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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 22 2005

REPLY TO THE ATTENTION OF:

WW-16J

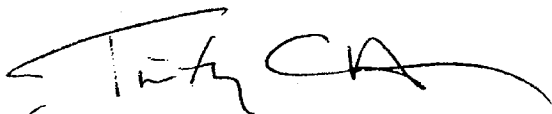
Martha Clark Mettler, Chief
Watershed Planning Branch
IDEM
100 North Senate Ave.
P.O. Box 6015
Indianapolis, Indiana 46206-6015

Dear Ms. Mettler:

The United States Environmental Protection Agency (U.S. EPA) has conducted a complete review of the final Total Maximum Daily Load (TMDL) submittal, including supporting documentation and information, for *E. coli* in 39 segments of the Flatrock-Haw Creek watershed, which is located in Henry, Rush, Fayette, Shelby, Decatur, and Bartholomew Counties, Indiana. Based on this review, U.S. EPA has determined that Indiana's TMDL for one pollutant (*E. coli*) for these 39 waterbody segments meets the requirements of Section 303(d) of the Clean Water Act and U.S. EPA's implementing regulations at 40 C.F.R. Part 130. Therefore, by this letter, U.S. EPA hereby approves 39 TMDLs for the Flatrock-Haw Creek watershed. The statutory and regulatory requirements, and U.S. EPA's review of Indiana's compliance with each requirement, are described in the enclosed decision document.

We appreciate your hard work in this area and the submittal of the TMDLs as required. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,


for Jo Lynn Traub,
Director, Water Division

Enclosure

1TMDL: Flatrock-Haw Creek Watershed, Indiana

Date: September 22, 2005

DECISION DOCUMENT FOR APPROVAL OF THE FLATROCK-HAW 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:

Location Description: The Flatrock-Haw Creek watershed is an eight digit (05120205) hydrologic unit code (HUC) watershed located in south-central Indiana (Figure 1 of the TMDL submittal). This watershed contains both the Flatrock River and Haw Creek watershed, and encompasses approximately 598 square miles. The Flatrock River originates in the northeastern portion of Henry County and flows southwest through Rush, Fayette, Shelby, Decatur, and Bartholomew counties. The Flatrock River joins the Driftwood River, near Columbus, Indiana, to form the East Fork of the White River. Haw Creek originates in the Southeast corner of Shelby County as an intermittent stream. It flows southwest into Bartholomew County where it combines with Little Haw Creek near Hope, Indiana. It continues to flow southwest through Columbus, Indiana where it meets East Fork White River approximately 2 miles after its creation.

This TMDL will address the impaired segments of the Flatrock River, its tributaries, and the Haw Creek watershed. The Flatrock River portion of the TMDL will address approximately 204 miles of stream. The Haw Creek portion of the TMDL will address approximately 7.47 miles of stream. These streams are impaired by elevated levels of *E. coli* during the recreational season.

All thirty-nine (39) of the impaired segments addressed in this TMDL are located in the East Fork White River Basin. The thirty-nine (39) impaired segments included in the TMDL submittal in the Section titled "Background" are found below:

Segment Name	303d List Number	Segment ID Number	Length (Miles)	Impairment
Flatrock River-Wilbur Wright Creek	To be Determined	INW0511_00	3.08	<i>E. coli</i>
Flatrock River-Arms No. 1 & 2	To be Determined	INW0512_00	5.35	<i>E. coli</i>
Flatrock River-Mud Run	To be Determined	INW0513_00	5.30	<i>E. coli</i>
Flatrock River-Rock Branch	To be Determined	INW0514_00	5.30	<i>E. coli</i>
Flatrock River-above US 40	To be Determined	INW0515_00	3.39	<i>E. coli</i>
Flatrock River-Applebutter Creek	To be Determined	INW0516_T1001	3.16	<i>E. coli</i>
Northeast tributary (Lewisville)	To be Determined	INW0517_00	3.56	<i>E. coli</i>
Mills Ditch and other tributaries	To be Determined	INW0518_00	8.60	<i>E. coli</i>
Flatrock River	To be Determined	INW0518_T1002	4.94	<i>E. coli</i>

