



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

WW-16J

AUG 16 2007

2007 SEP -5 A 8:52

IDEM
OFFICE OF
WATER QUALITY

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

Dear Ms. Renshaw:

The United States Environmental Protection Agency (U.S. EPA) has conducted a complete review of the final Total Maximum Daily Load (TMDL), including supporting documentation and follow up information, for the West Fork White River – Owen County Tributaries Watershed TMDL in Owen, Greene, and Monroe Counties, addressing the *E. coli* impairments in 22 segments as listed in Table 1 of the enclosed decision document. The watershed is located in southwestern Indiana. Based on this review, U.S. EPA has determined that Indiana’s 22 TMDLs will address impairments to the Recreational Designated Use, by reducing *E. coli*, meeting the requirements of Section 303(d) of the Clean Water Act (CWA) and U.S. EPA’s implementing regulations at 40 C.F.R. Part 130. Therefore, U.S. EPA hereby approves Indiana’s TMDLs for the West Fork White River – Owen County Tributaries Watershed for *E. coli*. 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 wish to acknowledge Indiana’s effort in submitting this TMDLs, addressing the Recreational Use impairment, and look forward to future TMDL submissions by the State of Indiana. If you have any questions, please contact Mr. Kevin Pierard, Chief of the Watersheds and Wetlands Branch at 312-886-4448.

Sincerely yours,

Cheryl L. Newton
Acting Director, Water Division

Enclosure

cc: Staci Goodwin, IDEM

11/11/2000

2000-11-11

TMDL: West Fork White River (WFWR) Owen County Tributary Watershed-Owen, Greene, and Monroe Counties, Indiana

Date: AUG 16 2007

**DECISION DOCUMENT FOR APPROVAL OF THE
West Fork White River Owen County Tributary Watershed-Owen, Greene, and Monroe
Counties, Indiana *E. coli* TMDLS.**

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:

The West Fork White River (WFWR) Owen County Tributary watershed is located in southwestern Indiana, and ranges over three counties; 80.31% of the watershed in Owen County, 13.76 % is in Greene County, and 5.93% is in Monroe County. The main stem of this watershed is the WFWR. 22 waterbody segments were listed as impaired on the 2006 303(d) list (Table 1 below). This TMDL report addresses approximately 270 square miles of the WFWR Owen County tributary watershed in Owen, Greene and Monroe Counties where recreational uses are impaired by elevated levels of *E. coli* during the recreational season.

Topography and land use:

The 1992 data showed land use in the WFWR Owen County Tributary Watershed was mainly forest (90.95%) . The remaining land use for the WFWR Owen County tributary watershed consisted of approximately 8.43% agriculture, 0.39 % wetland, 0.13% water, and 0.10% urban. Figure 3 of the TMDL shows the 1992 land use information. The most recent 2006 sampling and 2005 high resolution aerial photographs show no significant change in land use.

Pollutant of concern:

In this TMDL, IDEM has identified 22 segments of the WFWR Owen County Tributary watershed for violations of *E. coli* water quality standards. All of these 22 segments are located in the lower White River Basin in Hydrologic unit code (HUC) 05120202. Table 1 below lists all of the 22 segments for this TMDL.

Pollutant point sources:

As IDEM has indicated, the WFWR Owen County Tributary watershed is impaired by both point and non point sources. The point sources include six NPDES permitted facilities (Table 1 of the TMDL). Five of those six permitted discharges have *E. coli* limits in their permits. The five facilities are: The Uplands Subdivision, McCormick's Creek State Park, Spencer Municipal WWTP, Timber Ridge Camp WWTP, and the McCormick's Creek Elementary School. All five facilities were in compliance at the time of sampling and are not considered a source of the *E. coli* impairment. The Michael and Son Inc. facility does not have *E. coli* or total residual chlorine limits in their permit therefore, no contribution to the sources of *E. coli* in the WFWR Owen County tributary watershed.

There are also no municipal separate storm sewer systems (MS4) or Combined Sewer Overflows (CSO) communities in the WFWR Owen County tributary watershed.

