



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

SEP 24 2010

REPLY TO THE ATTENTION OF:

WW-16J

Marylou Poppa Renshaw
Chief, Watershed Assessment and Planning Branch
Indiana Department of Environmental Management
100 North Senate Ave.
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Dear Ms. Renshaw:

The U. S. Environmental Protection Agency has conducted a complete review of the final Total Maximum Daily Loads (TMDLs) for the Lower Wildcat Creek Watershed, including supporting documentation and follow up information. Lower Wildcat Creek is located in central Indiana, in Tipton, Tippecanoe, Carroll, Clinton and Howard Counties. The TMDLs address the Primary Contact Recreation Use impairment due to *E. coli*.

The TMDLs meet the requirements of Section 303(d) of the Clean Water Act and EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, EPA hereby approves Indiana's 28 TMDLs for *E. coli* in the Lower Wildcat Creek Watershed. The statutory and regulatory requirements, and EPA's review of Indiana's compliance with each requirement, are described in the enclosed decision document.

We wish to acknowledge Indiana's effort in submitting these TMDLs and look forward to future TMDL submissions by the State of Indiana. If you have any questions, please contact Mr. Peter Swenson, Chief of the Watersheds and Wetlands Branch, at 312-886-0236.

Sincerely,


Tinka G. Hyde
Director, Water Division

Enclosure

cc: Andrew Pelloso, IDEM

2010 OCT -7 P 12:03
IDEM
OFFICE OF
WATER QUALITY

TMDL: Lower Wildcat Creek Watershed, Indiana
Date: 9/24/2010

DECISION DOCUMENT FOR APPROVAL OF THE LOWER WILDCAT CREEK WATERSHED TMDL IN INDIANA

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable. These TMDL review guidelines are not themselves regulations. They are an attempt to summarize and provide guidance regarding currently effective statutory and regulatory requirements relating to TMDLs. Any differences between these guidelines and EPA's TMDL regulations should be resolved in favor of the regulations themselves.

1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

- (1) the spatial extent of the watershed in which the impaired waterbody is located;
 - (2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
 - (3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;
 - (4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility);
- and

(5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comment:

Identification of impaired segments: As shown in Table 1 below, this decision document addresses TMDLs for impaired waterbody segments in the Lower Wildcat Creek watershed. These waterbodies are impaired due to *E. coli*.

Spatial Extent of Watershed: The Lower Wildcat Creek watershed is located in central Indiana, in Tipton, Tippecanoe, Carroll, Clinton and Howard Counties (Figure 2 of the TMDL). This watershed is part of the Wildcat Creek Basin. The Lower Wildcat Creek watershed is approximately 190 square miles in size and contains approximately 240 miles of stream. The City of Kokomo is partially located in the watershed. Several smaller towns are in the watershed as well. Major tributaries to Lower Wildcat Creek include Little Wildcat Creek, Honey Creek, Dry Run, and Pete's Run (Figure 2 of the TMDL).

Table 1. Waterbody Segments Addressed by this TMDL (based upon the 2008 303d list)

AUID 2008	AU name 2008	AUID 2008	AU name 2008
INB0722_00 Little	Wildcat Creek - east fork	INB0727_T1013	Wildcat Creek
INB0722_T1036	Little Wildcat Creek - west fork	INB0727_00	Petes Run
INB0722_T1009	Kelly West Ditch	INB0728_T1014	Wildcat Creek - mainstem
INB0723_T1010	Little Wildcat Creek (upstream of Vogus Ditch)	INB0728_T1003	Hurricane Creek
INB0723_00	Vogus Ditch	INB0729_T1015	Wildcat Creek (upstream of Prince William Road)
INB0721_T1008	Wildcat Creek (upstream of Spring Run)	INB0729_T1016	Wildcat Creek (D/S of unnamed tributary at Prince Wm Rd)
INB0721_T1011	Halihan Ditch	INB0729_T1002	Wildcat Creek (Prince Wm Rd) – unnamed tributary
INB0725_00	Honey Creek	INB0729_T1003	Wildcat Creek – unnamed tributary
INB0724_00	West Honey Creek	INB072A_T1003	Wildcat Creek – unnamed tributary
INB0726_T1012	Dearinger Ditch – Kiddle Ditch	INB072A_T1012	Wildcat Creek – unnamed tributary
INB0725_T1011	Wildcat Creek - mainstem	INB072A_T1016	Wildcat Creek - mainstem
INB0726_T1040	Wildcat Creek – unnamed tributary	INB0751_T1024	Wildcat Creek - OSRW
INB0726_T1039	Wildcat Creek – unnamed tributaries	INB0751_T1028	Wildcat Creek
INB0726_T1038	Wildcat Creek – unnamed tributary	INB0751_T1004	Wildcat Creek – unnamed tributary

Bold – newly listed segments

Pollutant of concern: The pollutant of concern is *E. coli*.

