EPA's Review of the Wisconsin Department of Natural Resources
Request for Approval of a Variance from Water Quality Standards
Burlington Water Pollution Control, Wisconsin
WPDES Permit No. WI-0022926-09-0
Under Section 303(c) of the Clean Water Act
WQSTS # WI2014-607

Date: DEC 19 2014

I. Summary

A. Date Received by EPA: December 3, 2014

B. Submittal History: On November 26, 2014, the Wisconsin Department of Natural Resources (WDNR) sent a request to the U.S. Environmental Protection Agency for approval of a water quality standard variance for a mercury discharge by the City of Burlington Water Pollution Control (WPC), WPDES Permit Number WI-0022926-09-0, located in Racine County, Wisconsin.

C. Documents in the official submittal from WDNR to EPA included:

- Transmittal letter from WDNR to EPA, November 26, 2014, with background information.
- WDNR Certification Statement of Approval of a Variance to Water Quality Standards, City of Burlington, WPDES Permit No. WI-0022926-09, November 26, 2014.
- Permit Fact Sheet, July 8, 2014, 11 pp.
- Substantial Compliance Determination by Timothy Thompson, August 1, 2014.
- Burlington Mercury Standard Variance Data Sheet, August 4, 2014, 5 pp.
- City of Burlington Mercury Variance Application, signed Aug 27, 2012, 3 pp.
- Public Notice of Intent to Reissue a WPDES Permit No. WI-0022926-09-0, August 14, 2014.
- DNR Response to public notice comments received on September 12, 2014 by the City of Burlington (undated) 3 pp.
- Public Re-Notice of Intent to Reissue a WPDES Permit No. WI-0022926-09-0, October 23, 2014.
- [Proposed] Notice of Final Determination to Reissue a WPDES Permit No. WI-0022926-09-0, 2 pp.
- WPDES Permit, No. WI-0022926-09-0, Burlington Water Pollution Control to Fox (IL) River in Racine County, proposed effective January 1, 2015, 32 pp.
- Permit Fact Sheet (re-noticed), Permit, No. WI-0022926-09-0, Burlington Water Pollution Control, 11 pp.
- Water Quality-Based Effluent Limitations for the Burlington Wastewater Treatment Facility (Permit #WI-0022926) - CORRECTED, August 1, 2014, 16 pp.

- Water Quality-Based Effluent Limitations for the Burlington Wastewater Treatment Facility – Variable Daily Maximum Ammonia Limitations (WPDES Permit #WI-0022926), Addendum, September 23, 2014, 2 pp.
- Burlington, WI map (WDNR); shows local discharges.
- Tribal Consultation Map for Burlington WI, September 9, 2014.

D. Documents submitted by WDNR to EPA upon request:

- Mercury Pollutant Minimization Plan Final Report, June 25, 2013, City of Burlington, WI-0022926-09, 28 pp.

E. Description of Action:

WDNR proposes to grant the permittee, the City of Burlington Water Pollution Control (WPC), a variance from Wisconsin's water quality criteria for mercury that is applicable to the facility's discharge into the Fox (IL) River, in the Southeast Fox River Basin in Racine County, Wisconsin. The Burlington WPC is designed for a maximum daily discharge of 8.54 MGD and an annual average discharge of 3.5 MGD. The actual average annual discharge rate is 3.09 MGD and the actual maximum daily is 7.43 MGD.

The permittee submitted an application for a variance to the Wisconsin water quality criterion of 1.3 ng/L for mercury, designed to protect wildlife. The applicant maintains a mercury pollutant minimization program (PMP) which was approved by WDNR in 2008, as required under NR 106.145(8) Wisconsin Admin. Code. Their last PMP report was submitted on June 25, 2013. The WDNR concluded that the permittee qualified for a variance based on the information submitted, information on file and the findings provided in NR 106.145(1) Wisconsin Admin. Code. WDNR determined that an alternate mercury effluent limit (AMEL) of 3.1 ng/L, expressed as a daily maximum is appropriate, per NR 106.05(5) Wisconsin Admin. Code, and has proposed permit language requiring continuation of the PMP during the permit period, coincident with continued influent and effluent monitoring. The WDNR proposes to grant the mercury variance to the Burlington WPC, as provided for under NR 106.145(6), Wisconsin Admin. Code. This variance shall be applicable to the Fox River, in the Southeast Fox-Illinois River Basin in Racine County, Wisconsin. The designated uses of the receiving water include warmwater sport fish and non-public water supply. Designated uses will not change as a result of this variance.

