

COMMISSION FILE NO: 21-079-6 **DATE INTRODUCED:** June 14, 2021

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 J04064E01, Preliminary Engineering, Jones Island Water Reclamation Facility Chaff System Improvements

SUMMARY:

The Commission is requested to authorize the Executive Director to execute a change order to Contract J04064E01, Preliminary Engineering, Jones Island Water Reclamation Facility (JIWRF) Chaff System Improvements, with Applied Technologies, Inc., (ATI) in an amount not to exceed \$127,000.

At JIWRF, the Dewatering and Drying (D&D) Facility processes biosolids from both JIWRF and the South Shore Water Reclamation Facility and produces Milorganite®. The Milorganite® production process utilizes up to 12 rotary dryers to heat-dry dewatered biosolids. The dryers use hot gases from either turbines fueled by natural or landfill gas or natural gas or landfill gas fired directly in the dryers. As the hot gases dry the sludge via direct contact, they accumulate particulate matter in the gas stream, which can result in air pollution if the particulate matter is not removed. To capture this particulate matter, each dryer discharges exhaust gases through an air pollution control system consisting of a dedicated cyclone separator, quench chamber, wet electrastic precipitator (WESP), and induced draft fan.

In addition, Milorganite® production and transport creates significant dust, chaff, and particulate matter that must be captured and disposed. This material must be managed, as otherwise it can create explosion and health risks and is a source of air pollution. There are several collection, containment, and transfer systems within the D&D facility that both interact with the air pollution control system to remove particulate matter and also transport the collected dust and chaff to luggers for disposal at a landfill.

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

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COMMITTEE ACTION: _____ **DATE:** _____

COMMISSION ACTION: _____ **DATE:** _____

SUMMARY (Cont'd)

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These systems originally went into operation in 1994. Some of the equipment has never been replaced and is nearing the end of its useful service life. Some of the equipment has had performance issues, resulting in downstream operation and maintenance issues. Unplanned operation and maintenance issues can result in reduced capacity to process biosolids. The performance of the air pollution control systems are regulated by the Wisconsin Department of Natural Resources via air permits. Reliable and proper operation is critical to ensure continued air permit compliance.

District staff created Project J04064, Chaff System Improvements, with the purpose of ensuring reliable biosolids processing and Milorganite® production capabilities and reliable air permit compliance. In April 2020, the Executive Director executed a preliminary engineering contract (J04064E01) with ATI in an amount of \$249,268. This contract was to perform preliminary engineering services related to the following systems within the D&D Facility:

- Dryer and Screener (Classification) Area Dust Containment System
- WESP System
- Cyclone Waste Processing System
- Dryer Exhaust System

The scope of this contract included assessing current conditions and functions and identifying means to improve performance, reduce unplanned maintenance, increase reliability, and reduce the risk of air permit noncompliance, all related to the above systems.

ATI has completed the original preliminary engineering scope of services. The preliminary engineering phase identified about 20 separate recommendations to improve the performance, reliability, and safety of these systems. Staff recommends that the District begin design of three of those improvements, as they address higher priority safety related issues. Following are descriptions of these three improvements:

1. Replace the horizontal inlet ductwork to all 12 cyclone waste processing and exhaust systems with smaller diameter ducts. The current ductwork is oversized, reducing air velocity in the ductwork and resulting in dust settlement in the ductwork. Buildup of dust within this ductwork was identified as a possible cause to a recent fire within the Dryer #10 WESP system.
2. Modify the quench chamber drains on all 12 WESP systems to prevent plugging. This improvement will reduce the likelihood of dust combustion in the WESP system.

SUMMARY (Cont'd)

Change Order Request, Contract J04064E01, Preliminary Engineering, Jones Island Water Reclamation Facility Chaff System Improvements

3. Replace the existing grated flooring with solid flooring on the mezzanine level over the chaff storage room. Grated flooring allows air movement from the chaff storage room throughout the entire D&D Facility, leading to elevated safety risks because of fugitive dust. Solid flooring will contain the dust within the chaff storage room.

The requested change order under Contract J04064E01 includes additional project management services and the following new tasks, all related to engineering design services for the above three improvements:

- Design services
- Bid and award services
- Engineering services during construction
- Operations and maintenance manual updates, training, and startup services
- Applications engineering

After the design work is complete, the District will publicly bid this construction contract.

District staff will develop a request for proposal for the engineering design services for the remainder of the improvements identified as part of the preliminary engineering phase.

This change order request will increase the duration for this contract by approximately 66 weeks.

CHANGE ORDER SUMMARY

PURCHASE ORDER	AMOUNT	PERCENT INCREASE OVER ORIGINAL PURCHASE ORDER	AUTHORIZED BY	SWMBE
Original	\$249,268		Executive Director	78%
Requested Change Order	\$127,000	49%	Request of Commission	79%
TOTAL	\$376,268			79%

RESOLUTION

Change Order Request, Contract J04064E01, Preliminary Engineering, Jones Island
Water Reclamation Facility Chaff System Improvements

RESOLVED, by the Milwaukee Metropolitan Sewerage Commission, that the Executive Director is authorized to execute a change order to Contract J04064E01, Preliminary Engineering, Jones Island Water Reclamation Facility Chaff System Improvements, with Applied Technologies, Inc., in an amount not to exceed \$127,000.