



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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CHICAGO, IL 60604-3590

IDEM
OFFICE OF
WATER QUALITY
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REPLY TO THE ATTENTION OF:

WW-16J

Marylou Renshaw, Chief
Indiana Department of Environmental Management
100 North Senate Avenue,
Indianapolis, Indiana 46204

Dear Ms. Renshaw:

The U. S. Environmental Protection Agency has reviewed the final Total Maximum Daily Loads from the Indiana Department of Environmental Management for the West Fork Whitewater River Watershed in Indiana. The TMDLs are for *E.coli*, and addresses the total body contact recreational use in this waterbody.

Based on this review, EPA has determined that Indiana's TMDL for *E.coli* meets 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 twenty three (23) TMDLs addressing 31 impairments in the West Fork Whitewater River Watershed in Indiana. 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 this TMDL and look forward to future TMDL submissions by the State of Indiana. If you have any questions, please contact Kevin Pierard, Chief of the Watersheds and Wetlands Branch, at 312-886-4448.

Sincerely,

Tinka G. Hyde
Director, Water Division

Enclosures
cc: Andrew Pelloso, IDEM

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**Decision Document for Approval of the
West Fork Whitewater River Watershed TMDL, 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/Spatial Extent:

The West Fork Whitewater River Watershed is located in Randolph, Wayne, Henry, Franklin, and Fayette counties in Indiana. The West Fork Whitewater River and its headwater tributaries flow south from Randolph and Henry counties into Wayne County, and finally into Franklin County. Several major tributaries flow into the West Fork Whitewater River include; Bowen Ditch, Crete Drain, Franklin Creek, Greens Fork, Kelly Ditch, Line Brook, Mixed Creek, Nettle Creek, Noland's Fork, Pole Creek, Slow Run, and Williams Creek (Figure 1 of the West Fork Whitewater Watershed *E.coli* TMDL Report). This TMDL addresses approximately 605 square miles of the West Fork Whitewater River Watershed in Randolph, Wayne, Fayette, Henry and Franklin Counties, Indiana, where recreational uses are impaired by elevated levels of *E. coli* during the recreational season. All twenty three segments for this TMDL are located in the Whitewater Basin, Hydrologic Unit Codes 0508000301, 0508000302, 0508000303, and 0508000304 (Attachment A of the West Fork Whitewater Watershed *E.coli* TMDL Report). The impaired segments are included in Table 4 of the West Fork Whitewater Watershed *E.coli* TMDL Report and also in Table 1 below.

Land Use:

In Source Assessment Section of West Fork Whitewater Watershed *E.coli* TMDL Report, IDEM stated that based on 1992 Gap Analysis Program data, approximately 82.7% of the land use in the West Fork Whitewater River Watershed was agriculture. The remaining land use along the West Fork Whitewater River Watershed consisted of approximately 14.2% Forested, 2.1% Wetlands, 0.9% Urban, and 0.2% Water (Figure 3 of the West Fork Whitewater Watershed *E.coli* TMDL Report).

Problem Identification:

In 2004, Indiana's Section 303(d) List cited the West Fork Whitewater River as being impaired for *E. coli* in Randolph, Wayne, Franklin, Fayette, and Henry counties and it has remained on the 303(d) List in subsequent years. In addition to the West Fork Whitewater River, Indiana's 2008 Section 303(d) List cites several tributaries as being impaired for *E. coli*.

After assessing the data collected in 2002, IDEM resampled in 2007, and added High Resolution Indexing. The reassessment for the *E. coli* impairment resulted in the addition and change of segment IDs during the development of this TMDL. Table 1 of the West Fork Whitewater Watershed *E. coli* TMDL Report shows the results of the High Resolution Indexing that IDEM has performed for the watershed. This indexing allows IDEM to better refine the activities planned for the watershed, and more efficient analysis at a fine scale. The listing status of these segments will be addressed during the development of the 2010 303(d) list.