F. Basis of Action:

CWA section 101(a)(2)
Federal Regulation 40 CFR 131.10(g)
Wisconsin Statute 283.15
Wisconsin Admin. Code NR 106.145

The most stringent water quality criterion (chronic) for mercury in Wisconsin is 1.3 ng/L designated to protect wildlife. Wisconsin Admin. Code NR 106.145 provides for alternative mercury effluent limits based on the State determination that "requiring all dischargers of mercury to remove mercury using wastewater treatment technology to achieve discharge

concentrations necessary to meet water quality standards would result in substantial and widespread adverse social and economic impacts" (NR 106.145(1)(a)). This finding is based on the 1997 Ohio EPA document, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," (prepared for the state by Foster Wheeler Environmental Corp. and DRI/McGraw-Hill). The study concluded that the treatment technology necessary to remove mercury to meet the 1.3 ng/L water quality standard is either prohibitively expensive or not available, and would have widespread economic and social impacts. This remains the case for Wisconsin in 2014.

Burlington WPC submitted an application for permit renewal dated September 27, 2013. The Wisconsin DNR has submitted appropriate justification to approve this variance, and mercury levels in the Burlington WPC effluent are decreasing. The city of Burlington maintains an active mercury PMP which includes community outreach and recycling events. The permit term will focus on further reducing sources of mercury influent to the Burlington WPC. WDNR does not feel a compliance schedule is necessary.

Twelve effluent samples collected from March 2010 through May 2013 showed mercury concentrations in Burlington effluent ranged from 0.89 to 2.4 ng/L, and averaged 1.31 ng/L. The WDNR determined that a WQBEL of 1.3 ng/L mercury is needed to protect wildlife in the Fox River. This portion of the Fox River is 303(d)-listed for PCBs, but not mercury.

The WDNR concluded that:

- The expense of building and operating additional treatment to comply with a 1.3 ng/L wildlife criterion for mercury would result in widespread social and economic harm, allowing the facility to seek a variance consistent with Wisconsin Statute 283.15, Wisconsin Admin. Code NR 106.145 and federal regulations at 40 CFR 131.10(g).

- Burlington WPC will continue to implement their PMP as required under Wisconsin Admin. Code NR 106.145(8) and the permit, and will submit annual progress reports to assure compliance with the PMP.

- Burlington WPC is required to sample and analyze mercury levels quarterly according to Wisconsin Admin. Code NR 106.145(9) and (10), concurrent with mercury monitoring at the influent and effluent sample points and concurrent with effluent whole effluent toxicity tests as scheduled.

II. <u>Area Affected and Environmental Impacts</u>

A. Area Affected:

The area affected is the Fox River, which is part of the Fox (IL) Southeast River Basin, in Racine County, Wisconsin. The designated uses of the Fox River are warmwater sport fish and non-public water supply. The seven-day, ten-year low flow (7Q10) for the Fox at Burlington is 44 cfs, and the harmonic mean flow of the Fox River is 185 cfs. The Burlington WPC is designed

for a maximum daily discharge of 8.54 MGD and an annual average discharge of 3.5 MGD. Actual peak daily discharge rate is 7.43 MGD.

B. Environmental Impacts:

- **Aquatic Life**

The mercury variance is not expected to deleteriously affect exposed aquatic life. The proposed AMEL of 3.1 ng/L is equal to the calculated 1-day P99 concentration. Wisconsin's aquatic life criteria for mercury are 830 ng/L for acute toxicity and 440 ng/L for chronic toxicity. A mercury limit of 3.1 ng/L is significantly less than both acute and chronic criteria to protect aquatic life. Because the discharge concentration of mercury in the effluent will be limited by the variance to 3.1 ng/L, both the acute and chronic aquatic life criteria will be met where the discharge enters the Fox River.

