"...meeting community needs...enhancing quality of life."

Department of Utilities

To: Chairman Jeff Jirschele and Members of the Utilities Committee

From: Chris Shaw, Utilities Director

cc: Joe Myers, Water Plant Supervisor

Date: June 8, 2012

Subject: ***Technical Advisory Group Recommendation***

The Appleton Water Treatment Facility (AWTF) consistently treats Lake Winnebago water and provides safe and aesthetically pleasing water to Appleton, Grand Chute, Waverly Sanitary District and the Village of Sherwood. In 2011, a technical analysis of the AWTF was completed identifying feasible alternatives to meet updated federal and state drinking water standards.

In January 2012, the Appleton Utilities Committee formed a Technical Advisory Group (TAG) consisting of technical, regulatory, and public health experts to:

1. Review the technical analysis and associated alternatives
2. Identify issues for further investigation
3. Recommend an action plan to the Utilities Committee of the Appleton City Council

The work of the TAG is guided by the city's objectives to protect community health and safety, continuously improve efficiency and effectiveness of City services, and support sustainability and long-term economic development. All of these objectives are served by providing a sufficient supply of safe and aesthetically pleasing drinking water at a reasonable cost. Accordingly, the TAG reviewed the following treatment process alternatives proposed by the technical analysis:

- Alternative 1 - Membrane Filtration Expansion: To simultaneously achieve water quality compliance and capacity targets, a 75% expansion of membrane filtration capacity would be required at an estimated capital cost of $16.5 million. This estimate excludes end-of-life replacement capital costs of existing membrane capacity.

- Alternative 2 - Dual-Media Filtration with Ultraviolet (UV) Disinfection: Leveraging prior plant modifications, the Gravity Filtration/UV alternative would require an estimated capital outlay of less than $5 million and eliminate future end-of-life capital

costs associated with the membrane systems. Annual operating costs associated with this alternative are estimated to be $1.5 million less than the Membrane Filtration Expansion alternative.

Based on historical experience in Appleton and similar circumstances elsewhere, the TAG confirmed either alternative would provide water that meets or exceeds federal and state drinking water quality standards. The two alternatives do differ significantly when considering production capacity, capital requirements, and operating and maintenance costs.

The TAG recommends Alternative 2 which upgrades the AWTF to conventional filtration with UV disinfection for compliance by 2015. As part of the recommendation, the TAG advocates that demonstration studies be conducted to assure the Utilities Committee and City Council members this alternative will successfully achieve the city's drinking water priorities.

I commend the TAG for working collectively and in effort to ensure facility success. The Technical Advisory Group membership included:

- Jeff Jirschele, Appleton Utility Committee Chair
- Kurt Eggebrecht, Health Officer, Appleton Health Department
- Chris Shaw, Director of Utilities, City of Appleton
- Chris Stempa, Deputy Director of Utilities, City of Appleton
- Joe Myers, AWTF Superintendent
- Mike Suha, Technical Services Manager, Appleton Department of Utilities
- Larry Landsness, Wisconsin Department of Natural Resources, Water Supply Engineer
- Mark Borchardt, Ph.D., USDA Research Microbiologist
- Jim Chaffee, P.E., Jacobs Engineering
- Steven Quail, P.E., HDR Engineering

The 2012 AWTF Capital Plan includes $500,000 for pilot testing a secondary membrane system. These funds will need to be repurposed for design and engineering to conventional filtration and UV disinfection. In addition, consulting costs would be funded for process simulations and demonstration projects. If you have any questions, regarding this recommendation please contact Chris Shaw at 832-2362.