Waukesha Water Utility
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April 2, 2015

Mr. Russ Rasmussen
Water Division Administrator
State of Wisconsin
Department of Natural Resources
101 S. Webster Street
Box 7921
Madison, WI 53707-7921

Subject: Waukesha Return Flow Improvement to Root River Phosphorus Water Quality

Dear Russ:

We want to take this opportunity to assure the department that it has the necessary information to determine that a wastewater discharge by the City to the Root River is approvable with respect to phosphorus. The City has committed to provide an effluent with phosphorus level that will create an improvement to the phosphorus water quality in the Root River, as required by NR 217.13(8)(b). Specifically, the City has committed to meet the in-stream criteria plus, as EPA recently stated, "provide a margin of safety."

The information upon which we can make that commitment begins with the analysis undertaken as part of City's current permit. As part of the City's current permit (which expires on June 30, 2018), a phosphorus evaluation and compliance schedule was developed by the department for a discharge to the Fox River. This includes milestones for several tasks related to meeting the phosphorus water quality criterion of 0.075 mg/L for the Fox River. Consistent with the compliance schedule, the City has completed the Operational Evaluation Report and has begun the Study of Feasible Alternatives to support the June 30, 2016 permit date of completing a draft Compliance Alternatives Plan.

Through optimization testing completed by the City during the Operational Evaluation Report (June 19, 2014), the **existing** wastewater treatment plant (WWTP) was able to achieve very low effluent total monthly average phosphorus concentrations ranging between 0.03 and 0.08 mg/L. Some months were below the phosphorus water quality criterion of 0.075 mg/L, but the existing WWTP could not meet that on a sustained basis.

However, the City has initiated the Study of Feasible Alternatives and Compliance Alternatives Plan and has identified treatment technologies that could meet the phosphorus water quality criterion of 0.075 mg/L, which is also the criterion for the Root River. Treatment technologies are anticipated to include ballasted flocculation and settling; multi-point chemical feed with the existing effluent filters; multi-point chemical feed with effluent filter expansion; and replacing the existing effluent filters with reactive

filters. The City will select a technology that allows them to meet the water quality criterion in either river. To provide the requisite "margin of safety," the City will optimize the selected treatment technology to provide cost-effective phosphorus removal below the water quality criterion. The City has estimated the costs of a phosphorus treatment plant upgrade to be approximately $6.8 million, which is required regardless of a discharge to the Fox River or Root River. This is in addition to the $65.8 million for other upgrades including disinfection, biosolids, storage and pretreatment, and other improvements identified in the Facility Plan.

In addition, the Application provides detailed evaluation of the water quality impacts of the return flow to the Root River (Section 3.2 in Volume 4 of the Application), including water quality modeling of the Root River (Appendix M in Volume 4) and a WDNR summary of environmental benefits that the return flow would have on Root River fisheries (Appendix L in Volume 4). The City has completed water quality modeling of the Root River using a regionally accepted and WDNR-approved water quality model. The modeling specific for the Application has been peer reviewed by a third-party consultant who developed the original model for the Southeastern Wisconsin Regional Planning Commission to verify that the analysis and results meet the intent of the model.

In summary, the costs associated with achieving the 0.075 mg/L limit on a sustained basis are required regardless of the discharge location. Providing the additional margin of safety required for a Root River discharge would be accomplished by optimizing the chosen phosphorus treatment technology without significant additional cost beyond the $6.8 million currently budgeted. Any costs associated with optimizing the technology will be well within the $15 million contingency factor included in the Root River return flow alternative.

If you have any questions or need any further information please contact me at (262) 409-4440.

Sincerely,

Daniel S. Duchniak, P.E.
General Manager

cc: Eric Ebersberger, DNR
Adrian Stocks, DNR
Brent Brown, CH2MHILL