Pollutant Point Sources: There are potential point sources of *E. coli* in the Lower Wildcat Creek watershed.

Waste Water Treatment Plants: Table 2 and Figure 4 of the TMDL (Table 2 below) contains the NPDES permitted facilities identified by IDEM that discharge or potentially discharge *E. coli*. There are a total of 11 facilities in the watershed that have or may have a sanitary component in their discharge. IDEM does not consider them to be significant sources of *E. coli* (Page 7 of the TMDL).

Table 2 (from Table 2 of the TMDL) NPDES facilities in the Lower Wildcat Creek watershed

Permit Number	Facility Name	Receiving Stream
IN0020532	Russiaville Municipal STP	West Fork Honey Creek
IN0031801	Western Elementary and High School	William Vogus Ditch
IN0032875	Kokomo Municipal STP	Wildcat Creek
IN0039497	Village Green Mobile Home Park	Wildcat Creek
IN0039799	Burlington Municipal STP	Wildcat Creek
IN0055921	Billy Bob Mobile Home Park	Little Wildcat Creek
IN0038768	Green Acres Golf Course and Subdivision	Wildcat Creek
IN0037214	Hershey Elementary School	Wildcat Creek
IN0023353	Four Mile Hill STP	Wildcat Creek
IN0041866	Prairie Utilities, INC	Kelly West Ditch
IN0044652	Devon Woods Utilities, INC	Wildcat Creek
IN0051873	New London C.D. *	Wildcat Creek via Honey Creek
INR040104 (MS4)	City of Kokomo	various
INR040048 (MS4)	Howard County	various

* total residual chlorine limit

Combined Sewer Overflows (CSOs): IDEM regulates CSOs in Indiana through the state's NPDES program by implementation of strategies to maintain and manage existing CSO systems (Page 5 of the TMDL). The City of Kokomo has 3 CSO outfalls located in the Lower Wildcat Creek watershed (Page 7 and Figure 8 of the TMDL). Kokomo has an approved Long Term Control Plan (LTCP) that allows for 2 CSO discharges in a typical year. Kokomo also has a State Judicial Agreement addressing the outfalls.

MS4 Stormwater Communities: Two entities in the watershed have been issued MS4 permits – City of Kokomo (INR040104) and Howard County (INR040048). IDEM believes urban stormwater can be a source of *E. coli* in the watershed (Page 7 of the TMDL).

Concentrated Animal Feeding Operations (CAFOs): There are 2 CAFO operations as defined under the EPA NPDES regulations in the Lower Wildcat Creek watershed (Page 8, Figure 9, and Table 2 of the TMDL). Indiana regulations require operations to not cause or contribute to impairment of a waterbody. CAFOs are given a zero wasteload allocations. The land spreading of manure from these facilities can contribute to *E. coli* exceedences as a nonpoint source.

Pollutant Nonpoint Sources: Page 5 of the TMDL document describes potential nonpoint sources of bacteria that are diffuse and cannot be identified as entering a waterbody at a single discreet location. For the Lower Wildcat Creek, significant sources of *E. coli* include failing septic systems, runoff from row crop agriculture, pasture land runoff, and wildlife.

Failing Septic Systems: IDEM noted that failing septic systems can contribute *E. coli* to waterbodies in the Lower Wildcat Creek watershed (Page 6 of the TMDL). The local county health departments are aware that failures are occurring, and work to address them as discovered. Several unsewered communities exist within the watershed (Figure 6 of the TMDL). IDEM considers these to be potential sources of *E. coli*.