Table 1: Impaired Segments in the West Fork Whitewater Watershed

<i>E. coli</i> Standard = 125 mpn/100 mL			
Stream Name	Site Number	<i>E. coli</i> (geometric mean)	Percent Reduction
W Fk Whitewater River	1	782	84.01%
Nettle Cr	2	691	81.92%
Morgan Cr	3	619	79.81%
Martindale Cr	4	323	61.28%
Unnamed Trib of W Fk Whitewater	5	1500	91.67%
Greens Fk	6	250	50.03%
Greens Fk	7	395	68.39%
Greens Fk	8	516	75.78%
W Fk Whitewater River	9	210	40.44%
Nolands Fk	10	250	50.10%
Nolands Fk	11	1092	88.55%
Nolands Fk	12	651	80.79%
Williams Cr	13	213	41.34%
W Fk Whitewater River	14	99	N/A
Whitewater River	15	466.4	73.20%
Bear Cr	16	1235.0	89.88%
Morgan Cr	17	279.8	55.32%
Roy Run	18	651.4	80.81%
Greens Fork	19	336.1	62.81%
Greens Fork	20	183.9	32.04%
Whitewater River	21	99.5	N/A
Bloomington Cr	22	528.3	76.34%
Nolands Fk	23	357.3	65.01%
Nolands Fk	24	97.8	N/A
Whitewater River	25	65.6	N/A
Little Williams Cr	26	833.0	84.99%
Whitewater River	27	67.8	N/A
Whitewater River	28	27.8	N/A

Bear Cr	29	1998.6	93.75%
Whitewater River	30	57.3	N/A

Pollutant of concern:

E. coli

Source Identification:

In Source Assessment Section of the West Fork Whitewater Watershed *E. coli* TMDL Report, IDEM stated that there are both point sources and nonpoint sources of *E. coli* in the West Fork Whitewater River Watershed.

Nonpoint sources:

Wildlife

The excrement of deer, geese, ducks, raccoons, turkeys, and other animals is a potential source of *E. coli*. Wildlife contributes to the potential impact of contaminated runoff from their habitats, such as urban park areas, forest, and cropland.

Septic systems

The West Fork Whitewater River Watershed is a rural watershed with the majority of homes utilizing on-site septic systems or straight pipe discharging. Randolph, Fayette, and Franklin County Health Departments indicated that septic system failure does occur. No tangible septic system failure rates have been established by Randolph, Fayette, and Franklin Counties Environmental Health Departments at this time.

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

The removal and disposal of the manure, litter, or processed wastewater that is generated as the result of concentrated animal feeding operations falls under the regulations for concentrated animal feeding operations (CAFOs). CAFO rules can be found at 327 IAC 5-4-3 (effective 12/28/06) and 327 IAC 5-4-3.1 (effective 3/24/04). Concentrated Animal Feeding operations fall under Federal regulation and Confined Feeding Operations (CFO) fall under State regulations. Due to this difference CAFO loads fall under WLA and CFO loads fall under LA. There are eight (8) CAFOs and ten (10) CFOs in the West Fork Whitewater River Watershed (Figure 6 and Table 3 of the West Fork Whitewater Watershed *E.coli* TMDL Report). CAFOs could be potential sources of *E. coli*, primarily by the land application of manure. The current operational CAFOs in the West Fork Whitewater watershed have no open enforcement actions at this time. Therefore, these operations are not considered by IDEM to be a significant source of *E. coli* for the West Fork Whitewater River Watershed *E.coli* TMDL.

Small Livestock Operations

There are many smaller livestock operations in the watershed, due to their small size; they are not regulated under the CFO or CAFO regulations. Although there are no specific information on these small livestock operations is currently available for the West Fork Whitewater River Watershed however; IDEM believes that these small livestock operations may be a source of the *E. coli* impairment.

Point sources include:

National Pollutant Discharge Elimination System (NPDES) Permitted Dischargers

There are 17 NPDES permitted facilities in the West Fork Whitewater River Watershed (Figure 4 and Table 2 of the West Fork Whitewater Watershed *E. coli* TMDL Report), 15 of these have *E. coli* limits in their permits, and therefore have the potential to contribute *E. coli* to the watershed.

Storm Water General Permit Rule 13

The City of Connersville is the only municipal separate storm sewer system (MS4) community in the West Fork Whitewater River Watershed. Guidelines for MS4 permits and compliance 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). IDEM believes that MS4 communities are possible sources of *E. coli* in watershed.

