

COMMISSION FILE NO: 25-073-6 **DATE INTRODUCED:** June 9, 2025

INTRODUCED BY: Executive Director (Signature on File in the Office of the Commission)

REFERRED BY COMMISSION CHAIRPERSON TO: Operations Committee

RELATING TO: Change Order Request, Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

SUMMARY:

The Commission is requested to authorize the Executive Director to execute a change order to Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility (SSWRF), with Carollo Engineers, Inc., (Carollo) in an amount not to exceed \$244,955 and to restore the Executive Director's original delegated authority.

Disinfection is the final treatment process at SSWRF. Disinfection is important, because wastewater contains pathogenic organisms, and many of these organisms are not removed in the primary and secondary treatment processes. SSWRF currently achieves effluent pathogen reduction by dosing with sodium hypochlorite; however, residual chlorine in the effluent can have a toxic effect on fish and other aquatic organisms. Residual chlorine is removed by dechlorination with sodium bisulfite.

The Wisconsin Department of Natural Resources (WDNR) issues a Wisconsin Pollutant Discharge Elimination System (WPDES) permit to the District, which allows the District to discharge treated wastewater to Lake Michigan from SSWRF. WPDES permits typically have a five-year term, and the District's next permit is anticipated to be issued in 2025. Beginning in May 2020, WDNR began incorporating new disinfection-related effluent standards in WPDES permits for wastewater treatment facilities throughout the State. WDNR's stated objective of the new standards is "to better protect recreational users (e.g., swimmers) from human health impacts related to the exposure to bacteria." (WDNR email to WPDES permit holders, dated June 1, 2020).

ATTACHMENTS: **BACKGROUND** ☐ **KEY ISSUES** ☐ **RESOLUTION** ☒
FISCAL NOTE ☒ **S/W/MBE** ☐ **OTHER** ☐ _____

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COMMITTEE ACTION: _____ **DATE:** _____

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SUMMARY (Cont'd)

Change Order Request, Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

The existing WPDES permit uses fecal coliform as a pathogen indicator. The new permit will also use *E. coli* as a pathogen indicator. The new WPDES permit limits for disinfection will be more stringent compared to existing limits. The permit will also allow time for the District to implement any necessary improvements; the District will have until April 30, 2029, to achieve compliance with the new standards.

In February 2024, the Commission authorized the Executive Director to enter into Contract S03005D01 in an amount not to exceed \$1,586,962. The scope of Contract S03005D01 includes:

- Reviewing existing reference information and site conditions.
- Conducting meetings with representatives from the District and Veolia Water Milwaukee, LLC.
- Performing preliminary design:
 - Sampling and testing to provide additional data.
 - Evaluating the final two disinfection system alternatives:
 - Chlorination/dechlorination system.
 - Hybrid disinfection system using ultraviolet (UV) light disinfection and a chlorination/dechlorination system.
 - Modeling.
 - Providing instrumentation and controls.
- Conducting a geotechnical investigation, including soil borings.
- Completing lead and asbestos inspection and testing.
- Developing a construction strategy analysis to minimize the disruption of facility operations during construction.
- Providing evaluations and recommendations summarized in technical memoranda and a design report.
- Preparing bid and construction documents.
- Providing engineering services during construction and record drawings.
- Preparing startup plans, updates to facility operation and maintenance (O&M) manuals, and conducting O&M staff training.
- Performing applications engineering.

The preliminary design evaluation of alternatives recommends the hybrid disinfection system. This solution will achieve effluent pathogen reduction using UV light disinfection for flows up to 135 MGD and using chlorination/dechlorination for flows over 135 MGD.

SUMMARY (Cont'd)

Change Order Request, Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

The original project and engineering contract scope assumed power for the new UV disinfection system would be fed through a new switchgear. During preliminary design, District staff determined that the existing Load Center Unit Substation 3 (LCUS-3) is an optimal power source for the new UV disinfection system, because replacement of LCUS-3 was already in the scope of upcoming Capital Project S06054. Replacing LCUS-3 with a higher capacity unit under Project S03005, instead of installing a separate switchgear to solely feed the new UV disinfection system, will save an estimated \$700,000 in capital costs, plus future maintenance costs associated with an additional switchgear asset.

District staff issued a change order under Executive Director authority for initial engineering services to replace LCUS-3 instead of a new switchgear, including development of the first draft of the bid and construction documents. The requested change order is the remaining engineering services to replace LCUS-3 instead of providing a new switchgear. The major tasks associated with this change include project management and design tasks to provide final bid and construction documents; bid and award tasks; engineering services during construction; and application engineering.

As this contract progressed, change orders were previously executed under the Executive Director's authority to provide engineering services for the following activities at SSWRF:

- Providing disinfection system troubleshooting.
- Performing a pilot test with the existing chlorination/dechlorination system during September 2024.
- Coordination of second full scale UV disinfection pilot test, preparing plans and specifications to install the second UV pilot unit, providing bid and award services, and preparing associated sampling plan.
- One additional soil boring for the new UV disinfection system.
- Extended services to operate and maintain UV transmittance analyzer equipment used to collect design data for the new UV disinfection system.

Following is a summary of a previous change order authorized under Commission action:

- Supervision of the second UV pilot unit installation and startup, operating and maintaining the UV pilot unit, and collecting samples.
- Performing UV collimated beam tests and particle size distribution analysis.
- Conducting weekly progress meetings.
- Preparing technical memorandum summarizing the UV pilot and review workshop.

SUMMARY (Cont'd)

Change Order Request, Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

CONTRACT COST CHANGES

	AMOUNT	PERCENTAGE INCREASE OVER ORIGINAL CONTRACT	AUTHORIZED BY	SWMBE
Original Contract	\$1,586,962		Commission	20.8%
Previous Change Orders	\$415,673	26%	Executive Director and Commission	16.0%
Requested Change Order	\$244,955	15%	Request of Commission	21.8%
Total Change Orders	\$660,628	42%		18.1%
TOTAL	\$2,247,590			20.0%

For engineering service contracts greater than or equal to \$500,000, the Commission has delegated to the Executive Director the authority to make changes up to \$200,000 or 10% of the original contract price, whichever is less. For this contract, a limit of \$158,696 prevails. To date, the Executive Director has utilized \$158,426 of this authority, leaving a balance of \$270. The request to restore the Executive Director's authority is in case any additional changes beyond the remaining Executive Director's authority are necessary. Without this restored authority, work may need to stop while staff obtains necessary change order authority from the Commission.

The existing total project cost (TPC) for Project S03005 does not include the cost for the additional project and engineering cost to replace LCUS-3. Staff will adjust the TPC to account for the additional costs as part of the 2026 Capital Budget process and make a corresponding change to reduce the TPC of Project S06054. The TPC changes will account for the estimated \$700,000 in project savings.

RESOLUTION

Change Order Request, Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility, and Restore the Executive Director's Original Delegated Authority

RESOLVED, by the Milwaukee Metropolitan Sewerage Commission, that the Executive Director is authorized to execute a change order to Contract S03005D01, Engineering Services – Disinfection Process Improvements at South Shore Water Reclamation Facility, with Carollo Engineers, Inc., in an amount not to exceed \$244,955, and that the Executive Director's original delegated authority is restored.