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

REPLY TO THE ATTENTION OF
WW-16J

JUL 21 2005

Ms. Martha Clark Mettler
Indiana Department of Environmental Management
100 N. Senate Ave.
P.O. Box 6015
Indianapolis, IN 46206

Dear Ms. Clark Mettler:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the final Total Maximum Daily Loads (TMDLs) for the Middle West Fork White River Watershed in Indiana. The segments also include East Grassy Fork Clear Creek, West Grassy Fork Clear Creek, Sycamore Creek, Highland Creek, McCormicks Creek, Rattlesnake Creek, East Fork Fish Creek, Fish Creek, Raccoon Creek - Little Raccoon Creek, and Raccoon Creek - Lick Creek. The Indiana Department of Environmental Management's (IDEM's) TMDLs address the *E. coli* impairment of recreational use in Morgan, Owen, and Greene Counties. Based on this review, U.S. EPA has determined that Indiana's twenty-nine TMDLs for *E. coli* meet 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, U.S. EPA hereby approves twenty-nine TMDLs for the Middle West Fork White River Watershed in Indiana. 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 these TMDLs, addressing twenty-nine *E. coli* impairments, 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,

A handwritten signature in black ink, appearing to read "Jo Lynn Traub".

Jo Lynn Traub
Director, Water Division

Enclosure
cc: Andrew Pellosso, IDEM



TMDL: Middle West Fork White River, Indiana

Date:

DECISION DOCUMENT FOR APPROVAL OF THE MIDDLE WEST FORK WHITE RIVER WATERSHED, INDIANA, TMDL

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 Background Section of the TMDL submittal describes the location of the impaired segments addressed in this TMDL. The portion of the Middle West Fork White River (MWFWR) Watershed covered by the TMDL submittal is located in south-central Indiana in Morgan, Owen, and Greene Counties. The watershed drains approximately 180.16 square miles. The TMDL was developed on a watershed scale and the resultant TMDL allocations include 29 segments in two hydrologic units, 05120201 and 05120202. These segments are listed in the table on the following page (Indiana ID # 133, 152, 154, 155, 367, 499, 500, and 501). The Indiana 303(d) list states that the designated use for these segments is recreation, and that they are impaired for *E. coli* (and other pollutants not covered in this TMDL submittal).

The table on the following page is a subset of that found on page 2 of the TMDL submittal, noting that this table only lists the *E. coli* impairments and not the other pollutants that were sampled and measured. The listing of these segments was based on historical data from 1991 to 1996 and intensive surveys by the IDEM in 30-day intervals in three different months in 2001. Other entities had also sampled and found fecal coliform or *E. coli* impairment from 1996 through 2004.

Topography and Land Use: The land use is described in the Watershed Characterization Section as 53% forested, 45% agriculture, and 2% developed from a mid-1970's survey. In 1992, the change was small, with the same percentage forested, 41% agriculture, 1% developed, and 5% palustrine wetlands.

Pollutant of concern: IDEM has identified twenty-nine segments of the Middle West Fork White River as impaired on Indiana's 1998, 2002, and 2004 section 303(d) list for violations of *E. coli* water quality standards. Impairments not addressed in this TMDL include cyanide, impaired biotic communities, and fish consumption advisories for PCBs and mercury.

(Subset of Table found on page 2 of TMDL submittal)

| Waterbody Name | 303(d) List ID | Segment ID Number(s) | Length (miles) | Impairment |
|----------------|----------------|----------------------|----------------|------------|
|----------------|----------------|----------------------|----------------|------------|