Combined Sewer Overflows (CSO)

There are two (2) CSO communities in the West Fork Whitewater River Watershed; the City of Connersville has five (5) CSOs and the Town of Centerville has one (1) CSO. Table 4 of the West Fork Whitewater River Watershed *E. coli* TMDL Report provides a description of outfall locations and receiving waters. CSO outfalls are considered a source of *E. coli* to the West Fork Whitewater River.

Priority ranking:

In Background Section of the West Fork Whitewater River Watershed *E. coli* TMDL Report, IDEM stated that this TMDL scheduled based on IDEM's five-year basin-rotation water quality monitoring schedule. To take advantage of all available resources for TMDL development, impaired waters are scheduled according to the basin-rotation schedule unless there is a significant reason to deviate from this schedule. Waterbodies could be scheduled based on the following:

Waterbodies may be given a high or low priority for TMDL development depending on the specific designated uses that are not being met, or in relation to the magnitude of the impairment.

TMDL development of waterbodies where other interested parties, such as local watershed groups, are working on alleviating the water quality problem may be delayed to give these other actions time to have a positive impact on the waterbody. If water quality standards still are not met, then the TMDL process will be initiated.

TMDLs that are required due to water quality violations relating to pollutant parameters where no EPA guidance is available may be delayed to give EPA time to develop guidance.

Future Growth:

As stated in Source Assessment Section of the West Fork Whitewater River Watershed *E.coli* TMDL Report, IDEM compared the land use information from 1992 aerial photos with aerial photos taken 2003 and came to a conclusion that there has not been a significant change occurred in land use in the West Fork Whitewater River Watershed, therefore future growth is not a concern at this time.

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of 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 Numeric Target Section of the West Fork Whitewater River Watershed *E.coli* TMDL Report describes designated uses and numeric criteria applicable to this watershed.

Designated Use of Waterbody:

The designated use for the waterbodies in the West Fork Whitewater River Watershed is for total body contact recreational use during the recreational season, April 1st through October 31st.

Water Quality Standards (*E.coli*)

Indiana Administrative Code 327 IAC 2-1-6(d) establishes 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.

The sanitary wastewater *E. coli* effluent limits from point sources in the non-Great Lakes system during the recreational season, April 1st through October 31st, are also covered under 327 IAC 2-1-6(d).

Targets:

In Numeric Targets Section of the West Fork Whitewater River Watershed *E.coli* TMDL Report, IDEM stated that for the West Fork Whitewater River Watershed during the recreational season (April 1st through October 31st) 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.

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of 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:

IDEM has determined that the loading capacity for the impaired waterbodies is the water quality standard; that is, 125 cfu/100 ml (geometric mean of 5 samples equally spaced over a 30 day period) and a sample maximum of 235 cfu/100 ml. This *E. coli* TMDL is concentration based consistent with 327 IAC 5-2-11.1(b) and 40 CFR, Section 130.2 (i) and the TMDL is equal to the geometric mean and single sample maximum *E. coli* WQS for the recreational season (April 1 through October 31). IDEM believes the geometric mean portion of the WQS provides the best overall characterization of the status of the watershed. The U.S. 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 West Fork Whitewater River Watershed, IDEM used Indiana's WQS for pathogens which has a geometric mean for a 30 day period and a single sample maximum of an amount of bacteria colonies per 100 milliliters of receiving water. 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.

Load duration curves and precipitation graphs were created for several of the sampling sites in the West Fork Whitewater Watershed. IDEM believes that the sample sites WWL020-0085, WWL020-0077, WWL020-0081, WWL020-0067, and WWL020-0091 provide the best description of the sources of *E. coli* to the West Fork Whitewater River Watershed (Attachment B of the West Fork Whitewater River *E. coli* TMDL Report).

In order to develop a load duration curve, continuous flow data are required. For this TMDL, flow data from USGS gage (03275000) located near Alpine, Indiana are used to create flow duration curves, which display the cumulative frequency of distribution of the daily flow for the period of record. The flow duration curve relates flow values measured at the monitoring station to the percent of time that those values are met or exceeded. Flow duration curves are then transformed into load duration curves by multiplying the flow values along the curve by applicable water quality criteria values for *E. coli* and appropriate conversion factors. Water quality pollutant monitoring data are plotted on the same graph as the load duration curve that provides a graphical display of the water quality conditions in the waterbody. For further information on the load duration process, see Attachment B of the West Fork Whitewater River *E. coli* TMDL Report.