- **Wildlife & Human Health**

The requested variance would relieve Burlington from complying with the WQBEL of 1.3 ng/L needed to attain Wisconsin's chronic mercury criterion for the protection of wildlife. The ambient mercury concentration in the Fox River, upriver of Burlington, currently is above the 1.3 ng/L wildlife criterion and was measured previously at 4.3 ng/L. Consequently, wildlife sensitive to mercury or those consuming large quantities of fish with accumulated mercury already may be adversely affected within the area of discharge.

The primary environmental effect of concern is bioaccumulated concentrations of mercury in fish tissue which may be harmful to wildlife and humans that eat fish. The calculated WQBEL of 1.3 ng/L was necessitated by the current, upstream concentration of mercury. There is a small probability that some mink, muskrat, opossum, raccoon, or migratory birds may be affected more than other wildlife in the region due to their diet preferences which may include aquatic insects and fish.

The Fox River at Burlington is not designated for use as a public water supply. The permitted effluent discharge concentration will be limited to a daily maximum of 3.1 ng/L, which is below EPA's current maximum contaminant level of 2 μg/L (200 ng/L) for mercury in drinking water. Thus, the variance will not adversely affect human health directly through a drinking water route.

Granting a variance in this situation is consistent with the protection of the public health, safety and welfare. Burlington's continued execution of their PMP is expected to reduce the effluent concentration during the proposed permit term, further improving the mercury levels in the Fox River to benefit both human health and wildlife. Wisconsin's fish consumption advisory program is designed to mitigate the effect of any ambient mercury concentration above the 1.3 ng/L water quality criterion for humans.

- **Endangered and Threatened Species**

According to USFWS, there are two species within Racine County proposed for listing as endangered. They include the Northern long-eared bat (*Myotis septentrionalis*), and the Rufa red knot (*Calidris canutus rufa*). Lake County, IL, less than 15 miles south of Burlington, also is listed as home to the endangered Karner blue butterfly (*Lycaeides Melissa samuelis*) and Piping plover (*Charadrius melodus*), the threatened Eastern prairie fringed orchid (*Platanthera leucophaea*) as well as the Northern long-eared bat (proposed as endangered) and the candidate reptile, Eastern massasauga (*Sistrurus catenatus*).

Because the Northern long-eared bat is neither aquatic nor aquatic-dependent and Rufa Red Knot is most likely found along the Lake Michigan shoreline, these two species are not expected to be in the action area and were not further evaluated for effects caused by elevated mercury levels in the Fox River in Wisconsin. In Illinois, the piping plover, while aquatic-dependent, is most likely to be found near the shores of Lake Michigan. Areas likely to harbor *Platanthera leucophaea* and *Sistrurus* catenatus are more likely wetlands and sedge meadows and, though they may be near the Fox River, they are expected to reside outside of the action area (25 miles from Burlington, Wisconsin) in Illinois. They were also not evaluated further. *Lycaeides Melissa* and *Myotis septentrionalis* are terrestrial and not expected in the action area.

III. Clean Water Act (CWA) Section 303(c)/40 CFR 131 Review

A. EPA's authority under CWA section 303(c)(2):

Water quality standard requirements of CWA 101(a)(2) and 303(c)(2) are implemented via federal regulations contained in 40 CFR 131. Federal regulations at 40 CFR 131.21 require EPA to review and approve or disapprove state-adopted water quality standards. In making this determination, EPA must consider the requirements of 40 CFR 131.5 as follows:

- Whether the State-designated uses are consistent with the CWA requirements;
- Whether the State has adopted criteria protective of designated uses;
- Whether the State has followed legal procedures for standards revisions;
- Whether State standards are based on appropriate technical and scientific data and analyses; and
- Whether the State's submission includes certain basic elements as specified in 40 CFR 131.6 (see below).

