

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MONDAY, MARCH 27, 2017
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	EMERGENCY REPAIR – GREENWAY WASTEWATER TREATMENT PLANT INCINERATOR HEAT EXCHANGERS AND DOME REPLACEMENT.

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental and Engineering Services and City Engineer with respect to the emergency repair of the Preheater Heat Exchanger, Reheater Heat Exchanger and Dome Bricks at the Greenway Wastewater Treatment Plant, this report **BE RECEIVED** for information; it being noted that the final contractor costs for repair was \$795,730, excluding HST.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

CWC Report of 2012-08-21, Item 8, Single Source Purchase of New Dome Bricks for the Greenway Sludge Incinerator.

CWC Report of 2014-05-26, Item 6, Single Source Purchase of Preheater Heat Exchanger and Reheater Heat Exchanger for the Greenway Sludge Incinerator.

BACKGROUND

Purpose

The purpose of this report is to provide the Municipal Council with information on the emergency repairs completed on heat exchangers and dome bricks for the Greenway biosolids incinerator.

Context

As part of previous capital works, two new heat exchangers and incinerator dome bricks were identified for replacement. They were pre-purchased due to extended delivery times with Council approval. One of the heat exchangers failed after a contract to install the pre-purchased equipment received no bids. Work proceeded under the emergency provisions of the Procurement of Goods and Services Policy because the equipment was on hand and the City was facing significant costs to truck sludge off-site.

DISCUSSION

An installation contract for the Greenway Biosolids incinerator heat exchangers and dome bricks closed on April 6, 2016 with no bids submitted. The tender included substantial bonus/incentive clauses due to the substantial City costs outside of the contract related to a prolonged shutdown. This may have contributed to the contractors' reluctance to submit bids. The heat exchangers recover waste heat and increase the efficiency of the incinerator, and the dome acts as a platform supporting the materials during combustion; failure of either component renders the incinerator inoperable and exposes the City to significant costs to truck sludge off site.

One of the heat exchangers failed on April 10, 2016 and retendering would have delayed the project by an additional six (6) weeks at a cost of approximately \$80,500 per week related mainly to trucking and sludge disposal. The Engineer's original estimate for the project that was tendered was \$1.3 million, excluding contingency, plus \$1.28 million in sludge trucking/disposal costs based on an estimated 16 week project.

Following authorization to complete the work as an emergency repair the project was broken down into two smaller projects covering the dome repair and heat exchanger replacement to allow specialty contractors to focus their efforts.

Two qualified contractors were asked to submit preliminary pricing for each of the projects on a time and materials basis with only one responding for the dome repair work. Reftech International Incorporated was awarded the dome work and started work April 21st and finished May 27th. LorDon was selected to do the heat exchanger replacements which were subsequently completed in two phases to avoid conflicts with scheduled HVAC upgrades. The first phase started April 18th and finished June 10th allowing the incinerator to be re-commissioned after only nine weeks of downtime. The second phase was completed between December 12th and 20th and did not require the incinerator to be taken out of service.

Completing the repairs on an emergency (time and materials) basis removed the scheduling risks associated with the work from the contractors and transferred that risk to the City. It allowed the City to balance overtime and an extended work week against the costs associated with the incinerator being out of service; the City's project manager assumed a more direct role in the repairs than is normal on a project of this complexity.

Financial Impacts

The contractor costs for the work was \$795,730, being \$500,000 less than the original tender estimate. Trucking and disposal was \$725,000, with a savings of \$1.13M when the extended downtime related to the premature failure is considered (9 weeks instead of 23 weeks). The overall savings by completing this project as a time and material based emergency repair was approximately \$1.63M.

CONCLUSION

Repairs to the Greenway Biosolids incinerator heat exchangers and dome bricks had been planned as capital maintenance under the incinerator program account, but became an emergency when they failed before a compliant bid was in place.

Working directly with contractors under emergency provisions of the Procurement of Goods and Services Policy, and the City assuming some of the risk associated with the work schedule resulted in much better project costs and more flexibility to finish the work sooner. Completing the work as an emergency repair resulted in actual costs being \$1.63M less than originally estimated, and 14 less weeks of downtime in comparison to retendering the project.

Acknowledgements

This report was prepared with the help from Mark Elliott CET, Senior Technologist, of the Wastewater Treatment Operations Division.

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