Segment Name	303d List Number	Segment ID Number	Length (Miles)	Impairment
Wikoff Ditch	To be Determined	INW0519_00	12.23	<i>E. coli</i>
Shawnee Creek-lower	To be Determined	INW051C_00	8.91	<i>E. coli</i>
Flatrock River-Plum Creek Church	To be Determined	INW051D_T1003	2.72	<i>E. coli</i>
Flatrock River-gravel pits	To be Determined	INW0521_T1004	2.27	<i>E. coli</i>
Turkey Creek (Rush)	To be Determined	INW0522_00	10.30	<i>E. coli</i>
Flatrock River-covered bridges	To be Determined	INW0523_T1005	1.98	<i>E. coli</i>
Ben Davis creek	To be Determined	INW0524_00	14.36	<i>E. coli</i>
Tributaries above US 52	To be Determined	INW0525_00	3.54	<i>E. coli</i>
Flatrock River	To be Determined	INW0525_T1006	3.10	<i>E. coli</i>
Rushville tributaries	To be Determined	INW0526_00	6.56	<i>E. coli</i>
Flatrock River	To be Determined	INW0526_T1007	7.34	<i>E. coli</i>
East tributary Flatrock River	To be Determined	INW0527_00	7.27	<i>E. coli</i>
Flatrock River-Gas Wells	To be Determined	INW0528_T1008	2.99	<i>E. coli</i>
Bob Creek	To be Determined	INW0529_00	4.31	<i>E. coli</i>
Flatrock River	To be Determined	INW052A_T1009	9.93	<i>E. coli</i>
Flatrock River-St. Omer	172	INW0541_T1010	4.22	<i>E. coli</i>
Flatrock River-Germantown (gage)	172	INW0543_T1011	4.65	<i>E. coli</i>
Conns Creek-mouth (valley church)	To be Determined	INW054E_00	1.14	<i>E. coli</i>
Flatrock River-Geneva	To be Determined	INW0551_T1012	6.16	<i>E. coli</i>
Flatrock River-Willow park	To be Determined	INW0552_T1013	8.50	<i>E. coli</i>
Lewis Creek-at mouth	To be Determined	INW055E_00	1.84	<i>E. coli</i>
Flatrock River-Flatrock	172	INW055F_T1014	4.04	<i>E. coli</i>
Sidney Branch	To be Determined	INW055G_00	5.89	<i>E. coli</i>
Flatrock River-sec 9	To be Determined	INW055H_T1016	1.53	<i>E. coli</i>
Ensley Ditch	To be Determined	INW055J_00	4.99	<i>E. coli</i>
Flatrock River-Northcliff	To be Determined	INW055K_T1017	6.38	<i>E. coli</i>
Big Slough	To be Determined	INW055M_00	6.34	<i>E. coli</i>
Flatrock River-Columbus tributaries	To be Determined	INW055N_00	2.87	<i>E. coli</i>
Flatrock River	To be Determined	INW055N_T1018	4.98	<i>E. coli</i>
Haw Creek-Columbus	To be Determined	INW0568_00	7.47	<i>E. coli</i>

Listing Information: In 2002, Indiana's section 303(d) list cited the Flatrock River in Henry, Rush, Decatur, Shelby, and Bartholomew counties as being impaired for *E. coli*. In 2004, Indiana's section 303(d) list cites Flatrock-St. Omer and Flatrock-Germantown Ditch, in addition to the Flatrock River as being impaired for *E. coli*. In addition, these segments were cited for fish consumption advisories for PCBs and mercury.

