



- Board of Directors
Engineering and Operations Committee

8/17/2021 Board Meeting

7-3

Subject

Authorize an agreement with CDM Smith Inc., in an amount not to exceed \$2.75 million, for support of engineering and technical studies at the advanced water treatment demonstration facility; the proposed action was previously determined to be exempt or otherwise not subject to CEQA

Executive Summary

During the past decade, California has experienced significant reductions in local surface supplies and groundwater production due to unprecedented drought conditions. The need for additional water resources and a more reliable water supply has become increasingly evident with the challenges from recurring drought, climate change, seismic risk, and uncertain availability of imported water supplies. Metropolitan's Regional Recycled Water Program (Program) was initiated to potentially develop a new local resource that would increase reliability of future water supplies in Southern California.

The goal of the Program is to produce up to 150 million gallons per day (mgd) of purified water for reuse applications, such as groundwater recharge, industrial uses, or future direct potable use (DPR) through raw water augmentation at Metropolitan's existing treatment plants. To obtain regulatory acceptance and develop the design criteria for a full-scale advanced water treatment (AWT) facility, in 2015 Metropolitan's Board authorized construction of a 0.5-mgd AWT demonstration facility at the Los Angeles County Sanitation Districts' (Sanitation Districts') Joint Water Pollution Control Plant (Joint Plant) in Carson. The demonstration facility began operations and testing in September 2019. The initial phase of technical studies treating the Joint Plant's secondary effluent is anticipated to be completed in October 2021. A second phase of studies treating the Joint Plant's primary effluent is scheduled to start in January 2022.

In November 2020, Metropolitan's Board authorized preparation of environmental documentation and technical studies for the Program. As part of the Program, this action authorizes engineering and technical services to support the ongoing studies at the AWT demonstration facility. Funds for these technical studies are included in the O&M budget for fiscal year 2021/22.

Details

Background

In November 2015, Metropolitan's Board authorized an agreement with County Sanitation District No. 2 of Los Angeles County to implement a demonstration project that established a partnership between Metropolitan and the Sanitation Districts in developing a new local resource that would help address the effects of drought, climate change, seismic risks, and uncertainties of imported water supplies. The Sanitation Districts' largest treatment plant, the Joint Plant located in Carson, California, has a capacity of 400 mgd and an average daily flow of approximately 260 mgd. While the entire secondary effluent flow from the Joint Plant is currently discharged through outfall tunnels to the Pacific Ocean in accordance with ocean discharge regulations, the Program would instead capture that water and treat it for beneficial reuse. If approved, the Program would add a significant new water supply to Metropolitan's service area for either groundwater replenishment or DPR through raw water augmentation at Metropolitan's existing treatment plants.

Metropolitan's Board authorized the design and construction of the demonstration facility in 2016 and 2017, respectively. Construction of the 0.5-mgd AWT demonstration facility, consisting of a membrane bioreactor

(MBR), reverse osmosis (RO), and ultraviolet light with an advanced oxidation process (UV/AOP), was completed in October 2019. The MBR was added as an optimal means to manage nitrogen in the Joint Plant's effluent and, if implemented full-scale, would be the first application of this technology in a potable reuse treatment train in California. The MBR system was designed with flexibility to allow different operating modes to treat either primary effluent ("secondary MBR") or secondary effluent ("tertiary MBR") from the Joint Plant.

Metropolitan obtained regulatory approval of a testing and monitoring plan from California's State Water Resources Control Board, Division of Drinking Water (DDW) in February 2019, which detailed the technical studies to be conducted at the demonstration facility treating the Joint Plant's secondary effluent in a tertiary MBR mode, followed by RO and UV/AOP. Testing began in October 2019 and is anticipated to conclude in October 2021. Results to date show that all water quality targets are being achieved through the process train, and pathogen removal through the MBR system surpasses the target minimum removal sought. Metropolitan continues to engage the regulators and an independent science advisory panel in the review of plans and results of testing performed at the demonstration facility.