Agriculture: IDEM noted that agricultural application of manure can contribute significantly to *E. coli* loads in the watersheds. Run-off during precipitation events can be exacerbated by tile drainage. Livestock with direct access to the streams also contribute *E. coli*. There are numerous small, unregulated livestock operations in the watershed (Page 8 of the TMDL). These facilities often have pastures near waterbodies, which can result in significant manure run-off during even small rain events.

Confined feeding operations: Confined Feeding Operations (CFOs) are governed by State regulations and are defined as a nonpoint source and considered under the load allocation for the TMDL (Page 8 of the TMDL). In Indiana, CFO regulations (327 IAC 16, 327 IAC 15) require that operations "not cause or contribute to an impairment of surface waters of the state" and therefore must meet the load allocations in Section 4 below.

Wildlife: IDEM reported that wildlife can also contribute *E. coli* to the waterbodies (Page 5 of the TMDL).

Land Use: IDEM used the 1992 Gap Analysis Program (GAP) to provide the sources of land use/land cover for this TMDL (Page 5 and Figure 5 of the TMDL). Over 88% of the land use in the watershed is agriculture/pasture, with 4.5% wetland, and 2.5% urban. IDEM compared the 1992 GAP data to land use data from the 1970's, and noted little change.

Priority ranking: IDEM states on Page 2 of the TMDL that its TMDL development schedule corresponds with its basin-rotation water quality monitoring schedule. The development of most TMDLs is based on the schedule to take advantage of all available resources. Prioritization is based on whether the designated uses are being met, the magnitude of the impairment, and other plans for the watershed. For example, some watershed groups may want to implement some Best Management Practices (BMPs) and assess their success without a TMDL, or may be awaiting guidance from the EPA.

Future Growth: IDEM noted that the land use had not changed significantly between 1992 and the 1970's. No allocation was set aside for future growth.

EPA finds that the TMDL submittal satisfies all requirements concerning this first element.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy (40 C.F.R. §130.7(c)(1)).

EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comment:

Use Designation: The impaired designated use for the waterbodies in the Lower Wildcat Creek watershed is for total body contact recreational use during the recreational season, April 1st through October 31st.

Numeric Standard: 327 IAC 2-1-6(d) established the total body contact recreational use *E. coli* Water Quality Standard (WQS) for all waters as follows:

- (3) For full body contact recreational uses, *E. coli* bacteria shall not exceed the following:
 - (A) One hundred twenty-five (125) per one hundred (100) milliliters as a geometric mean based on not less than five (5) samples equally spaced over a thirty (30) day period.
 - (B) Two hundred thirty-five (235) per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period, except that in cases where there are at least ten (10) samples at a given site, up to ten percent (10%) of the samples may exceed two hundred thirty-five (235) cfu or MPN* per one hundred (100) milliliters where:
 - (i) the *E. coli* exceedences are incidental and attributable solely to *E. coli* resulting from the discharge of treated wastewater from a wastewater treatment plant as defined at IC 13-11-2-258; and
 - (ii) the criterion in clause (A) is met. However, a single sample shall be used for making beach notification and closure decisions.

* - most probable number

Targets: For the Lower Wildcat Creek watershed during the recreational season (April 1st through October 31st), the target levels are set at the *E. coli* water quality standard of 125 per one hundred milliliters as a 30-day geometric mean based on not less than five samples equally spaced over a thirty day period.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this second element.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for stream flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

Comment:

Loading capacity:

The loading capacity is the *E. coli* water quality standard of **125 cfu/100 ml** (geometric mean of (5) samples equally spaced over a thirty (30) day period) for the recreational season (April 1 through October 31) (Page 11 of the TMDL). This *E. coli* TMDL is concentration-based consistent with 40 CFR Section 130.2 (i). IDEM believes the geometric mean portion of the WQS provides the best overall characterization of the status of the watershed. The EPA agrees with this, as stated in the preamble of "The Water Quality Standards for Coastal and Great Lakes Recreation Waters Final Rule" (69 FR 67218-67243, November 16, 2004) on page 67224 "...the geometric mean is the more relevant value for ensuring that appropriate actions are taken to protect and improve water quality because it is a more reliable measure, being less subject to random variation, and more directly linked to the underlying studies on which the 1986 bacteria criteria were based." IDEM will be relying on the geometric mean portion of the WQS to track implementation activity and results.

