



- Board of Directors  
*Engineering and Operations Committee*

2/12/2013 Board Meeting

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**8-3**

## **Subject**

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Appropriate \$3.2 million; and authorize (1) completion activities for the Diemer Oxidation Retrofit Program; (2) final design and permitting for revegetation of slopes at the Robert B. Diemer Water Treatment Plant; and (3) agreement with Helix Environmental Planning, Inc. in an amount not to exceed \$310,000 (Approp. 15389)

## **Executive Summary**

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This action authorizes a series of Metropolitan force activities which will conclude the primary construction for the Diemer Oxidation Retrofit Program (ORP), and authorizes final design and permitting for the revegetation of slopes and related improvements in order to comply with environmental mitigation commitments at the Robert B. Diemer Water Treatment Plant. The completion activities will enable the new ozonation facilities to commence operation after the main construction contract is completed and to comply with the Disinfectants/Disinfection Byproduct Rule. These activities include modification of life safety systems; integration of plant control, communication, and chemical systems; calibration and testing of ozone process instruments; and preparation of operational schematics for use by plant staff. The mitigation activities and slope revegetation are needed for compliance with Orange County Fire Authority (OCFA) requirements, to address commitments contained in the Diemer ORP's environmental documents, to preserve the stability of plant slopes, and to address local agency viewshed concerns. This action also authorizes an agreement with Helix Environmental Planning, Inc. for environmental mitigation support services.

## **Timing and Urgency**

Individual elements of the Diemer ORP have been staged so that major construction could be accomplished in a sequential manner, minimizing impacts on plant operations and on other Diemer infrastructure projects. At the present time, construction of the main ozonation facilities is nearing completion, with testing and start-up activities to follow. Once the ORP contractor has demobilized, Metropolitan forces will initiate the final stages of work planned under the Diemer ORP. This work includes tie-in activities to fully integrate the operation of the new ORP facilities into the Diemer plant. In addition, revegetation of the plant's slope areas is needed to satisfy commitments contained in the Diemer ORP's environmental documents, to comply with provisions of the Diemer Habitat Conservation Plan (HCP), and to address local agency viewshed concerns.

This work has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria, and the ORP is categorized as a Water Quality project. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2012/13.

## **Details**

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### **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 its current 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 Metropolitan's Central Pool portion of the distribution system.

In July 2008, Metropolitan's Board awarded the main contract to construct the Diemer ozonation facilities, along with four related rehabilitation projects. Due to overlapping schedules and common work areas, staff combined the five projects under a single construction contract. The contract includes addition of an ozone generation building; ozone contactors; a liquid oxygen (LOX) tank farm; improvements to existing chemical tank farms; and new electrical switchgear and standby generator buildings. Completion of this construction contract is anticipated within the next several months. As a result, staff recommends moving forward at this time with the final stages of work planned under the Diemer ORP capital program.

**Project No. 1 – Diemer ORP Completion Activities – Construction (\$2,670,000)**

To enable the ozonation facilities to commence operation, a series of key integration activities between the new and existing facilities at the Diemer plant must be completed. These activities are planned to be performed by Metropolitan forces, which will be more cost-effective than use of a construction contract due to the greater flexibility in scheduling of construction activities around plant operations, and to the reduced risk of contractor impacts or delays. Examples of work to be performed include:

- Modification of the plant's sodium hypochlorite feed system to serve the ozone cooling water system, in order to protect the ozonation equipment from quagga mussels.
- Modification and addition of life/safety systems in the ozone generation building and contactors based on updated requirements of the OCFA, which includes the relocation and installation of additional gas and leak detection sensors and monitoring equipment.
- Installation of multiple ozone instruments and analyzers within the ozonation facilities to optimize process control. These improvements are based on operational feedback from Metropolitan's other ozonation systems.
- Integration of supervisory control and data acquisition (SCADA) system components, communication systems, and chemical systems between the new facilities and the existing plant.
- Additions to three existing chemical feed systems, which includes piping, valves, and flow meters to supply chemicals to new application points installed under the contract.
- Preparation of plant-wide operational schematics of the overall chemical, water, electrical and fiber-optic systems in the Diemer plant for use by plant staff, reflecting system updates during construction.
- Addition of security fencing on the west perimeter of the Diemer plant near the location of the new LOX tanks, and procurement of specialized remote circuit breaker tools to enable plant staff to remove and install the new 5,000-volt circuit breakers in the new switchgear room from a safe distance.
- Modification of the Uninterruptible Power Supply (UPS) exhaust system to enhance performance of the FM-200 fire suppression system. The UPS provides back-up power to critical electrical equipment.