A reassessment of the *E. coli* impairment was completed on the entire Flatrock-Haw Creek watershed using the results of *E. coli* sampling completed in 2002. As a result, IDEM has developed this TMDL to include 36 segments that are not on IDEM's 2004 section 303(d) list.

These segments are denoted in the previous table by the "To Be Determined" notation in the 303d List Number column. In the process of researching information pertaining to the Flatrock-Haw Creek watershed TMDL, IDEM determined that these additional segments were also impaired by *E. coli* and would have been listed on the most recent 303(d) list if the information had been available at the time of the compilation of the list. The segments were clearly identified in the Draft TMDL and the public had the opportunity to comment on including these additional impaired segments in the TMDL during the IDEM's public comment period for the Draft TMDL. These segments will be included in the 2006 303(d) list.

Topography and Land Use: As of 1992, the majority of the land use, approximately 90%, in the Flatrock-Haw Creek watershed is agricultural (Figure 3, Table 3.B of the TMDL). A comparison of the mid-1970s land use with the 1992 land use information shows that there was a reduction of approximately 5% in agricultural land use in the Flatrock-Haw Creek watershed.

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

Pollutant sources: There are both point sources and nonpoint sources of *E. coli* in the Flatrock-Haw Creek watershed. The nonpoint sources include:

- ☐ Wildlife - deer, geese, ducks, raccoons, turkeys, and other animals;
- ☐ Septic systems – County Health Departments within the watershed report septic failures ranging from 1 to 20% (according to IDEM communication with county health departments within the watershed). Also, counties have provided estimates of the number of homes not connected to sewer systems; and
- ☒ Small livestock operations - no specific information but may be a source of *E. coli*.

Point sources include:

National Pollutant Discharge Elimination System (NPDES) Permitted Dischargers

There are 14 sanitary NPDES permitted dischargers in the Flatrock-Haw Creek watershed (Table 1, Figure 4 of the TMDL). Six of the fourteen permitted dischargers have *E. coli* limits, and are considered by IDEM to be in compliance and are not considered a significant source of the *E. coli* impairment in the Flatrock-Haw Creek watershed.

Five of the fourteen permitted sanitary dischargers are required to monitor and report *E. coli* values but are not required to provide disinfection. If the monitoring results indicate that the facility is violating WQS, the facility will be required by IDEM to provide treatment for *E. coli* in the next permit cycle. Due to the lack of information on the discharge of *E. coli* from these facilities, IDEM found it difficult to determine to what extent, if any, these five dischargers could be a source of *E. coli* in the Flatrock-Haw Creek watershed.

Three of the fourteen permitted sanitary dischargers are required to chlorinate and de-chlorinate.

These dischargers do have a sanitary component in their discharge. Previously, facilities with design flows less than 1 MGD (typically minor municipals and semipublics) were not required by IDEM to have *E. coli* effluent limits or conduct monitoring for *E. coli* bacteria, provided they maintained specific total residual chlorine (TRC) levels in the chlorine contact tank. The assumption was that as long as chlorine levels were adequate in the chlorine contact tank, the *E. coli* bacteria would be deactivated and compliance with the *E. coli* WQS would be met by default. The original basis for allowing chlorine contact tank requirements to replace bacteria limits was based on fecal coliform, not *E. coli*. No direct correlation between the total residual chlorine levels and *E. coli* bacteria can be conclusively drawn. Further, it has been shown that exceedances of *E. coli* bacteria limits may still occur when the chlorine contact tank requirements are met. Waldron Conservancy District (WCD) had reported violations of their total residual chlorine limits in 2004 and April 2005. WCD is now required by IDEM to monitor and report for *E. coli* and TRC values (Personal Communication, IDEM, 9/14/2005). Due to the complications of comparing total residual chlorine to *E. coli*, IDEM found it difficult to determine to what extent, if any, these three dischargers could be a source of *E. coli* in the Flatrock-Haw Creek watershed.