Method for cause and effect relationship:

For most pollutants, TMDLs are expressed on a mass loading basis (e.g. pounds per day). For *E. coli* indicators, however, mass is not an appropriate measure because *E. coli* is expressed in terms of organism counts, with concentration being the amount of matter in a given volume. This approach is consistent with EPA's regulations which define "load" as "an amount of matter

that is introduced into a receiving water" (40 CFR §130.2). To establish the loading capacities for the Lower Wildcat Creek watershed, IDEM used Indiana's WQS for pathogens which has a geometric mean for a 30 day period. Thus, the loading capacity is expressed as a concentration, i.e. the amount of bacteria colonies per volume of water. A loading capacity is "the greatest amount of loading that a water can receive without violating water quality standards." (40 CFR §130.2). So, a loading capacity set at the WQS will assure that the water does not violate WQS.

IDEM used the load duration curve (LDC) approach to help analyze loadings in selected sites in the watershed. IDEM included an explanation for their approach on pages 8-11 in the TMDL. A summary of their efforts is provided below.

Continuous flow data was collected from a USGS gage on Wildcat Creek near the City of Lafayette (03335000). The target load curve was created using water quality measurements collected by IDEM in September-October, 2003. A total of 37 sites were sampled 5 times over a 30-day period. All sites were within the Lower Wildcat Creek watershed. The TMDL submittal in Attachment D presents 5 LDCs based upon the 2003 sampling results.

IDEM believes that LDCs for the selected sites are the best representation of the loads and sources in the Lower Wildcat Creek watershed (Pages 8-11 and Attachment D of the TMDL). The plots show under what flow conditions the water quality exceedences occur. Those exceedences at the right side of the graph occur during low flow conditions, such as septic systems malfunctions, livestock in streams, and illicit sewer connections; exceedences on the left side of the graphs occur during higher flow events, such as stormwater runoff.

LDCs link the geographic locations of load reductions needed to the flow conditions under which the exceedences occur. All of the LDCs in Attachment D of the TMDL present evidence that exceedences occur during the wet weather events. IDEM believes that dry weather sources are present in the watershed (failing septs, livestock in the waterbodies, etc.), but data are lacking for the lower flow regimes.

The additional load duration curve analysis allow IDEM to determine which implementation practices may be most effective for reducing *E. coli* loads based on flow magnitude. For example, if loads are significant during storm events, implementation efforts can target those best management practices (BMPs) that will most effectively reduce storm water runoff. This allows for a more efficient implementation effort. This TMDL is concentration-based, and ties directly into Indiana's numeric water quality standard for *E. coli*. The target for this TMDL is the water quality standard, and therefore meeting this loading capacity should result in attainment of water quality standards.

Critical conditions:

IDEM has determined that there is no single critical condition for this TMDL that will assure attainment of WQSs (Pages 8-11 of the TMDL). The critical condition for pollutant loadings is mainly under wet conditions, which would generally be in the spring and during storm events. Under these conditions, the impairments are due to run-off events from farm fields, tile drainage, and near-stream pasturing. IDEM believes it is very likely that exceedences are also occurring during dry conditions, due to septic discharge, wildlife, and domestic animals in the streams, all

of which are not related to run-off. The TMDL is for the recreational season between April 1 – October 31.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this third element.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

Comment:

Load Allocation: The loading capacity is the *E. coli* water quality standard of **125 cfu/100 ml** (geometric mean of (5) samples equally spaced over a thirty (30) day period) for the recreational season (April 1 through October 31) (Page 12 of the TMDL). IDEM used the geometric mean to calculate the necessary *E. coli* reduction of each sampling location. The calculated reductions bring each sampling location below the *E. coli* water quality standard of 125 cfu/100 ml (Attachment E of the TMDL).

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this fourth element.

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permittees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comment:

The WLA for all NPDES permitted facilities (Table 2 above), including CSOs, is set at the WQS of **125 cfu/100 ml** as a geometric mean based on not less than five samples equally spaced over a thirty day period from April 1 through October 31. The WLAs for straight pipe discharges and CAFOs are set to 0.

The New London C. D. facility (IN0051873) currently has a total residual chlorine requirement in their permit. For small facilities, IDEM has not required monitoring or limits for pathogens provided the facility maintained chlorine levels in their effluent. This was based upon the assumption that as long as chlorine levels were high enough, pathogens would be eliminated. IDEM has determined that this assumption was appropriate for fecal coliform, but not for *E. coli*, and the permit limits will be reviewed during the NPDES permit process.

