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April 26, 2023

Mr. Dan Duchniak
Waukesha Water Utility
P. O. Box 1648
Waukesha WI 53187

Subject: City of Waukesha's Root River Monitoring QAPP

Dear Mr. Duchniak:

This letter is in response to the City of Waukesha's (City) Quality Assurance Program Plan (QAPP) for Root River, submitted to the Department of Natural Resources (DNR) on March 27, 2023. Thank you for preparing and submitting this QAPP and for meeting with us to discuss the QAPP. While the City's QAPP includes many of the required elements, DNR objects to the QAPP. This letter explains the areas that require additional attention to resolve DNR's concerns before beginning to divert Lake Michigan water to the City.

On June 21, 2016, the Great Lakes – St. Lawrence River Basin Water Resources Council issued its approval of the City's application to divert Lake Michigan water (Council Approval), including Condition I, which states:

> *Monitoring of Root River Flow*. For a minimum of 10 years from the beginning of return flow to the Basin, the Applicant must implement a scientifically sound plan to monitor the mainstem of the Root River to determine changes that may have resulted from return flow (such as volumes, water temperatures, water quality and periodicity of discharge) in order to adapt future return flow to minimize potential adverse impacts or maximize potential benefits to water dependent resources of the Basin source watershed (i.e., Lake Michigan).

To begin to meet the requirements of Condition I, the City developed a monitoring program proposal, submitted on November 18, 2020, which described the objectives and general components of the City's plan for monitoring the Root River after the City begins discharging treated wastewater to the Root River. The DNR expects that the QAPP will encompass all aspects of instream Root River monitoring and analysis for impacts to the Root River. The monitoring program proposal explains that the monitoring will be conducted in accordance with a QAPP.

The DNR issued the Diversion Approval on June 29, 2021 and created a process for developing a QAPP that is consistent with the City's monitoring program and assures compliance with Condition I of the Council Approval. Condition 11 of the Diversion Approval states:

> Effective on the date the diversion begins, the City shall implement a scientifically sound plan to monitor the mainstem of the Root River to determine changes that may have resulted from return flow (such as volumes, water temperatures, water quality, and periodicity of discharge) in order to adapt future return flow to minimize potential adverse impacts or maximize potential benefits to water dependent resources of Lake Michigan. The City shall monitor the Root River for potential impacts to Root River in accordance with the City's monitoring program proposal and the Quality Assurance Program Plan.

> At least 90 days prior to beginning the diversion, the City shall submit a Monitoring Plan with Quality Assurance Program Plan procedures consistent with the monitoring program proposal. The Quality Assurance Program Plan shall specify the locations of sampling, methodology for sample collection, handling and analysis and monitoring data reporting and evaluation procedures. All samples collection and analyses shall be performed using accepted and standard procedures as approved by the DNR. Laboratories conducting the analyses shall be certified or registered in accordance with Ch. NR 149, Wis. Admin. Code. All data collected will be entered into the DNR's SWIMS database or equivalent database that houses data to be available for the public. The quality assurance/quality control documents shall specify provisions for regular maintenance of all monitoring devices, to ensure that such devices remain in proper working condition.
>
> The City shall implement the Monitoring Plan with the Quality Assurance Program Plan unless, within 30 days of submittal, the DNR objects in writing that the City's Plan does not assure compliance with Condition I of the Council Decision. If the DNR objects in writing, the City may not begin the diversion until the objection is resolved…

The DNR has reviewed the QAPP and has identified the following areas where it does not assure compliance with Condition I, under the parameters described in the monitoring program plan and Condition 11 of the Diversion Approval:

1) **Flow monitoring**: The monitoring program proposal states, "The City will measure Root River flow downstream of the return flow discharge (e.g. Site D), after consulting with the USGS. The purpose of this measurement is to directly quantify river flow that includes return flow and to confirm that the Root River flow rate downstream of the return flow is equivalent to the summation of flow from measured a Site C plus the return flow measured at the [Clean Water Plant]." Additionally, Condition 11 requires, "The Quality Assurance Program Plan shall specify the locations of sampling, methodology for sample collection, handling and analysis and monitoring data reporting and evaluation procedures."

   The QAPP should include a section on flow monitoring detailing the locations of sampling, methodology for sample collection, flow data analysis and data reporting. The QAPP should address flow monitoring at the City's wastewater treatment plant, at Site C, and downstream of the outfall location consistent with the monitoring program proposal. The flow monitoring section of the QAPP should address how volume and periodicity of discharge will be monitored.