Combined Sewer Overflows (CSOs) and Sanitary Sewer Overflows (SSOs)

CSOs are a known source of *E. coli*. IDEM found it difficult to determine to what extent these discharges have on the *E. coli* impairment in the Flatrock-Haw Creek watershed. In the watershed, Rushville has two CSOs that discharge to the Flatrock River. Columbus has three CSOs, one of which discharges to the Flatrock River.

The Town of St. Paul has two SSOs identified in their NPDES permit. These discharge points are located at Riverbend lift station and Franklin Street lift station. SSOs are prohibited from discharging at any time and any discharge may be addressed through an enforcement action.

Storm Water General Permit Rule 13

There are two municipal separate storm sewer system (MS4) communities, the City of Columbus and Bartholomew County, in the watershed. IDEM found it difficult to determine if these MS4 communities are a significant source of *E. coli* in the Flatrock-Haw Creek watershed.

Confined Feeding Operations (CFOs) and Concentrated Animal Feeding Operations (CAFO)

There are fifty-four (54) active CFOs/CAFOs in the Flatrock-Haw Creek watershed, 13 have general NPDES permits. Of the fifty-four (54) active CFOs/CAFOs, ten (10) active CFOs/CAFOs are in the Haw Creek watershed and three (3) have general NPDES permits (Table 2, Figure 5 of the TMDL). The CFO and CAFO regulations (327 IAC 16, 327 IAC 15) require operations "not cause or contribute to an impairment of surface waters of the state". Two of the CFOs/CAFOs are under agreed orders, one for a small spill and the other operation for a non-spill violation involving a construction violation. The currently operational CFOs and CAFOs in the Flatrock-Haw Creek watershed do not have any unresolved enforcement actions at this time.

Therefore, these operations are not considered by IDEM to be a significant source of *E. coli* for the Flatrock-Haw Creek watershed.

There are also many small livestock operations in the watershed. These operations, due to their small size, are not regulated under the CFO or CAFO regulations. These operations may still have an impact on the water quality and the *E. coli* impairment. No specific information on these small livestock operations is currently available; however, these small livestock operations may be a source of the *E. coli* impairment.

Priority ranking: IDEM scheduled this TMDL based on the data available from the basin-rotation schedule, which represents the most accurate and current information on water quality within the waterbodies covered by this TMDL (Page 4 of the TMDL). IDEM's TMDL development schedule corresponds with their basin-rotation water quality monitoring schedule. The development of most of IDEM's TMDLs is based on this 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.

EPA finds that the TMDL submittal from IDEM 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:

The TMDL submittal describes designated uses, numeric criteria, and antidegradation policy of the Clean Water Act.

Use Designation: The impaired designated use for the waterbodies in the Flatrock-Haw Creek watershed is for full body contact recreational use during the recreational season, April 1st through October 31st.

Narrative Standards: The narrative criteria are the general water quality criteria that apply to all surface waters. These criteria state that all waters must be free from sludge; floating debris; oil and scum; color- and odor-producing materials; substances that are harmful to human, animal or aquatic life; and nutrients in concentrations that may cause algal blooms.

Numeric Standards: 327 IAC 2-1-6(d) established the total body contact recreational use *E. coli* Water Quality Standard (WQS) for all waters in the non-Great Lakes system as follows: "*E. coli* bacteria, using membrane filter (MF) count, shall **not exceed 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 **nor exceed two hundred thirty-five (235) per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period.**"

Targets: the target level is set at the *E. coli* WQS 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, which is applicable from April 1st through October 31st.

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, that is,

- ☐ 125/100 ml (geometric mean (5) samples equally spaced over a thirty (30) day period),
- ☒ nor exceed 235/100ml (one (1) sample in a thirty (30) day period).

Method for cause and effect relationship: Analysis of the data for the Flatrock-Haw Creek watershed indicates that *E. coli* load enters the Flatrock-Haw Creek watershed through both wet weather (nonpoint sources and CSO's) and dry weather sources (point sources).

