

COMMISSION FILE NO: 25-115-9 **DATE INTRODUCED:** September 8, 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 and Delegate Executive Director Change Order Authority for Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility

SUMMARY:

The Commission is requested to authorize the Executive Director to execute a change order in an amount not to exceed \$156,345 to Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility (SSWRF), with Donohue and Associates, Inc. (Donohue).

Further, the Commission is requested to delegate \$50,000 in change order authority to the Executive Director for future change orders to Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at SSWRF, with Donohue.

To ensure continuous wastewater treatment, it is critical that water reclamation facilities have robust and reliable sources of electrical energy. Electrical service to SSWRF is provided by two independent circuits from We Energies. In addition, five on-site engine generators also provide power for use at SSWRF. A large switchgear unit distributes power to most of the electrical load centers via circuit breakers within the switchgear enclosure. Each circuit breaker is monitored and tripped via a microprocessor based protective relay. An existing generator/switchgear control system monitors an array of power conditions and is integral to the relay, switchgear, and generator operations and ensures electrical power is supplied to where it is needed.

The purpose of this project is to improve the reliability of SSWRF power generation and distribution system to avoid plant-wide power outages. On occasion, SSWRF experiences unexpected plant-wide power outages. Power outages can cause process upsets, maintenance issues, increased safety risks, and equipment damage.

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

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COMMITTEE ACTION: _____ **DATE:** _____

COMMISSION ACTION: _____ **DATE:** _____

SUMMARY (Cont'd)

Change Order Request and Delegate Executive Director Change Order Authority for Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility

Several years ago, staff began tracking and analyzing plant outages at both SSWRF and Jones Island Water Reclamation Facility. Using information gathered from this tracking and to better understand potential causes of and alternatives to reduce power outages, the District issued a request for proposal for preliminary engineering services related to the electrical distribution system. Subsequently, the District contracted with Donohue, as they were the highest ranked proposer in a qualifications-based selection process. This contract (S06047E01) in the amount of \$148,755 was executed under the Executive Director's delegated contracting authority.

Under this contract, Donohue provided the following preliminary engineering services:

- Verifying and documenting the operational expectations for protective relay settings, generator/switchgear control logic, and related operations.
- Identifying and evaluating the existing generator/switchgear control and relay settings.
- Identifying options and the preferred solution to start the aeration blowers using the engine generators while the plant is disconnected from the utility.
- Recommending updates or improvements to improve the performance and reliability of the generator black start system.
- Recommending generator/switchgear control system improvements to improve system reliability and operational flexibility.
- Documenting the switchgear relay, utility and generator control system evaluation, findings, and recommendations, with steps to implement the recommendations.

After Donohue delivered their recommendations to increase SSWRF power system reliability, District staff identified that some of the recommendations are higher priority and now recommend that the District implement them in a timely manner. This will help reduce risks of power outages occurring and the subsequent issues that may arise from the power outages at SSWRF. Following are these higher priority recommendations:

- Replace the neutral ground resistors for all SSWRF engine generators. The existing resistors do not meet current standards. A properly functioning grounding system ensures safe discharge of electrical energy if there is a problem in the electrical system. It protects both people and equipment.
- Install a black start generator to provide energy to start the SSWRF engine generators during a power outage. The existing battery bank system allows for only one attempt to restart the engine generators.
- Replace the obsolete engine controllers for the four Caterpillar engine generators with current available control. Replacement parts for the engine controllers are no longer available from Caterpillar.

SUMMARY (Cont'd)

Change Order Request and Delegate Executive Director Change Order Authority for Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility

To begin working on these recommendations, staff authorized Donohue to begin engineering work using the Executive Director's delegated change order authority. Under the scope of that change order, Donohue will prepare plans, specifications, and bid documents for the above items. After the design work is complete, the District will publicly bid the resultant construction contract.

Under the scope of this proposed change order, Donohue will provide:

- Engineering services during construction.
- Operations and maintenance manual updates.
- Training and applications engineering associated with the above items.
- Test plan and assistance for performing generator control system testing after the above improvements are constructed.

In addition to the previously mentioned change orders, as the contract progressed, two other change orders were executed under the Executive Director's change order authority. Following is a summary of the work performed under the change orders:

- Field test each of the five generators grounding systems to verify the existing configuration and resistance values of the generators grounding schemes.
- Develop a near term plan to replace obsolete control components to keep the Caterpillar engine generators in operation.

SUMMARY (Cont'd)

Change Order Request and Delegate Executive Director Change Order Authority for
Contract S06047E01, Preliminary Engineering – Relay Coordination and
Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility

CONTRACT COST CHANGES

	AMOUNT	PERCENTAGE INCREASE OVER ORIGINAL CONTRACT	AUTHORIZED BY	SWMBE
Original Contract	\$148,755		Executive Director	20.2%
Previous Change Orders	\$150,585	101.0%	Executive Director	33.3%
Requested Change Order	\$156,345	105.1%	Request of Commission	21.1%
Total Change Orders	\$306,930	206.3%		27.1%
TOTAL	\$455,685			24.8%

Commission policy delegates to the Executive Director the authority to enter into contracts less than \$300,000 without Commission approval, which was done for Contract S06047E01. If the contract and cumulative change orders exceed \$299,999, the Executive Director shall seek the approval of the Commission. To date, change orders totaling \$150,585 under the Executive Director's authority have been executed, leaving \$659 in remaining authority. Engineering contracts under \$500,000 awarded by the Commission normally provide the Executive Director the authority to make changes up to \$50,000. This request to delegate \$50,000 in authority to the Executive Director for Contract S06047E01 is consistent with Commission policy and is necessary in case additional change orders beyond the remaining \$659 are needed.

RESOLUTION

Change Order Request and Delegate Executive Director Change Order Authority for
Contract S06047E01, Preliminary Engineering – Relay Coordination and
Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility

RESOLVED, by the Milwaukee Metropolitan Sewerage Commission, that the Executive Director is authorized to execute a change order in an amount not to exceed \$156,345 to Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility, with Donohue and Associates, Inc.

FURTHER RESOLVED, by the Milwaukee Metropolitan Sewerage Commission, that the Executive Director is delegated \$50,000 in change order authority for future change orders to Contract S06047E01, Preliminary Engineering – Relay Coordination and Generator/Switchgear Controls Evaluation at South Shore Water Reclamation Facility, with Donohue and Associates, Inc.