There is one Confined Feeding Operation (CFO) in the WFWR Owen County tributary watershed, Baker Farms. This CFO is considered a Confined Animal Feeding Operation (CAFO) and has a general permit. Baker Farms violated their CAFO permit in 2001. Contaminated run-off from the feedlot was documented flowing alongside a county road and onto a neighbor's property. Recent inspections indicate this problem has been mitigated, therefore, Baker Farms is not considered a significant source for the WFWR Owen County tributary watershed.

Pollutant nonpoint sources: The Source Assessment Section of the TMDL submittal states that IDEM has identified potential nonpoint sources as:

Wildlife – deer, geese, ducks, raccoons, turkey, and other animals.

Septic systems – those septic systems that are not directly discharging to a waterbody, but effluent can still reach the water (i.e., ponding, etc).

Small livestock operations not regulated by CAFO regulations, may be a source of *E. coli*. This would include both the facilities and the related operations such as manure spreading on fields, etc. Some of these facilities are regulated by the State of Indiana. There is one active CFO in WFWR Owen County Tributary watershed located near the junction of the White River and Rattlesnake Creek; however, IDEM has concluded that this facility was operating in compliance with their permit during the sampling period.

Population and growth trends: IDEM noted that there has not been a significant change in land use between 2005 and 2006, based on aerial photo observations.

Priority ranking: This TMDL was prioritized by the IDEM to be completed at this time due to the water quality monitoring schedule. As stated in IDEM's current listing methodology, the TMDL development schedule corresponds with IDEM's basin-rotation water quality monitoring schedule in order to take advantage of all available resources for TMDL development. The basin-rotation schedule will be used unless there is a significant reason to deviate from it. Priority may be upgraded or downgraded depending on designated uses, magnitude of impairment, implementation practices by other interested parties, or availability of new guidance.

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 Numeric Target Sections of the TMDL submittal describes the designated uses and numeric criteria applicable to this watershed.

Use Designation: The designated use for the waterbodies in the WFWR Owen County tributary watershed is for total body contact recreational use during the recreational season, April 1st through October 31st (327 IAC 2-1-6(d)).

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 for these TMDLs is the standard as stated in the previous paragraph, for both the single sample standard and geometric mean standard, which is applicable from April 1st through October 31st. If the numeric standards are met, and the river should meet the assigned designated use (327 IAC 2-1-6(d)).

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: IDEM has determined that the loading capacity for *E. coli* for the impaired waterbodies is the *E. coli* 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 single day standard (Page 8 of the TMDL). 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.

Typically loading capacities are expressed as a mass per time (e.g. pounds per day). For *E. coli*, however, states often use concentration to measure loading capacity rather than mass per time, 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 WFWR Owen County tributary 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.

Method for cause and effect relationship: The load duration curve (LDC) approach was used for developing this TMDL, with an explanation found in the Linkage Analysis and *E. coli* Load Duration Curves and Precipitation Graph Sections. A very simplified explanation is provided below.

1. Flow data - First, continuous flow data are required, and are provided by two USGS gages that could be representative for the WFWR Owen County Tributary watershed. One USGS gage (03357000) is located in Spencer, Indiana and the other USGS gage (03360500) is located in Newberry, Indiana. The Spencer gage has not been active since 1971; therefore, the Newberry gage was used for the development of the *E. coli* load duration curve analysis for the WFWR Owen County Tributary watershed TMDL. The Newberry USGS gage (03360500) is located on the White River in Greene County.
2. Water Quality data – The target load curve was created using flow data from 1928 to the present.
3. Load Duration Curves (Attachment B of the TMDL submittal) - The final step is to link the geographic locations of load reductions needed to the flow conditions under which the exceedences occur. Specific locations contributing to *E. coli*, represented by

the graphs, are identified to determine under what flow conditions the *E. coli* exceedences are occurring. Most of the LDCs in Attachment B of the TMDL show that the greatest exceedences occur during the wet weather events. Dry weather also contributes source of *E. coli* to the WFWR Owen County Tributary watershed. By knowing the flow conditions under which exceedences are occurring, IDEM can focus implementation activities on those sources most likely to contribute loads.