To investigate further the potential sources mentioned above, an *E. coli* load duration curve analysis was developed for five sampling sites in the Flatrock-Haw Creek watershed (Attachment C of the TMDL). The method considers how stream flow conditions relate to a variety of pollutant loadings and their sources (point and nonpoint). These load duration curves were included in the TMDL to give a visual representation of the flow conditions at which the *E. coli* violations occur. Details on how the duration curves were developed are included on Page 8 of the TMDL.

While there are point source contributors who must not operate in a manner that impairs water quality, compliance with the numeric *E. coli* WQS in the Flatrock-Haw Creek watershed also depends on the control of nonpoint sources using BMPs. If the *E. coli* inputs can be controlled, then the total body contact recreation use in the Flatrock-Haw Creek watershed will be protected.

Critical conditions: *E. coli* sources to the Flatrock-Haw Creek watershed arise from a mixture of dry and wet weather-driven conditions. There is no critical condition for flow because the *E. coli* limit must be met under all flow conditions in this TMDL. The water quality standards will be met regardless of flow conditions during the recreational season.

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 load allocation is equal to the Water Quality Standard: 125/100 ml (geometric mean (5) samples equally spaced over a thirty (30) day period). The assumption used by the State in this load allocation strategy is that there are equal bacterial loads per unit area for all lands within the watershed. The responsibility for reducing the loads is relative to the amount of land under the jurisdiction of the various local governments. In the TMDL IDEM states that "This gives a clear indication of the relative amount of effort that will be required by each entity to restore and maintain the designated total body contact recreational use of the Flatrock-Haw Creek watershed." This concept is exemplified by Table 3.A of the TMDL, indicating amounts of land in each of the 34 townships in the watershed that will be responsible for reductions, with reductions in direct proportion to the percentage of land in each township.

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 WQs 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:

Wasteload Allocation (WLA): As mentioned previously, there are 14 sanitary NPDES permitted dischargers in the Flatrock-Haw Creek watershed (Table 1, Figure 4 of the TMDL). Six of the fourteen permitted sanitary dischargers have *E. coli* limits. Five of the fourteen permitted sanitary dischargers are required to monitor due to length of detention time. IDEM will review the results of the monitoring to assure compliance with WQS during the next permit cycle. Three of the fourteen permitted sanitary dischargers have Total Residue Chlorine (TRC) limits but do not have *E. coli* limits and are not required to monitor for *E. coli*. During the next permitting cycle IDEM will assure that these sources are complying with WQS.

There are two cities in the Flatrock-Haw Creek watershed, Rushville and Columbus that have Combined Sewer Overflows (CSOs). Rushville has two CSOs that discharge to Flatrock River. Columbus has three CSOs, one of which discharges to the Flatrock River. The Long Term Control Plans (LTCP) that are under review at IDEM will provide the necessary guideline to insure that the CSOs do not cause or contribute to the impairment of the Flatrock-Haw Creek watershed.

The Town of St. Paul has two SSOs identified in their NPDES permit. These discharge points are located at Riverbend lift station and Franklin Street lift station. SSOs are prohibited from discharging at any time and any discharge may be addressed through an enforcement action.

The WLA for all permitted facilities identified above, and referenced in Table 1 of the TMDL, is set at the WQS of 125 per one hundred milliliters as a geometric mean based on not less than five samples equally spaced over a thirty-day period from April 1st through October 31st.

According to IDEM, there are two MS4 communities, the City of Columbus and Bartholomew County, in the Flatrock-Haw Creek watershed. To date, stormwater permits have not been finalized for these MS4 communities. Guidelines for MS4 permits and timelines are outlined in Indiana's Municipal Separate Storm Sewer System (MS4) Rule 13 (327 IAC 15-13-10 and 327 IAC 15-13-11). These permits will be issued in accordance with the MS4 permitting cycle. The WLA for these sources is set at 125 per one hundred milliliters as a geometric mean based on not less than five samples equally spaced over a thirty-day period from April 1st through October 31st.

