INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

July 12, 2019

Mr. Matt Gluckman
Watersheds Section Chief, Water Division
U.S. Environmental Protection Agency
R5, W-15J
77 West Jackson Boulevard
Chicago, IL 60604-3507

Dear Mr. Gluckman:

The Lower Big Blue River Watershed Total Maximum Daily Load (TMDL) report was submitted by the Indiana Department of Environmental Management (IDEM) to the U.S. Environmental Protection Agency (U.S. EPA) and approved by the U.S. EPA on July 14, 2014. Subsequent to its approval, inaccuracies in the final report were discovered by IDEM, who informed U.S. EPA in December 2017. IDEM explained that it had mischaracterized how bacteria TMDLs in the final Lower Big Blue River Watershed TMDL report were calculated. The final Lower Big Blue River Watershed TMDL report describes that bacteria loadings were calculated based on the *E. coli* water quality standard of 125 cfu/100 mL as a geometric mean. However, the actual loading calculations for the TMDLs were based on a single sample maximum water quality standard of 235 cfu/100 mL. These misstatements were limited to the main body of the report only, and do not impact any bacteria TMDL calculations.

IDEM has identified portions of the final report which are subject to the above referenced errors and made the necessary revisions. References and revisions are provided as an attachment to this letter.

Please direct any questions or comments to Angela Brown at 317-308-3102.

Sincerely,

Angela M Brown

Angela Brown
Chief, Watershed Planning and Restoration Section
Office of Water Quality

Cc: David Werbach, U.S. EPA Region 5
Paul Proto U.S. EPA Region 5

Lower Big Blue River Watershed Final TMDL Report Revisions

References with accompanying language revisions to the inaccuracies included in the final Lower Big Blue River Watershed TMDL report approved by U.S. EPA on July 14, 2014 are listed as follows:

-Section 2.2.1

Original Document Language:
The target value used for the Lower Big Blue River Watershed TMDL was based on the 125 counts/100 mL geometric mean component of the standard (i.e., daily loading capacities were calculated by multiplying flows by 125 counts/100 mL). This approach ensures that both components of the standard will be met since a daily loading capacity based on 125 counts/100 mL will, by definition, meet the 235 counts/100 mL component of the standard. The use of the geometric mean component of the standard results in an added MOS (see Section 8.2 for more details).

Revised Document Language:
The Lower Big Blue River Watershed TMDL *E. coli* target is: from April 1 through October 31, *E. coli* shall not exceed **235 cfu/100 mL**. For *E. coli* TMDLs, allocations were calculated based upon the **235 cfu/100 mL** portion of the criteria. U.S. EPA believes this target value is protective of both portions of the criteria. The U.S. EPA report, "*An Approach for Using Load Duration Curves in the Development of TMDLs*" (U.S. EPA, 2007) describes how the monthly geometric mean (in this case, 125 cfu/100 mL for *E. coli*) is likely to be met when the single sample maximum value (in this case, 235 cfu/100 mL for *E. coli*) is used to develop the loading capacity. The process calculates the daily maximum bacteria value that is possible to observe and still attain the monthly geometric mean. If the single sample maximum is set as a never-to-be surpassed value then it becomes the maximum value that can be observed, and all other bacteria values would have to be less than the maximum, i.e., 235 cfu/100 mL. U.S. EPA notes that whichever portion of the criteria is used to determine the allocations, both the monthly geometric mean and single sample maximum will be used to assess the extent of implementation by point and nonpoint sources.

-Section 5.0 (Table 89)
Target value in original table:
No value should exceed 125 counts/100 mL (geometric mean)

Target value in revised table:
No value should exceed **235 cfu/100 mL**

-Section 8.1
Original Document Language:
The 5 WWTPs are estimated to contribute about 0.88 percent of the *E. coli* load in the Lower Big Blue River watershed.] The WWTP WLAs were established based on the design flow multiplied by the TMDL target value of [for bacteria: 125#/100 mL for *E. coli*]
…
Different WLAs were established for each MS4 depending on the area of the MS4 upstream of the each assessment location. The jurisdictional areas of townships, municipalities, and urbanized areas were used as surrogates for the regulated area of each MS4. These areas were then used to calculate WLAs based on the proportion of the upstream drainage area located within the MS4 boundaries by multiplying that proportional area by the loading capacity of the assessment location. The MS4 WLAs therefore are equal to the estimated flows from the MS4 multiplied by the TMDL target value of for bacteria: 125#/100 mL for *E. coli*.

Revised Document Language:
The 5 WWTPs are estimated to contribute about 0.88 percent of the *E. coli* load in the Lower Big Blue River watershed. The WWTP WLAs were established based on the design flow multiplied by the TMDL target value of **235 cfu/100 mL** for *E. coli*.
…

Different WLAs were established for each MS4 depending on the area of the MS4 upstream of the each assessment location. The jurisdictional areas of townships, municipalities, and urbanized areas were used as surrogates for the regulated area of each MS4. These areas were then used to calculate WLAs based on the proportion of the upstream drainage area located within the MS4 boundaries by multiplying that proportional area by the loading capacity of the assessment location. The MS4 WLAs therefore are equal to the estimated flows from the MS4 multiplied by the TMDL target value of for bacteria of **235 cfu/100 mL** for *E. coli*.

Section 8.2

Original Document Language:

- The *E. coli* TMDLs include an implicit MOS in that they were based on the geometric mean component of the standard rather than the single sample maximum criteria. Using the single sample maximum criteria would have resulted in larger loading capacities.

- An additional implicit MOS for E. coli is included because the load duration analysis does not address die-off of pathogens.

Revised Document Language:

- An additional implicit MOS for *E. coli* is included because the load duration analysis does not address die-off of pathogens. As stated in *EPA's Protocol for Developing Pathogen TMDLs* (EPA 841-R-00-002), many different factors affect the survival of pathogens, including the physical condition of the water. These factors include, but are not limited to sunlight, temperature, salinity, and nutrient deficiencies. These factors vary depending upon the environmental condition/circumstances of the water, and therefore it would be difficult to assert that the rate of decay caused by any given combination of these environmental variables was sufficient enough to meet the water quality standards of 235 cfu/100mL and 125 cfu/100 mL. Thus, it is more conservative to apply the State's water quality standard in determining bacteria TMDLs, because this standard must be met at all times under all environmental conditions.

Section 9.2

Original E. coli Goal Statement:

The AUIDs in the Lower Big Blue River watershed should meet the 125 counts/100 mL (geometric mean) TMDL target value.

Revised E. coli Goal Statement:

The AUIDs in the Lower Big Blue River watershed should meet the **235 cfu/100 m**L TMDL target value.