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this fifth element.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

Comment:

The Lower Wildcat Creek watershed TMDL utilizes an implicit MOS due to the consideration of conservative assumptions in the development of the TMDL. The conservative assumption made in this TMDL was that no rate of decay for *E. coli* was applied in the development of the TMDL.

Since *E. coli* have a more limited capability of surviving outside their hosts, a rate of decay would normally be used. Applying a rate of decay into a TMDL calculation could result in a discharge limit greater than the water quality standard. 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 on 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 WQS of 125 cfu/100 ml and 235 cfu/100ml. Thus, it is more conservative to apply the State's water quality standard as the margin of safety, because this standard must be met at all times under all environmental conditions

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this sixth element.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Comment:

Seasonality in the TMDL is addressed by expressing the TMDL in terms of the *E. coli* WQS for total body contact during the recreational season (April 1st through October 31st) as defined by 327 IAC 2-1-6(d). There is no applicable total body contact *E. coli* WQS during the remainder of the year in Indiana. Because this is a concentration-based TMDL, *E. coli* WQS will be met regardless of flow conditions in the applicable season (Page 13 of the TMDL).

EPA finds that the TMDL submittal from IDEM satisfies all requirements concerning this seventh element.

8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with “the assumptions and requirements of any available wasteload allocation” in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA’s 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA’s August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comment:

The discussion of Reasonable Assurance in the TMDL is found on Pages 13-15 of the TMDL.

National Pollutant Discharge Elimination System (NPDES) Permitted Dischargers:

There are 11 dischargers with individual permits, 10 of which have an *E. coli* limits in their permits. The remaining facility, New London C. D. facility (IN0051873) has a residual chlorine

limit, which will be reviewed during the next permit cycle. The Kokomo CSO discharges are being addressed under the approved LTCP.

Watershed Management Plan Development:

The Wildcat Creek Watershed Alliance has developed a watershed management plan for several waterbodies in the watershed. The plan focuses on Best Management Practices (BMPs) that will reduce pathogen loads. The Howard County Soil and Water Conservation District and the Clinton County Soil and Water Conservation District are working on management plans in several waterbodies in the watershed, focusing on nutrient management activities and nonpoint sources of pollutants. The Wildcat Guardians are a local watershed group dedicated to protection of Wildcat Creek. The group monitors water quality through IDEM's Riverwatch program, and volunteers "adopt" a section of the river to monitor for problems (Wildcat Guardians website, 2010).

IDEM has a Watershed Specialist to assist these efforts. Potential future activities include adherence to documented manure application rates, no-till farming, centralized composting, livestock exclusion, public outreach to domestic animal owners, and wildlife population control measures.

EPA finds that this criterion has been adequately addressed.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comment:

The Monitoring Section (Page 13 of the TDML) outlines the planned water monitoring efforts by IDEM. IDEM will monitor the Lower Wildcat Creek watershed on a five year rotating basin schedule and/or once Best Management Practices (BMP) implementation efforts are incorporated in the watershed. The IDEM monitoring efforts are designed to assess water quality improvements with respect to *E. coli*, to test the efficiency of *E. coli* reduction strategies, and to determine the appropriate monitoring cycle within the watershed. The monitoring cycle will be adjusted as needed to improve *E. coli* source identification efforts. IDEM will closely monitor whether *E. coli* targets are being met and adjust their BMP strategy accordingly to meet these targets. The Wildcat Guardians monitor water quality as part of the IDEM Hoosier Riverwatch program.

EPA finds that this criterion has been adequately addressed.

10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Comment:

Actions in the TMDL watershed are included in the Reasonable Assurance discussion in Section 8 above. EPA reviews, but does not approve, implementation plans. EPA finds that this criterion has been adequately addressed.

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

Comment:

Initial kickoff stakeholder meetings for the Lower Wildcat Creek TMDL were held on July 17-19, 2007, at four locations in the watershed. During the meetings, IDEM personnel described the Indiana TMDL Program, discussed the specific reasons why TMDLs are being performed in the watershed, identified specific water quality and public health concerns regarding *E. coli*, and distributed a questionnaire to attendees to help identify additional sources of data that could be instrumental to the TMDLs.