| | | | | |
|--|-----|---|-------|----------------|
| Clear Creek- East/West/Grassy Forks | 152 | INW01EE_00 | 17.23 | <i>E. coli</i> |
| Sycamore Creek | 152 | INW01G2_00 | 13.36 | <i>E. coli</i> |
| Highland Creek | 152 | INW01G3_00 | 4.37 | <i>E. coli</i> |
| White River (West Fork) | 152 | INW01G6_M1094 | 8.95 | <i>E. coli</i> |
| White River (West Fork) | 152 | INW01G1_M1092, INW01G3_M1093, INW01J6_M1105, INW01J9_M1106 | 13.17 | <i>E. coli</i> |
| White River (West Fork) – Paragon Bridge | 152 | INW01J3_M1104 | 6.06 | <i>E. coli</i> |
| White River (West Fork) | 154 | INW01E3_M1079 | 8.44 | <i>E. coli</i> |
| White River (West Fork) | 154 | INW01E4_M1080, INW01E6_M1081 | 7.26 | <i>E. coli</i> |
| White River (West Fork) – Henderson Bridge | 154 | INW01ED_M1082 | 3.90 | <i>E. coli</i> |
| White River (West Fork) | 155 | INW0244_M1011 | 7.17 | <i>E. coli</i> |
| White River (West Fork) | 155 | INW0221_M1009, INW0223_M1010, INW0266_M1012, INW0229_M1013, INW022F_M1061 | 26.29 | <i>E. coli</i> |
| McCormicks Creek | 133 | INW0223_T1018 | 7.08 | <i>E. coli</i> |
| Rattlesnake Creek | 367 | INW0225_T1059 | 3.37 | |
| Rattlesnake Creek | 500 | INW0225_00 | 8.33 | <i>E. coli</i> |
| East Fork Fish Creek | 499 | INW022A_00, INW022A_T1025 | 8.17 | <i>E. coli</i> |
| Fish Creek | 499 | INW022C_00, INW022D_00, INW022E_00 | 25.44 | <i>E. coli</i> |
| Raccoon Creek-Little Raccoon Creek | 501 | INW0227_00 | 9.84 | <i>E. coli</i> |
| Raccoon Creek-Lick Creek | 501 | INW0228_00 | 14.99 | <i>E. coli</i> |

Pollutant point sources: The impairments due to *E. coli* from point sources are discussed in the NPDES Section of the TMDL submittal.

- Table 1 of the TMDL, shown below, lists the National Pollutant Discharge Elimination System (NPDES) permits in the watershed and provides the permit ID numbers; 21 facilities discharge to the MFWFR or one of its tributaries, of which the first 6 have *E. coli* limits.

Table 1: NPDES Permits in the Middle West Fork White River Watershed

Facilities with *E. coli* Limits

| Permit No. | Facility Name | Receiving Waters |
|------------|--|-----------------------|
| IN0020303 | Martinsville Municipal STP | West Fork White River |
| IN0040479 | Paragon Municipal STP | West Fork White River |
| IN0059871 | The Uplands Subdivision | Unnamed Tributary |
| IN0060577 | McCormick's Creek Elementary School | McCormicks Creek |

| | | |
|-----------|-----------------------------|--|
| IN0060640 | Town of Monrovia Wastewater | Unnamed Tributary to Sycamore Creek |
| IN0040088 | Gosport Municipal STP | West Fork White River |

Facilities with Total Residual Chlorine Limits

| Permit No. | Facility Name | Receiving Waters |
|------------|--------------------------------------|-----------------------|
| IN0020192 | Spencer Municipal STP | West Fork White River |
| IN0030830 | Monrovia Elementary & High School | Sycamore Creek |
| IN0038466 | Timber Ridge Camp | McBride Branch Creek |
| IN0045446 | Bradford Woods Camping Area | Sycamore Creek |
| IN0049361 | Mapleturn Utilities WWTP | West Fork White River |
| IN0057487 | Rolling Vista Estates WWTP | Unnamed Ditch |
| IN0109967 | Highland Lakes Baptist Center | Highland Creek |
| IN0030201 | McCormick's Creek State Park | West Fork White River |
| IN0039772 | Brooklyn Municipal STP | White Lick Creek |
| IN0052256 | Wildwood Shores Development | West Fork White River |