Although there are point source contributors of *E. coli* to the West Fork Whitewater River Watershed, based IDEM's review of the monitoring and compliance records of point sources within the watershed IDEM do not believe point sources are cause of impairments. The possible direct access of animals in stream or the presence of straight pipe discharges may be impacting the West Fork Whitewater River Watershed during the dry periods. Therefore, compliance with the numeric *E. coli* WQS in the West Fork Whitewater River Watershed most critically depends on controlling of non-point sources using best management practices (BMPs). If the *E. coli* inputs are controlled, then total body contact recreation use in the West Fork Whitewater River Watershed will be protected.

Critical conditions:

The critical conditions for the control of point sources in Indiana are addressed in 327 IAC 5-2-11.1(b). In general, the 7-day average low flow in 10 years (Q7, 10) for a stream is used as the design condition for point source dischargers. *E. coli* sources to the West Fork Whitewater River Watershed occur in both 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 Document submitted by IDEM satisfies all requirements of 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 LA for non-point sources is equal to 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 (Page 15 of the West Fork Whitewater River Watershed *E. coli* TMDL Report). IDEM will use the geometric mean of each sampling location to determine the reduction necessary to comply with WQS at each site (Table 4 of the West Fork Whitewater River Watershed *E. coli* TMDL Report and Table 2 below).

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of 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:

Wasteload Allocation (WLA):

The WLA for all dischargers 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.

NPDES permits:

Fourteen (14) of the seventeen (17) permitted dischargers in the West Fork Whitewater River Watershed, have a sanitary component to their discharge and have *E. coli* limits in their permits.

Hagerstown STP, Centerville Municipal WWTP, Stuckey's Restaurant, Centerville Rest Area, Connersville Municipal STP, Crazy D's Truck Plaza, Len-Del MHP, McDonald's #0881, Laurel Municipal WWTP, Hoosier Heartland Travel Center, Greens Fork STP, and Lynn Municipal WWTP all have *E. coli* limits in their permits, and some have Total Residual Chlorine (TRC) limits (Table 2 of the West Fork Whitewater Watershed *E. coli* TMDL Report). IDEM reported that these facilities have no recorded violations that would result in elevated levels of *E. coli* into the receiving stream.

Woodview MHP has both Total Residual Chlorine (TRC) and *E. coli* limits in the current permit. A violation letter was sent by IDEM in February 2006 and again in May 2007 indicating the Woodview MHP was not in compliance for *E. coli*. However, an Agreed Order was issued by IDEM in August 2007 due in part for not being in compliance for *E. coli* for the months of May, June, July, August, September, and October 2005 and other violations not related to *E. coli* from May 2004 through February 2007. The facility was ordered to be in compliance for five consecutive months. The Agreed Order was issued after the 2007 sampling, but not as a result of sampling. Additionally, the owner of the facility stated in a letter from May 2008 that he would have the lagoon portion of his plant pumped out every three months.

Pleasantview Subdivision has both Total Residual Chlorine (TRC) and *E. coli* limits in the current permit. Pleasantview's NPDES permit provided for one year [beginning June 1, 2007] to meet *E. coli* monitoring requirements. On April 13, 2007, Pleasantview WWTP was issued an Agreed Order by IDEM. The Agreed Order was in response to violations of the NPDES permit. Some of these violations were due to non-compliance with overflow events, which impact water quality for *E. coli* in the West Fork Whitewater River. As part of the Agreed Order, Pleasantview WWTP has a Compliance Plan that when completed should stop significant violations of the NPDES permit. The WWTP should not then be a contributor to the WQS violation.

Fountain City WWTP is a Lagoon facility. Monitoring of *E. coli* is required in the current permit cycle to determine if the detention time within the lagoon system is sufficient treatment for *E. coli*.

Two of the remaining dischargers have Total Residual Chlorine (TRC) (Whitewater Industrial Park and Henry County Generating Station) in their permits, but these facilities do not have a sanitary component to their discharge and are not considered a source of *E. coli*.