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:

This TMDL uses an implicit margin of safety because no rate of decay was used for the pathogens. Since pathogenic organisms 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.

IDEM determined that applying the *E. coli* WQS of 125 per one hundred milliliters (geometric mean (5) samples equally spaced over a thirty (30) day period) with no rate of decay for *E. coli* is a conservative approach that provides for greater protection of the water quality.

EPA finds that the TMDL submittal from IDEM contains an appropriate MOS satisfying 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:

Seasonal variation is addressed by expressing the TMDL in terms of the *E. coli* WQS for full body contact during the recreational season (April 1st through October 31st) as defined by 327 IAC 2-1-6(d). There is no applicable full 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.

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 TMDL outlines several Reasonable Assurance activities, summarized below:

- CFOs and CAFOs are required to manage manure, litter, and processed wastewater pollutants in a manner that does not cause or contribute to the impairment of *E. coli* WQS;
- For the permitted dischargers that have total residual chlorine limits in their current permit, during the next permitting cycle IDEM will assure that these sources are complying with WQS. For the permitted dischargers that have monitoring and reporting requirements, IDEM will review the results of the monitoring to assure compliance with WQS during the next permit cycle. This review of information and possible inclusion of *E. coli* limits will occur on the 5 year permitting cycle.
- There are two MS4 communities, the City of Columbus and Bartholomew, in the Flatrock-Haw Creek watershed. Stormwater permits will be used to address storm water impacts in the Flatrock-Haw Creek watershed. These permits will be issued in accordance with the MS4 permitting cycle;
- There are two cities in the Flatrock-Haw Creek watershed, Rushville and Columbus that have Combined Sewer Overflows (CSOs). The Long Term Control Plans (LTCP) that are under review at IDEM will provide the necessary guideline to insure that the CSOs do not cause or contribute to the impairment of the Flatrock-Haw Creek watershed;
- The Town of Mooreland STP has completed a sewer lining project and switched to UV disinfection in 2003. In addition, the IDEM WWTP inspector along with the Town of Mooreland STP discovered sampling procedure problems resulting in false permit violations;

- Because of a soon-to-be completed enforcement action, Bartholomew County Cross Cliff Elementary School installed UV disinfection as of December of 2003;
- Western Rush County Regional Water and Sewer District hired a new operator after the previous operator failed to renew their operator certification. An agreed order is being negotiated to resolve two *E. coli* violations in 2003;
- In 1997, a Watershed Management plan was completed for the Flatrock River by a coalition of stakeholders interested in the upper Flatrock River. After this plan was completed, an additional grant was awarded for implementation of the Watershed Management plan. This was awarded to the Rush County SWCD;
- IDEM has recently hired a Watershed Specialist for this area of the state. The Watershed Specialist will be available to assist stakeholders with starting a watershed group, facilitating planning activities, and serving as a liaison between watershed planning and TMDL activities in the Flatrock-Haw Creek watershed. In addition, Section 319 funding may be available to help implement the TMDL in the watershed; and
- Rushville Municipal STP will be connecting 248 more homes in less than two years to their city sewer system.

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:

Monitoring will occur on the 5-year rotating basin schedule or when a portion of the TMDL implementation is in place. Monitoring will be adjusted as needed for continued source identification and determination of whether standards are being met.

