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Department of Utilities
Wastewater Treatment Plant
2006 E Newberry Street
Appleton, WI 54915
920-832-5945 tel.
920-832-5949 fax

TO: Chairperson Greg Dannecker and Members of the Utilities Committee

CC: Chris Shaw, Utilities Director
Jeff Fait, Finance Purchasing Manager

FROM: Chris Stempa, Utilities Deputy Director

DATE: November 18, 2015

RE: ***Award sole source Phosphorus Effluent Analyzer and Filter System to Hach Company in the amount of $23,680***

BACKGROUND:

Since 2013, the Appleton Wastewater Treatment Plant (AWWTP) has been actively evaluating regulatory alternatives that will satisfy compliance for the Lower Fox River Total Maximum Daily Load (TMDL). It has been a staff objective to conduct appropriate due diligence in advance of the next Wisconsin Pollution Discharge Elimination System (WPDES) permit. Uncertainty and complexity currently exists with various options for TMDL compliance. Per NR 217, it will be required that a wastewater treatment plant develops and implements a phosphorus discharge optimization plan for their current operation. This is the first step in meeting low-level phosphorus limits as part the next WPDES permit. Optimizing chemical treatment for phosphorus is one of the primary elements within an optimization plan. It is critical for process control to have the ability to continuously monitor phosphorus concentrations and react to them accordingly in order to consistently comply with future WPDES permit limits.

In March 2014, Common Council approved the sole source purchase of one phosphorus analyzer through the Hach Company (Hach). This purchase allowed the wastewater plant to continuously monitor phosphorus (as orthophosphorus or $P_2O_5^-$) and begin tuning chemical dose programing as part full scale chemical treatment demonstrations. Since that time the contracted engineer, CH2M, as part of the AWWTP TMDL Compliance Project has recommended the purchase of an additional analyzer with lower phosphorus detection limit capability.

JUSTIFICATION:

The purchase of Hach equipment will provide wastewater operations with pre-biological treatment phosphorus data and accurate low-level phosphorus detection (<0.05 mg/L) in

post-final clarification effluent. The Hach filter system (Filtrax) is required in front of the phosphorus analyzer that will be continuously monitor primary effluent because of the wastewater characteristics (e.g. high solids). The Hach analyzer and corresponding Filtrax system are compatible with one another. The data from primary effluent and final effluent analyzers will be used to develop compound chemical dosing program loops with the goal of obtaining reliable compliance with TMDL limits.

The sole source justification for the Hach equipment purchase remains the same to that stated in the March 7, 2014 Utilities Committee memo. The criteria used for sole source purchase determination are based on the following:

1. Appropriate sensitivity to future proposed permit discharge limits
2. Robust reliability for sample points monitored
3. Expandable system for future flow-paced chemical control

Two manufacturers of reputable and proven low-level phosphorus analyzer capabilities within the wastewater treatment industry are Applied Spectrometry Associates, Inc (ASA Chemscan) and Hach. The A.S.A. Chemscan equipment was priced $1,552 less than Hach. However, the Hach equipment provides greater capability within a single expandable package using control based logic to cost effectively feed phosphorus treatment chemicals. Equipment compatibility is critical when utilizing separate analyzers within compound programing loops. Reducing the level of program logic complexity and troubleshooting variables as part of continued treatment optimization studies is accomplished by standardizing Hach phosphorus analyzer equipment. The majority of the on-line instrumentation purchased by the Utilities Department in recent years has been from Hach. Therefore, Utility staff responsible for servicing various Hach installations at both the Water Treatment Facility and AWWTP are familiar with the equipment manufacturer and their capabilities. Furthermore, the Hach Company has the edge for the analyzer components. The units are easily upgradable by the purchase of components that may be needed in the future to gather data from different sampling points within the plant.

RECOMMENDATION:

It is recommended that the Utilities Committee award a sole source to Hach Company for the phosphorus analyzer and filter system in the amount of $23,680. The funding for this purchase had been included as part of the 2015 Utility O&M budget. If you have any questions regarding this project please contact Chris Stempa ph: 832-5945