This action appropriates \$2.67 million and authorizes Metropolitan force construction of ORP completion activities at the Diemer plant. The requested funds include: \$1,975,000 for construction by Metropolitan forces; \$215,000 for technical support by Metropolitan design staff; \$95,000 for preparation of record drawings; \$87,000 for environmental monitoring and project management; and \$298,000 for remaining budget.

**Project No. 2 – South Slope Revegetation and Mitigation Improvements – Final Design (\$530,000)**

The Diemer plant is located on the top of a hill in the city of Yorba Linda. It occupies a 200-acre site which is surrounded by a golf course and residential developments to the south and west, and Chino Hills State Park to the north and east. Under the final Diemer ORP Environmental Impact Report, planned mitigation measures for the construction include the installation of permanent erosion control features to protect soil, prevent slope erosion, reduce runoff, minimize sediment loss, and provide landscaping to screen the structures from the surrounding viewshed. The main ORP construction contract, which was awarded in 2008, included hydroseeding and planting of native and drought-tolerant trees and shrubs to prevent erosion and screen the ozonation facilities and the plant's south slope from view.

On November 15, 2008, the Freeway Complex Fire burned westward from Corona past the Diemer plant. The fire resulted in over 30,000 acres of charred hillsides, and burned approximately 90 percent of Chino Hills State Park. Slopes on the east, southeast, north, northwest and west sides of the Diemer plant were also burned. Fire

damage occurred to trees, grass, and brush on the east side of the plant near the Finished Water Reservoir and East Washwater Tank. The fire also destroyed the aboveground piping and fiber-optic communication lines to the solids lagoons on the north side of the plant. Although the Diemer plant remained operational, significant damage to irrigation systems, vegetation, and sensitive habitat occurred.

The OCFA has designated an area that includes the Diemer plant as a Very High Fire Hazard Severity Zone. Accordingly, the OCFA requires that combustible material be reduced through vegetation clearing and maintenance to help mitigate the potential for fire. In January 2011, the OCFA issued revised vegetation management guidelines that require combustible vegetation material immediately surrounding the Diemer plant's infrastructure to be reduced, and also require regularly scheduled vegetation clearing and maintenance. As a result of the guidelines, planting requirements within the area covered by the ozonation facilities construction contract must be modified to greatly reduce the number and types of plants and the extent of landscape screening that had been planned. As an interim measure, the Diemer plant's south-facing slope has been hydroseeded and minimal shrubbery has been planted to reduce potential erosion while the revised revegetation plan is being developed.

Based on the OCFA guidelines, an assessment of the vegetation around the plant was conducted by staff to understand the risk of wild fires to the Diemer plant and to identify potential vegetation fire hazards. An updated revegetation plan is needed to allow Metropolitan to control the type of flammable vegetation planted on the plant site to address commitments contained in the Diemer ORP's environmental documents, preserve the stability of plant slopes, address local agency viewshed concerns, and minimize the cost and amount of required landscaping maintenance. The revegetation and erosion control plan will be comprehensive and will consider the potentially conflicting goals of the HCP developed in 1996 for vegetated portions of the Diemer plant site; OCFA requirements; the regulatory requirements associated with Section 10(a) of the Federal Endangered Species Act permit issued for the Diemer plant; the city of Yorba Linda's desired viewshed mitigation; Metropolitan's preference for drought-tolerant and non-habitat creating plants; and the desire for low initial capital and ongoing maintenance costs. The planned scope of the revegetation design effort will include: site vegetation and hardscape planning; assessment of existing irrigation systems; development of a facility-wide plant pallet; development of an overall site revegetation plan; permitting and consultations with regulatory agencies; preparation of drawings and specifications for the south slope vegetation and irrigation systems; receipt of competitive bids; and all other activities in advance of award of a construction contract.