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:

There are several suggestions for BMPs in the TMDL watershed. They include structural or managerial practices such as:

- Riparian Area Management - Management of riparian areas protects stream banks and riverbanks with a buffer zone of vegetation, either grasses, legumes, or trees;
- Manure Collection and Storage - Collecting, storing, and handling manure in such a way that nutrients or bacteria do not run off into surface waters or leach down into ground water;
- Contour Row Crops - Farming with row patterns and field operations aligned at or nearly perpendicular to the slope of the land;
- No-Till Farming - No-till is a year-round conservation farming system. In its pure form, no-till does not include any tillage operations either before or after planting. The practice reduces wind and water erosion, catches snow, conserves soil and water, protects water quality, and provides wildlife habitat;
- Drift Fences - Drift fences (short fences or barriers) can be installed to direct livestock movement. A drift fence parallel to a stream keep animals out and prevents direct input of *E. coli* to the stream; and
- Pet Clean-up / Education - Education programs for pet owners can improve water quality of runoff from urban areas.

Other implementation activities identified in the TMDL include:

- Rushville Municipal STP will be connecting 248 more homes in less than two years to their city sewer system;
- Shelby County Health Department has repaired 12 failing on-site sewage systems including one for a store and one for a church; and
- Septic Management/Public Education - Programs for management of septic systems can provide a systematic approach to reducing septic system pollution. Education on proper maintenance of septic systems as well as the need to remove illicit discharges could alleviate some anthropogenic sources of *E. coli*.

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:

The TMDL was public noticed from July 15, 2005 to August 15, 2005. Stakeholder meetings were held to provide an overview of the draft TMDL and provide an opportunity for public comments. The stakeholder meetings took place on July 13, 2005, at the Bartholomew County Library in Columbus, Indiana, and on July 14, 2005, at the Rushville Courthouse, Rushville, Indiana. Copies of the draft TMDL were posted on the IDEM's Web site at: <http://www.ai.org/idem/water/planbr/wqs/tmdl/documents.html>. U.S. EPA sent in comments on the draft TMDL and they were adequately addressed in the final TMDL. IDEM did not receive any comments from stakeholders.

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 Flatrock-Haw Creek watershed TMDL on September 6, 2005, accompanied by a submittal letter dated August 30, 2005. In the submittal letter, IDEM stated "The TMDL accompanying this letter is the Final TMDL submission for the State of Indiana for the Flatrock-Haw Creek Watershed, which is impaired for *E.coli*". Thirty-nine segments are listed in the submittal letter.

The Flatrock-Haw Creek watershed is impaired for Recreational Use due to *E. coli*. Three segments within the watershed are listed as impaired due to *E. coli* on Indiana's 2004 303(d) list. EPA is approving TMDLs for the Flatrock-Haw Creek watershed for some segments that were not on Indiana's 2004 303(d) list. While developing the Flatrock-Haw Creek TMDL project, IDEM determined that 36 additional segments in the watershed were not listed but also impaired for *E. coli*. These segments were clearly identified in the draft TMDL (dated July 15, 2005). The public had the opportunity to comment on the TMDLs including these additional impaired segments, during the IDEM public comment period. These are the same 36 segments discussed in the final TMDL submitted to EPA. The TMDL report discusses the impairment for the segments and IDEM determined the TMDL target concentration, based on Indiana water quality standards, for all segments.

EPA believes it was reasonable for IDEM to develop TMDLs for the previously unlisted segments in the watershed 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 target concentration based on Indiana's water quality standard, and because IDEM's public notice for these TMDLs and its transmittal letter of the final TMDL states that the TMDL report is for the Flatrock-Haw Creek watershed, EPA believes it is appropriate to approve all thirty-nine submitted TMDLs at this time.

13. Conclusion

After a full and complete review, EPA finds that the IDEM submittal determines standard - based concentrations for a total of 39 TMDLs for Flatrock-Haw Creek, Henry, Fayette, Rush, Decatur, Shelby, and Bartholomew Counties, Indiana. The allocations satisfy all of the elements of an approvable TMDL. This approval concerns the waterbody segments and impairments set forth in the Table provided on page 2 of the TMDL Report, and on pages 2 and 3 of this decision document. Impairments addressed in these TMDLs are pathogens from the pollutant *E. coli*.