IDEM placed the draft Lower Wildcat Creek TMDL on public notice from July 26, 2010, to August 26, 2010, to provide an opportunity for public comment. Public meetings were held on July 28, 2010, in Lafayette, IN and Frankfort, IN, to present the draft TMDL report. An additional meeting was requested by the public, and held on August 5, 2010 in Kokomo, IN. The draft TMDL was posted at: <http://www.in.gov/idem/4685.htm>, the IDEM's TMDL web site. No public comments were received by IDEM.

EPA finds that the TMDL submittal from Indiana satisfies all requirements concerning this eleventh element.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comment:

EPA received the Lower Wildcat Creek Watershed TMDL report on September 2, 2010, accompanied by a submittal letter dated August 27, 2010.

In the submittal letter, IDEM stated "The TMDL accompanying this letter is the Final TMDL submission from the State of Indiana for the Lower Wildcat Creek Segment ID INB0741_03, INB0741_04, INB0741_T1006, INB0742_04, INB0742_T1004, INB0742_T1005, INB0741_T1006, INB0743_04, INB0743_T1006, INB0743_T1007, INB0743_T1008, INB0743_T1010, INB0744_01, INB0744_02, INB0744_T1001, INB0744_T1002, INB0745_04, INB0745_T1008, INB0745_T1009, INB0745_T10012, INB0745_T10013, INB0745_T1014, INB0746_03, INB0746_03A, INB0746_03B, INB0746_03C, INB0746_03D, INB0746_T1005, INB0746_T1006, INB0746_T1007, INB0746_T1008, INB0747_01, INB0747_T1004, INB0747_T1005, INB0748_01, INB0748_01A, INB0728_T1001, INB0728_T1002, INB0748_T1003, INB0748_T1004, INB0749_01, INB0749_02, INB0749_03, and INB0749_T1006." The letter also states that the TMDL is being submitted per the requirement under Section 303(d) of the Clean Water Act and 40 CFR 130, and addresses the impairment of *E. coli* in the Lower Wildcat Creek watershed.

Table 1 above contains the segments for which TMDLs have been approved. IDEM is in the process of developing the 2010 303(d) list of impaired waters, which will significantly alter the segmentation and reach definition throughout the state. As a result, the segments contained in the transmittal letter do not completely match the segments listed on Table 1 of the TMDL, nor the sampling locations in the watershed. The segments in Table 1 above were determined to have approved TMDLs based upon two requirements: 1) segment as listed on the last approved 303(d) list (the 2008 list); and 2) sampling location on the segment to determine the allocations.

The EPA is approving TMDLs for *E. coli* in the 4 segments that are not on IDEM's 2008 Section 303(d) list (Table 1 above). While developing the Lower Wildcat Creek TMDL project, IDEM determined that these additional segments were impaired by *E. coli*. The segments were clearly identified in the draft TMDL (dated July 2010). The public had the opportunity to comment on these additional impaired segments in the TMDL during the IDEM public comment period. These segments were included in the final TMDL submitted to EPA. The TMDL report

discusses the impairments for all the segments in the subwatersheds, and IDEM determined TMDL allocations and calculations for all segments including the additional 7 segments, as IDEM developed the TMDL on a watershed basis.

EPA believes it was reasonable for IDEM to develop TMDLs for the previously unlisted segments in the subwatersheds at the same time it was developing TMDLs for the listed segments. Because the public has had the opportunity to comment on the decision to include these additional segments within the TMDL, as well as the calculations used to establish these TMDLs, and because the transmittal letter of the final TMDL states that the TMDL report is for the Lower Wildcat Creek watershed, EPA believes it is appropriate to approve the additional 4 TMDLs at this time.

EPA finds that the TMDL transmittal letter submitted by Indiana satisfies the requirements of this twelfth element.

13. Conclusion

After a full and complete review, EPA finds that the IDEM submittal for the Lower Wildcat Creek Watershed satisfies the elements of an approvable TMDL. This approval addresses the impairment of *E. coli* for **28** segments in Lower Wildcat Creek Watershed, for a total of **28** TMDLs.

EPA's approval of this TMDL does not extend to those waters that are within Indian Country, as defined in 18 U.S.C. Section 1151. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.