A summary of NPDES sources, by permit type, is included in Table 2 of the West Fork Whitewater Watershed *E.coli* TMDL Report and Table 2 below.

Table 2: NPDES Facilities with bacteria limits in the West Fork Whitewater Watershed

Facilities with *E. coli* Limits and Total Residual Chlorine

Permit No.	Facility Name	Receiving Waters
IN0022535	Centerville STP	Nolands Fk
IN0032336	Connersville STP	W Fk Whitewater R
IN0038849	Stop-One Truck Plaza (Crazy D's)	Martindale Cr
IN0039560	Woodview MHP	Unnamed trib to Pinhook Drain
IN0043371	Stucky's Restaurant	Unnamed trip to Nolands Fk
IN0044776	Pleasantview Subdivision	Unnamed trib to Williams Cr
IN0051870	Len-Del MHP	Unnamed trip to Franklin Cr
IN0053791	McDonalds #0881	Martindale Cr
IN0061841	Greens Fork STP	Greens Fork Cr

Facilities with *E. coli* limits

Permit No.	Facility Name	Receiving Waters
IN0020010	Hagerstown STP	W Fk Whitewater R
IN0031321	Centerville Rest Area	Unnamed trib to Nolands Fk
IN0040240	Laurel Municipal WWTP	W. Fk Whitewater R
IN0053643	Hoosier Heartland Travel Center	Symons Cr
IN0040967	Lynn Municipal WWTP	Mud Cr

Facilities with Lagoon System

Permit No.	Facility Name	Receiving Waters
IN0040029	Fountain City WWTP	Fountain Cr

There is one MS4 community in the West Fork Whitewater watershed, the City of Connersville (INR040021). 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).

There are two (2) CSO communities in the West Fork Whitewater River Watershed. The City of Connersville has five (5) CSOs and the Town of Centerville has one (1) CSO. A description of outfall locations and receiving waters can be found in Table 5 of the West Fork Whitewater River Watershed *E.coli* TMDL Report. Connersville is in the process of submitting their CSO Long Term Control Plan to IDEM. It was granted an extension until June of 2008 to update its model and alternatives to include sewer separation that will eliminate CSOs 005 and 006. Its model was reviewed by Commonwealth and submitted on 6/27/07. The extension was granted until 06/2008. A meeting was held on 06/23/08 with the Utility Board in order to gain approval of draft LTCP for submittal. IDEM believes that once this permit has been issued and implemented, water quality should improve in the West Fork Whitewater River Watershed. Centerville has submitted their LTCP in May of 2002 and was approved and issued a permit on March 9, 2007 and will be fully implemented by 12/31/2021. IDEM stated that once these permits have been implemented, water quality should improve in the West Fork Whitewater River Watershed.

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of 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:

In Allocation Section of the West Fork Whitewater River Watershed *E. coli* TMDL Report, IDEM stated that an implicit margin of safety was selected for this TMDL by applying a conservative assumption that no rate of decay was used for *E. coli*. 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 Document submitted by IDEM satisfies all requirements of 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:

IDEM addressed the seasonal variation by expressing the TMDL in terms of the *E. coli* Water Quality Standards 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 full body

contact *E. coli* WQS during the remainder of the year in Indiana. Since 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 Document submitted by IDEM satisfies all requirements of 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:

IDEM outlined several Reasonable Assurance activities in the Reasonable Assurances Section of the West Fork Whitewater River Watershed *E.coli* TMDL Report, they are summarized below:

National Pollutant Discharge Elimination System (NPDES) Permitted Dischargers

Fourteen (14) of these seventeen (17) permitted dischargers already have *E. coli* limits in their permits.

Storm Water General Permit Rule 13

IDEM identified the City of Connersville is the only MS4 community in the West Fork Whitewater River Watershed and believes that the implementation of the permit should improve water quality in the West Fork Whitewater River Watershed. 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).

Confined Feeding Operations (CFOs) and Confined Animal Feeding Operations (CAFOs)
CFOs and CAFOs are required to manage manure, litter, and process wastewater pollutants in a manner that does not cause or contribute to the impairment of *E. coli* WQS.

