount not to exceed \$820,950. No additional funds are required, as sufficient funds are available within the existing appropriation.

### **Technical Support – Amendment to Existing Agreement**

CDM was selected through a competitive process (Request for Qualifications No. 719) to perform engineering design services related to water treatment facilities, and a professional services agreement was authorized by the Board in July 2005. Staff recommends that CDM perform final design of the Diemer WWRP No. 3 and the Inlet Flow Meters and Vault project. Amendment of the CDM agreement is consistent with the agreement's scope of work.

This action authorizes an increase of \$3.18 million to the existing agreement with CDM, for a new not-to-exceed total of \$13.43 million, for final design of the Diemer WWRP No. 3 and the Inlet Flow Meters and Vault projects, and integration of these designs into the Diemer ORP final design currently being performed by CDM.

These projects have been evaluated and recommended by Metropolitan's Capital Investment Plan Evaluation Team and funds have been included within the fiscal year 2005/06 capital budget for the Diemer Inlet Flow Meters and Vault, and Filter Valve Starter and Wiring Replacement projects. Funds for the WWRP No. 3 project are planned to be included in the fiscal year 2006/07 capital budget. Final design of WWRP No. 3 is recommended to move forward at this time to reduce seismic risk, and to permit integration with the upcoming Diemer ORP construction project. Upon approval of this action, the fiscal year 2005/06 capital expenditure plan will be adjusted to reflect the new WWRP No. 3 project.

See [Attachment 1](#) for the Financial Statement, and [Attachment 2](#) for the Location Maps.

### ***Project Milestones***

April 2007 –Completion of Diemer flow meters and vault final design

June 2007 – Completion of Diemer WWRP No. 3 final design

June 2010 – Completion of Diemer filter valve starter and wiring replacement installation

### **Policy**

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Metropolitan Water District Administrative Code Section 5108: Capital Project Appropriation

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 determinations for Option #1:

#### **Diemer Improvements Program**

The environmental effects from the design, construction, and operation of the Washwater Reclamation Plant No. 3, flow meters and vault at plant inlet and washwater return lines, and the plant filter valve starters and electrical wiring were evaluated in the Robert B. Diemer Filtration Plant Improvements Project Final Subsequent Environmental Impact Report (Final SEIR), which was certified by the Board on April 11, 2006. During that same meeting, the Board also approved the Findings of Fact (findings), the Mitigation Monitoring and Reporting Program (MMRP), the Statement of Overriding Considerations (SOC), and the proposed modifications to the originally approved Robert B. Diemer Filtration Plant Improvements Project. The current board actions would not result in any further changes to the original improvements project and its approved modifications. Hence, the previous environmental documentation taken by the Board in conjunction with the proposed actions fully complies with CEQA and the State CEQA Guidelines. Therefore, no further CEQA documentation is necessary for the Board to act on the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the certified 2006 Final SEIR and in the related adopted documents (i.e., findings, SOC, and MMRP), and that no further environmental analysis or documentation is required.

### **Change Order Authority for Diemer Plant Maintenance Facilities**

The environmental effects from the construction of the Plant Maintenance Facilities were evaluated in the Robert B. Diemer Filtration Plant Improvements Project Final EIR, which was certified by the Board on February 13, 2001. The Board also approved the Findings of Fact (findings), the Statement of Overriding Considerations (SOC), the Mitigation Monitoring and Reporting Program (MMRP) and the overall Diemer Treatment Plant Improvements Project. The current board action solely pertains to fiscal matters involving construction management services and does not involve any changes to the approved project itself. Hence, the previous environmental documentation acted on 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 the certified 2001 Final EIR, findings, SOC, and MMRP and that no further environmental analysis or documentation is required.

### **Technical Engineering Support - Amendment to Existing Agreement**

The proposed action is not defined as a project under CEQA because it involves continuing administrative activities (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed action is not subject to CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project, which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to the provisions of CEQA pursuant to Sections 15378(b)(2) and 15378(b)(4) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

## **Board Options/Fiscal Impacts**

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### **Option #1**

Adopt the CEQA determinations and

- a. Appropriate \$5.73 million;
- b. Authorize final design of Diemer WWRP No. 3 and the Inlet Flow Meters and Vault project;
- c. Authorize procurement and installation of filter valve starters and wiring replacement for the Diemer plant's 48 filters;
- d. Authorize an increase of \$3.18 million to the existing agreement with CDM for a new not-to-exceed total of \$13.43 million; and
- e. Authorize an increase of \$410,000 in the General Manager's change order authority, up to a total of \$820,950, for the Diemer Plant Maintenance Facilities project.

**Fiscal Impact:** \$1.843 million of budgeted funds and \$3.887 million of non-budgeted funds under Approp. 15380

### **Option #2**

Do not authorize the work described in this letter. Implementation of this option will forego an opportunity to reduce maintenance costs and increase the potential risk of unplanned partial plant outages.

**Fiscal Impact:** None

**Staff Recommendation**

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Option #1

  
Gordon L. Johnson  
for Roy L. Wolfe  
Manager, Corporate Resources

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4/17/2006  
Date

  
Jeffrey Kightlinger  
General Manager

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4/21/2006  
Date

**Attachment 1 – Financial Statement**

**Attachment 2 – Location Maps**

BLA #4366

## Financial Statement for Diemer Water Treatment Plant Improvements Program

A breakdown of Board Action No. 11 for Appropriation No.15380 is as follows:

	<b>Previous Total Appropriated Amount (Dec. 2005)</b>	<b>Current Board Action No. 11 (May 2006)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies and Investigations	\$ 1,227,500	\$ 18,000	\$ 1,245,500
Design and Specifications	491,900	261,000	752,900
Owner Costs (Program management, contract administration, design coordination)	860,850	689,000	1,549,850
Construction Inspection and Support	322,250	-	322,250
Metropolitan Force Construction	357,000	1,088,000	1,445,000
Materials and Supplies	449,000	192,000	641,000
Incidental Expenses	23,000	13,000	36,000
Professional/Technical Services	1,839,000	40,000	1,879,000
CDM, Inc.	-	2,681,000	2,681,000
Equipment Use	66,500	-	66,500
Contracts	3,365,000	-	3,365,000
Remaining Budget	1,164,000	748,000	1,912,000
<b>Total</b>	<b>\$ 10,166,000</b>	<b>\$ 5,730,000</b>	<b>\$ 15,896,000</b>

### Funding Request

<b>Program Name:</b>	Diemer Water Treatment Plant Improvements Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15380	<b>Board Action No.:</b>	11
<b>Requested Amount:</b>	\$ 5,730,000	<b>Capital Program No.:</b>	15380-I
<b>Total Appropriated Amount:</b>	\$ 15,896,000	<b>Capital Program Page No.:</b>	E-28
<b>Total Program Estimate:</b>	\$ 84,220,000	<b>Program Goal:</b>	I-Infrastructure Reliability