One of the Program's primary treatment objectives is to remove nitrogen from water received from the Joint Plant to ensure it can be efficiently treated and used for groundwater recharge and other reuse applications. In 2018, a Metropolitan and Sanitation Districts workgroup evaluated several nitrogen management options that could be implemented at either a potential full-scale AWT facility or at the Joint Plant. Sanitation Districts staff are currently conducting in-depth technical analyses to further examine the nitrogen management options that could be implemented at the Joint Plant, which would significantly reduce the downstream treatment requirements at an AWT facility and provide potential cost savings for the Program.

Preliminary assessments conducted to date identify secondary MBR as a potentially viable treatment process to achieve biological nutrient removal through the Joint Plant and efficiently meet overall nitrogen removal goals for the Program. Therefore, in the next phase of studies starting later this year, the demonstration facility will treat the Joint Plant's primary effluent with the MBR configured in a secondary mode (secondary MBR), followed by RO and UV/AOP. The demonstration testing and monitoring plan for this next phase is anticipated to be submitted to DDW in August 2021 and describes the tasks required to evaluate treatment of primary effluent and the ability of the treatment train to meet all regulatory requirements. The plan builds upon the lessons learned and data from the previous tertiary MBR studies, will obtain the technical data that would be required for regulatory approval, and will help establish engineering design criteria for a potential full-scale AWT facility.

In November 2020, the Board authorized an amendment to the existing agreement with County Sanitation District No. 2 of Los Angeles County to support continued evaluation and development of the Program, including preparation of environmental documentation, technical studies, and public outreach activities. In accordance with the April 2020 action on the biennial budget for fiscal years 2020/21 and 2021/22, the General Manager will authorize staff to proceed with the major activities related to the planning phase of the Program using Metropolitan's O&M funds budgeted for this purpose. The total estimated cost to complete engineering and technical studies, environmental review, and the Program Environmental Impact Report is \$30 million.

Engineering and Technical Services (CDM Smith Inc.) – New Agreement

CDM Smith Inc. (CDM Smith) is recommended to provide engineering and technical services as required to execute the secondary MBR testing and monitoring plan, including supporting operations of the AWT demonstration facility. CDM Smith was selected through a competitive process via Request for Proposals No. 1274 based on the firm's experience in engineering and technical activities of a similar scope to the one planned for the next phase.

The planned activities for engineering and technical services for the next phase of studies at the demonstration facility include: (1) operating the facility to test AWT technologies; (2) executing the secondary MBR testing and monitoring plan to treat Joint Plant primary effluent; (3) training Metropolitan operations staff; (4) developing engineering design and operating criteria for a full-scale facility; and (5) preparing documents for regulatory approval and Program permitting. Metropolitan staff will oversee and coordinate the work performed by CDM Smith and, along with Sanitation Districts staff, will conduct additional technical analyses to complement these activities.

This action authorizes a new agreement with CDM Smith, for a not-to-exceed amount of \$2.75 million, for support of engineering and technical studies at the AWT demonstration facility for the Program. For this agreement, Metropolitan has established a small business enterprise participation level of 25 percent. CDM Smith has agreed to meet this level of participation. The planned subconsultants for this work are listed in **Attachment 1**.

Alternatives Considered

In developing the recommended approach to perform the engineering and technical studies, several alternatives were considered. The alternatives included utilizing Metropolitan's staff to perform all the work or conducting the work with a combination of Metropolitan and consultant staff. With staffing constraints and the need for specialized technical expertise with AWT facilities, staff recommends the use of consultants to perform the specific work identified in this board letter. Metropolitan staff will oversee the consultant's work, as well as perform technical activities consistent with in-house staff's core competencies. This hybrid staffing approach will allow for timely completion of the technical studies for review by the regulators without impacting the Program's overall schedule. This approach also allows for staff training on AWT facility operations, as it is anticipated that Metropolitan staff would be operating and maintaining a potential future full-scale facility. Overall, this hybrid staffing approach ensures that the work is conducted in the most cost- and time-efficient manner possible.

Summary

This action authorizes a new agreement with CDM Smith Inc., for a not-to-exceed amount of \$2.75 million, for support of engineering and technical studies at the AWT demonstration facility. See **Attachment 1** for the listing of Subconsultants for Agreement and **Attachment 2** for the Location Map.