Watershed Projects

There is currently one 319 watershed project in the West Fork Whitewater River Watershed. Wayne County Soil and Water Conservation District has a 319 Project that became active in February 2008 and will be active until August 2011. The watershed project will work on reducing *E. coli* in the watershed by increasing public awareness through education and outreach including but not limited to developing brochures on proper septic system maintenance and repair, and coordinating with the health departments on the status of new and existing septic systems in the watershed. Additionally, in order to increase public participation, they will have newsletters, press releases, and river clean up days. Upon completion of the Watershed Management Plan, the watershed project could be eligible for funding to implement BMPs as recommended in this TMDL. IDEM plans to continue working with the watershed coordinators in the surrounding areas along with local government agencies to encourage interest in watershed projects.

IDEM has a Watershed Specialist assigned 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 West Fork Whitewater River Watershed.

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of this eight element.

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:

In Monitoring Section of the West Fork Whitewater River Watershed *E. coli* TMDL Report, IDEM stated it will monitor the West Fork Whitewater River Watershed on a five 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 the TMDL Document submitted by IDEM satisfies all requirements of this

ninth element.

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:

In the Reasonable Assurance Section of the West Fork Whitewater River Watershed *E. coli* TMDL Report, IDEM discussed the following implementation efforts:

Potential Future Activities

Non-point source pollution, which is the primary cause of *E. coli* impairment in this watershed, can be reduced by the implementation of "best management practices" (BMPs). BMPs are practices used in agriculture, forestry, urban land development, and industry to reduce the potential for damage to natural resources from human activities. A BMP may be structural, that is, something that is built or involves changes in landforms or equipment, or it may be administrative, that is, a specific way of using or handling infrastructure or resources. BMPs should be selected based on the goals of a watershed management plan. Livestock owners, farmers, and urban planners, can implement BMPs outside of a watershed management plan, but the success of BMPs would be enhanced if coordinated as part of a watershed management plan. Following are examples of BMPs that may be used to reduce *E. coli* runoff:

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. No-till helps control soil erosion and improve water quality by maintaining maximum residue plant levels on the soil surface. These plant residues: 1) protect soil particles and applied nutrients and pesticides from detachment by

wind and water; 2) increase infiltration; and 3) reduce the speed at which wind and water move over the soil surface.

Manure Nutrient-Testing - If manure application is desired, sampling and chemical analysis of manure should be performed to determine nutrient content for establishing the proper manure application rate in order to avoid over-application and run-off.

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.

Pet Clean-up / Education - Education programs for pet owners can improve water quality of runoff from urban areas.

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 is not required to and does not approve TMDL implementation plans. EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of this tenth element.

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 30, 2008 to September 5, 2008. A stakeholder/public notification meeting was held on July 30, 2008 at the Cambridge Library, Cambridge City, Indiana to provide an overview of the draft TMDL and provide an opportunity for public comments. Copies of the draft TMDL were posted on the IDEM's Web site at: <http://www.in.gov/idem/4685.htm>. EPA sent in comments on the draft TMDL and IDEM also received comments from two stakeholders. All of the comments were adequately

addressed by IDEM and the copies of the comments and responses were submitted with the West Fork Whitewater River Watershed *E.coli* TMDL.

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of 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 West Fork Whitewater River Watershed *E.coli* TMDL Report on February 20, 2009 accompanied by a submittal letter dated February 13, 2009. In the submittal letter, IDEM stated that the TMDL accompanying the letter is the Final TMDL submission for the State of Indiana for the West Fork Whitewater River Watershed, which is impaired for *E.coli*.

EPA finds that the TMDL Document submitted by IDEM satisfies all requirements of this twelfth element.

13. Conclusion

After a full and complete review, EPA finds that the TMDL submittal for the West Fork Whitewater River Watershed, located in Randolph, Wayne, Henry, Union, Fayette, and Franklin Counties, Indiana, satisfies all of the elements of an approvable TMDL. This approval concerns 23 TMDLs for waterbodies/impairments identified in the Table 1 of the West Fork Whitewater River Watershed *E. coli* TMDL Report, and Table 1 of this decision document. Impairments addressed by these 23 TMDLs are pathogens from the pollutant *E. coli*.

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.