Facilities with no Total Residual Chlorine or *E. coli* Limits

| Permit No. | Facility Name | Receiving Waters |
|------------|-------------------------------|--------------------------------------|
| IN0005045 | Hydraulic Press Brick Company | White Lick Creek |
| IN0004693 | IPALCO, Eagle Valley Station | West Fork White River |
| IN0051993 | Morgan County Rural Water Co. | West Fork White River |
| ING080152 | Marathon-Tobacco Road | Spring Lake to West Fork White River |
| INP000158 | Linel Signature | N/A |

- ☐ There are three municipal separate storm sewer systems (MS4) communities in the watershed, Martinsville, Indianapolis, and Morgan County.
- ☐ Confined Feeding Operations (CFOs) and Concentrated Animal Feeding Operations (CAFOs): there are no CAFOs and 2 CFOs in the study area. The CFOs are the Dan Ennis and Baker Farms. The CFOs and CAFO regulations (327 IAC 16,327 IAC 15) require that operations "not cause or contribute to an impairment of surface waters of the state." The currently active animal operations in the watershed have no open enforcement actions at this time so they are not considered a source of *E. coli* by the State. However, small operations that are not regulated may be a source of *E. coli* impairment as listed in the next nonpoint source section.

Pollutant nonpoint sources: The Source Assessment Section of the TMDL submittal states that the nonpoint sources are:

- ☐ Wildlife – deer, geese, ducks, raccoons, turkey, and other animals
- ☒ Septic systems – average failure rate of 10-20% (personal communication between IDEM and Owen County Health Department, September 2004)
- ☐ Small livestock operations not regulated by CFO or CAFO regulations, may be a source of *E. coli*

Population and growth trends: Land use changed little between the 1970s and 1992 land surveys. The State does not anticipate dramatic changes in the near future.

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) B 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 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 Middle West Fork White River watershed is for total body contact recreational use during the recreational season, April 1st through October 31st (327 IAC 2-1-6(d)).

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 substances that are harmful to human, animal or aquatic life. (327 IAC 2-1-6)

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: *AE. 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: 1The target 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, the narrative criteria should be met, and the river should be free

from an excess of substances that are harmful to human, animal or aquatic life. (327 IAC 2-1-6)

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 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: The load duration curve approach was used for developing this TMDL, with an explanation found in the Linkage Analysis and Load Duration Curves Section. A very simplified explanation is provided below.

1. Flow data - First, continuous flow data are required, and are provided by U.S. Geological Survey (USGS) gage 03354000 located near Centerton, Indiana, on the West Fork White River in Morgan County. The data reflect a range of natural occurrences from extremely high flows to extremely low flows.
2. Water Quality data - This dataset is the monitored *E. coli* data.
3. Water Quality Duration Curves (Attachment C of the TMDL submittal) – These plots

are derived from the flow data and water quality data described above. Existing monitored water pollutant loads, represented by the diamond-shaped points on the plot, are compared to target loads, the water quality standard line. If the target line is below (less than) the existing loads, no reduction needs to occur. Conversely, if the existing loads are greater than the target load, a reduction is necessary to reach the target.

4. Load Duration Curves (Attachment D of the TMDL submittal) - The final step is to link the locations of load reductions needed to the conditions under which the exceedences occur. Specific locations contributing to *E. coli*, represented by the points, are plotted to determine which sites contribute to the loads for site SR 39 Bridge, WWU160-0004. The points show exceedences above the target at all flow conditions, so many sites would have to be addressed by reducing the load. Site SR 43 & 46 Bridge at the south edge of Spencer shows that most of the exceedences above the target line occur during high, moist, or mid-range flow conditions on the left portion of the curve. Therefore, the State can focus its implementation efforts at the locations that contribute greatest load during wet weather conditions.

IDEM's pathogen 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 (nonpoint) 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 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 municipalities in the TMDL watershed, which encourages collective implementation efforts. IDEM has incorporated recent data (2004) providing a more focused assessment of *E. coli* exceedences in the watershed, determining where load reductions are most appropriate in the Middle West Fork White River watershed.