Project Milestone

February 2023 – Completion of the second phase of AWT demonstration testing

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

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Metropolitan Board Report No. 01122016 IRP 8-3 B-L, "2015 Integrated Water Resources Plan Update," adopted January 2016

By Minute Item 42287, dated February 11, 1997, the Board adopted a set of policy principles on water recycling.

By Minute Item 50299, dated November 10, 2015, the Board authorized an agreement with County Sanitation District No. 2 of Los Angeles County for development of a potential regional recycled water supply program and a demonstration project.

By Minute Item 50410, dated March 8, 2016, the Board authorized agreements for design of the demonstration scale recycled water treatment plant and feasibility studies of recycled water delivery system.

By Minute Item 50884, dated July 11, 2017, the Board authorized construction of the advanced water treatment demonstration plant.

By Minute Item 51962, dated April 14, 2020, the Board appropriated a total of \$2,810.9 million for miscellaneous Metropolitan O&M costs, including costs associated with supply programs, for Fiscal Years 2020/21 and 2021/22.

By Minute Item 52174, dated November 10, 2020, the Board authorized preparation of environmental documentation and technical studies, and public outreach activities for the Regional Recycled Water Program.

By Minute Item 52210, dated December 8, 2020, the Board authorized an amendment to the agreement with Los Angeles County Sanitation Districts for development of a potential regional recycled water supply program and a demonstration project.

By Minute Item 52404, dated June 8, 2021, the Board authorized an agreement with Black & Veatch Corporation, Inc. for engineering and technical studies to support environmental planning activities of the Regional Recycled Water Program.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

This project was previously determined to be categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The Board found this project to be exempt under Class 1, Class 3, Class 4, and Class 6 of the State CEQA Guidelines on November 10, 2015. A Notice of Exemption (NOE) was filed at that time, and the statute of limitations has ended. With the current action, there are no substantial changes proposed to the project since the original NOE was filed. Hence, the environmental documentation previously prepared in conjunction with the project fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regard to the proposed action.

CEQA determination for Option #2:

None required

Board Options

Option #1

Authorize an agreement with CDM Smith Inc., in an amount not to exceed \$2.75 million for support of engineering and technical studies at the advanced water treatment demonstration facility.

Fiscal Impact: \$2.75 million will be funded from Operations and Maintenance funds. Approximately \$1.4 million will be incurred in the current biennium and have been previously authorized, and the remaining funds for this action will be accounted for and appropriated under the next biennial budget.

Business Analysis: This option would facilitate the development of water reuse in Southern California and the augmentation of regional supplies for Metropolitan's entire service area to respond to droughts, climate change, seismic risks, and uncertainties of imported water supplies.

Option #2

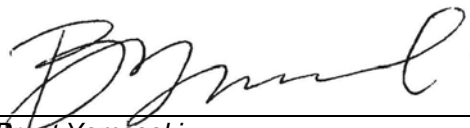
Do not proceed with the new agreement.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to utilize needed technical expertise to refine projected treatment approaches and costs and could impede development of recycled water resources to meet the increasing need for the region's water supply to respond to droughts, climate change, seismic risks, and other emergencies.

Staff Recommendation

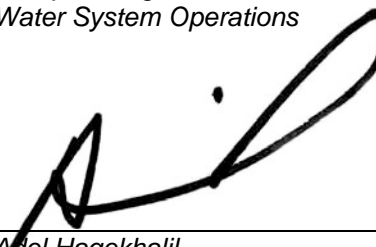
Option #1



7/22/2021

Brent Yamasaki
Group Manager
Water System Operations

Date



8/4/2021

Adel Hagekhalil
General Manager

Date

Attachment 1 – Subconsultants for Agreement with CDM Smith

Attachment 2 – Location Map

Ref# wso12680673

The Metropolitan Water District of Southern California**Subconsultants for Agreement with CDM Smith Inc.****Engineering and Technical Services for the Advanced Water Treatment Demonstration Facility
for the Regional Recycled Water Program**

Subconsultant and Location
Black & Veatch Corporation, Inc., Los Angeles, CA
DRP Engineering, Inc., Alhambra, CA
DR Consultants & Designers, Inc., Los Angeles, CA
MARRS Services, Inc., Fullerton, CA

Location Map