Section 101(a)(2) of the CWA specifies that designated uses "provide for the protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water." Section 303(c)(2) of the CWA requires that standards shall protect the public health and shall take into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational, agricultural, industrial, and navigational purposes.

EPA is required to review and approve new and revised water quality standards submitted by states and tribes. Possible EPA actions include:

- **Approval** (where EPA has concluded that approval of certain revisions will have no effect on listed species, or is otherwise not subject to ESA consultation),
- **Approval subject to ESA consultation** (where EPA has concluded that certain revisions may affect listed species (including beneficial effects)),
- **Disapproval** (where EPA has concluded that certain revisions do not meet the requirements of the CWA or federal regulations and guidance), and
- **No EPA action** (where EPA has concluded that certain revisions are not revisions to the state's or tribe's water quality standards and, therefore, do not need to be reviewed under section 303(c) of the CWA.

Consistent with federal regulations at 40 CFR 131.21, new or revised water quality standards do not become effective for CWA purposes until they are approved by EPA.

B. Public participation, comments and issues regarding WDNR's draft variance determination:

WDNR issued a public notice for the Burlington permit on August 14, 2014. They received comments from the City of Burlington, and responded to the City's comments on September 12, 2014. Comments were specific to nitrogen-ammonia and to phosphorus WQBELs. No comments regarding the variance to the mercury criteria were received. The WDNR re-issued the public notice on October 23, 2014 addressing their response to Burlington's concerns. No further comments were received. The regulatory requirements for the public notice and comment process have been met. EPA concludes that WDNR has provided an opportunity for public participation consistent with 40 CFR 131.20(b) and 40 CFR 25.

C. EPA's review of the WDNR's final mercury variance determination:

1. Review of package completeness

Regulatory Requirement:	**Wisconsin Rule Submittal:**
Use designations consistent with the provisions of section 101(a) (2) and 303(c) (2) of the Clean Water Act **(40 CFR 131.6 (a))**	The Fox River is classified for warmwater sport fish and non-public water supply. Wisconsin's variance does not change these designated uses.
Methods used and analyses conducted to support WQS revisions **(40 CFR 131.6 (b))**	Documents submitted by WDNR in support of this variance include all items listed above under sections I.C. and I.D. of this document.
Water quality criteria sufficient to protect the designated uses of Wisconsin surface waters, which include *Warmwater Sport Fish* and *non-public water supply* **(40 CFR 131.6 (c))**	Under the conditions of the variance, the applicable water quality criterion for mercury is limited to 3.1 ng/L, the calculated 1-day P99 daily maximum discharge concentration. The applicable criterion to protect wildlife that would normally apply is 1.3 ng/L. The applicable criteria to protect aquatic life include acute and chronic values of 830 ng/L and 440 ng/L, respectively. The applicable criterion to protect human health is 1.5 ng/L. The 3.1 ng/L mercury limit exceeds the criterion to protect wildlife which is the reason for this variance.

Regulatory Requirement:	Wisconsin Rule Submittal:
An anti-degradation policy consistent with §131.12 **(40 CFR 131.6 (d))**	The measures discussed in this document and the referenced WDNR material are designed to achieve the highest statutory and regulatory requirements under the conditions of the variance. This is in addition to continued implementation of the PMP, including leadership in mercury recycling in the Burlington community.
Certification by the State Attorney General or other appropriate legal authority within the State that the WQS were duly adopted pursuant to State law **(40 CFR 131.6(e))**	WDNR's General Counsel certified the variance in a letter dated November 26, 2014 to Tinka Hyde, R5 WD Director.
General information that will aid the Agency in determining the adequacy of the scientific basis of the standards which do not include uses specified in CWA section 101(a)(2) as well as information on general policies applicable to State standards **(40 CFR 131.6(f))**	Wisconsin provided information and analyses, as listed in sections I.C. and I.D., and discussed in sections I.E. and I.F., above, to support this variance.