2) **Water Quality Parameters**: The program monitoring proposal states, "The City will complete instream water quality monitoring up- and downstream of the return flow outfall using parameters consistent with other similar surface water quality monitoring programs including . . . E. coli, and chlorides."

   The Table 2-2 of the QAPP does not include E. coli or chlorides. These parameters should be added to the QAPP.

3) **Temperature and continuous water quality monitoring**: The program monitoring proposal states, "Continuous in-stream temperature monitoring of the Root River is anticipated up- and downstream of the return flow outfall and will determine the spatial extent of temperature impacts." Additionally, Condition 11 requires, "The Quality Assurance Program Plan shall specify the locations of sampling, methodology for sample collection, handling and analysis and monitoring data reporting and evaluation procedures."

   The QAPP does not include reference to the temperature monitoring at the wastewater treatment plant and at the wastewater outfall. It is also missing who is conducting the methodology for installation and data collection standard operating procedures for the continuous temperature and water quality sondes. The QAPP

should include all locations of temperature monitoring, who is conducting the monitoring, the methodology for installation, data collection, and data analysis for the continuous data sondes deployed to monitor temperature and other water quality parameters.

4) **Habitat Monitoring, Algae**: The monitoring program proposal states: "Habitat assessments are anticipated to be completed annually at a time close to the fish sampling. Habitat assessments will include using an algae viewing bucket and following Department protocols for use and data recording. After the first three years of monitoring, habitat assessments may be reduced to once every three years, or annually if significant flow/flood events or changes in habitat are observed in that year. Estimating flow rates will be completed during each monitoring event, regardless if a full habitat assessment is scheduled."

   The QAPP does not include the Standard Operating Procedure for algae monitoring using an algae viewing bucket. The QAPP should include the algae monitoring Standard Operating Procedure.

5) **Data reporting**: The monitoring program proposal states, "The City will complete an annual assessment of the data and submit a report of the findings to the Department annually by March 1. The report will include return flow monitoring data completed through the WPDES permit. The data used in the annual report will be made available to the public and will be submitted to the Department's SWIMS database with continuous river flow data hosted by USGS."

   The QAPP does not reference that water quality data will be submitted to SWIMS or that continuous flow data will be hosted by USGS. The QAPP should include protocols for reporting data to SWIMS and the USGS. Any instantaneous flow measurements collected should be reported to SWIMS as well.

6) **Data Analysis**: The monitoring program proposal is structured such that the data collected throughout the monitoring will answer specific questions about volume and periodicity of discharge, water temperature, water quality, and water dependent resources. The data will be collected, assessed, and reported to DNR annually.

   The QAPP is missing discussion of how volume and periodicity of discharge, water temperature, water quality and water dependent resources will be evaluated based on the data collected. Data analysis should be focused to address the monitoring program proposal questions. The QAPP section on reports should also include the annual timelines for completing the reports from subcontractors to the City (e.g. habitat, water quality, and fish) and internal deadlines for compiling the March 1 report from the City to the DNR.

7) **Modification to the QAPP:** Condition 11 states, **"**The DNR anticipates that modifications to the monitoring program proposal and the Quality Assurance Program Plan are likely over the required monitoring period as initial results from the monitoring program may inform scientifically sound adjustments to monitoring parameters, locations, frequency, and timing. The City shall submit proposed changes to the Monitoring Plan or the Quality Assurance Program Plan to the DNR at least 30 days prior to implementation. If, within 30 days of submittal, the DNR objects in writing to the proposed changes, the City may not implement the change until the objection is resolved. (Condition I)"

   The QAPP currently identifies that changes in monitoring locations/transects and program leads should be coordinated with the City (e.g. QAPP 2.1.3.1 and 3.5.2). The QAPP should also clarify that if there are proposed changes as described in Condition 11 that the QAPP will be updated and submitted to DNR. DNR anticipates that there will be modifications to the monitoring program proposal and the QAPP over the course of the monitoring period.

In addition to the objections listed above, the attached document identifies additional comments and suggestions that may improve the accuracy and usefulness of the QAPP. The DNR looks forward to working with the City to address these issues and clarify any questions. Please contact Shaili Pfeiffer, Shaili.pfeiffer@wisconsin.gov, 608-219-2216, with any questions regarding the QAPP.

Sincerely,

Adam Freihoefer

Adam Freihoefer
Water Use Section Manager
Bureau of Drinking Water and Groundwater

cc. Jim Zellmer
Steve Elmore