The TMDL submittal presents 5 LDCs for the WFWR Owen County Tributary watershed. IDEM believes that these 5 sites best represent the loads and sources in the watershed.

IDEM's *E. coli* TMDL approach is based upon the premise that all discharges (point and non-point) must meet the WQS when entering the waterbody. If all sources are meeting the WQS at discharge, then the waterbody should meet the WQS and the designated use. The plots show under what flow conditions the water quality exceedences occur. Those exceedences at the right side of the graph occur during low flow conditions, suspected to be septic systems malfunctions and illicit sewer connections; exceedences on the left side of the graphs occur during higher flow events, such as storm runoff. IDEM has reviewed these load duration curves, and believes that *E. coli* sources are attributed to both wet-weather (non-point) and dry-weather (point) events.

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

The load duration curve is a cost-effective TMDL approach, to address the reductions necessary to meet WQS for *E. coli* bacteria. The approach also aids in sharing the responsibility for *E. coli* reductions among various stakeholders in the TMDL watershed, which encourages collective implementation efforts.

Weaknesses of the TMDL analysis are that load allocations were not assigned to specific sources within the watershed, and the identified sources of *E. coli* were assumed based on the data collected in the watershed, rather than determined by detailed monitoring and sampling efforts. Moreover, specific source reductions were not quantified. However, EPA believes the strengths of the State's proposed TMDL approach outweigh the weaknesses and that this methodology is appropriate based upon the information available. In the event that *E. coli* levels do not meet WQs in response to implementation efforts described in the TMDL submittal (Pages 10-12 of the TMDL), the TMDL strategy may be amended as new information on the watershed is developed, to better account for contributing sources of the impairment and to determine where reductions in the WFWR Owen County Tributary watershed are most appropriate.

Critical conditions: IDEM has determined that there is no single critical condition for this TMDL that will assure attainment of WQs (page 6-7 of the TMDL). The critical condition for pollutant loadings is mainly under wet conditions, which would generally be in the spring and during storm events. Under these conditions, the impairments are due to run-off events from farm fields, tile

drainage, and near-stream pasturing. However, there is not enough data to determine if exceedences are occurring during the lower flow regimes, and IDEM believes it is very likely that exceedences are also occurring during dry conditions, due to septic discharge, wildlife, and domestic animals in the streams, all of which are not related to run-off.

By using the LDC method, all these "critical conditions" are accounted for in the loading allocations. IDEM will be able to determine which flow regime (dry, moist, wet, etc.) is best targeted for implementation activities. U.S. EPA agrees with this assessment.

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 Sections of the TMDL submittal states that the load allocation for the segments in the watershed is equal to the Water Quality Standard: *E. coli* may not exceed 125/100 ml (geometric mean of 5 samples equally spaced over a 30 day period), nor exceed 235/100ml (1 sample in a 30 day period), from April 1st through October 31st. IDEM did not determine LAs and related reductions for land use types or source categories; rather, the reductions are based upon the geographical location. IDEM did not determine a natural background load; however, impacts from wildlife were considered as a source. Currently, there is one watershed project going on in the WFWR Owen County tributary watershed. It is anticipated that watershed projects will be useful to define and address the nonpoint sources of *E. coli* in the WFWR Owen County tributary watershed.

IDEM calculated the geometric means and reductions needed for each sampling site in the watershed (Attachment C of the TMDL). As previously discussed, IDEM developed load duration curves (LDCs) for the WFWR Owen County Tributary watershed. These LDCs can be used to determine a daily mass loading, if needed. The daily mass loading will vary depending on stream flow. These curves will be used by IDEM to target those critical flow regimes for implementation (Page 8 of the TMDL), and to determine the reduction needed for each sampling site in the watershed (Attachment B of the TMDL). Thus, rather than determine reductions based upon land use types or source categories, the reductions are based upon geographical location.