In late 2013, following start-up of the ozonation facilities, staff plans to return to the Board to award a construction contract for revegetation of the Diemer plant's south slope and installation of related mitigation improvements.

This action appropriates \$530,000, authorizes revegetation and erosion control planning activities for the Diemer plant site, and authorizes final design of revegetation and mitigation improvements for the Diemer plant's south slope. The final design and planning are recommended to be performed primarily by Helix Environmental Planning, Inc. under a new professional services agreement, as discussed below. The requested funds include: \$364,000 for revegetation planning and preparation of drawings and specifications; \$125,000 for permitting, receipt of bids, and project management; and \$41,000 for remaining budget. The anticipated cost of final design is approximately 12.5 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. The construction cost for this project is anticipated to range from \$950,000 to \$1.3 million.

#### **Mitigation Support Services (Helix Environmental Planning, Inc.) – New Agreement**

Preparation of the Diemer south slope mitigation design documents and revegetation planning are recommended to be performed by a specialized consulting firm, Helix Environmental Planning, Inc., under a new professional services agreement. The planned scope of work includes preparing the vegetation, irrigation system and erosion control assessments; preparing a master plan to comply with the OCFA guidelines; and performing final design for the south-facing slope mitigation improvements. The estimated cost for these services is \$310,000. Helix was selected through a competitive process via RFQ No. 956. For this agreement, Metropolitan has established a Small Business Enterprise participation level of 18 percent.

## Summary

This action appropriates \$3.2 million, authorizes construction of Diemer ORP completion activities, authorizes final design of revegetation and mitigation improvements at the Diemer plant, and authorizes a professional services agreement with Helix Environmental Planning, Inc. These projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2012/13 capital expenditure plan.

This work is included within capital Appropriation No. 15389, the Diemer Oxidation Retrofit Program, which was initiated in fiscal year 2001/02. Other projects authorized under Appropriation No. 15389 include the Diemer plant maintenance facility, the vehicle maintenance center, and the ozonation facilities. With the present action, the total funding for Appropriation No. 15389 will increase from \$363,032,400 to \$366,232,400.

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

## Project Milestones

December 2013 – Award of construction contract for revegetation of the Diemer south slope

March 2014 – Completion of ORP construction activities by Metropolitan forces

## 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 determinations for Option #1

### Project No. 1 – Diemer ORP Completion Activities – Construction

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the funding, design, and minor alterations, reconstruction or replacement of existing public facilities; construction of minor appurtenant structures; and a check for performance of an operation, or quality, health, or safety of a project. In addition, the proposed project will consist of basic data collection, and resource evaluation activities which does not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. These activities involve negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1, Class 2, Class 3, Class 6, and Class 9 Categorical Exemptions (Sections 15301, 15302, 15303, 15306, and 15309 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 6, Section 15306; and Class 9, Section 15309 of the State CEQA Guidelines).

**Project No. 2 – South Slope Revegetation and Mitigation Improvements – Final Design**

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

**Mitigation Support Services (Helix Environmental Planning, Inc.) – New Agreement**

The proposed action is not defined as a project under CEQA because it involves continuing administrative activities, such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, where it can be seen with certainty that there is no possibility that the proposed action in question may have a significant effect on the environment, the proposed action is not subject to CEQA (Section 15061(b)(3) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed action is not subject to CEQA pursuant to Sections 15378(b)(2) and 15061(b)(3) of the State CEQA Guidelines.

CEQA determination for Option #2:

None required

**Board Options**

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**Option #1**

Adopt the CEQA determinations and

- a. Appropriate \$3.2 million;
- b. Authorize construction of Diemer Oxidation Retrofit Program completion activities;
- c. Authorize final design and permitting for revegetation of slopes at the Diemer plant; and
- d. Authorize agreement with Helix Environmental Planning, Inc., in an amount not to exceed \$310,000, for mitigation support services.