Weaknesses of the TMDL analysis are that Non-Point Source (NPS) 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 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 WQSs in response to implementation efforts described in the TMDL submittal (Pages 11 - 12), 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 Middle West Fork White River watershed are most appropriate.

Critical conditions: the load duration curve represents pollutants during both dry periods and wet weather events. Both of these conditions are critical for the conceptual model in describing how the pollutants behave in a natural environment and both were considered when developing the curve. The TMDL, however, is not load based, but rather concentration based, and the load is equal to the geometric mean *E. coli* levels for each month of 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 Section of the TMDL submittal states that the load allocation is equal to the Water Quality Standard: *E. coli* may not exceed 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), from April 1st through October 31st.

An 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. This shows 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 watershed. This method alleviates problems with perceived unfair reduction burdens expected from each local government. Table 3 in the TMDL submittal, hereby incorporated by reference, is the land area distribution by township and percentages in the watershed. The table indicates which townships will be responsible for reductions in direct proportion to their percentage of total land. Overall, Washington Township in Owen County has 8.91% of the land and Washington Township in Morgan County has 8.15%, representing the greatest percentages. The other townships' land area distributions range from 6.61% to 0.19%, with 36 total townships encompassing 533.82 square miles.

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 is equal to the Water Quality Standard: 125/100ml (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), from April 1st through October 31st.

These standards apply to the six NPDES locations listed previously in Table 1, and in the future there will be a recommendation from IDEM's TMDL program to add *E. coli* limits to ten more facilities during the next permit renewal period. The three MS4 communities of Martinsville, Indianapolis, and Morgan County do not have finalized stormwater permits, but are in the process of getting issued and implemented. CFO and CAFO facilities 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.

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 pathogens. Since pathogenic organisms 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.

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 and low flows are addressed within the TMDL because this is a concentration-based TMDL. 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:

- ☒ Future NPDES permit renewals will have *E. coli* limits and monitoring;
- ☐ Storm Water General Permit Rule 13 – there are three MS4 communities in the watershed.

Permits for storm water with *E. coli* limits will improve water quality. Guidelines are found in Rule 13 (327 IAC 15-13-10 and 327 IAC 15-13-11);

- ☐ CFO and CAFO management of manure, litter, and process wastewater;
- ☐ Watershed projects – there are no-till practices, watershed plans for several watersheds, 319 grants, and the hiring of a Watershed Specialist as a liaison between planning and activities.
 - The use of no-till practices has increased in the watershed between 1997 and 2004 (personal communication between IDEM and Indiana Department of Natural Resources). This practice includes no tilling before or after planting, which increases plant residues on the field and reduces wind and water erosion, catches snow, conserves soil and water, protects water quality, preserves wildlife habitat, increases infiltration and decreases wind and water speed over the soil surface;
 - The Morgan County Watershed Initiative (MCWI) has completed watershed plans for many watersheds in the area, including the White River. The 319 grants are supporting both the management plans and their implementation. Another 319 grant is awarded to the Hoosier Environmental Council for a watershed management plan; and
- ☐ TMDLs completed and implemented in other portions of the watershed can contribute to the water quality of this watershed.

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 occur on the 5-year rotating basin schedule or when some of the TMDL implementation is in place. Monitoring will be adjusted as needed for continued source identification and determination 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 Watershed Projects Section of the TMDL submittal. As discussed in Section 8 of this document, the MCWI has completed watershed plans for many watersheds in the area, including the White River. The 319 grants are supporting both the management plans and their implementation. Another 319 grant was awarded to the Hoosier Environmental Council for a watershed management plan. The Potential Future Activities Section of the TMDL submittal is focused on BMPs, riparian area management, manure collection and storage, contour row crops, manure nutrient-testing, drift fences, pet clean-up and education, and septic management and public education.