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

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h),

40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

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

Comment:

Wasteload Allocation: Wasteload allocations are discussed in the Wasteload Allocation Section and the Reasonable Assurance Activities Section of the TMDL submittal. The wasteload allocation for all facilities subject to NPDES regulation is equal to the Water Quality Standard: 125 cfu/100ml (geometric mean of 5 samples equally spaced over a 30 day period), nor exceed 235 cfu/100ml (1 sample in a 30 day period), from April 1st through October 31st. The TMDL submittal indicates there are six permitted dischargers in the WFWR Owen County tributary watershed. Five of the six permitted dischargers have a sanitary component to their discharge (the Uplands Subdivision, McCormick's Creek State Park, McCormick's Creek Elementary School, Spencer Municipal WFWR, and Timber Ridge Camp WWTP). The one NPDES facility without a sanitary component is Michael & Son, Inc.

IDEM indicated that there are no MS4 or CSO communities in the WFWR Owen County tributary watershed. The WLA for CFO's and straight pipes is set at zero. Discharge from these sources is not permitted.

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

6. Margin of Safety (MOS)

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

Comment:

The Margin of Safety Section of the submittal states that there is an implicit margin of safety because no rate of decay was used in calculations or in load duration curves for the *E. coli*. Since *E. coli* bacteria have a limited capability of surviving outside their hosts; a rate of decay would normally be used. However, it was determined by IDEM that it is more conservative to use the water quality standard of 125/100ml *E. coli*, and not to apply a rate of decay which 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 and degree of these environmental variables were sufficient enough to meet the WQS of 125 cfu/100 ml and 235 cfu/100ml. This is why it is more conservative to apply the State's water quality standard as the margin of safety, because this standard must be met at all times under all environmental conditions.

EPA finds that the TMDL submittal from IDEM 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:

The Seasonality Section of the TMDL addresses seasonality by using WQS for total body contact during the recreational season (April 1st through October 31st) defined previously. Any high or low flows are addressed within the TMDL because this is a concentration-based TMDL, and IDEM has analyzed impacts based upon the LDC method, which accounts for seasonal variations in flows and thus in loads. Therefore all the standards will be met regardless of the season or flow events.

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:

There are several reasonable assurance actions that will be taken to help implement the TMDL. They are in the Reasonable Assurance Activities Section of the TMDL submittal and include, briefly:

- Five of the total six NPDES permitted facilities in this sub-watershed contain a sanitary component in their discharge. All of the facilities were in compliance during the sampling period and are not considered a significant source of *E. coli*.
- CFO and CAFO management of manure, litter, and process wastewater;
- Watershed projects – IDEM has hired a Watershed Specialist as a liaison between planning and activities in the WFWR Owen County Tributary watershed.
- A TMDL has been approved for the Middle WFWR. The high *E. coli* levels along the Middle WFWR prompted this TMDL on the tributaries flowing into the WFWR. The findings from the original TMDL are consistent with this TMDL.

EPA finds that this criterion has been adequately addressed.

9. Monitoring Plan to Track TMDL Effectiveness

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

Comment:

The Monitoring Section of the TMDL submittal states that monitoring will take place on the 5-year rotating basin schedule or when some of the TMDL implementation methods are in place. Monitoring will be adjusted as needed for continued source identification and elimination. IDEM will monitor at an appropriate frequency to determine 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:

Implementation is discussed in the Reasonable Assurance Section of the TMDL submittal. There are a number of programs that are funding activities in the watershed. The Potential Future Activities Section of the TMDL submittal is focused on a variety of BMPs that may be applied to the watershed, such as; riparian area management, manure collection and storage, contour row crops, no-Till Farming, manure nutrient-testing, drift fences, pet clean-up and education, septic management and public education. The Owen County Soil and Water Conservation District has received a 319 grant to hire a watershed coordinator to work on a detailed watershed management plan. This watershed plan will focus on the north east portion of the WFWR Owen County Tributary watershed. 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 WFWR Owen County Tributary watershed.

