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To: Chairman Greg Dannecker and Members of the Utilities Committee

From: Chris Shaw, Utilities Director

Date: May 3, 2017

Re: *Recommendation to Sole Source Award a Professional Services Contract to Complete a Gas Utilization Study to Donohue and Associates in the amount of \$24,800*

BACKGROUND

The City of Appleton Wastewater Treatment Plant (AWWTP) completed a Digester Gas Utilization Study in January 2009. At that time, all of the digester gas was being flared. The 2009 Donohue and Associates study evaluated utilizing the digester gas in boilers, engine drives for either power generation or other mechanical equipment, microturbines, and biosolids drying. Installation of digester gas boilers was the recommended alternative that was developed into a construction project. The waste gas boilers have since been installed and have been operating well since commissioning.

Recently the AWWTP has been receiving increased amounts of “trucked in” high strength waste (HSW). This HSW is being fed directly into the digesters. As a result of this increased quantity of HSW, the AWWTP would like to update the original 2009 gas utilization study for the increased quantities of HSW and resulting increased gas production. The AWWTP would also like to include an investigation of the applicability of the Renewable Fuel Standard Program (RFSP) in the updated study.

SCOPE OF WORK

- 1) Obtain current biosolids and HSW loading rates to the anaerobic digesters and also obtain current measured digester gas flow rates (e.g. hourly, daily and monthly).
- 2) Evaluate biogas production and utilization trends to assess adequacy of existing storage.
- 3) Calculate expected digester gas flow rates and correlate to measured digester gas flow rate. Evaluate discrepancy if necessary.

- 4) Update January 2009 Digester Gas Utilization Study based upon current conditions. Included in this update will be an evaluation of digester gas boilers and engine drives for power generation (including combination of those alternatives) accounting for the new conditions related to the increased quantity of HSW received and the addition of two digester gas boilers. Additional evaluation of proposed lower loop methane boiler option and compressed natural gas and pipeline quality gas will be included.
- 5) Based upon this evaluation, recommend digester gas utilization system using present worth analysis calculations as support.
- 6) Assess air permitting implications of increased digester gas utilization and increased emergency power generation capabilities.
- 7) Evaluate the Renewable Fuel Standard Program (RFSP) for applicability by the City of Appleton. Estimate digester gas “clean-up” and transport costs.
- 8) Review and incorporate other digester gas utilization incentive programs that may be beneficial to the City.
- 9) Apply for and administer on behalf of the City of Appleton Wisconsin Office of Energy Innovation and a Focus on Energy grants.
- 10) Based upon above work efforts recommend a capital improvements work plan for the City.
- 11) Summarize work plan in a report including budgetary construction estimates.
- 12) Review report with the City and incorporate necessary changes.

EVALUATION OF PROPOSAL

Donohue and Associates has put forth a fee that is commensurate with the scope of work proposed. It should be noted that this scope involves amending existing Donohue analyses and reporting while evaluating new gas technologies. This firm is well suited to complete that work as they retain the computer modeling, assumptions, etc. from the original report.

In 2009, Donohue and Associates had participated in a competitive process with other engineering firms for professional services. Donohue and Associates was selected to complete the gas utilization study based on their costs and from the value that was derived from their proposal.

RECOMMENDATION

Based on AWWTP staff reviews of Donohue’s original gas utilization report and prior performance of past engineering projects work, I am recommending a sole source award to contract with Donohue and Associates for a gas utilization study for a cost not to exceed \$24,800.