**Fiscal Impact:** \$3.2 million in capital funds under Approp. 15389

**Business Analysis:** This option will enable the Diemer ozonation facilities to commence operation as planned, will address commitments contained within the Diemer ORP's environmental documents, and will comply with local agency permitting requirements.

**Option #2**

Do not proceed with the Diemer ORP completion activities, environmental mitigation, or slope revegetation steps at this time.

**Fiscal Impact:** None

**Business Analysis:** This option would delay initial operation of the Diemer ozonation system and delay compliance with the Disinfectants/Disinfection Byproduct Rule, and could increase the risk of legal challenge due to noncompliance with mitigation commitments and local agency requirements.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_ 1/23/2013  
Gordon Johnson *Date*  
Manager/Chief Engineer  
Engineering Services

  
\_\_\_\_\_ 1/29/2013  
Jeffrey Kightlinger *Date*  
General Manager

[Attachment 1 – Financial Statement](#)

[Attachment 2 – Location Map](#)

Ref# es12622091

## Financial Statement for Diemer Oxidation Retrofit Program

A breakdown of Board Action No. 12 for Appropriation No. 15389 for the Diemer Oxidation Retrofit Program<sup>1</sup> is as follows:

|   | <b>Previous Total<br/>Appropriated<br/>Amount<br/>(May 2011)</b> | <b>Current Board<br/>Action No. 12<br/>(Feb. 2013)</b> | <b>New Total<br/>Appropriated<br/>Amount</b> |
|---|--|--|--|
| Labor   |  |  |  |
| Studies & Investigations                          | \$ 1,800,000   | \$ -   | \$ 1,800,000                                 |
| Owner Costs (Program mgmt., envir.<br>permitting) | 7,199,410  | 201,000  | 7,400,410                                    |
| Final Design                                      | 5,903,237  | 269,000  | 6,172,237                                    |
| Submittals Review & Record Drwgs                  | 6,296,100  | 95,000   | 6,391,100                                    |
| Construction Inspection & Support                 | 30,409,800   | -  | 30,409,800                                   |
| Metropolitan Force Construction                   | 5,947,000  | 1,575,000  | 7,522,000                                    |
| Materials & Supplies                              | 9,382,741  | 400,000  | 9,782,741                                    |
| Incidental Expenses                               | 991,404  | 11,000   | 1,002,404                                    |
| Professional/Technical Services                   | 29,969,560   | -  | 29,969,560                                   |
| Helix Environmental Planning                      | -  | 310,000  | 310,000                                      |
| Equipment Use                                     | 200,892  | -  | 200,892                                      |
| Contracts   | 256,806,869  | -  | 256,806,869                                  |
| Remaining Budget                                  | 8,125,387 <sup>2</sup>   | 339,000  | 8,464,387                                    |
| <b>Total</b>                                      | <b>\$ 363,032,400</b>  | <b>\$ 3,200,000</b>                                    | <b>\$ 366,232,400</b>                        |

### Funding Request

|                                   |   |                                  |               |
|-----------------------------------|---|----------------------------------|---------------|
| <b>Program Name:</b>              | Diemer Oxidation Retrofit Program                             |                                  |               |
| <b>Source of Funds:</b>           | Revenue Bonds, Replacement and Refurbishment or General Funds |                                  |               |
| <b>Appropriation No.:</b>         | 15389   | <b>Board Action No.:</b>         | 12            |
| <b>Requested Amount:</b>          | \$ 3,200,000  | <b>Capital Program No.:</b>      | 15389-W       |
| <b>Total Appropriated Amount:</b> | \$ 366,232,400  | <b>Capital Program Page No.:</b> | 284           |
| <b>Total Program Estimate:</b>    | \$ 372,927,000  | <b>Program Goal:</b>             | WQ/Compliance |

<sup>1</sup> The total amount expended to date on the Diemer ORP is approximately \$349 million.

<sup>2</sup> Includes previous reallocation of \$1,158,657 to Remaining Budget as a result of completion of the ORP Site Preparation work under budget; and \$7,828,500 from Remaining Budget for construction contract changes, electrical equipment, and construction management for the Diemer ozonation facilities.

# Distribution System

