



The Corporation of the Municipality of Wawa

Required Electrical Upgrades at Water Treatment Plant

Office of Infrastructure Services

Prepared For: Committee of the Whole	Report No.: DB-RW 2024-10
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Report Purpose

The purpose of this report is to inform Mayor and Council of electrical upgrades that are required at the Water Treatment Plant (WTP). Municipal Staff worked with our Engineer of Record Kresin Engineering Corporation (Kresin), and their Mechanical/Electrical Engineering contractor NorMech Engineering (NorMech) to review the WTP's electrical system and identify inefficiencies in the WTP electrical system which may be causing process and health and safety problems.

Background

In the fall of 2023, the WTP experienced an electrical failure where the uninterrupted power supply (UPS) unit to the plant's Programming Logic Control (PLC) failed as a result of being beyond its useful life. In response to this failure, the UPS units on all of the plant's controllers were replaced and an electrical systems overview was completed. It should be noted that most of the electrical components of the WTP are the originals from the plant's initial construction and are failing due to meeting or exceeding their expected useful life.

The purpose of the electrical system overview was to identify obsolete electrical equipment, assess the existing condition of the electrical equipment and recognize areas for improved electrical efficiencies. The electrical system overview included a review of the incoming electrical switchgear and accessories, generator and automatic transfer switch, interior lighting, exhaust and ventilation systems, and HVAC. Electrical items were then organized into projects for 2024 to 2028. The Management Team reviewed the proposed timelines and agreed to which projects were to be completed in the near future, and others that could be moved to fit with future operating and capital budgets.

The electrical system studies and replacements recommended by NorMech will improve the quality of the power at the WTP, which will ultimately improve the WTP electrical functions and reduce power consumption.

Immediate Recommended Upgrades

There are four (4) main components identified in the electrical systems overview that Municipal Staff have identified as needing the most urgent attention. These items include:

- a) \$27,000 Power Quality Study;
- b) \$2,000 Replace generator room actuators;
- c) \$5,000 Replace corroded switches; and
- d) \$25,000 Replace chemical room motorized dampers and gas monitoring equipment.

Given the unexplained nature of some of the system interruptions that have been experienced at the WTP, power quality issues are suspected. Therefore, a power quality study is recommended to inform future decisions on the types of electrical components that are needed for future upgrades to the plant to improve electrical system efficiency, improve power quality which will lead to lowering power consumption. In addition, the actuators in the generator room are not responding the way they are supposed to, it is recommended to replace the generator room actuators. Finally, due to the nature of the chemicals used to treat the water and maintain filter systems, corroded disconnect switches, gas monitoring equipment and motorized dampers require replacement. Not only is this an electrical system integrity issue, but also a health and safety issue as the gas monitoring equipment should be opening and closing the ventilation system for the chemical room to ensure good air quality for the Staff at the WTP.

Staff Recommendation

Staff recommends transferring \$60,000 from the Equipment – Water and Sewer Reserve, for the upgrades identified above. The power quality study, generator room actuators and corroded switches will be covered by the operating budget (\$34,000), while the chemical room gas monitoring equipment (\$25,000).

Next Steps – Council Endorsement & Resolution

If the proposed upgrades are agreeable with Mayor and Council, Municipal Staff are requesting that Mayor and Council endorse and approve of the transfer of \$60,000 to the respective operating and capitals budgets as indicated in the Staff Recommendation section above. Once approved, Municipal Staff will engage Kresin and NorMech to complete the recommended upgrades for 2024, while preparing the 2025 to 2028 budgets to reflect the remaining outstanding electrical component upgrades.

Attachments

None.

Respectfully submitted by:
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