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:

IDEM public noticed this TMDL from April 11, 2007 to May 11, 2007, to provide an overview of the draft TMDL and an opportunity for public comments. The stakeholder meeting on the draft WFWR Owen County Tributary Watershed TMDL was held on April 25, 2007, at the McCormick's Creek Nature Center, located at 250 McCormick's Creek Park Road, Spencer,

Indiana. The draft TMDL was posted on April 11, 2007, on IDEM 's Web Site at: <http://www.in.gov/idem/programs/water/tmdl/documents.html>. U.S. EPA sent IDEM comments on the draft TMDL, and the comments were adequately addressed in the final TMDL. No other comments were received.

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 WFWR Owen County Tributary Watershed TMDL on June 26, 2007, accompanied by a submittal letter. In the submittal letter, IDEM stated this TMDL is "the final TMDL submission from the State of Indiana for the WFWR Owen County Tributary Watershed". The transmittal letter contained 15 segments for approval, but the final (and draft) TMDL submittal contained 22 segments as listed below in Table 1. IDEM stated that the letter was in error, and should have had the 22 segments listed (conversation record dated 8/1/07). The WFWR Owen County Tributary Watershed TMDL addresses the impaired recreational use due to excessive *E. coli*. This TMDL is being submitted per the requirement under Section 303 (d) of the Clean Water Act and 40 CFR 130.

13. Conclusion

After a full and complete review, EPA finds that the TMDLs for the West Fork White River Owen County Tributary Watershed satisfy all of the elements of approvable TMDLs. This approval is for 22 TMDLs addressing 22 waterbodies, for one pollutant each, addressing a total of 22 impairments.

U.S. EPA's approval of these TMDLs extends to the water bodies which are identified in Table 1 of this decision document, with the exception of any portions of the water bodies that are within Indian Country, as defined in 18 U.S.C. Section 1151. U.S. EPA is taking no action to approve or disapprove TMDLs for those waters at this time. U.S. EPA, or eligible Indian Tribes, as appropriate, will retain responsibilities under the CWA Section 303(d) for those waters.

Table 1

Waterbody Name	Segment ID	Length (miles)	Impairment
Big Creek/Limestone Creek Tributaries	INW0221_00	11.28	<i>E. coli</i>
Mill Creek-Little Mill Creek	INW0222_00	14.60	<i>E. coli</i>
Fall Creek and other Tributaries	INW0223_00	3.30	<i>E. coli</i>
McCormicks Creek	INW0223_T1018	7.08	<i>E. coli</i>
Spencer Tributaries	INW0224_00	5.72	<i>E. coli</i>
Rattlesnake Creek	INW0225_00	8.37	<i>E. coli</i>
Rattlesnake Creek	INW0225_T1059	3.32	<i>E. coli</i>
Mills Creek/Goose Creek Tributaries	INW0226_00	6.42	<i>E. coli</i>
Raccoon Creek- Little Raccoon Creek	INW0227_00	9.84	<i>E. coli</i>
Raccoon Creek-lick Creek	INW0228_00	14.99	<i>E. coli</i>
Jack Creek	INW0229_00	4.93	<i>E. coli</i>
East fork fish creek	INW022A_00	4.71	<i>E. coli</i>
East fork fish creek	INW022A_T1025	3.45	<i>E. coli</i>
West fork fish creek	INW022B_00	4.92	<i>E. coli</i>
Fish Creek	INW022C_00	2.55	<i>E. coli</i>
Sand lick creek	INW022C_T1001	4.68	<i>E. coli</i>
Fish creek	INW022D_00	4.22	<i>E. coli</i>
West fork creek	INW022D_T1001	2.66	<i>E. coli</i>
Fish Creek-unnamed tributary	INW022D_T1002	1.91	<i>E. coli</i>
Fisk Creek	INW022E_00	5.57	<i>E. coli</i>
Mack Creek	INW022E_T1001	3.32	<i>E. coli</i>
Buckhall Creek/Goose Creek tributaries	INW022F_00	9.98	<i>E. coli</i>