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, 2005 to May 11, 2005, to provide an overview of the draft TMDL and provide an opportunity for public comments. There were two stakeholder meetings previous to that date in September and October of 2004, one as a kick off meeting to introduce the stakeholders to the project, and the second meeting topic was data collection. The most recent stakeholder meeting took place on April 20, 2005, at the Owen County Public Library, located at 10 S. Montgomery Street in Spencer, Indiana. The presentations for all the public meetings were included in the final TMDL submittal. The draft TMDL was posted at: <http://www.in.gov/idem/water/planbr/wqs/tmdl/finaldraft/midwfwr/revmidwfwrtmdl.doc>, the IDEM's Web site. 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 Middle West Fork White River TMDL on June 1, 2005, accompanied by a submittal letter dated May 25, 2005. In the submittal letter, IDEM stated this TMDL is "the Final TMDL submission from the State of Indiana." Twenty-nine segments are addressed in the TMDL, 303 ID # 133, 152, 154, 155, 367, 499, 500, and 501. The Middle West Fork White River is impaired for Recreational Use on Indiana=s 303(d) list due to *E. coli*.

13. Conclusion

After a full and complete review, EPA finds that the IDEM submittal allocates loads for a total of 29 TMDLs for the Middle West Fork White River, 303(d) list ID #133, 152, 154, 155, 367, 499, 500, and 501. The allocations satisfy all of the elements of an approvable TMDL. This approval concerns the waterbody segments, pollutants, and impairments set forth in Table 1 in Section 1 of this document and shown below. Impairments addressed in this TMDL are from the pollutant *E. coli*.

| Waterbody Name | 303(d) List ID | Segment ID Number(s) | Length (miles) | Impairment |
|--|----------------|---|----------------|----------------|
| Clear Creek-East/West/Grassy Forks | 152 | INW01EE_00 | 17.23 | <i>E. coli</i> |
| Sycamore Creek | 152 | INW01G2_00 | 13.36 | <i>E. coli</i> |
| Highland Creek | 152 | INW01G3_00 | 4.37 | <i>E. coli</i> |
| White River (West Fork) | 152 | INW01G6_M1094 | 8.95 | <i>E. coli</i> |
| White River (West Fork) | 152 | INW01G1_M1092, INW01G3_M1093, INW01J6_M1105, INW01J9_M1106 | 13.17 | <i>E. coli</i> |
| White River (West Fork) – Paragon Bridge | 152 | INW01J3_M1104 | 6.06 | <i>E. coli</i> |
| White River (West Fork) | 154 | INW01E3_M1079 | 8.44 | <i>E. coli</i> |
| White River (West Fork) | 154 | INW01E4_M1080, INW01E6_M1081 | 7.26 | <i>E. coli</i> |
| White River (West Fork) – Henderson Bridge | 154 | INW01ED_M1082 | 3.90 | <i>E. coli</i> |
| White River (West Fork) | 155 | INW0244_M1011 | 7.17 | <i>E. coli</i> |
| White River (West Fork) | 155 | INW0221_M1009, INW0223_M1010, INW0266_M1012, INW0229_M1013, INW022F_M1061 | 26.29 | <i>E. coli</i> |
| McCormicks Creek | 133 | INW0223_T1018 | 7.08 | <i>E. coli</i> |

| | | | | |
|--|-----|---------------------------------------|-------|----------------|
| Rattlesnake Creek | 367 | INW0225 T1059 | 3.37 | |
| Rattlesnake Creek | 500 | INW0225_00 | 8.33 | <i>E. coli</i> |
| East Fork Fish Creek | 499 | INW022A_00, INW022A T1025 | 8.17 | <i>E. coli</i> |
| Fish Creek | 499 | INW022C_00, INW022D_00, INW022E_00 | 25.44 | <i>E. coli</i> |
| Raccoon Creek- Little Raccoon Creek | 501 | INW0227_00 | 9.84 | <i>E. coli</i> |
| Raccoon Creek-Lick Creek | 501 | INW0228_00 | 14.99 | <i>E. coli</i> |