2. EPA action on the final variance determination submitted by WDNR:

The information provided by WDNR meets the substantive requirements for a water quality standard submittal according to 40 CFR 131.6. Information provided by WDNR also indicates that the Wisconsin 1.3 ng/L mercury criterion for protection of wildlife in the Fox River is not attainable in the immediate future. Wisconsin Admin. Code NR 106.145(1) outlines several findings that justify variances for mercury. WDNR intends for this provision to be applicable to all mercury dischargers that produce large volumes of effluent with very low mercury concentrations. WDNR considers treating large water volumes to produce lower concentrations of mercury in the effluent to be economically infeasible. WDNR justifies their position, citing the findings outlined in the document, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," (April 24, 1997, Foster Wheeler Environmental Corporation and DRI/McGraw-Hill for the Ohio Environmental Protection Agency, Division of Surface Water to support Ohio's Amended and New Rules in OAC Chapters 3745-1, -2 and -33). Wildlife and humans consuming fish in the Fox River may be exposed to higher levels of mercury during the period of this variance. Wisconsin's fish consumption advisory program is designed to mitigate the effects of an ambient mercury concentration above the 1.3 ng/L water quality criterion for humans. EPA determines that without this variance, substantial and widespread social and economic impacts may occur within Racine County, if Burlington is required to comply with the water quality standard. As the Burlington WPC updates and implements their mercury PMP and encourages local contributors on other source reduction actions, the levels of mercury are anticipated to decrease in the Fox River.

WDNR's final mercury variance determination is consistent with the CWA and federal regulations and guidance. EPA approves WDNR's final mercury variance determination for the City of Burlington, Racine County, Wisconsin.

IV. Endangered Species Act (ESA) Section 7 Evaluation

Consistent with section 7 of the ESA and federal regulations at 50 CFR Part 402, EPA is required to consult with the U.S. Fish and Wildlife Service (FWS) on any action taken by EPA that may affect federally-listed threatened and endangered species or their designated critical habitat. Actions are considered to have the potential to affect listed species if they are present in the action area. EPA reviewed the FWS section 7 Consultation Technical Assistance website on 4 September and 24 October 2014.

Based on our review, EPA believes the variance is consistent with the applicable requirements of the CWA. EPA has determined that approval of this variance will have *no effect* on federally-listed species There are two species proposed for listing as endangered by FWS within Racine County (WI). They include the Northern long-eared bat (*Myotis septentrionalis*), and the Rufa red knot (*Calidris canutus rufa*). *Myotis septentrionalis* is a terrestrial species, and *Calidris canutus* is most likely found along the shores of Lake Michigan; thus, these two species are not expected to be in the action area and were not further evaluated for effects caused by elevated mercury levels in the Fox River. **Therefore, EPA intends to approve the variance-based effluent limit for mercury and has concluded that ESA consultation is not necessary in this instance.**

V. Tribal Consultation Requirements

On May 4, 2011, EPA issued the "EPA Policy on Consultation and Coordination with Indian Tribes" to address Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments." The EPA Tribal Consultation Policy states that "EPA's policy is to consult on a government-to-government basis with federally recognized tribes when EPA actions and decisions may affect tribal interests."

EPA mapped the path of the Fox River downstream of the discharge and found that the river does not cross or run adjacent to any tribal reservation or ceded territory. There are no federally recognized tribal lands downriver from the Burlington discharge. EPA concludes that tribal consultation for this mercury variance is not required.

IV. Documents Considered by EPA

U.S. Fish and Wildlife Service: http://www.fws.gov/midwest/endangered/lists/wisc-cty.html County Distribution of Wisconsin's Federally Threatened, Endangered, Proposed, and Candidate Species, consulted on September 4, 2014; and on October 24, 2014 for the Illinois listed species in Lake County IL.

U.S. Environmental Protection Agency. 2011. "EPA Policy on Consultation and Coordination with Indian Tribes" to address Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments." May 4, 2011.

Draft Internal EPA Tribal Consultation Map for the Burlington, WI area, September 9, 2014.

Foster Wheeler Environmental Corporation and DRI/McGraw-Hill. 1997. *Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy*, (April 24, 1997. Submitted to the Ohio Environmental Protection Agency, Division of Surface Water to support Ohio's Amended and New Rules in OAC Chapters 3745-1, -2, and -33).