

COMMISSION FILE NO: 20-137-9 **DATE INTRODUCED:** September 14, 2020

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

REFERRED BY COMMISSION CHAIRPERSON TO: Operations Committee

RELATING TO: Executive Director's Change Order Authority for Contract S06046C01, South Shore Water Reclamation Facility Cat Engine 1, 2, 3, and 4 Top End Overhauls, and Restore the Executive Director's Original Delegated Authority

SUMMARY:

The Commission is requested to increase the Executive Director's delegated change order authority for Contract S06046C01, South Shore Water Reclamation Facility (SSWRF) Cat Engine 1, 2, 3, and 4 Top End Overhauls, with Fabick Cat (Fabick) by \$3,730 and to restore the Executive Director's original delegated change order authority.

At SSWRF, the District operates four Cat engine generators. The engine generators are fueled by either digester gas or natural gas, and they supply power to the plant electrical grid. Exhaust heat from each engine generator is recovered and used to heat digester sludge and provide heat for buildings during the heating season. Producing electric power with the engine generators is critical in maintaining treatment processes using the least costly source of power.

To maximize reliability, the engine generator equipment should be maintained in accordance with manufacturer's maintenance schedules. These schedules recommend a top end overhaul when the engines have had between 7,500 and 8,000 hours of operation and internal engine wear reaches defined limits. Engines 1, 2, 3, and 4 are each nearing or above the 7,500 hours recommended for a top end overhaul, and internal engine wear is approaching the defined limits; therefore, in March 2020, the Commission authorized and the District executed contract S06046C01 with Fabick to perform the top end overhauls. The scope of the top end overhaul work includes replacing or reconditioning components associated with the engine portion of the engine generator, notably the cylinder heads.

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)

Executive Director's Change Order Authority for Contract S06046C01, South Shore Water Reclamation Facility Cat Engine 1, 2, 3, and 4 Top End Overhauls, and Restore the Executive Director's Original Delegated Authority

While planning the top end overhaul work under S06046C01, the generator on Engine Generator 1 experienced a failure. Specifically, the windings of conductors that are used to induce electrical current from rotation of the engine burned and are inoperable. The stationary windings (on the stator) are confirmed to have burned. The rotating windings (on the rotor connected to the engine) and other components are suspected to have burned, but are not currently visible until full disassembly can be performed. The cause of the burning is unknown at this time, but the District will perform a root cause analysis while the repairs are being performed.

Fabick has performed a preliminary inspection of Engine Generator 1 (without major disassembly) and recommends the work identified below. District and Veolia Water Milwaukee, LLC, staff have reviewed the recommendations and are pursuing this following work under a change order to the contract:

- Disassembling the generator.
- Performing a comprehensive inspection of the generator.
- Testing all generator components.
- Replacing bearings, seals, fasteners, rectifier, wear sleeves, and temperature sensors.
- Rewinding the stator windings.
- Reassembling and test the generator.

The total of this work is \$73,424 and has been authorized under the Executive Director's authority for change orders.

The inspection will identify if the following work is needed:

- Rewinding the rotor windings.
- Replacing any other damaged components including the voltage regulator, varistors/rectifiers, potential transformer, heat sink, rotor exciter, stator exciter, and permanent magnets.

The total value of this work, if needed, is an additional \$30,306. The total of these two change orders, if all work is needed, is \$103,730. This exceeds the Executive Director's delegated authority for change orders for this contract (\$100,000) by \$3,730. Staff is requesting an increase in the Executive Director's change order authority in the amount of \$3,730 for a total change order authority of \$103,730.

SUMMARY (Cont'd)

Executive Director's Change Order Authority for Contract S06046C01, South Shore Water Reclamation Facility Cat Engine 1, 2, 3, and 4 Top End Overhauls, and Restore the Executive Director's Original Delegated Authority

These change orders may utilize the entirety of the Executive Director's delegated change order authority. The request to restore the Executive Director's original delegated authority (\$100,000) is in case any additional future change orders are necessary. Without this restored authority, work will need to stop while staff obtains authority for those potential future change orders.

RESOLUTION

Executive Director's Change Order Authority for Contract S06046C01, South Shore Water Reclamation Facility Cat Engine 1, 2, 3, and 4 Top End Overhauls, and Restore the Executive Director's Original Delegated Authority

RESOLVED, by the Milwaukee Metropolitan Sewerage Commission, that the Executive Director's delegated change order authority is increased by \$3,730 for Contract S06046C01, South Shore Water Reclamation Facility Cat Engine 1, 2, 3, and 4 Top End Overhauls, with Fabick Cat, and that the Executive Director's original delegated change order authority is restored.